Appendix A

INITIAL STUDY

FOR

Banning Distribution Center

Prepared for:

City of Banning
99 E. Ramsey Street
Banning, CA 92220
Contact:
(951) 922-3130

Prepared by:

Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506
Contact: Stephanie Standerfer
Vice President
(951) 686-1070

January 22, 2018

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ENVIRONMENTAL CHECKLIST FORM

1. Project title: Banning Distribution Center
(GPA 17-2501; ZC 17-3501; DR 16-7002; ENV 16-1503)

2. Lead agency name and address:
City of Banning
99 E. Ramsey Street
Banning, CA 92220
(951) 922-3130

3. Contact person email address and phone number:
Patty Nevins, Community Development Director
pnevins@ci.banning.ca.us
(951) 922-3131

4. Project location: No address has been assigned to the property. It is north and east of the Banning Airport, south of the Union Pacific Railroad line and Interstate 10, Banning, CA 92220 **(See Figure 1 – Project Vicinity)**

- APN: 532-110-006, 532-130-001, and 532-130-002
- Tentative Parcel Map 34335

5. Project sponsor's name and address:
Banning Industrial, LP
17842 Mitchell North, Suite 100
Irvine, Ca. 92614
(949) 474-2000

6. General plan designation: Existing - Airport Industrial (AI) and Public Facilities – Airport (PF-A)
Proposed: Airport Industrial (AI)

7. Zoning: Existing: AI, PF-A.
Proposed: AI

8. Project Description:

The proposed Banning Distribution Center (herein after "proposed Project or Project") consists of three parcels, which are currently undeveloped and vacant. The proposed Project entitlements include a General Plan Amendment and Zone Change. The three parcels are part of a previously approved single tentative parcel map (TPM 34335). TPM 34335 was set to expire in 2017; it was extended until October 22, 2018 at the November 14, 2017 City Council meeting.

General Plan Land Use and Zoning designations at the site are both AI and PF-A (**See Figure 2 – General Plan Land Use Designation)**. Concurrent to the preparation of the Initial Study, a General Plan Amendment (GPA) and Zone Change (ZC) are being submitted to the City of Banning, changing the land use and zoning of PF-A to AI on a portion of the subject site. The site plan submittal dated November 17, 2017 for the proposed Project shows parking and a detention basin on the area presently designated as PF-A (**Figure 5 – Site Plan**).

The Project site is relatively flat, consists of approximately 63.9 acres, and is located to the north and east of, and directly adjacent to, the Banning Airport in the City of Banning, California (**Figure 3 – Project Site**, **Figure 4 – USGS Map**). South of the airport, land use is zoned Industrial (I) and Very Low Density Residential (VLDR). To the west of the airport at the extension of John Street, land use is zoned Airport Industrial and Industrial. Land uses include a plastic fabrication business, a small multi-tenant industrial park, automotive repair and scattered residential uses. Interstate Highway 10 and a Union Pacific Railroad line are located to the north of the site and the Morongo Indian Reservation is located directly east of the site.

The proposed Project involves development of a non-refrigerated high-cube warehouse building and offsite improvements with 990,000 square feet of warehouse space; 10,000 square feet of office space; 321 truck and trailer parking spaces; 166 automobile parking spaces, eight Americans with Disabilities (ADA) parking spaces and 205 loading docks that will have lighting pursuant to Chapter 17.12.170 of the City of Banning's Zoning Ordinance (**Figure 5 – Site Plan**). An existing rail line is located to the north of the Project site parallel to Interstate 10 and in the future if a specific user is identified, a rail spur could be constructed to serve the Project site. However, at this time, no rail spur is being proposed or analyzed as part of this Project.

Given the proximity to the Banning Airport, the Project is located within the Banning Municipal Airport overlay zones B1, B2, and D. The Project requires Airport Land Use Commission (ALUC) review, which occurred in March 2017. Airport Overlay Zone B1 is the "Inner Approach/Departure Zone". Objects taller than 35 feet within this zone require an airspace review and an aviation easement dedication. Per ALUC's development review, proposed buildings and associated structures on this site cannot be taller than 47 feet above ground level, or a maximum elevation of 2,208 feet above mean sea level. The proposed building is 46.6' high for a maximum elevation of 2,191 feet above mean sea level.

The offsite improvements involved in the Project include paving and improving of John Street, a dirt fire access road, sewer and water lines. The proposed Project offsite roadways include a 5,688 linear foot extension of John Street from the Project's west property line to Lincoln Street and a 3,871 linear foot dirt emergency fire access roadway at the southwestern corner of the property, which will cross the Ramsey Street Wash onto Banning Airport property.

The offsite utility improvements include extensions of water and sewer lines in order to connect to existing facilities located in Charles Street for sewer and the intersection of S. Hathaway Street and E. Barbour Street for water. As shown in **Figure 3**, the location to the south and west of the proposed lift station is labeled "Wet Utility." The exact location of the water and sewer lines has

not been determined. However, it was determined that the area labeled Wet Utility will be the general location of these lines.

There will be two detention basins located on the southern portion of the Project site, just north of the Ramsey Street Wash. The Project includes construction of 5,968 linear feet of sewer line and the construction of an approximately 0.146 acre lift station. The lift station is approximately 0.4 miles from the southern edge of the Project. The Project requires construction of an offsite water line 9,350 linear feet in length to connect to existing lines at the intersection of S. Hathaway Street and E. Barbour Street. Approximately 4,714 linear feet of the water line extension will extend north on Hathaway and then east on the extension of John Street. The remaining 4,636 linear feet will be east and south of the Project site, terminating at the intersection of Scott Street and W. Westward Avenue. The point of connection for the water is at the intersection of W Westward Avenue and Scott Street; for the sewer line is in Charles Street, at the entrance to the City of Banning's Water Reclamation Facility (**Figure 6 – Utilities & Access**).

9. Surrounding land uses and setting:

The area directly to the south and west of the proposed Project consists of the Banning Municipal Airport facility, a city-owned facility zoned as Public Facilities (PF-A) consisting of approximately 295 acres. The property to the east of the Project is owned by the Morongo Band of Mission Indians, is currently vacant and is located outside the City's sphere of influence. The Union Pacific Railroad (Railroad) and Interstate 10 (I-10) are located north of the Project site.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

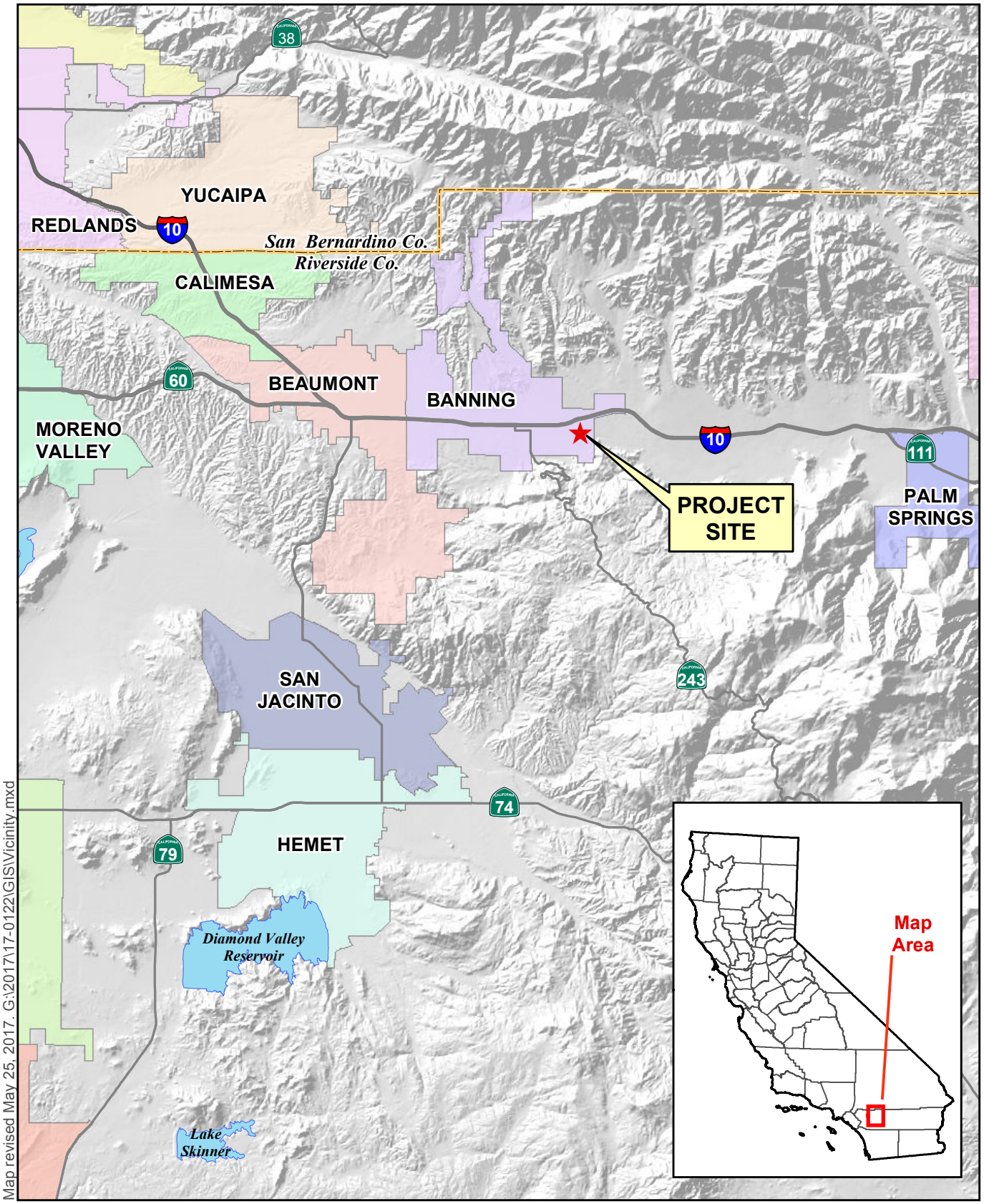
- Riverside County Airport Land Use Commission
- US Army Corps of Engineers, Clean Water Act Section 404 Permit
- Regional Water Quality Control Board, Colorado Region, Clean Water Act Section 401 Water Quality Certification
- California Department of Fish and Wildlife, a Fish and Game Code Section 1602 Streambed Alteration Agreement

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

As part of the EIR process, the City of Banning has conducted AB 52 and SB 18 consultations, including contacting the appropriate tribes and meeting with tribes that have requested consultation.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and Project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per

Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

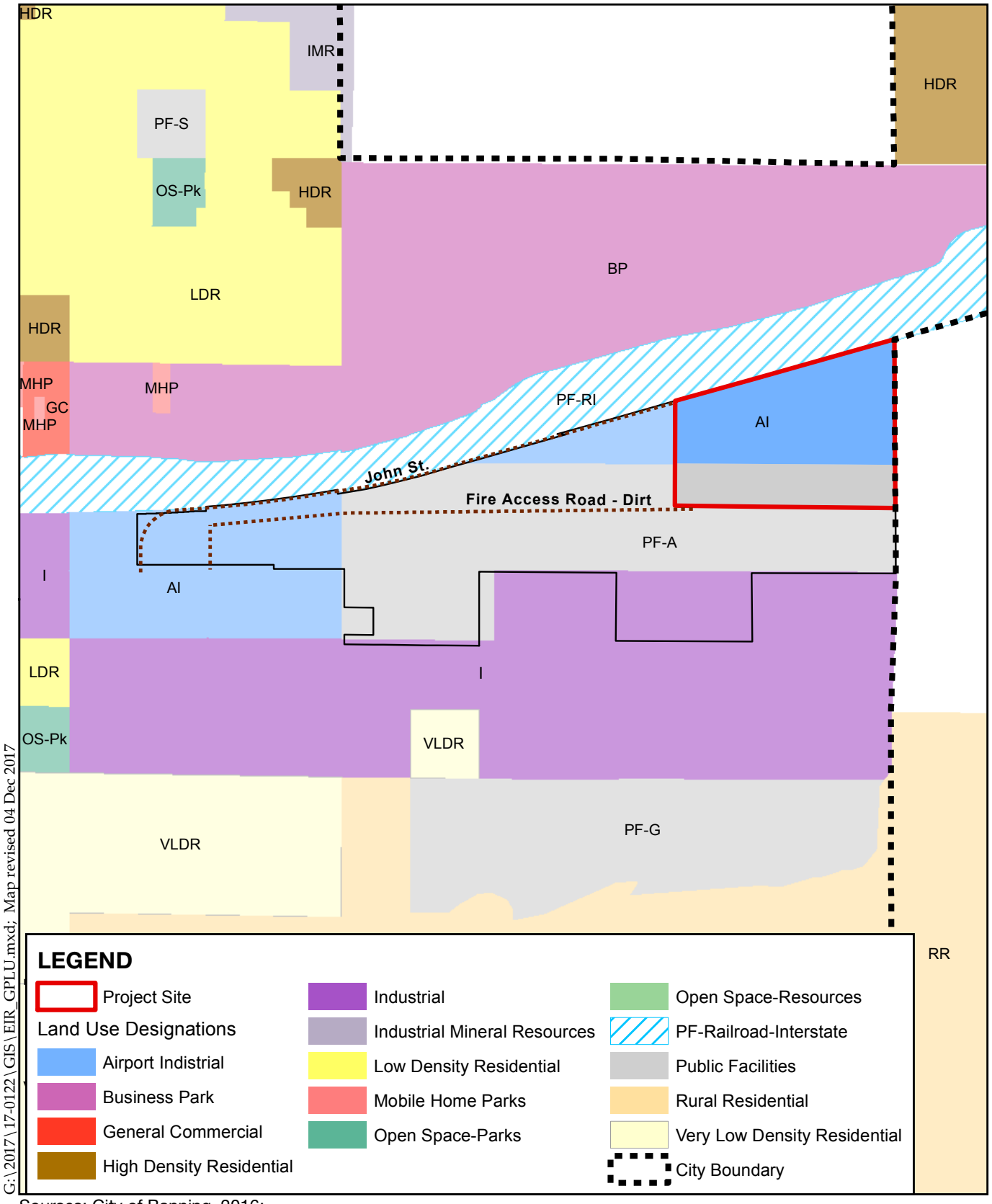


0 2 4 6 Miles

Figure 1 – Vicinity Map

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES



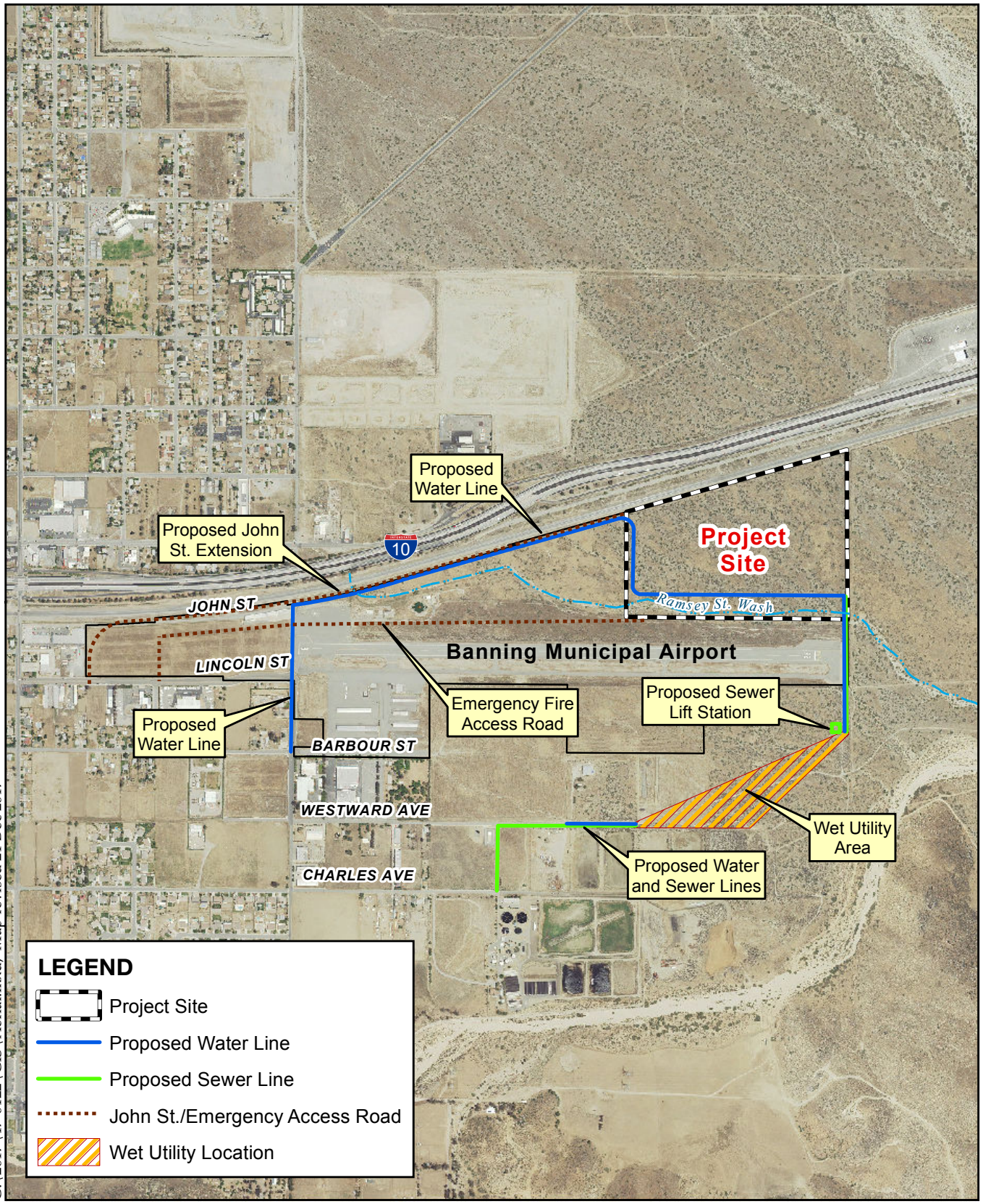
Sources: City of Banning, 2016; Riverside Co. GIS, 2017.

0 500 1,000 1,500 2,000 Feet

Figure 2 - General Plan Land Use Designations

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES



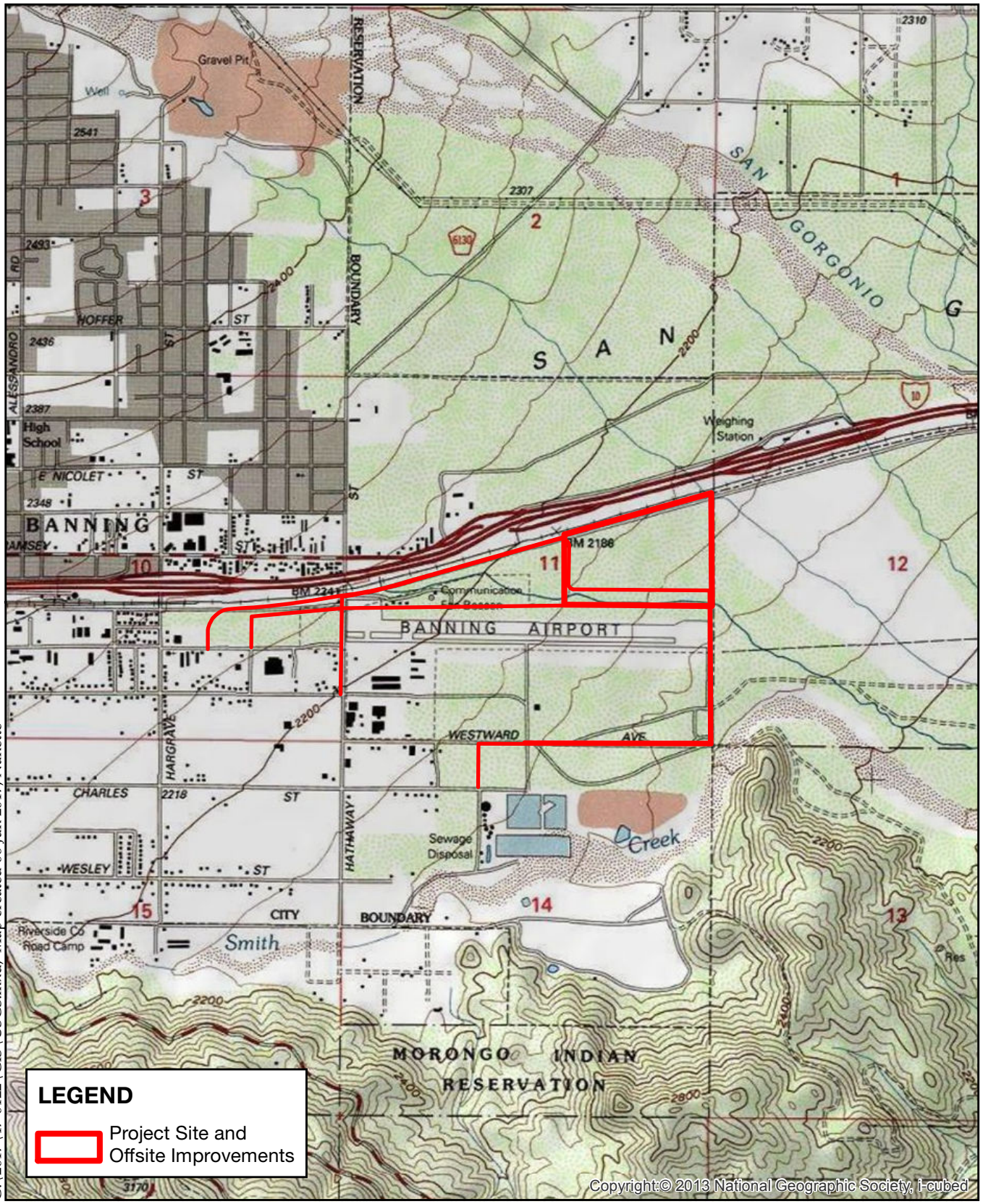
G:\2017\17-0122\GIS\Aerial.mxd; Map revised 21 Dec 2017

Sources: Riverside Co. GIS, 2017;
USDA NAIP, 2014.

0 500 1,000 1,500 2,000 Feet

Figure 3 - Project Site
Banning Distribution Center

ALBERT A. WEBB ASSOCIATES



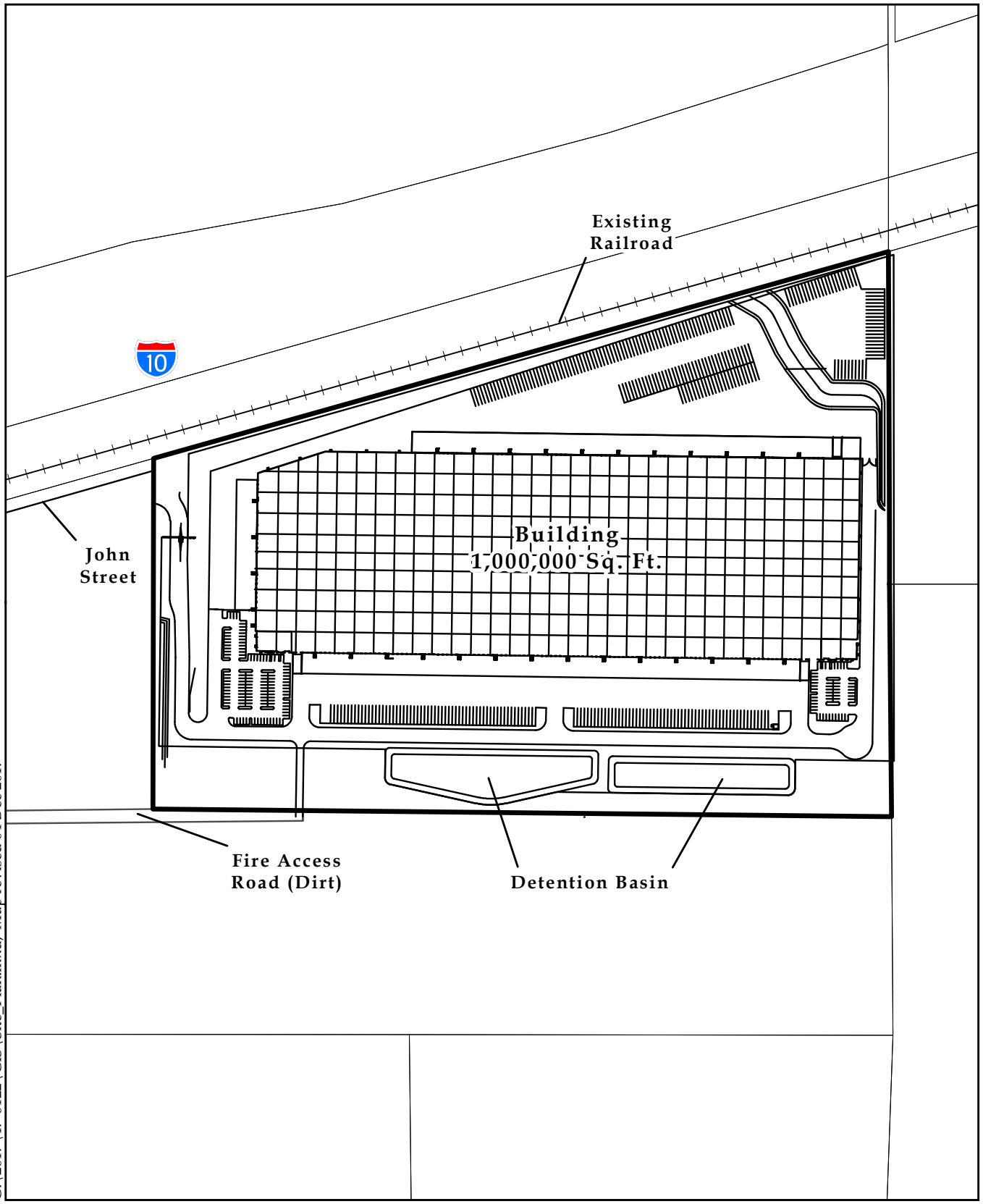
G:\2017\17-0122\GIS\USGS.mxd; Map created 06 Jun 2017; Nanette

Sources: ESRI / USGS 7.5min Quad
DRG: CABAZON

0 1,000 2,000 3,000 Feet

Figure 4 - USGS Map
Banning Distribution Center

ALBERT A. WEBB ASSOCIATES



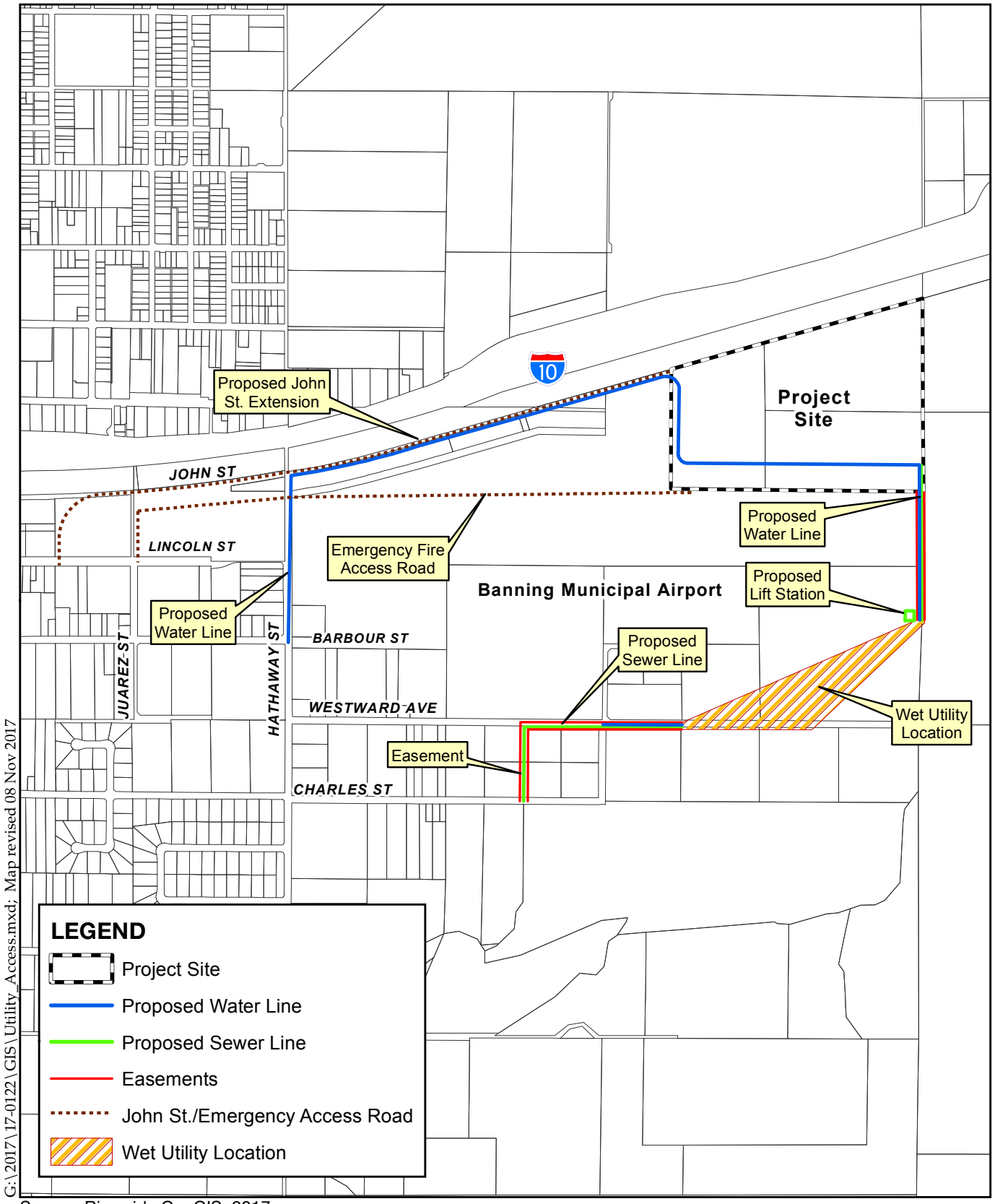
G:\2017\17-0122\GIS\Site_Plan.mxd; Map revised 04 Dec 2017

Figure 5 - Site Plan

Banning Distribution Center

0 200 400 600 800 Feet

ALBERT A. WEBB ASSOCIATES



Source: Riverside Co. GIS, 2017

Figure 6 - Utilities and Access

Banning Distribution Center

0 500 1,000 1,500 2,000 Feet

ALBERT A. WEBB ASSOCIATES

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages:

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology/Soils
☒ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☒ Transportation/Traffic	☒ Tribal/Cultural Resources	☒ Utilities/Service Systems
☒ Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project.

Signature _____ Date 1/15/18

MARIE E GILLIAM

Printed Name

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved *(e.g., the project falls outside a fault rupture zone)*. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards *(e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis)*.

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). Earlier analyses are discussed below:

    a. **Earlier Analysis Used.** Identify and state where they are available for review.
    b. **Impacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. **Mitigation Measures.** For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measure which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts *(e.g., general plans, zoning ordinances)*. Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. A source list should be attached and other sources used or individuals contacted should be cited in the discussion.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) The explanation of each issue should identify:

    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to less than significant.

ENVIRONMENTAL FACTORS: ENVIRONMENTAL CHECKLIST	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
I. AESTHETICS. Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Aesthetics Discussion:

a) Would the project have a substantial adverse effect on a scenic vista?

The City of Banning (City) defines visual resources as those physical features that enhance the City's aesthetic and scenic character. The majority of the City is located within the narrow east-west trending valley of the San Gorgonio Pass, which is dominated by the San Bernardino Mountains along the northern end of the valley and the San Jacinto Mountains along the southern end of the valley (GP DEIR, p. III-189). These mountain ranges present impressive viewsheds and dramatic scenery, including frequently snow-covered mountain peaks and ranges with rugged slopes.

The Project proposes improvements to a currently vacant site to include a one story (46'- 6"height) warehouse, landscaping and two detention basins. Structures proposed at the site will have a relatively low profile and will not substantially alter views of the San Bernardino or San Jacinto Mountains. Additionally, the Project site is located in an area that is generally surrounded by developed or disturbed land and does not constitute a scenic vista. The closest sensitive receptor in proximity to the proposed on-site building is a house of worship located approximately 1.27 miles to the west of the Project site. There are several sensitive receptors located adjacent to the off-site improvements including residences directly adjacent to the off-site water line along Hathaway Street and residences located directly across Lincoln Street at the terminus of the extension of John Street at Lincoln Avenue as well as along Hargrave Street. There are existing industrial buildings between the sensitive receptors and the proposed Project. Therefore, any impacts related to scenic vistas will be **less than significant. This issue will not be addressed in the forthcoming EIR.**

Sources: GP DEIR, Project Design Plans

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

A portion of State Highway 243 is designated as a state scenic highway where it occurs in the City's southern Sphere of Influence. The City's General Plan (GP) Draft Environmental Impact Report (DEIR) determined, however, that development pursuant to the City's GP would have a limited impact to viewsheds along this

corridor (GP DEIR, p. III-190). The proposed Project site is located approximately one and one-half miles to the northeast of this section of State Highway 243, and thus will not affect a designated scenic highway.

Additionally, the Project site is currently vacant and does not contain any significant trees, rock outcroppings, or historic buildings. Therefore, impacts to scenic resources will be **less than significant. This issue will not be addressed in the forthcoming EIR.**

Source: GP DEIR

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The Project site is currently vacant, relatively flat land. The Project is adjacent to other commercial and industrial uses, including the airport to the south and west, the Railroad and I-10 to the north, vacant land north of I-10, and vacant land to the east owned by the Morongo Band of Mission Indians. South of the airport, land use is zoned Industrial and Very Low Density Residential. To the west of the airport at the extension of John Street, land use is zoned Airport Industrial and Industrial. Existing land uses include a plastic fabrication business, a small multi-tenant industrial park, automotive repair and a single family residential unit. The industrial uses in this general area are typically single story, stucco and wood buildings with asphalt roofs. The proposed Project building is a modern industrial design, including concrete tilt-up wall construction with metal cap and window glazing. Therefore, the Project will not substantially degrade the quality of the site and its surroundings. Impacts in this regard will be **less than significant. This issue will not be addressed in the forthcoming EIR.**

Source: Project Description; General Plan

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

During Project construction, nighttime lighting may be used within construction staging areas to provide security for construction equipment only. Nighttime lighting will not be needed to support construction since construction hours will comply with the City of Banning's Municipal Code Section 8.44.090 that requires construction activity be between the hours of 7:00 AM and 6:00 PM. Due to the distance of approximately 560 feet laterally between the construction area and motorists on adjacent roadways, such security lights may cause a significant impact in the form of glare to motorists. Lighting for the Project and construction will comply with the City's Municipal Code Section 17.12.170(D) that requires light shielding not spill beyond the boundaries of the site, reducing any anticipated glare to motorists.

The proposed Project will not introduce substantial new daytime glare to the area because it will consist of a concrete-walled building with few windows. As shown on **Figure 5**, the areas in the Project building with office space are on the southwest and southeast sides, facing away from the freeway; these are the only locations on the building that would have glazed windows. The proposed Project will introduce new sources of nighttime light and glare into the area from improved street lighting and additional security lighting at the Project site. However, all lighting at the Project site will be designed pursuant to Section 17.12.170 of the City's Municipal Code, which includes requirements for industrial lighting, including shielded exterior lights that point downward and away from adjoining properties (Zoning Ord. § 9106.03(11)). Therefore, measures to be incorporated into the Project design will avoid the creation of substantial light and glare, and any residual impacts will be **less than significant. This issue will not be addressed in the forthcoming EIR.**

Source: Project Description; City of Banning Zoning Chapter 17

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
II. AGRICULTURAL and FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Agricultural Resources Discussion:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The proposed Project is not located within areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. According to the California Department of Conservation *California Important Farmland Finder*, the agriculture designation surrounding the Project site is Grazing Land. Urban and Built-Up Land designations within the Project area are associated with the runway and the I-10 corridor. In addition, neither the project site, nor the surrounding area, is zoned for agricultural use by the City of Banning. Therefore the proposed Project will have **no impact** in terms of converting any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. **This issue will not be addressed in the forthcoming EIR.**

Source: DOC

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

As of 2004, there were three Williamson Act contracts in effect over approximately 3,500 acres within the City's General Plan planning area. These include lands located in the City limits near the Banning Bench, in the northwest portion of the planning area between Highland Springs Avenue and Highland Home Road, and in the City's southerly sphere of influence south of Westward Avenue (GP, p. IV-22). These lands are being phased out due to urbanization, although residential land uses that allow for agricultural and ranching activities are provided for under the proposed GP (GP DEIR, p. III-11).

The proposed Project is not located within or adjacent to a Williamson Act contract and is separated from the Williamson Act lands south of Westward Avenue by development, including residential and public parks. The land uses within the City of Banning for ranch/agriculture are located in the southwestern portion of the City, approximately 3.7 miles west of the Project site. The land uses surrounding the Project site are not zoned ranch/agricultural. Therefore, the proposed Project will have **no impact. This issue will not be addressed in the forthcoming EIR.**

Source: GP; GP DEIR; DOC WA

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The proposed Project site is within the City of Banning which does not have a zoning designation for forest land, timberland, or timberland zoned Timberland Production within City limits. In addition, no lands that would qualify as timberland exist within the City limits. Therefore, there will be **no impact**. **This issue will not be addressed in the forthcoming EIR.**

Source: GP DEIR

d) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The proposed Project involves constructing a high-cube warehouse. The Project site is surrounded by lands classified as Urban and Built-Up Land by the California Department of Conservation and is not planned for future agricultural use in the City's General Plan. According to the California Department of Conservation *California Important Farmland Finder*, the agriculture designation surrounding the Project site is Grazing Land. Additionally, the City's GP does not identify any forest land uses within the City's limits. Therefore, **no impacts** are anticipated related to the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use**. This issue will not be addressed in the forthcoming EIR.**

Source: DOC; GP DEIR

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e. Create objectionable odors affecting a substantial number of people?	☒	☐	☐	☐

Air Quality Discussion:

a) Conflict with or obstruct implementation of the applicable air quality plan?

The City of Banning and the San Gorgonio Pass are located in the South Coast Air Basin (Basin)**,** which is a non-attainment area for ozone, $PM_{2.5}$ and PM_{10}. The South Coast Air Quality Management District (SCAQMD) is responsible for preparation and enforcement of the Air Quality Management Plan (AQMP) for the Basin. The AQMD sets forth a comprehensive program designed to bring the Basin into compliance with all federal and state air quality standards. The AQMP's control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics consistent with local General Plans, and are compiled in consultation with local governments.

According to the City's GP Land Use Map and Zoning Ordinance, the proposed Project has a land use and zoning designation of Airport Industrial and Public Facilities-Airport. The proposed Project involves the construction of a high-cube warehouse consistent with the City's AI designation which overlays the majority of the site, including the building footprint. The proposed Project entitlement requests include a General Plan Amendment and Zone Change altering the land use to AI from PF-A. At present, the proposed Project conflicts with the existing land use plan on a portion of the site. Therefore, the proposed Project could be considered to have a **potentially significant impact relative to the implementation of the AQMP. This topic will be addressed further in the forthcoming EIR.**

Source: GP DEIR; 2016 AQMP

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Air quality impacts can be described in a short- and long-term perspective. Short-term impacts occur during site preparation and Project construction consisting of fugitive dust and other particulate matter, as well as exhaust emissions generated by construction-related vehicles. Long-term air quality impacts occur once the Project is in operation, and are primarily related to vehicular traffic generation.

The Project's short-term and long-term emissions will be evaluated and compliance with SCAQMD regional significance thresholds will be discussed in the forthcoming Environmental Impact Report (EIR). It is not possible at this time to determine the severity of Project-related air quality impacts; however, the proposed Project may result in a **potentially significant impact. This topic will be addressed further in the forthcoming EIR.**

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The portion of the Basin within which the proposed Project site is located is designated as a non-attainment area for nitrogen dioxide (NO_2) under state standards, and for ozone, particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) under both state and federal standards (SCAQMD 2013, p. 2-7). The SCAQMD considers the thresholds for project-specific impacts and cumulative impacts to be the same. The Project's air pollutant emissions will be estimated and the severity of Project-related air quality impacts will be addressed in the forthcoming EIR. The proposed Project may result in a cumulatively considerable net impact to air quality, which would be a **potentially significant impact**. **This topic will be addressed further in the forthcoming EIR.**

d) Expose sensitive receptors to substantial pollutant concentrations?

The forthcoming air quality analysis will include a localized significance thresholds (LST) analysis as recommended, but not required, by the SCAQMD. LSTs are applicable to nitrogen oxides (NO_x), carbon monoxide (CO), PM_{10}, and $PM_{2.5}$ and represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard on sensitive receptors (SCAQMD 2008). Sensitive receptors include residential uses, school playgrounds, childcare facilities, athletic facilities, hospitals, retirement homes, and convalescent homes (CARB 2005, p. 2-1). The closest sensitive receptor is a house of worship located approximately 1.27 miles to the west of the Project site. There are several sensitive receptors located adjacent to the off-site improvements including residences directly adjacent to the off-site water line along Hathaway Street and residences located directly across Lincoln Street at the terminus of the extension of John Street at Lincoln Avenue. The forthcoming air quality analysis will estimate the severity of Project-related air quality impacts to sensitive receptors and there may be a **potentially significant impact**. **This topic will be addressed further in the forthcoming EIR.**

e) Create objectionable odors affecting a substantial number of people?

It is anticipated that the major potential sources of odor from the proposed Project would be from short – term construction-related activities, particularly from construction equipment exhaust and asphalt applications. As has been noted, the closest sensitive receptors to the Project site itself are approximately 1.27 miles away. There are, however, sensitive receptors located within 100 feet of the proposed off-site road improvements, where odors from construction equipment and asphalt laying would be noticeable.

Impacts to these receptors may be potentially significant. Therefore, this topic **will be further addressed in the forthcoming EIR**.

Additionally, the California Air Resources Board (CARB) has developed an Air Quality and Land Use Handbook to evaluate common sources of odor complaints, including: sewage treatment plants, landfills, recycling facilities, and petroleum refineries (CARB 2005, p. 2-2). The Project proposes to operate as a warehouse, which is not included on CARB's list of facilities that are known to be prone to generate odors. Further, odor intensity decreases as distance from the source increases because it allows fresh air to mix with the odors. Therefore, odor-related impacts from these sources are considered to be **less than significant. This issue will not be addressed in the forthcoming EIR.**

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IV. BIOLOGICAL RESOURCES. Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

Biological Resource Discussion:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Project site and associated off-site improvement areas are currently vacant undeveloped land and have the potential to support species that might be listed as candidate, sensitive or special status. The City of Banning is a Permittee to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) which was developed in order for the local jurisdictions to have Take Authorization for covered, listed, and sensitive species as long as the terms and conditions of the MSHCP are met. Local projects from Permittees are required to determine if a project site has the potential for covered species under the MSHCP. As long as a project is consistent with the MSHCP, then Taking any covered sensitive or listed species would be authorized by compliance with the MSHCP. However, a variety of other special-status species that are not covered under the MSHCP could occur on the site or along the off-site linear alignments.

The Project site and associated off-site improvement areas are located within the Pass Area Plan of the MSHCP but are not located within a Criteria Area which would dictate certain specific requirements. The site is, however, located within an MSHCP-designated Special Linkage Area. The MSHCP indicates that the Project site is located within the designated Section 6.1.3 Narrow Endemic Plant Species Survey Area (NEPSSA) for Marvin's onion (*Allium marvinii*) and many-stemmed dudleya (*Dudleya multicaulis*), but it does not require Section 6.3.2 Critical Area Species surveys for plants or sensitive amphibian surveys. The Project area, including off-site improvement areas lay within the Section 6.3.2 MSHCP survey area for Burrowing Owl, which is a protected avian species of special concern. Proposed off-site improvement areas are not within the Section 6.3.2 MSHCP survey area for the Los Angeles Pocket Mouse, a mammalian species of special concern. Because the Project site is within the NEPSSA Burrowing Owl Survey Area, is located in a Special Linkage Area, and could support special-status species that are not covered under the MSHCP, Project development could have a **potentially significant impact. These topics will, therefore, be further addressed in the forthcoming EIR.**

Source: MSHCP

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Project site has drainages on- and off-site that are potentially subject to regulations from California Department of Fish and Wildlife and US Fish and Wildlife Service. On a preliminary basis, the proposed Project could result in **potentially significant impacts** to riparian habitat or other sensitive natural communities. **This topic will be further addressed in the EIR.**

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Project site has drainages on- and off-site that are potentially subject to Section 404 of the Clean Water Act. **This issue is, therefore, considered potentially significant and will be further addressed in the forthcoming EIR**.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

As has been noted, the Project site, both on and offsite improvements, lies within a designated MSHCP Special Linkage Area, which are areas designed to preserve movement of wildlife and participate in surveys for special species covered under the MSHCP (GP DEIR, VI-1). This issue is considered **potentially significant and will be further addressed in the forthcoming EIR.**

Source: GP – DEIR; MSHCP

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Prior to removal of any trees in excess of 50 years of age, the City of Banning Municipal Code Section 17.32.060 requires preparation of a tree removal and replacement plan, unless removal is required to protect public health and safety. The MSHCP does not identify any trees on the Project site or within the offsite improvements in excess of 50 years of age; however, a tree report will be prepared that identifies any trees that could be over 50 years old and a landscape plan will be prepared that identifies the trees to be planted on the Project site. Consequently, impacts are considered **potentially significant and will be addressed in the forthcoming EIR.**

Source: BMC; GE

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

As has been noted, the proposed Project site is within the boundaries of the MSHCP for Western Riverside County. As described in Threshold IV.a) above, the Project's consistency with the MSHCP could be a **potentially significant impact and will be further addressed in the forthcoming EIR.**

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES. Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☒	☐	☐	☐
b. Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?	☒	☐	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Cultural Resource Discussion:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

The Project site is being evaluated to determine if any historical resources exist in the Project area that could be considered a **potentially significant impact**. **This topic will be addressed in the forthcoming EIR.**

b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?

The Project site is being evaluated to determine if any archaeological resources exist in the Project area that could be *considered* a **potentially significant impact**. **This topic will be addressed in the forthcoming EIR.**

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

According to the Riverside County GIS database, the proposed Project is located within paleontological sensitivity areas of low potential. During construction, paleontological resources could, however, be unexpectedly encountered. The Project site is being evaluated to determine if any unique paleontological resources exist in the Project area which would be considered a **potentially significant impact**. **This will be further addressed in the forthcoming EIR.**

Source: RCLIS

d) Disturb any human remains, including those interred outside of formal cemeteries?

The proposed Project site is not located on any known cemetery. Should any human remains be found, it could be considered a **potentially significant impact**. **The forthcoming EIR will discuss this topic** and identify procedures required should human remains be found.

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI. GEOLOGY AND SOILS. Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides or mudflows?	☐	☐	☒	☐
b. Result in substantial changes in topography, unstable soil	☐	☐	☒	☐

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
conditions from excavation, grading or fill, or soil erosion or the loss of topsoil?				
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Geology and Soils Discussion:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

The Banning area is located between the North American and Pacific tectonic plates and in proximity to the San Andreas Fault Zone and other regional faults (GP, p. V-10). The closest Alquist-Priolo Earthquake Fault Hazard Zone is the San Gorgonio Pass fault zone that is located along the San Andreas Fault Zone which is approximately 1.3 miles to the north of the Project site (GEO p. 13, Riverside County Land Information System). There are no other known faults within or immediately adjacent to the Project site that could rupture during an earthquake (GP Exhibit V-3, GP DEIR Exhibit III-13).

The proposed Project involves constructing a warehouse building, roads, a sewer lift station, water and sewer lines, and landscaping at the currently vacant site. None of these proposed facilities are anticipated to expose a large number of people or structures to substantial seismic risk from a known earthquake fault. For a warehouse this size based on industry research conducted by the National Association for Industrial and Office Parks (NAIOP), it is estimated that there would be approximately one worker employed for every 2,000 square feet of space. For this Project, that would be approximately 500 workers employed at the site, depending on the type of use the building will ultimately operate. Not all employees would, however, be anticipated to be on-site at any given time. The proposed Project will be developed pursuant to the most recent versions of the Uniform Building Code and the California Building Code which require seismic safety standards applicable to all development in California (GP DEIR, p. III-74). Compliance with existing building code and seismic safety requirements will reduce potential impacts from fault rupture to the extent feasible, and thus are considered **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: GEO; GP Exhibit V-3 – Faults and Fault Zones; GP DEIR Exhibit III-13 – Faults and Fault Zones; RCLIS

ii) Strong seismic ground shaking?

Due to its physical and geologic location, the Banning area is susceptible to potentially intense seismic ground shaking, typical of much of California, which could affect the safety and welfare of the general community. The effects of ground motion on structures are difficult to predict, dependent on the intensity of the earthquake, the distance from the epicenter to the site, the composition of soils and bedrock, building design, and other physical criteria (GP DEIR, p. III-74). As has been noted, the San Andreas Fault Zone, which is located approximately 1.3 miles from the Project site, could cause severe seismic shaking. The Maximum Credible Earthquake (MCE) is used to determine the largest earthquake that a fault is estimated to be able to generate. In the Banning sphere of influence, the MCE from the San Andreas Fault could generate a magnitude 7.8 earthquake (GP, p. V-11). Based on these factors, ground shaking may cause no, little, or major structural damage or destruction. In general, however, peak ground accelerations and seismic intensity values decrease with increasing distance from the causative fault.

The proposed Project involves construction of a warehouse structure and other infrastructure (roads, water, and sewer). Similar to other areas in the City of Banning and nearby vicinity, employees and visitors to the site may be exposed to risk of loss, injury, or death involving strong seismic ground shaking. Compliance with existing building code and seismic safety requirements will reduce potential impacts from ground shaking to the extent feasible, and thus are considered **less than significant. This issue will not be addressed further in the forthcoming EIR**.

Source: GP DEIR

iii) Seismic-related ground failure, including liquefaction?

Liquefaction commonly occurs in loose, saturated, sandy sediments that are subject to ground vibrations greater than 0.2 peak ground acceleration (g). When liquefaction occurs, the sediments involved have a substantial loss of shear strength and behave like a liquid or semi-viscous substance and can result in structural distress or failure due to ground settlement, a loss of load-bearing capacity in foundation soils, and the buoyant rise of buried structures.

A geotechnical investigation and report, which describes on-site soils and groundwater conditions, was conducted in June 2005 by Geotechnics Incorporated (GEO) and updated in June 2016 by Southern California Soil & Testing, Inc. (SCST). The investigation found that the Project site is underlain by Quaternary-age alluvium shed from the adjacent San Jacinto Mountains. The alluvium is generally composed of poorly graded sand with silt and gravel and poorly graded gravel with silt and sand containing various amounts of gravel and fragments of granite and gneissic rock. Site surveys and exploratory borings did not reveal any groundwater on-site. The geotechnical study conducted on the Project site noted that the site is not underlain by potentially liquefiable soils (GEO, p. 14).

According to the City's GP, the Project site is located in an area with moderate liquefaction susceptibility (GP Exhibit V-4, GP DEIR Exhibit III-14). The Project will be designed in compliance with the Uniform Building Code and the California Building Code. Adherence to all applicable federal and state codes and regulations will ensure that potential impacts to people and structures from seismic related ground

failure, including liquefaction, will be **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: GEO; GP Exhibit V-4 – Liquefaction Susceptibility; GP DEIR Exhibit III-14 – Liquefaction Susceptibility; USDA

iv) Landslides or mudflows?

Landslides have become significant hazards as development within the City reaches higher elevations on the hill slopes. Rock falls, rockslides, and to a lesser degree, large landslides are likely to occur in areas of high relief, such as along steep canyon walls in the southern Banning Bench area, and along the portions of the natural slopes facing the southern edge of the City (GP, p. V-6).

The proposed Project site is not located adjacent to any areas with low, moderate, or high risk of seismically induced settlement and slope instability and no known landslides have occurred in the Project vicinity (GP Exhibit V-2; GP DEIR Exhibit III-15). On-site and surrounding topography is relatively flat. The Project will be designed in compliance with the Uniform Building Code and California Building Code. Adherence to all applicable federal and state codes and regulations will ensure that potential impacts to people and structures from landslides or mudflows, however minimal, will be **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: GP Exhibit V-2 – Seismically Induced Settlement and Slope Instability; GP DEIR Exhibit III-15 – Seismically Induced Settlement and Slope Instability

b) Result in substantial changes in topography, unstable soil conditions from excavation, grading or fill, or soil erosion or the loss of topsoil?

Once operational, the majority of the Project site will be paved and developed with a warehouse facility and supporting infrastructure. Potential short-term and long-term erosional impacts associated with construction and operation of the proposed Project will be minimized through compliance with standard erosional control practices and requirements of a National Pollutant Discharge Elimination System (NPDES) General Construction Permit issued by the State Water Resources Control Board (SWRCB) for construction projects. As required, the Project will incorporate Best Management Practices to minimize potential runoff and erosion. Impacts are consequently considered **less than significant. This issue will not be further addressed in the forthcoming EIR.**

Source: Project Description; GP DEIR

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Impacts related to landslides are addressed in Threshold VI.a.iv) above; impacts related to liquefaction are addressed in Threshold VI.a.iii) above. The following analysis addresses impacts related to unstable soils, as a result of lateral spreading, subsidence, or collapse.

Lateral spreading refers to the lateral movement of gently to steeply sloping saturated soil deposits caused by earthquake-induced liquefaction. As discussed in Threshold VI.a.iii), the site is located within an area with moderate potential for liquefaction. A geotechnical investigation and report was conducted in June 2005 by Geotechnics Incorporated (GEO) at the proposed Project site and updated in June 2016 by Southern

California Soil & Testing, Inc. (SCST). The GEO site survey noted the Project site is not located within an area previously known for significant geological hazards nor was there evidence of active faulting, landslides, liquefiable soils or collapsible soils (GEO, p. 9). The Project will be designed in compliance with the Uniform Building Code and California Building Code. With adherence to all applicable federal and state codes and regulations, **impacts related to the potential for lateral spreading are considered less than significant. This issue will not be further addressed in the EIR.**

Subsidence in the Banning area is closely associated with groundwater levels. In particular, the alluvial sediments within the groundwater basins from which the City's water is withdrawn are subject to subsidence if rapid groundwater extraction occurs in response to increased water demands as a result of population growth or prolonged drought (GP DEIR, p. III-69). Structures sensitive to slight changes in elevation, such as canals, sewers and drainage improvements are generally sensitive to the effects of subsidence and may be damaged if significant subsidence occurs.

A substantial portion of the City's valley and canyon areas are underlain by potentially compressible and/or collapsible soils consisting of young sediments with low density that will settle under the added weight of fill embankments or buildings (GP DEIR, p. III-81).

The updated GEO report noted the Project site is in the same general physical condition as when it was originally investigated. The investigation provided recommendations for design of site improvements and structure including removal of the top 12 inches of subgrade, moisture conditioning to near optimum moisture content, and compaction to at least 95% relative compaction. These recommendations are standard design measures and will be incorporated in Project construction. Recommendations of the geotechnical consultant will be incorporated in the Project's Conditions of Approval. Through compliance with these standard measures as well as compliance with the Uniform Building Code and California Building Code, **potential impacts related to unstable soils will be less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: GEO; GP DEIR; SCST

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soils are those that contain significant amounts of clay with a high shrink (dry) and swell (wet) potential. The upward pressures induced by the swelling of expansive soils under moist conditions can have harmful effects upon structures. In Banning, expansive soils are primarily associated with areas underlain by older fan deposits containing argillic (clay-rich) soil profiles, which are in the moderately expansive range. The low-lying areas of the City are underlain by alluvial fan sediments that are composed primarily of granular soils with expansion potential ranging from very low to moderately low (GP DEIR, p. III-69). According to the Geotechnical report, the Project site consists of poorly graded sand with silt and gravel (SP-SM) and poorly graded gravel with silt and sand with gravel and cobble sized sediment (GP-GM) which are granular soils. As noted above in Threshold IV.d.), recommendations from the geotechnical consultant will be used in the building design as well as the most recent versions of the Uniform Building Code and the California Building Code. Potential impacts associated with expansive soils are consequently considered to be **less than significant and no mitigation is required. This issue will not be addressed further in the forthcoming EIR.**

Source: GP DEIR; GEO

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The proposed Project will not contain septic tanks or alternative wastewater disposal systems. The Project will require a sewer line that will tie into the existing sewer infrastructure. Therefore, there will be **no impact** in this regard. **This issue will not be addressed further in the forthcoming EIR.**

Source: Project Description

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VII. GREENHOUSE GAS EMISSIONS. Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Greenhouse Gas Emissions Discussion:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The forthcoming EIR will address greenhouse gas emissions (GHG) from construction and operation of the proposed Project. This issue is considered **potentially significant and will be further investigated and discussed in the forthcoming EIR.**

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The City of Banning participated in the development of the Western Riverside Council of Governments (WRCOG) Subregional Climate Action Plan (CAP). The Project will be analyzed to determine if there are any conflicts with applicable plans or policies that could create a **potentially significant impact**. **Compliance with the CAP will be discussed in the forthcoming EIR.**

Source: WRCOG CAP

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed?	☐	☐	☒	☐

Hazards and Hazardous Materials Discussion:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The routine transportation of hazardous materials can result in accidental spills, leaks, toxic releases, fire, or explosions Construction of the proposed Project may involve short term transportation and storage of hazardous materials, such as fuels for construction equipment. The proposed Project involves developing a warehouse, access road, secondary fire access road and a water and sewer lift station at the currently vacant site, none of which involve uses that would generate a significant long -term routine hazard to the public.

Nonetheless, any amount of hazardous substances used during Project construction and operation will be subject to federal and state regulations for the safe handling and transportation of hazardous materials. Hazardous material transport, storage and response to upsets or accidents are primarily subject to federal regulation by the United States Department of Transportation (DOT) Office of Hazardous Materials Safety in accordance with Title 49 of the Code of Federal Regulations (CFR). California regulations applicable to hazardous material transport, storage and response to upsets or accidents are codified in Title 13 (Motor Vehicles), Title 8 (Cal/OSHA), Title 22 (Management of Hazardous Waste), Title 26 (Toxics) of the California Code of Regulations (CCR), and the Chapter 6.95 of the Health and Safety Code (Hazardous Materials Release Response Plans and Inventory).

Compliance with all applicable federal and state laws related to the transportation, use, storage and response to upsets or accidents that involve hazardous materials would reduce the possibility and potential severity of upsets and accidents during construction related activities. As noted previously, the long term operation of the proposed facility is not expected to involve the routine use, transport or disposal of hazardous materials. Consequently, impacts from such activities are anticipated to be **less than significant**. **This issue will not be addressed further in the forthcoming EIR.**

Source: CHSC; CCR; CFR

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

As noted in Threshold VIII.a), above, the Project may involve the use of small amounts of hazardous materials during construction activities but must comply with all applicable federal and state laws pertaining to the transport, use, disposal, handling, and storage of hazardous materials, including but not limited to Title 49 of the Code of Federal Regulations and Title 13, (motor vehicles) Title 8 (Cal/OSHA), Title 22 (Health and Safety Code), Title 26 (Toxics) of the California Code of Regulations, and Chapter 6.95 of the Health and Safety Code (Hazardous Materials Release Response Plans and Inventory), which impose strict regulations for the safe transportation and use of hazardous materials. Compliance with all applicable federal and state laws related to the transportation, use and storage of hazardous materials would reduce the possibility and potential severity of any accidents. As has been noted, the Project is not expected to result in the long term use of significant amounts of hazardous materials that would create a hazard to the public or environment. Consequently, potential impacts from upset and accident conditions involving release of hazardous substances are considered **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: CHSC; CCR; CFR

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The proposed Project is approximately one mile to the south of Hoffer Elementary School which is located on the north side of Interstate 10. However, as discussed in Threshold VIII.a), neither construction of the off-site improvements including the sewer lift station and water and sewer lines nor operation of the Project site is anticipated to require routine use or storage of hazardous materials, substances, or their disposal. Any incidental hazardous materials, substances, or waste that might be transported to, or generated at, the Project site will be handled in compliance with all applicable local, state and federal regulations. The Project site, as noted, is also more than one quarter mile from the nearest school. Consequently, any potential

impacts to existing schools from hazardous substances are considered **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: GE

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

HEI Corporation (HEI) conducted a Phase 1 Environmental Site Assessment for the Project site in April 2017. The Phase 1 assessment found that there is no evidence of recognized environmental conditions at the Project site and there is no evidence of recent activity observed.

To the south of the Project site, Banning Airport is listed in the California Department of Toxic Substances Control (DTSC) EnviroStor Database as a Formally Used Defense Site (FUDS) which was used by the military for training programs in 1943. The EnviroStor posting regarding the airport does not indicate any soil or groundwater impacts occurred.

Beyond the airport, the closest listed hazardous materials site that could have affected the site is the California Department of Transportation Banning Maintenance Station located approximately one-half mile to the west of the Project Site (HEI). The site is listed as a Leaking Underground Storage Tank (LUST) and Landfill and/or Sold Waste (SWF/LF) designation. As of August 30, 1995, the site was given a LUST status of "Completed – Case Closed." The site is currently a limited volume transfer station that handles dead animals; inert, landscape and metal debris; mixed municipal trash; and used tires.

In relation to the Project off-site improvements, the DTSC EnviroStor Database lists the closest hazardous materials site as the Banning Rifle Range located approximately 500 feet to the south of the proposed lift station (WEBB). It was a FUDS site used by the military as a small arms firing range during World War II between 1942 and 1944. As of September 2012, the site is listed as inactive.

Because the proposed Project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and there are not any listed sites adjacent to the Project site, the Project will not create a significant hazard to the public or the environment. Consequently, related impacts are considered **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: HEI; EnviroStor Database

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The Banning Municipal Airport is located adjacent to the Project site as well as being located in close proximity to the offsite utilities. The offsite utilities will be underground, and the sewer lift station will be no taller than 10 feet. Land use designations within the City General Plan are designed to accommodate for continued safe operation of the Banning Municipal Airport (GP DEIR, p. III-62). The Project lies within Zone B1, B2, and D of the Banning Municipal Airport Land Use Compatibility Plan. Thus, project review by the Riverside County Airport Land Use Commission (ALUC1) is required. Objects taller than 35 feet within Zone B1 are subject to an airspace review. ALUC reviewed this Project at its February 9, 2017 meeting (ALUC2,

Appendix D), and determined that structures should not exceed a height of 47 feet above ground level. The proposed Project consists of a high cube warehouse that will be no taller than 46.6 feet above ground level. The Project is consistent with the ALUC plan for The Banning Municipal Airport, and therefore would not pose a safety hazard. Consequently, potential airport safety impacts are considered **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: ALUC1; ALUC2; GE; GP DEIR; Project Description

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The proposed Project and associated off-site features are not located within the vicinity of a private airstrip (Google Earth). As such, the Project will have **no impact** related to exposure of people residing or working in the Project area to safety hazards. **This issue will not be addressed in the forthcoming EIR.**

Source: GE

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The Riverside County Operational Area (OA) Emergency Operations Plan (EOP) which was adopted in 2006 and updated in 2012, addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting Riverside County (EOP, p. 1-1), including the City of Banning.

According to the City's GP, evacuation routes have not been formally established throughout the City, although depending on the location and extent of the emergency, major surface streets could be utilized to route traffic through the City (GP, p. VI-45). Access to the proposed Project site will be available from John Street, which is proposed to be improved as part of the Project and will run east-west and directly north of the Project site. John Street is not designated as a Major Local Roadway in the City's GP and would not be expected to be a major evacuation route in the event of an emergency since it terminates at the Project site. While the proposed Project site is located adjacent to I-10, the location of the Project's roadway improvements are not expected to impact the use of I-10 as an evacuation route as the roadway improvements do not include changes to I-10 or access to I-10 from the Project site (GP, Exhibit III-4).

Because the development of the Project will not affect any major streets that are most suited for evacuation routes for a large population, and because it would contribute to the improvement of John Street, interference with an adopted emergency response plan or emergency evacuation plan for the City is considered a less **than significant impact and no mitigation is required**. **This issue will not be addressed further in the forthcoming EIR.**

Source: EOP; GP – PSF

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed?

The proposed Project and off-site features are located within the City's High Fire Hazard Zone, within which topographic changes are minimal and hardscape (concrete, asphalt, and structures) and landscaping vegetation predominate (GP, Exhibit V-10). The risk of wildfires being triggered during construction is

considered limited due to required adherence to standard fire-prevention measures such as protection of any sparking equipment and prohibition of the use of such equipment during high winds. In addition, neither construction of buildings or offsite improvements are anticipated to involve any unique characteristics that would create a significant risk from wildfires. The Project site will be designed according to the 2001 California Fire Code with City amendments and regularly maintained (e.g. brush management) to reduce fire hazards. (GP, p. V-70).

The City contracts with the Riverside County Fire Department for fire services; in turn, the County contracts with CAL FIRE. The City's Fire Marshal is authorized and directed to enforce the provisions of the Fire Code throughout the City. As part of these responsibilities, the Fire Marshal reviews plans for new construction and additions, coordinates with the City for disaster preparedness programs, and manages the City's weed abatement program. Consequently, with compliance to the California Fire Code and required approval of site plans by the Fire Marshal, exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires is considered a **less than significant impact. This issue will not be addressed further in the forthcoming EIR.**

Source: CAL FIRE; GP – EH; GP - PSF

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of a watercourse or wetland, in a manner which would result in substantial erosion or siltation on- or off-site?	☒	☐	☐	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?	☒	☐	☐	☐
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☒	☐	☐	☐
f. Otherwise substantially degrade water quality?	☒	☐	☐	☐
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood	☐	☐	☐	☒

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Insurance Rate Map or other flood hazard delineation map?				
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☒	☐	☐	☐
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Hydrology and Water Quality Discussion:

a) Violate any water quality standards or waste discharge requirements?

Activities associated with the construction of the proposed Project including the offsite utilities may threaten water quality standards through the release of pollutants (e.g., oil from equipment) and sediment off-site. However, the Project is required to prepare a Storm Water Pollution Prevention Plan (SWPPP) pursuant to the statewide General Construction Permit (NPDES General Permit No. CAS000002, Waste Discharge Requirements, Order No. 2009-0009-DWQ, adopted September 2, 2009 and effective as of July 2, 2010) issued by the State Water Resources Control Board (SWRCB) for construction projects. The SWPPP must be prepared by a Qualified SWPPP Developer and implemented on-site by a Qualified SWPPP Practitioner and is also subject to review (before and during construction) by the Colorado River Basin Regional Water Quality Control Board (RWQCB). The SWPPP must describe erosion and sediment control measures (best management practices or "BMPs") to minimize the discharge of polluted stormwater runoff to the maximum extent practicable. In addition, the SWPPP will outline a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs. Termination of general construction permit coverage is possible only after 70% of the site is deemed stable and proven as such to the state (RWQCB).

Development of the proposed Project would add impervious surfaces to the site through improvements to John Street, parking lots, sidewalks and drive aisles. In addition, operation of the proposed Project would introduce potential sources of water pollution including vehicles, trucks, and personnel. By increasing the percentage of impervious surfaces on the site, more surface runoff would be generated that collects and transports pollutants into receiving waterbodies during rainfall events.

As a co-permittee to the Municipal Separate Storm Sewer System permit ('MS4', Colorado River Basin RWQCB Order No. R7-2013-0011, NPDES No. CAS617002), Banning is required to regulate the discharges of urban runoff as they enter the City's MS4 facilities (i.e., storm drains) in order to prevent the degradation of water quality in receiving waters, pursuant to the Whitewater River MS4 Stormwater Water Management Plan (SWMP). One method of regulation in the SWMP is the requirement of a Water Quality Management Plan (WQMP) for all Priority Development Projects to treat post-construction stormwater runoff in perpetuity. The Project applicant would be required to develop a WQMP for review and approval by the City of Banning that outlines how stormwater runoff generated within the plant will be treated prior to release from the site (or infiltrated). The WQMP must also detail whether hydro modification conditions of concern

exist, how source control practices can be implemented, and identify responsible entities for ongoing maintenance and funding.

Currently, the preliminary WQMP provides two infiltration basins on the southern area of the Project site that comply with the City of Banning's stormwater requirements and WQMP Guidance Document by infiltrating a volume equivalent to a 100-year, 3-hour storm event. Due to the proximity of the site next to the Banning Airport, the basins will be completely infiltrated within 48 hours. In addition, the Project building footprint and parking areas include avoidance of the Ramsey Street Wash along the southern border of the property, which will ensure existing natural drainage patterns remain. The proposed Project incorporates site design, source controls and treatment control BMPs to address storm water runoff. Thus, through BMPs, in addition to compliance with existing regulations, the proposed Project will not violate water quality standards or waste discharge requirements. Consequently, impacts pertaining to compliance with water quality and waste discharge standards are considered **less than significant**. **This issue will not be addressed further in the forthcoming EIR.**

Source: Project Description; P-WQMP, MS4 Permit, WQMP Guidance Document, SWRCB

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

A Water Supply Assessment that is required pursuant to Senate Bill 610 will be prepared by the Project water supplier and will be summarized in the forthcoming EIR. See Checklist Item XVIII (d) for specific information on water supply impacts.

The City of Banning overlies the westerly half of the San Gorgonio Pass Groundwater Sub-basin and obtains all of its water supply from local groundwater sources. The City of Banning will be the water supplier for the Project. The San Gorgonio Pass Groundwater Sub-basin includes five hydraulically-connected groundwater "storage units", which constitute the City of Banning groundwater resource area: the Banning Storage Unit, the Banning Bench Storage Unit, the Banning Canyon Storage Unit, the Cabazon Storage Unit, and the Beaumont Storage Unit. Groundwater recharge to the Banning area is obtained from precipitation infiltrating into the ground within the surface water catchments and particularly in the canyons north of the City. An additional source of recharge is subsurface inflow (i.e. underflow) from storage unit to storage unit, infiltration of Whitewater River diversions in the Banning Canyon, and from infiltration of treated wastewater into the Cabazon Storage Unit.

The proposed Project overlies the Cabazon Storage Unit, which encompasses approximately 17,215 acres. The Project does not include construction of a groundwater well. Noting the high rates of infiltration documented onsite, storm water runoff collected on-site within the proposed infiltration basins would provide a point of periodic recharge to the Cabazon Storage Unit. Notably in 2011, this storage unit experienced a positive change in storage as a result of the recharge basins located at the City's wastewater treatment plant (WWTP). Accordingly, the City plans to increase groundwater production in the future. Through the avoidance of Ramsey Street Wash along the southern border of the Project site and providing onsite storm water infiltration basins, development of the Project site will not substantially interfere with groundwater recharge. Consequently, impacts related to depletion of groundwater are considered **less than significant, and will not be addressed further in the EIR.**

Sources: Project Description; UWMP; P-WQMP, Geotechnical Report

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of a watercourse or wetland, in a manner which would result in substantial erosion or siltation on- or off-site?

There are existing drainage features on the Project site. Because impacts have not been fully evaluated, the Project may have a **potentially significant impact** related to alteration of existing drainage patterns. **The forthcoming EIR will analyze this issue.**

Source: Project Description

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

There are existing drainage features on the Project site. Because impacts have not been fully evaluated, the Project may have a **potentially significant impact** related to altering drainage. The forthcoming EIR will analyze this issue.

Source: Project Description

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The Project includes building storm water facilities to the south of the proposed warehouse location which could have **potentially significant impacts** on storm water drainage systems. **This topic will be addressed further in the forthcoming EIR.**

Source: Project Description

f) Otherwise substantially degrade water quality?

The proposed Project's degradation of water quality has not been fully investigated. Consequently, there could be **potentially significant water quality impacts**. **The forthcoming EIR will address this issue.**
Source: Project Description

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The southern portion of the proposed Project is located in Zone A, which is the 100-year flood hazard area. The proposed Project involves construction of a warehouse and does not include construction of any housing. Therefore, **no impact** will occur in this regard. **This issue will not be addressed in the forthcoming EIR.**

Source: Project Description

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

As shown on FEMA Panel No. 06065C0836G and No. 06065C0837G, the proposed Project is located within Zone A and Zone X. While Zone X is an area outside of the Special Flood Hazard Area with minimal flood hazard and higher than the elevation of the 0.2-percent-annual-chance floodplain, Zone A is within a 100-year flood hazard area that is subject to inundation by the 1% annual chance flood. Since the site is within the Special Flood Hazard Area, there could be **potentially significant impacts related to flooding. The forthcoming EIR will address this issue.**

Source: FEMA

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

As shown on FEMA Panel No. 06065C0836G and No. 06065C0837G, the proposed Project does not have any identified levees or dams within the Project boundary, nor does the city have any identified dams within or next to its jurisdiction. Therefore, the Project is not expected to expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. According to the County of Riverside's General Plan, the Project area is not within a dam failure inundation zone (GP-RIV, Figure S-10). Potential impacts from dam or levee failure will be **less than significant and no related mitigation measures are required. This issue will not be addressed further in the forthcoming EIR. Other potential flood hazards will be addressed in the EIR, however, as described in preceding Checklist items IX(h) and (i).**

Source: FEMA; GP-RIV

j) Inundation by seiche, tsunami or mudflow?

Seiches are seismically-induced oscillation or sloshing of water contained in enclosed bodies of water including lakes, ponds, reservoirs, and swimming pools. This hazard is dependent upon the frequency of seismic waves, distance and direction from the epicenter, and site-specific design criteria of the enclosed body of water. Swimming pools and other small bodies of water are likely to incur minor damages in the event of seismically induced seiches. However, seiching could result in the failure of larger bodies of water, including water tanks, retention basins, recharge basins and other water storage structures, and could result in the inundation of land and structures downslope. There are no such bodies of water in the immediate Project vicinity (Google Earth). **Potential impacts related to inundation by seiche, are therefore, considered to be less than significant.**

Tsunamis are large waves that occur in coastal areas. The City of Banning is not located in a coastal area, thus **no impacts due to tsunamis will occur.**

As discussed previously in Threshold VI.a.iv, strong ground motions can result in landslides, rock slides and rock falls, particularly where saturated ground conditions exist. During an earthquake, groundwater conditions have an influence in the development of seismically induced slope failures, as well as landslides and mudflows. The proposed Project site is not located adjacent to any areas with low, moderate, or high risk of seismically induced settlement and slope instability and no known landslides have occurred in the Project vicinity (GP Exhibit V-2; GP DEIR Exhibit III-15).

Impacts related to inundation by mudflow are, therefore, considered less than significant and no mitigation measures are required. This issue will not be addressed further in the forthcoming EIR.

Source: GP Exhibit V-2 – Seismically Induced Settlement and Slope Instability; GP DEIR Exhibit III-15 – Seismically Induced Settlement and Slope Instability; GE

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. LAND USE PLANNING. Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☒	☐	☐	☐

Land Use and Planning Discussion:

a) Physically divide an established community?

There are no established communities surrounding the Project site. The Project is surrounded by land designated for Public Facility – Airport to the south and west, and General Commercial to the north (GP, Exhibit III-2). The proposed Project involves developing a warehouse, which is consistent with the surrounding zoning and land use designations. The Change of Zone requested for the Project is to provide a consistent zoning designation on the entire site. As has been noted previously, the site is presently split between two zone classifications (AI and PF-A). The Change of Zone will not create any impacts to an established community. Potential impacts related to this issue are, therefore, considered **to have no impact. This issue will not be addressed further in the forthcoming EIR.**

Source: Project Description; GP - CD

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

According to the City's GP Land Use Map and Zoning Ordinance, the proposed Project site is designated as Airport Industrial (AI) and Public Facilities – Airport (PF-A). The latter allows airport-related and transportation-related functions such as machining, manufacturing, warehousing, flight schools, restaurants and office uses (GP, p.III-8). Concurrent with the environmental assessment of the proposed Project and other entitlement actions, a General Plan Amendment (GPA) and Change of Zone (ZC) are proposed, changing the land use and zoning of PF-A existing on a portion of the site to AI. The site plan for the proposed Project shows parking and a detention basin on the portion of the site currently designated PF-A. The parking and detention basins might be considered consistent with the PF-A zone, but do not represent public facilities associated with the airport. The proposed Zone Change will eliminate this discrepancy. Warehousing and related office uses are consistent with the AI Zone and land use designation, thus no conflict with plans or policies exists on that portion of the site. Potential impacts related to conflicts with

land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect are consequently considered **less than significant and no mitigation measures are required. This issue will not be addressed further in the forthcoming EIR.**

Source: Project Description; GP - CD

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

As previously described in Threshold IV.f), the Project is located within the Western Riverside County MSHCP – The Pass Area Plan and within an MSHCP special linkage area. Because impacts to the MSHCP have not been fully investigated, the Project may have **a potentially significant impact** related to maintaining consistency with conservation plans. **This potential impact will be addressed in the Biological Resources section of the forthcoming EIR.**

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XI. MINERAL RESOURCES. Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Mineral Resources Discussion:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Sand and gravel, collectively referred to as aggregate, is the primary mineral resource that is actively being developed in the eastern portion of the City. Weathering, erosion, and other geological processes have deposited materials from the surrounding mountains and hills, forming an alluvial fan with significant deposits of these mineral resources. The Surface Mining and Reclamation Act (SMARA) was developed to assure the preservation of mineral resources while concurrently addressing the need for protecting the environment. Under the purview of SMARA, the State of California Department of Conservation, Division of Mines and Geology, has identified regionally significant mineral deposits in an effort to conserve and develop them as well as to anticipate regional aggregate production needs.

The proposed Project site is located within Mineral Resource Zone 2 (GP, Exhibit IV-8), which means the Project site is located within an area that contains mineral deposits. The significance of these deposits cannot, however, be evaluated from available data. Due to being adjacent to the airport, it is unlikely that a mining operation would be practical at the Project site.

Further, the City has designated specific areas as Industrial-Mineral Resources land use in the City's GP to allow for surface mining operations on lands considered to have significant potential for mineral resources

(GP DEIR, Table I-3). The Project site is not within one of these zones, and is not identified for development of mineral resource mining by either the City or the State. Consequently, the proposed Project will not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state. Potential impacts to known mineral resources are thus considered **less than significant. This issue will not be addressed further in the forthcoming EIR.**

Source: GP Exhibit IV-8 – Mineral Resource Zones; GP DEIR Table I-3 – City of Banning Draft General Plan Proposed Land Use Designations

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

According to the General Plan, an area of Mineral Resource Zone 2 (MRZ-2) is located in the eastern portion of the City, totaling approximately 6.5 acres of land. An MRZ-2 area contains significant mineral deposits that are present or that there is a high likelihood for them to exist. The eastern portion of the City lies along the alluvial fan of the San Gorgonio River southeast of the Banning Bench, north and south of Interstate 10 (GP, Exhibit IV-8). As of 2004, the Banning Quarry, operated by Robertson's Ready Mix, was the only aggregate producer within the MRZ-2 designated area of the City.

The proposed Project is not located within or adjacent to the Banning Quarry or any other locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Further, as described in Threshold XI.a above, the proposed Project is not designated Industrial-Mineral Resources land use in the City's GP. Consequently, **no impact** to a locally important mineral resource recovery site **is** anticipated. **This issue will not be addressed further in the forthcoming EIR.**

Sources: GP Exhibit IV-8 – Mineral Resource Zones; GP DEIR Table I-3 – City of Banning Draft General Plan Proposed Land Use Designations; ZONING

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. NOISE. Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project	☒	☐	☐	☐

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
expose people residing or working in the project area to excessive noise levels?				
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Noise Discussion:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction and operation of the proposed Project will introduce new noise sources to the Project vicinity. The closest sensitive receptors to the proposed Project site are the scattered residences and a house of worship located approximately 1.27 miles from the site and residences located adjacent to the off-site improvements. The proposed Project will also result in the exposure of construction workers and employees to noise generated by the nearby Banning Municipal Airport. A Noise Study will be prepared to specifically quantify potential noise impacts on nearby sensitive receptors as well as construction workers and employees. The Project may have a **potentially significant impact** related to exposure of residents, employees and construction workers to noise. Consequently, **this topic will be addressed further in the forthcoming EIR.**

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction equipment and activities such as vibratory compactors or rollers, pile drivers and pavement breakers have the potential to generate ground-borne vibration. In general, demolition of structures preceding construction and pile driving generate the highest levels of vibration. The proposed Project site is currently vacant and does not necessitate demolition of any existing structures. In addition, according to correspondence with the construction manager, no pile driving is required to construct the proposed facilities (Personal Correspondence, Bob Harding). Heavy trucks that may be utilized during construction can also generate ground-borne vibrations which vary in intensity depending on vehicle type, weight and pavement conditions.

Construction-related truck traffic will be routed directly onto Lincoln and Hargrave Street to I-10 on and off ramps, thereby minimizing the amount of truck traffic having to utilize other City roadways and potentially affecting other land uses. Other than the typical construction equipment and methods needed to construct the Project components, no significant groundborne vibration or ground borne noise is anticipated. No sensitive noise receptors are located within the Project area, and the closest sensitive receptors in the surrounding area (residential land use and house of worship) are approximately 1.27 miles away. Should future use of the rail spur be proposed, additional environmental assessment, including noise analysis, would be required.

Project construction methods are not anticipated to involve any significant sources of groundborne vibration or groundborne noise beyond those that would normally be associated with construction activities. Any noise generated during construction must adhere to the Banning Municipal Code, thus potential

impacts relating to exposure and generation of excessive groundborne vibration or groundborne noise levels are considered **less than significant and no mitigation measures are required**. **This issue will not be addressed further in the forthcoming EIR.**

Source: BMC

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The proposed Project has the potential to result in a substantial permanent increase in ambient noise levels due to an increase in truck and vehicular traffic to the Project area. A Noise Study will be prepared as part of the EIR analysis. Because noise impacts have not been investigated, the Project may have a **potentially significant impact** related to a permanent increase to ambient noise. **This topic will be addressed further in the forthcoming EIR.**

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

The proposed Project has the potential to create a substantial or periodic increase in ambient noise levels. A Noise Study will be prepared to evaluate noise-related impacts due to implementation of the proposed Project. T**hese impacts could be potentially significant. This topic will be addressed in the forthcoming EIR**.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The Banning Municipal Airport is located adjacent to the Project site on the west. Land use designations within the Project vicinity have been made to accommodate the continued safe operation of the Banning Municipal Airport (GP DEIR, p. III-62). Nonetheless, the Project is located within Zones B1, B2, and D of the Banning Municipal Airport Land Use Compatibility Plan and is required to be reviewed by the Riverside County Airport Land Use Commission (ALUC). The airport has approximately 12,000 operations per year predominately by small, single engine piston aircraft. Due to the relatively small noise footprint generated by this type of aircraft, the associated average annual community noise equivalent level (CNEL) noise contours for the Banning Airport generally stay within the airport property, limiting people exposed to excessive aircraft noise to the airport property. The proposed Project is beyond the 65 CNEL noise contour, which is the standard noise metric used to determine if people would be exposed to excessive noise. The ALUC reviewed the Project in March 2017 (ALUC2) and found the proposed land use consistent with ALUC policies, including noise exposure. Potential impacts to construction workers and employees at the Project site from exposure to excessive airport noise levels are likely to be less than significant as previously noted. **Nonetheless, this potential concern will be evaluated in the Noise Study to be prepared and will be discussed in the EIR.**

Source: GP Exhibit V-7 – Airport Noise Contours at Buildout; GP DEIR Exhibit III-27 – Airport Noise Contours at Buildout; ALUC2

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The proposed Project is not located within the vicinity of a private airstrip, and as such there will be **no impact** on people residing or working in the Project area due to excessive noise levels from this type of facility. **This issue will not be addressed further in the forthcoming EIR.**

Source: ALUC1

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIII. POPULATION AND HOUSING. Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Population and Housing Discussion:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed Project involves extension of an existing road and construction of a warehouse. It does not propose new homes. Per a discussion with the industrial Project general contractor to determine the number of workers required for a project this size as well as commuting behavior of construction workers (Personal Communications, Bob Harding2), construction projects of this size typically require between 20 and 150 workers per day at the site, depending on the phase of construction and take approximately 10 – 18 months to complete. Due to the limited duration of construction, local population growth related to construction jobs is not expected. Construction projects in the Inland Empire typically use staff within 50 miles of a project site. Construction workers are expected to commute from the City of Banning as well as from communities as far west as Corona and as far east as Palm Springs.

Furthermore, according to the Southern California Association of Governments (SCAG Profile of the City of Banning), in 2015 approximately 6.1% of the jobs in the City were in wholesale activities. The SCAG report also indicates that over 38% of people living in Banning currently commute over 30 minutes to work in other cities. Introducing additional wholesale jobs to the City could retain employees within the City instead of commuting, thereby minimizing impacts to the environment. For a warehouse this size based on industry research conducted by the National Association for Industrial and Office Parks (NAIOP), it is estimated that there would be approximately one worker employed for every 2,000 square feet of space. For this Project, that would be approximately 500 workers employed at the site, depending on the type of use the building will ultimately operate. Only a portion of total employees would, however, be anticipated to be new residents attracted to Banning specifically by the Project. Consequently, the Project is anticipated to have **a less than significant impact** related to direct or indirect creation of population growth. **This issue will not be addressed further in the forthcoming EIR.**

Source: Project Description

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

The proposed Project site is currently vacant and there is no existing housing at the Project site. The proposed warehouse will not displace any existing housing; consequently **no impacts** related to housing displacement are anticipated**. This issue will not be addressed further in the forthcoming EIR.**

Source: Project Description

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The proposed Project site is currently vacant and does not contain any existing housing. Development of a warehouse will not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. Consequently, **no impact** to housing is anticipated as a result of the proposed Project. This issue will not be addressed further in the forthcoming EIR.

Source: Project Description

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIV. PUBLIC SERVICES. Would the project:				
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

Public Service Discussion:

a) ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?***

i. Fire protection?

Fire protection services are provided to the City of Banning through a contractual agreement with the Riverside County Fire Department, which in turn contracts with the California Department of Forestry CAL FIRE. The contract provides various fire related services, including emergency medical services, fire prevention, disaster preparedness, fire safety inspections, hazardous materials business plan programs and plan reviews. When an emergency call is received, the station that is physically closest to the emergency will respond, even if the emergency is located outside the station's official "jurisdiction" (GP-PSF, p. VI-35.)

Fire Station No. 89, located at 172 North Murray, is approximately 1.7 miles to the northwest of the Project site and would likely provide emergency response services to the Project site. The Riverside County Fire Department is rated as Class 4 by the Insurance Service Office (ISO), a private company, which rates fire departments throughout the country based on a scale of 1 to 10, with Class 1 being the highest possible score. The City aims for a ratio of above 0.70 fire personnel per 1,000 residents, which would be 58 firefighters at General Plan buildout (GP DEIR, p. III-202). The City of Banning's contract for fire support services with the County includes a Regional Fire Protection Program with other surrounding cities wherein each of the cities (Beaumont, Calimesa, Cabazon) has access to the services provided by the County to the participating jurisdictions.

The Project proposes to extend John Street to the east and develop a warehouse. This use is consistent with the City's existing land use designation for the site. The Project will not cause a significant increase in population triggering the need for additional fire facilities or impacts to acceptable service ratios, response times, or performance objectives. The Project will be designed to meet Banning Municipal Code 8.16.010, which applies the 2016 California Fire code to building and equipment design features. The proposed Project is a warehouse being built on speculation, therefore there is no identified user at this time. The anticipated uses for the building include standard high-cube warehousing, which typically includes household products and is not being designed to store hazardous materials. No hazardous or highly volatile substances are anticipated to be stored on-site per Threshold VIII(a) and (c); however, should the site store hazardous materials, the Project will comply with state and federal regulations pertaining to hazardous materials storage. The Banning Fire Department will conduct pre-occupancy and periodic inspections after occupancy to ensure compliance with all fire and hazardous materials regulations.

Interviews with the industrial Project general contractor were (Personal Communications, Bob Harding) conducted to determine the number of workers required for a project this size. Construction projects of this size typically require between 20 and 150 workers per day at the site, depending on the phase of construction and take approximately 10 – 18 months to complete. Due to the limited duration of construction, population growth from construction jobs is not expected. For a warehouse this size based on industry research conducted by the National Association for Industrial and Office Parks (NAIOP), it is

estimated that there would be approximately one long term worker employed for every 2,000 square feet of space. For this Project, that would be approximately 500 workers employed at the site, depending on the type of use the building will ultimately operate. Only a portion of total employees would, however, be anticipated to be new residents attracted to Banning specifically by the Project. The Project is consistent with the type and intensity of development envisioned by the General Plan in the Project area. The developer will also be required to pay Fire Impact fees to address potential impacts to fire protection services.

Therefore, impacts related to fire protection will be **less than significant** and no mitigation measures are required**. This issue will not be addressed further in the forthcoming EIR.**

Source: GP – PSF; GP DEIR

ii. Police protection?

Police protection services within City limits are provided by the Banning Police Department (GP, p. VI-32). The Banning Police Department has 35 sworn officers and maintains a ratio of 1.4 sworn officers for every 1,000 residents (GP DEIR, p. III-200). The City's police station is located at 125 East Ramsey Street, approximately 1.7 miles northwest of the Project site. The police response time for high-priority calls is between three and seven minutes with the City (GP-PSF, p. VI-33). The developer will pay the associated police impact fees.

The Project proposes to extend John Street to the east and develop a warehouse; this use is consistent with the City's existing land use designation for the site. The Project site will be fully fenced on all four sides with eight foot chain link fencing. An entry gate, including a guard house, will be installed near the Project entrance at the terminus of John Street and a gate on the northeast side of the building. The Project is not anticipated to cause a significant increase in population triggering the need for additional police services. An interview with the industrial project general contractor was conducted (Personal Communications, Bob Harding) to determine the number of construction workers required for a project this size. Projects of this size typically require between 20 and 150 workers per day at the site, depending on the phase of construction and take approximately 10 – 18 months to complete. Due to the limited duration of construction, population growth from construction jobs is not expected.

For a warehouse this size, based on industry research conducted by the National Association for Industrial and Office Parks (NAIOP), it is estimated that there would be approximately one long-term worker employed for every 2,000 square feet of space. For this Project, that would be approximately 500 long–term workers employed at the site, depending on the type of use the building will ultimately operate. Only a portion of total employees would, however, be anticipated to be new residents attracted to Banning specifically by the Project. The Project is consistent with the type and intensity of development envisioned by the General Plan in the Project area. The developer will also be required to pay Police Facilities impact fees. Consequently, impacts related to police protection will be **less than significant** and no mitigation measures are required**. This issue will not be addressed further in the forthcoming EIR.**

Source: GP – PSF; GP DEIR

iii. Schools?

The majority of the City is served by the Banning Unified School District, with a small area in the western portion of the City served by the Beaumont Unified School District (GP, pp. VI-24 – VI-25). The proposed Project involves extending John Street to the east and developing a warehouse and will not cause an increase in population that would require additional school facilities. According to the SCAG profile of the City, between 2000 thru 2016, school enrollment decreased by 4.6 percent for elementary (grades K-6), 10.7 percent for grades 7-9, and showed an increase of 1.3 percent for grades 10-12.

As has been noted in preceding sections, limited local population growth is expected as a direct result of the proposed Project. The Banning Union School District (BUSD) will determine school impact fees the developer will be required to pay to address potential impacts to school facilities. The District's fee schedule is based on square footage and the type of development involved. With payment of impact fees, **no impact** related to school services or facilities is anticipated. **This issue will not be addressed further in the forthcoming EIR.**

Source: GP – PSF; GP DEIR; SCAG

iv. Parks?

Parks and recreation services within the City of Banning are provided by the City Community Services Department. The closest City park to the Project (Lions Park) is approximately five mile away. The Riverside County Regional Park and Open Space District also provides recreational facilities and services at County owned parks facilities. As has been noted previously, the proposed Project is a warehouse that will not cause a substantial increase in local population. Consequently, no need to provide additional park service is anticipated. The Project will pay parkland associated development impact fees. With payment of impact fees, **no impact** related to park services or facilities is anticipated. **This issue will not be addressed further in the forthcoming EIR**.

Source: GP – Community Development; GP DEIR

vi. Other public facilities?

Other public facilities in the City include one U.S. Post Office, the Banning Municipal Airport, San Gorgonio Memorial Hospital, and a number of public utility facilities operated by the City Public Works Department. As has been noted previously, the proposed Project is a warehouse that will not cause a substantial increase in local population No construction of additional public facilities will be required. The Project will also pay associated general City facility development impact fees. Therefore, since no additional public facilities are anticipated, there will be **no impact** to public facilities. **This issue will not be addressed further in the forthcoming EIR.**

Source: GP – PSF

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. RECREATION.				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Recreation Discussion:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The closest City park to the Project, Lions Park, is approximately a five mile drive; the closest regional park is Bogart Park located in Cherry Valley, approximately a 13 mile drive from the Project site. The proposed Project involves the development of a warehouse and will not cause a substantial increase in the local population, as described in preceding sections. Consequently, no increase in the use of existing neighborhood and regional parks or other recreational facilities is anticipated. The Project will pay parkland associated development impact fees. With payment of impact fees, **no impact** related to parks or other recreational facilities is anticipated. **This issue will not be addressed further in the forthcoming EIR**.

Source: Project Description

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Project does not include new public recreational facilities or require the construction or expansion of recreational facilities. As described in the preceding sections (Section XIII – Population and Housing, and Section XIV-iv, Parks), the proposed Project will not cause a significant increase in local population, and no need for additional park facilities is anticipated. The Project must also pay parkland related impact fees. Consequently, there will be **no impact** in this regard. **This issue will not be addressed in the forthcoming EIR.**

Source: Project Description

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVI. TRANSPORTATION/TRAFFIC. Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☒	☐	☐	☐
b. Conflict with applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e. Result in inadequate emergency access?	☐	☐	☒	☐
f. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Transportation and Traffic Discussion:

a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

A Traffic Impact Analysis will be prepared and potential impacts relative to compliance with adopted plans and policies analyzed as part of the EIR. Short-term, construction-related and long-term, operationally generated traffic will occur with the Project. The Project may have a **potentially significant impact** related to the effectiveness of the circulation system. **This topic will be addressed further in the forthcoming EIR**.

b) Conflict with applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Each county in California is required to develop a Congestion Management Program (CMP) that analyzes the links between land use, transportation and air quality. The Riverside County Transportation Commission

(RCTC) is the County of Riverside's Congestion Management Agency. The RCTC prepares and periodically updates the County's CMP to meet federal Congestion Management System guidelines and state CMP legislation. According to the RCTC CMP, within Banning's sphere of influence, I-10 is the only roadway that is part of the CMP. The Project may have a **potentially significant impact** related to travel demand, level of service standards and other CMP provisions. **This topic will be addressed in the forthcoming EIR.**

Source: RCTC CMP

c) Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The Banning Municipal Airport is located immediately adjacent to the south and west of the Project site. The Project's use as a distribution center is consistent with the allowable land uses within the Zones B1, B2 and D of the Airport Land Use Compatibility Plan and as reviewed in the ALUC's Development Review of the Project in March 2017 (ALUC). A General Plan Amendment and Zone Change is in process for the Project's southern portion of the parcels that are zoned PF-A to be zoned AI. The Project is not anticipated to use Banning Municipal Airport for the movement of goods as the airport does not have the required infrastructure. The operation of the proposed Project is anticipated to use airports in the Inland Empire that have existing cargo operations for the movement of goods; however, the utilization of these airports is not anticipated to cause in increase in total operations or cause other adverse impacts. Therefore, implementation of the Project will have a **less than significant** and no mitigation measures are required related to air traffic patterns. **This issue will not be addressed in the forthcoming EIR.**

Source: ALUC2; GE; Project Description

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed Project does not propose any design features that would increase traffic hazards. The Project would, however, introduce truck traffic onto existing streets and at freeway ramps, and does include the expansion of John Street. These impacts may be **potentially significant**. **The forthcoming EIR will discuss these issues** related to a potential increase in traffic hazards.

Source: Project Description

e) Result in inadequate emergency access?

Access to the Project site will be provided from the John Street extension and a secondary fire access road south and west of the Project site. As Threshold VIII (g) notes, John Street would not be designated as a Major Local Roadway and would not be expected to be a major evacuation route in the event of an emergency. The traffic analysis will, however, evaluate potential impacts of increased truck and vehicular traffic to emergency access and evacuation routes. These impacts may be **potentially significant**. **This issue will be addressed in the forthcoming EIR.**

Source: BMC

f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The GP identifies that sidewalks, bike lanes, off-street trails and golf cart routes are especially important along major roadways in the community. In May 2002, the Banning City Council approved the final Pass Area Transit Plan. The Transit Plan establishes the Pass Transit System, which consists of two independent transit systems, the Banning Municipal Transit System and the Beaumont Municipal Transit System. Regional bus service is provided by the Riverside Transit Agency (RTA), which provides services to Hemet/San Jacinto (Route 31), Moreno Valley (Route 35), and Calimesa/Redlands (Route 36). There are no bus stops or bike lanes proposed as part of this Project. The closest bus route to the Project is the City of Beaumont Transit System Route 2 that goes to Beaumont, Morongo Casino and the Cabazon Outlet Malls. The bus stop for this route is located at the intersection of East Ramsey Street and Hargrave Street, approximately 1.4 miles north of the Project site on the north side of I-10.

The proposed Project involves development of a warehouse that will not conflict with any adopted policies, plans, or programs supporting alternative transportation. Therefore, **no impact** will occur. **This issue will not be addressed in the forthcoming EIR.**

Source: GP – CD

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVII. TRIBAL CULTURAL RESOURCES. Would the project:				
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resources, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☒	☐	☐	☐

Tribal Cultural Resources Discussion:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

As discussed previously in *Threshold 5a (Cultural Resources)* there are no listed historic resources or any eligible for listing at the Project site and the site is currently vacant. Nonetheless, it is possible that previously undiscovered historical resources may be encountered at the Project site. A site-specific cultural resources investigation will be conducted at the Project site. Thus, impacts to tribal resources are considered **potentially significant** and **this topic will be addressed in the forthcoming EIR.**

Source: AE

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Assembly Bill 52 (AB 52), signed into law in 2014, amended CEQA and established new requirements for tribal notification and consultation. AB 52 applies to all projects for which a notice of preparation or notice of intent to adopt a negative declaration/mitigated negative declaration is issued after July 1, 2015. AB 52 also broadly defines a new resource category of tribal cultural resources and established a more robust process for meaningful consultation that includes:

- prescribed notification and response timelines;
- consultation on alternatives, resource identification, significance determinations, impact evaluation, and mitigation measures; and
- documentation of all consultation efforts to support CEQA findings.

AB 52 notification was initiated for this Project as required for a Notice of Preparation and EIR.

Senate Bill (SB) 18 requires local agencies to consult with tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process, thereby providing tribes an opportunity to participate in local land use decisions at an early planning stage. SB 18 notification was initiated for this Project as required for a General Plan Amendment and associated Change of Zone.

In accordance with SB 18 and AB 52, the City sent letters of Notice to all Native American tribes on the recommended NAHC (Native American Historic Commission) distribution list, advising of the General Plan Amendment, Zone Change and EIR. Tribal consultations will be held as requested. Since AB 52 and SB 18 consultation is currently in progress by the Lead Agency, the Project may have a **potentially significant impact** related to tribal notification and consultation; **the forthcoming EIR will analyze this issue.**

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIII. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b. Require or result in the construction of new water or wastewater treatment or facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☐	☐
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Utilities and Service Systems Discussion:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Project construction will be required to comply with the provisions of the SWRCB Construction general permit to ensure all wastewater treatment requirements are met. Wastewater produced at the Project site will likely be transported to the City of Banning Wastewater Reclamation Plant, located at 2242 East Charles Street. The City's GP contains policies and programs intended to reduce impacts to water resources to less than significant levels and assure the continued implementation of federal, state, local and all other applicable pollution control standards (GP DEIR, p. III-110). Thus, compliance with the GP would also constitute compliance with wastewater treatment requirements of the RWQCB and impacts will be **less than significant. This topic will not be further discussed in the EIR.**

Source: Project Description; SWRCB; GP DEIR

b) Require or result in the construction or relocation of new water or wastewater treatment or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The City of Banning Public Works – Wastewater Division provides sanitary wastewater services to the City of Banning, including the Project site. Buildout according to the City's GP is anticipated to occur gradually over the life of the GP and the City will monitor growth trends to assure that wastewater services are adequate (GP DEIR, p. III-210). The Project will provide approximately 6,000 linear feet of sewer line and an associated lift station. In addition, the Project will be required to contribute development impact fees for projected

future needs of the City wastewater collection and treatment system. Because impacts have not been fully investigated the Project may have a **potentially significant impact** related to new wastewater facilities, including a sewer line and lift station. **This topic will be addressed further in the forthcoming EIR.**

Source: Project Description; GP DEIR

c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As noted in Threshold XVI.b) the Project includes construction of storm drain facilities to accommodate existing and proposed stormwater flows. Potential impacts of these facilities have not been fully investigated, therefore the Project could have a **potentially significant impact**. **This issue will be analyzed in the forthcoming EIR.**

Source: Project Description

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

City Public Works and Utilities provides domestic water services to the City of Banning and unincorporated County of Riverside lands located southwesterly of the City limits. The City owns and operates wells, reservoirs, and a distribution line system to deliver domestic water within their service area.

The Project requires construction of an offsite water line 9,350 linear feet in length to connect to existing lines at the intersection of S. Hathaway Street and E. Barbour Street. Approximately 4,714 linear feet of the water line extension will extend north on Hathaway and then east on the extension of John Street. The remaining 4,636 linear feet will be east and south of the Project site, terminating at the intersection of Scott Street and W. Westward Avenue. Impacts have not been fully quantified relating to water supplies. The Project could have a **potentially significant impact** in this regard. **This issue will be analyzed in the forthcoming EIR.**

Source: Project Description; GP DEIR; UWMP

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The City of Banning Public Works – Wastewater Division provides sanitary wastewater services to the City of Banning, including the Project site. Buildout according to the City's GP is anticipated to occur gradually over the life of the GP and the City will monitor growth trends to assure that wastewater services are adequate (GP DEIR, p. III-210).

The Project includes offsite improvements, including an approximately 6,000 linear foot sewer line and lift station. In addition, the Project will be required to contribute development impact fees for projected future needs of the City wastewater collection and treatment system. Impacts have not been fully investigated related to wastewater services. The Project could have a **potentially significant impact**. **This issue will, therefore, be analyzed in the forthcoming EIR.**

Source: Project Description; GP DEIR

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Solid waste collection and disposal services are provided by Waste Management Inland Empire and trash collected from the City is disposed at the Lamb Canyon Sanitary Landfill, El Sobrante Landfill, and the Badlands Landfill. According to CalRecycle databases, the El Sobrante Landfill has a remaining capacity of 145,530,000 tons and is anticipated to cease operation in 2045. Similarly, the Badlands Sanitary Landfill had a remaining capacity of 15,748,799 cubic yards as of January 2015 and is anticipated to operate through January 2022 (CalRecycle).

Warehouse solid waste generation rates are approximately 13.82 pounds/day per employee (CalRecycle). Using the industry standard CalRecycle estimated solid waste generation rates, a warehouse the size of this Project would generate approximately 13.82 pounds of waste per day, per employee. This Project assumes approximately 500 total employees, although only a portion would likely be on-site at any given time. At worst case, assuming all 500 employees to be on-site each day, 6,910 pounds of waste could be generated each day (4.07 cubic yards) (ENG).

The proposed Project is consistent with the anticipated land uses analyzed by the City's General Plan and the Project is not anticipated to generate what would be considered a significant amount of waste. Proposed land uses envisioned in the City's GP are not anticipated to produce unusually high quantities of waste; however, in order to ensure the safe and cost effective disposal of the City's solid waste, monitoring of waste management by City departments is necessary (GP DEIR, p. III-212). Landfills that would most likely receive solid wastes generated by the Project have available capacity. The Project's solid waste disposal needs and potential impacts are consequently considered to be **less than significant and no mitigation measures are required. This issue will not be addressed in the forthcoming EIR.**

Source: CAL-R; ENG

g) Comply with federal, state, and local statutes and regulations related to solid waste?

The collection and disposal of solid waste would conform to applicable federal, State, and local plans and regulations, including AB 939 (Integrated Waste Management Act, 1989) that local jurisdictions divert at least 50% of all solid waste generated by January 1, 2000 (GP DEIR, p. III-211). AB 341 (Mandatory Recycling), adopted in 2011, increases this recycling goal to 75% of solid waste generated should be reduced, recycled or composted by the year 2020. The proposed Project will be required to adhere to all federal, State and local regulations related to solid waste during construction and operation.

The City's GP Public Services and Facilities policies include the following that will be applied to this Project:

- Policy 7 – The City shall continue to confer and coordinate with its solid waste service franchisee to maintain and, if possible, exceed the provisions of AB 939 by expanding recycling programs that divert valuable resources from the waste stream and returning these materials to productive use.

- Policy 8 – the City shall support, and to the greatest extent practical, shall encourage commercial and industrial businesses to reduce and limit the amount of packaging and potential waste associated with produce sale and production.

In consideration of the foregoing factors, the proposed Project is considered to have a **less than significant impact** in terms of complying with federal, state, and local statutes and regulations related to solid waste. **This issue will not be addressed further in the forthcoming EIR.**

Source: GP DEIR

ENVIRONMENTAL FACTORS:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIV. MANDATORY FINDINGS OF SIGNIFICANCE.				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or an endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Mandatory Findings of Significance Discussion:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or an endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

MSHCP Section 6.3.2 requires burrowing owl and Los Angeles pocket mouse surveys to determine the presence or absence of this species at the Project site and areas associated with off-site features, along with appropriate mitigation measures to reduce impacts to this species. The proposed Project is also required to pay MSHCP impact fees to contribute to regional habitat protection for multiple species. There are no known historic or archaeological resources at the Project site or in areas associated with the construction of off-site features. Compliance with standard procedures identified in this assessment will ensure that any impacts to human remains that may be uncovered during Project construction will be less than significant. It is still possible, however, that there may be previously unidentified cultural resources at the Project site. Because there may be potentially significant impacts to burrowing owls and unknown cultural resources at

the proposed Project site, these topics will be addressed in the forthcoming EIR and appropriate mitigation measures identified to reduce impacts to a less than significant level.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The proposed Project will be developed in conformance with the Airport Industrial land use designation in the city's General Plan. The Project may, however, result in several cumulatively considerable impacts, including air quality, noise, and traffic generation. Project-specific studies will be prepared in these topical areas to assess the proposed Project's contribution to potentially significant cumulative impacts. Because there may be potentially significant cumulative impacts, this topics will be addressed in the forthcoming EIR and appropriate mitigation measures identified to reduce impacts to a less than significant level.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The Project proposes construction and operation of a warehouse building, which will attract additional traffic to the area. This may contribute to an exceedance of SCAQMD thresholds for air quality and pose a threat to human health. Likewise, noise impacts associated with construction and operation of the proposed Project will be assessed to determine the potential for nuisance noises to be generated at the Project site. Project-related impacts have not been fully evaluated and the Project may have a potentially significant impact to human health. These topics will be addressed in the forthcoming EIR and appropriate mitigation measures identified to reduce impacts to a less than significant level.

EARLIER ANALYSES

Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration as per California Code of Regulations, Section 1503 (c) (3) (D).

Earlier Analysis Used, if any:

None

REFERENCES AND BIBLIOGRAPHY

The following documents were referred to as information sources during preparation of this document. They are available for public review at the locations abbreviated after each listing and spelled out at the end of this section. Some of these documents may also be available at the Banning Public Library.

Cited As:	Source:
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ALUC2	Riverside County Airport Land Use Commission, *Re: Airport Land Use Commission (ALUC Development Review, File No. ZAP1023BA16, Related File No. DR 16-7002 (Design Review), APNs: 532-110-006, 532-130-001, 532-130-002)* (Appendix D)
AQMD	South Coast Air Quality Management District, *Final 2016 AQMP-CARB/EPA/SIP Submittal,* March 2017. (Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp, accessed May 8, 2017).
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CFR	Code of Federal Regulations, *Title 49 Transportation*. (Available at http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49tab_02.tpl, accessed May 3, 2017.)

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DOC California Department of Conservation, *California Important Farmland Finder.* (Available at http://maps.conservation.ca.gov/ciff/ciff.html, accessed April 26, 2017.)

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GP -CD City of Banning, *The City of Banning General Plan, Chapter III - Community Development*, adopted January 31, 2006. (Available at http://www.ci.banning.ca.us/DocumentCenter/View/663, accessed April 26, 2017.)

GP -EH City of Banning, *The City of Banning General Plan, Chapter V - Environmental Hazards*, adopted January 31, 2006. (Available at http://www.ci.banning.ca.us/DocumentCenter/View/665, accessed April 26, 2017.)

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GP-RIV County of Riverside, General Plan, Chapter 6 – Safety Element, revised December 6, 2016. (Available at http://planning.rctlma.org/Portals/0/genplan/general_Plan_2017/elements/OCT17/Ch06_Safety_DEC2016.pdf?ver=2017-10-06-093651-757, accessed November 8, 2017.)

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HEI HEI Corporation, *Phase 1 Environmental Site Assessment Undeveloped 58.3 Acre Tract of Land North of the Banning Airport Banning, California*, April 2017 (Appendix B)

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RCTC CMP — Riverside County Transportation Commission, *2011 Riverside County Congestion Management Program*, December 14, 2011. (Available at http://www.rctc.org/uploads/media_items/congestionmanagementprogram.original.pdf, accessed May 3, 2017.)

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LIST OF INITIAL STUDY PREPARERS

Albert A. Webb Associates
3788 McCray Street, Riverside, CA 92506
Planning and Environmental Services Department
Stephanie Standerfer, Vice President, Planning and Environment
Cynthia Gibbs, Senior Environmental Analyst

City of Banning (Lead Agency)
99 E Ramsey Street, Banning, CA. 92220
Community Development Department
Patty Nevins, Community Development Director
Marie Gilliam, Contract Planner

Appendix B

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Notice of Preparation



January 22, 2018

To: Reviewing Agencies

Re: Banning Distribution Center
SCH# 2018011032

Attached for your review and comment is the Notice of Preparation (NOP) for the Banning Distribution Center draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Patty Nevins
City of Banning
99 E. Ramsey Street
Banning, CA 92220-0998

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2018011032
Project Title Banning Distribution Center
Lead Agency Banning, City of

Type NOP Notice of Preparation

Description The proposed project involves development of a non-refrigerated high-cube warehouse building and offsite improvements with 990,000 sf of warehouse space; 10,000 sf of office space; 321 truck and trailer parking spaces; 166 automobile parking spaces, 8 Americans with Disabilities parking spaces and 205 loading docks. Associated project entitlement actions include a GPA and ZC, changing the land use and zoning of PF-A to AI on a portion of the subject site, and design review.

Lead Agency Contact

Name Patty Nevins
Agency City of Banning
Phone (951) 922-3130 **Fax**
email
Address 99 E. Ramsey Street
City Banning **State** CA **Zip** 92220-0998

Project Location

County Riverside
City Banning
Region
Cross Streets Hargrave St and John St
Lat / Long 33° 55' 29.9" N / 116° 50' 47.12" W
Parcel No. 532-110-006, -130-001, 002
Township 3S **Range** 1E **Section** 11SE **Base**

Proximity to:

Highways 10, 243
Airports Banning Municipal
Railways UPRR
Waterways Smith Creek
Schools Banning HS
Land Use Airport industrial and public facilities

Project Issues Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Public Services; Sewer Capacity; Solid Waste; Traffic/Circulation; Water Quality; Water Supply; Wetland/Riparian; Landuse; Other Issues

Reviewing Agencies Resources Agency; Colorado River Board; Cal Fire; Office of Historic Preservation; Department of Parks and Recreation; Department of Fish and Wildlife, Region 6; Department of General Services; Native American Heritage Commission; Public Utilities Commission; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 8; Air Resources Board, Major Industrial Projects; Regional Water Quality Control Board, Region 7

Date Received 01/22/2018 **Start of Review** 01/22/2018 **End of Review** 02/20/2018

Note: Blanks in data fields result from insufficient information provided by lead agency.

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

2018011032

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Banning Distribution Center

Lead Agency: City of Banning | Contact Person: Patty Nevins

Mailing Address: 99 E Ramsey Street | Phone: (951) 922-3130

City: Banning | Zip: 92220 | County: Riverside

Project Location: County: Riverside | City/Nearest Community: City of Banning

Cross Streets: Hargrave Street and John Street | Zip Code: 92220

Longitude/Latitude (degrees, minutes and seconds): 33 ° 55 ′ 29.92″ N / 116 ° 50 ′ 47.12″ W | Total Acres: 63.9

Assessor's Parcel No.: 532-110-006, 532-130-001, -002 | Section: 11 SE | Twp.: 3 S | Range: 1 E | Base:

Within 2 Miles: State Hwy #: 10, 243 | Waterways: Smith Creek

Airports: Banning Municipal | Railways: Union Pacific | Schools: Banning High School

Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec
☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other: Initial Study
☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other:

Governor's Office of Planning & Research
JAN 22 2018
STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☒ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☒ Site Plan
☒ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units ____ Acres ____
☒ Office: Sq.ft. 10,000 Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☒ Industrial: Sq.ft. 990,000 Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW
☐ Waste Treatment: Type ____ MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:

☐ Aesthetic/Visual
☐ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☐ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☐ Forest Land/Fire Hazard
☒ Geologic/Seismic
☐ Minerals
☒ Noise
☐ Population/Housing Balance
☒ Public Services/Facilities
☐ Recreation/Parks
☐ Schools/Universities
☐ Septic Systems
☒ Sewer Capacity
☐ Soil Erosion/Compaction/Grading
☒ Solid Waste
☐ Toxic/Hazardous
☒ Traffic/Circulation
☐ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☐ Growth Inducement
☒ Land Use
☐ Cumulative Effects
☒ Other: GHG.

Present Land Use/Zoning/General Plan Designation:

Airport Industrial and Public Facilities

Project Description: *(please use a separate page if necessary)*

The proposed Project involves development of a non-refrigerated high-cube warehouse building and offsite improvements with 990,000 square feet of warehouse space; 10,000 square feet of office space; 321 truck and trailer parking spaces; 166 automobile parking spaces, 8 Americans with Disabilities (ADA) parking spaces and 205 loading docks. Associated project entitlement actions include a General Plan Amendment (GPA) and Zone Change(ZC), changing the land use and zoning of Public Facilities-Airport (PF-A) to Airport Industrial (AI) on a portion of the subject site, and Design Review. See Attachment for additional detail.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

X	Air Resources Board		Office of Historic Preservation
	Boating & Waterways, Department of		Office of Public School Construction
	California Emergency Management Agency		Parks & Recreation, Department of
	California Highway Patrol		Pesticide Regulation, Department of
S	Caltrans District #8	X	Public Utilities Commission
S	Caltrans Division of Aeronautics	S	Regional WQCB #7
	Caltrans Planning		Resources Agency
	Central Valley Flood Protection Board		Resources Recycling and Recovery, Department of
	Coachella Valley Mtns. Conservancy		S.F. Bay Conservation & Development Comm.
	Coastal Commission		San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
	Colorado River Board		San Joaquin River Conservancy
	Conservation, Department of		Santa Monica Mtns. Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of		SWRCB: Water Quality
	Energy Commission		SWRCB: Water Rights
S	Fish & Game Region #6		Tahoe Regional Planning Agency
	Food & Agriculture, Department of		Toxic Substances Control, Department of
	Forestry and Fire Protection, Department of		Water Resources, Department of
	General Services, Department of		
	Health Services, Department of	X	Other: South Coast Air Quality Management District
	Housing & Community Development	X	Other: Riverside County Airport Land Use Commission
S	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date January 22, 2018 Ending Date February 20, 2018

Lead Agency (Complete if applicable):

Consulting Firm: Albert A WEBB Associates
Address: 3788 McCray Street
City/State/Zip: Riverside CA, 92506
Contact: Stephanie Standerfer
Phone: (951) 686-1070

Applicant: Banning Industrial LP
Address: 17842 Mitchell North, Suite 100
City/State/Zip: Irvine, CA. 92614
Phone: (949)474-7664

Signature of Lead Agency Representative: [signature] **Date:** 1/10/18

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

NOP Distribution List

County: RIVERSIDE OR

SCH# 2018011032

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Denise Peterson
- [ ] **California Coastal Commission**
  Allyson Hitt
- [ ] **Colorado River Board**
  Lisa Johansen
- [ ] **Dept. of Conservation**
  Crina Chan
- [ ] **Cal Fire**
  Dan Foster
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- [ ] **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Wildlife Region 1**
  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Craig Weightman
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [ ] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- [ ] **California Department of Education**
  Lesley Taylor
- [ ] **OES (Office of Emergency Services)**
  Monique Wilber
- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Dept. of General Services**
  Cathy Buck
  Environmental Services Section
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Erik Vink
- [ ] **Delta Stewardship Council**
  Anthony Navasero
- [ ] **California Energy Commission**
  Eric Knight
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Supervisor
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- [ ] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans – Planning HQ LD-IGR**
  Christian Bushong
- [ ] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Eric Federicks – South
  Susan Zanchi - North
- [ ] **Caltrans, District 4**
  Patricia Maurice
- [ ] **Caltrans, District 5**
  Larry Newland
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Dianna Watson
- [ ] **Caltrans, District 8**
  Mark Roberts
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- [ ] **Airport & Freight**
  Jack Wursten
  - [ ] **Transportation Projects**
    Nesamani Kalandiyur
  - [ ] **Industrial/Energy Projects**
    Mike Tollstrup
- [ ] **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- [ ] **State Water Resources Control Board**
  Div. Drinking Water #_____
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control Reg. #_____**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

_____

_____

- [ ] Coachella Conservancy

Last Updated 12/01 /17

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710



January 25, 2018

Patty Nevins
City of Banning
99 E. Ramsey Street
Banning, CA 92220-0998

Sent via e-mail: pnevins@ci.banning.ca.us

RE: SCH# 2018011032; Banning Distribution Project, City of Banning; Riverside County, California

Dear Ms. Nevins:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for Draft Environmental Impact Report for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd. (a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code § 21084.2). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," http://resources.ca.gov/ceqa/docs/ab52/Clean-final-AB-52-App-G-text-Submitted.pdf. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws**.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
    d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.
    c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    a. Type of environmental review necessary.
    b. Significance of the tribal cultural resources.
    c. Significance of the project's impacts on tribal cultural resources.
    d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
    b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

    This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

cc: State Clearinghouse

LOZEAU DRURY LLP

T 510.836.4200
F 510.836.4205

410 12th Street, Suite 250
Oakland, Ca 94607

www.lozeaudrury.com
richard@lozeaudrury.com

Via Email and U.S. Mail

January 26, 2018

Patty Nevins, Community Development Director
City of Banning
99 E. Ramsey Street
Banning, CA 92220
pnevins@ci.bannning.ca.us

Sonja De La Fuente, City Clerk
City of Banning
99 E. Ramsey Street
Banning, CA 92220
sdelafuente@ci.banning.ca.us

Re: CEQA and Land Use Notice Request for the Banning Distribution Center, SCH2018011032

Dear Ms. Nevins and Ms. De La Fuente,

I am writing on behalf of the Laborers International Union of North America, Local Union 1184 and its members living in Riverside County and/or the City of Banning ("LiUNA"), regarding the Banning Distribution Center (aka SCH2018011032, GPA 17-2501, ZC 17-3501, DR 16-7002, and ENV 16-150), including all actions related or referring to the proposed development of a 990,000 sf high-cube warehouse building located on 63.9 acres to the north and east of, and directly adjacent to, the Banning Airport on Parcel Numbers 532-110-006, 532-130-001, and 532-130-002 in the City of Banning ("Project").

We hereby request that the City of Banning ("City") send by electronic mail, if possible or U.S. Mail to our firm at the address below notice of any and all actions or hearings related to activities undertaken, authorized, approved, permitted, licensed, or certified by the City and any of its subdivisions, and/or supported, in whole or in part, through contracts, grants, subsidies, loans or other forms of assistance from the City including, but not limited to the following:

- Notice of any public hearing in connection with the Project as required by California Planning and Zoning Law pursuant to Government Code Section 65091.

- Any and all notices prepared for the Project pursuant to the California Environmental Quality Act ("CEQA"), including, but not limited to:

    - Notices of any public hearing held pursuant to CEQA.

- Notices of determination that an Environmental Impact Report ("EIR") is required for a project, prepared pursuant to Public Resources Code Section 21080.4.
- Notices of any scoping meeting held pursuant to Public Resources Code Section 21083.9.
- Notices of preparation of an EIR or a negative declaration for a project, prepared pursuant to Public Resources Code Section 21092.
- Notices of availability of an EIR or a negative declaration for a project, prepared pursuant to Public Resources Code Section 21152 and Section 15087 of Title 14 of the California Code of Regulations.
- Notices of approval and/or determination to carry out a project, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notices of approval or certification of any EIR or negative declaration, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notices of determination that a project is exempt from CEQA, prepared pursuant to Public Resources Code section 21152 or any other provision of law.
- Notice of any Final EIR prepared pursuant to CEQA.
- Notice of determination, prepared pursuant to Public Resources Code Section 21108 or Section 21152.

Please note that we are requesting notices of CEQA actions and notices of any public hearings to be held under any provision of Title 7 of the California Government Code governing California Planning and Zoning Law. **This request is filed pursuant to Public Resources Code Sections 21092.2 and 21167(f), and Government Code Section 65092**, which requires agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

Please send notice by electronic mail, if possible or U.S. Mail to:

Richard Drury
Theresa Rettinghouse
Lozeau Drury LLP
410 12th Street, Suite 250
Oakland, CA 94607
510 836-4200
richard@lozeaudrury.com
theresa@lozeaudrury.com

Please call if you have any questions. Thank you for your attention to this matter.

Sincerely,

Theresa Rettinghouse

Theresa Rettinghouse
Paralegal
Lozeau | Drury LLP

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA USPS AND E-MAIL: February 15, 2018

pnevins@ci.banning.ca.us
Patty Nevins, Director
City of Banning – Community Development Department
99 E. Ramsey Street
Banning, California 92220

Notice of Preparation of a Draft Environmental Impact Report for the Banning Distribution Center (GPA 17-2501, ZC 17-3501)

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. SCAQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the Proposed Project that should be included in the Draft Environmental Impact Report (EIR). Please send SCAQMD a copy of the Draft EIR upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address shown in the letterhead. **In addition, please send with the Draft EIR all appendices or technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files[1]. These include emission calculation spreadsheets and modeling input and output files (not PDF files). Without all files and supporting documentation, SCAQMD staff will be unable to complete our review of the air quality analyses in a timely manner. Any delays in providing all supporting documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from SCAQMD's Subscription Services Department by calling (909) 396-3720. More guidance developed since this Handbook is also available on SCAQMD's website at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). SCAQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

SCAQMD has also developed both regional and localized significance thresholds. SCAQMD staff requests that the Lead Agency quantify criteria pollutant emissions and compare the results to SCAQMD's CEQA regional pollutant emissions significance thresholds to determine air quality impacts.

[1] Pursuant to the CEQA Guidelines Section 15174, the information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

SCAQMD's CEQA regional pollutant emissions significance thresholds can be found here: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. In addition to analyzing regional air quality impacts, SCAQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the Proposed Project, it is recommended that the Lead Agency perform a localized analysis by either using the LSTs developed by SCAQMD staff or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the Proposed Project and all air pollutant sources related to the Proposed Project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, such as sources that generate or attract vehicular trips, should be included in the analysis.

In the event that the Proposed Project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the Lead Agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

In addition, guidance on siting incompatible land uses (such as placing homes near freeways) can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective*, which can be found at: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Guidance[2] on strategies to reduce air pollution exposure near high-volume roadways can be found at: https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF.

SCAQMD Staff's Recommendation for Truck Trip Rates for High Cube Warehouse Projects

SCAQMD staff recommends the use of truck trip rates from the Institute of Transportation Engineers (ITE) for high cube warehouse projects located in SCAQMD (i.e. 1.68 average daily vehicle trips per 1,000 square feet and 0.64 average daily truck trips per 1,000 square feet). Consistent with CEQA Guidelines, the Draft EIR for the Proposed Project may use a non-default trip rate if there is substantial evidence supporting another rate is more appropriate for the air quality analysis.

[2] In April 2017, CARB published a technical advisory, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*, to supplement CARB's Air Quality and Land Use Handbook: A Community Health Perspective. This technical advisory is intended to provide information on strategies to reduce exposures to traffic emissions near high-volume roadways to assist land use planning and decision-making in order to protect public health and promote equity and environmental justice. The technical advisory is available at: https://www.arb.ca.gov/ch/landuse.htm.

For high cube warehouse projects, SCAQMD staff has been working on a Warehouse Truck Trip Study to better quantify trip rates associated with local warehouse and distribution projects, as truck emission represent more than 90 percent of air quality impacts from these projects. Details regarding this study can be found online here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/high-cube-warehouse.

Mitigation Measures

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize these impacts. Pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying potential mitigation measures for the Proposed Project, including:

- Chapter 11 of SCAQMD's CEQA Air Quality Handbook
- SCAQMD's CEQA web pages available here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies
- SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- SCAQMD's Mitigation Monitoring and Reporting Plan (MMRP) for the 2016 Air Quality Management Plan (2016 AQMP) available here (starting on page 86): http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf
- CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

Additional mitigation measures for operational air quality impacts from mobile sources that the Lead Agency should consider in the Draft EIR may include the following:

- Require the use of 2010 and newer haul trucks (e.g., material delivery trucks and soil import/export). In the event that that 2010 model year or newer diesel haul trucks cannot be obtained, provide documentation as information becomes available and use trucks that meet EPA 2007 model year NOx emissions requirements[3], at a minimum. Additionally, consider other measures such as incentives, phase-in schedules for clean trucks, etc.
- Have truck routes clearly marked with trailblazer signs, so that trucks will not enter residential areas.
- Limit the daily number of trucks allowed at the Proposed Project to levels analyzed in the CEQA document. If higher daily truck volumes are anticipated to visit the site, the Lead Agency should commit to re-evaluating the Proposed Project through CEQA prior to allowing this land use or higher activity level.
- Provide electric vehicle (EV) Charging Stations (see the discussion below regarding EV charging stations).
- Should the Proposed Project generate significant regional emissions, the Lead Agency should require mitigation that requires accelerated phase-in for non-diesel powered trucks. For example, natural gas trucks, including Class 8 HHD trucks, are commercially available today. Natural gas trucks can provide a substantial reduction in health risks, and may be more financially feasible

[3] Based on a review of the California Air Resources Board's diesel truck regulations, 2010 model year diesel haul trucks should have already been available and can be obtained in a successful manner for the project construction California Air Resources Board. March 2016. Available at: http://www.truckload.org/tca/files/ccLibraryFiles/Filename/000000003422/California-Clean-Truck-and-Trailer-Update.pdf (See slide #23).

today due to reduced fuel costs compared to diesel. In the Final CEQA document, the Lead Agency should require a phase-in schedule for these cleaner operating trucks to reduce any significant adverse air quality impacts. SCAQMD staff is available to discuss the availability of current and upcoming truck technologies and incentive programs with the Lead Agency.

- Trucks that can operate at least partially on electricity have the ability to substantially reduce the significant NOx impacts from this project. Further, trucks that run at least partially on electricity are projected to become available during the life of the project as discussed in the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016-2040 RTP/SCS)[4]. It is important to make this electrical infrastructure available when the project is built so that it is ready when this technology becomes commercially available. The cost of installing electrical charging equipment onsite is significantly cheaper if completed when the project is built compared to retrofitting an existing building. Therefore, SCAQMD staff recommends the Lead Agency require the Proposed Project and other plan areas that allow truck parking to be constructed with the appropriate infrastructure to facilitate sufficient electric charging for trucks to plug-in. Similar to the City of Los Angeles requirements for all new projects, SCAQMD staff recommends that the Lead Agency require at least 5% of all vehicle parking spaces (including for trucks) include EV charging stations[5]. Further, electrical hookups should be provided at the onsite truck stop for truckers to plug in any onboard auxiliary equipment. At a minimum, electrical panels should appropriately sized to allow for future expanded use.
- Design the industrial building such that entrances and exits are such that trucks are not traversing past neighbors or other sensitive receptors.
- Design the industrial building such that any check-in point for trucks is well inside the Proposed Project site to ensure that there are no trucks queuing outside of the facility.
- Design the industrial building to ensure that truck traffic within the Proposed Project site is located away from the property line(s) closest to its residential or sensitive receptor neighbors.
- Restrict overnight parking in residential areas.
- Establish overnight parking within the industrial building where trucks can rest overnight.
- Establish area(s) within the Proposed Project site for repair needs.
- Develop, adopt and enforce truck routes both in and out of city, and in and out of facilities.
- Create a buffer zone of at least 300 meters (roughly 1,000 feet), which can be office space, employee parking, greenbelt, etc. between the Proposed Project and sensitive receptors.

Additional mitigation measures for operational air quality impacts from other area sources that the Lead Agency should consider in the Draft EIR may include the following:

- Maximize use of solar energy including solar panels; installing the maximum possible number of solar energy arrays on the building roofs and/or on the Project site to generate solar energy for the facility.
- Maximize the planting of trees in landscaping and parking lots.
- Use light colored paving and roofing materials.
- Utilize only Energy Star heating, cooling, and lighting devices, and appliances.
- Install light colored "cool" roofs and cool pavements.
- Require use of electric or alternatively fueled sweepers with HEPA filters.
- Use of water-based or low VOC cleaning products.

[4] Southern California Association of Governments. http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx.
[5] City of Los Angeles. http://ladbs.org/LADBSWeb/LADBS_Forms/Publications/LAGreenBuildingCodeOrdinance.pdf.

Alternatives

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires the consideration and discussion of alternatives to the project or its location which are capable of avoiding or substantially lessening any of the significant effects of the project. The discussion of a reasonable range of potentially feasible alternatives, including a "no project" alternative, is intended to foster informed decision-making and public participation. Pursuant to CEQA Guidelines Section 15126.6(d), the Draft EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

Permits

In the event that the Proposed Project requires a permit from SCAQMD, SCAQMD should be identified as Responsible Agency for the Proposed Project. For more information on permits, please visit SCAQMD webpage at: http://www.aqmd.gov/home/permits. Questions on permits can be directed to SCAQMD's Engineering and Permitting staff at (909) 396-3385.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available at SCAQMD's webpage at: http://www.aqmd.gov.

SCAQMD staff is available to work with the Lead Agency to ensure that project air quality impacts are accurately evaluated and any significant impacts are mitigated where feasible. If you have any questions regarding this letter, please contact me at lsun@aqmd.gov or call me at (909) 396-3308.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
RVC180123-01
Control Number

MORENO VALLEY GROUP

PO Box 1325, Moreno Valley, CA 92556-1325
(951) 288-0079

Regional Group of the San Gorgonio Chapter serving Moreno Valley

Good morning Ms Nevins, February 19, 2018

RE: Banning Distribution Center (GPA 17-2501; ZC 17-3501; DR 16-7002; ENV 16-1503) NOP comments.

The Sierra Club appreciates having this opportunity to raise some questions/concerns related to this proposed development which need to be addressed in the Draft EIR.

The public needs a figure which shows the location of “scattered residential uses” as well as rural residential, mobile home parks, and high density residential in relation to the the project site along with the roads that will be used by the project. There also needs to be a a figure which shows the allowed truck routes to and from the project as well as the proximity to other uses. Truck routes must avoid residential areas and the Draft EIR must easily show the public where it does and doesn’t.

Growth inducing impacts of the project with improvements like the extension of John Street, emergency fire access roadway, rail spur, wet utility area, extension of sewer and water lines as well as a lift station need to be fully analyzed/addressed. The Draft EIR analysis must include not only the project site, but all of improvements mentioned in the previous sentence and their impacts on all the areas you mentioned will be studied in the sectioned found above titled "Environmental Analysis”. The Growth inducing impacts and all other impacts related to the construction, development and operation of the project must include all adjacent lands — including the lands owned by the Morongo Indian Reservation.

The Draft EIR will need to show all the animals and plants that rely on the Ramsey Street wash well beyond the project site — at least one mile in each direction. How will the wash be protected to allow for animals to use it for linkages and connectivity? How will the project enhance it for all species that might use it and keep it clear from litter for the life of the project?

Will the project lighting maintain International Dark Sky standards? How will the lighting potentially interfere with airport operations. How will the height and roof material of the warehouse interfere with the airport? Will the projects lighting impact HWY 10. The headlights from the diesel trucks and other vehicles/equipment must be analyzed for their impacts on biological resources. All of these need to be analyzed/addressed in the Draft EIR. How will lighting impact the biological resources that use the Ramsey Creek Wash or are part of the nearby Criterial Cells or the resources found on the Morongo Indian Reservation. We disagree that this projects glare and light pollution impacts will be less than significant. They need to be addressed in the Draft EIR.

How does a 46 foot tall building maintain "preserve the natural vistas”? Will roof mounted equipment add to the height of the building making even more incompatible with the airport? Will that equipment be shielded from public view with what appears to be an internal part of the building? We disagree that it will have "less than a significant impact on scenic vistas." It needs to be addressed in the Draft EIR. This should include vistas from Highway 10.

Your check off on noise fails to mention the impacts caused during construction and operation of the project on those animals which would use the Ramsey Street wash as well as the MSHCP-designated Special Linkage Area. The operation of the warehouse could and will generate significant noise/vibration which would discourage wildlife from using these important linkages. This noise also includes that of the beeping sounds caused by trucks backing up. The standard for excessive noise/vibration cannot be that which just impacts humans, but must be what impacts all possible animals using the area that have much more sensitive hearing. The orientation of the building and loading bays as well as truck traffic must be considered when trying to address these negative impacts to wildlife. Cumulative noise increase must also be evaluated and mitigated at the project site as well as along all the truck routes on surface streets.

The alteration of the drainage pattern must analyze the impacts to both plant and animal life at the the site as well as beyond the project site — at least one mile. The Draft EIR must include the increase in toxic runoff from all the additional hard surfaces and their impacts on all the biological resources — again at least one mile beyond the project site. This must include birds.

Development of the Project will undoubtedly involve heavy diesel truck activity with significant impact on our already poor air quality. Therefore, we encourage and expect the City to explore and develop strong measures to mitigate diesel (NOx) emissions. Also, construction air quality mitigation must include measures such as the use of Tier 4 equipment and/or requiring the use of electric (non diesel) equipment. The project must provide the infrastructure for electric forklifts and hostlers/yard goats. The same for electric semi-trucks. (http://www.motortrend.com/news/tesla-semi-truck-finally-unveiled/) & (https://www.reuters.com/article/us-ups-tesla-orders/ups-reserves-125-tesla-semi-trucks-largest-public-pre-order-yet-idUSKBN1ED1QM) This projects adds to the unacceptable number of warehouses approved in our non-attainment Inland Empire and will further degrade our air quality. Every possible mitigation measure must be required to reduce its cumulative health impacts on all of us and the Sierra Club looks forward to reading them in the Draft EIR.

The EIR must fully disclose the Project's GHG emissions and evaluate its consistency with the City's Climate Action Plan. The EIR must require strong measures to off-set GHG emissions including mobile and energy emissions.

Cumulative Impacts. The EIR must consider all cumulative projects in its analysis. To the extent that future projects are known these must be included in the traffic analysis. This must also include all projects in adjacent jurisdictions like the San Gorgonio Crossings and Hidden Canyon Industrial Park Project, but not limited to those.

Thank you for considering these comments in your preparation of the Banning Distribution Center's Draft EIR. Please send me future documents and notices of public hearings by using the address under my name and this email address.

Sincerely,

George Hague

Sierra Club
Moreno Valley Group
Conservation Chair

26711 Ironwood Ave
Moreno Valley, CA 92555

State of California - Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
(909) 484-0167
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

February 20, 2018
Sent via email

Ms. Patty Nevins
City of Banning
99 E. Ramsey Street
Banning, CA 92220

Subject: Notice of Preparation of a Draft Environmental Impact Report
Banning Distribution Center Project
State Clearinghouse No. 2018011032

Dear Ms. Nevins:

The Department of Fish and Wildlife (Department) appreciates the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Banning Distribution Center Project (project) [State Clearinghouse No. 2018011032]. The Department is responding to the NOP as a Trustee Agency for fish and wildlife resources (California Fish and Game Code Sections 711.7 and 1802, and the California Environmental Quality Act [CEQA] Guidelines Section 15386), and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as the issuance of a Lake or Streambed Alteration Agreement (California Fish and Game Code Sections 1600 *et seq.*) and/or a California Endangered Species Act (CESA) Permit for Incidental Take of Endangered, Threatened, and/or Candidate species (California Fish and Game Code Sections 2080 and 2080.1).

Project Description

The 63.9-acre project site is located north and east of the Banning Airport, south of the Union Pacific Railroad line and Interstate 10, in the City of Banning, Riverside County. The applicant, Banning Industrial, LP proposes the construction and operation of approximately 1,000,000 square feet (sf) of industrial warehouse/distribution uses on the approximate 63.9-acre site within the AI (Airport Industrial) and PFA (Public Facilities - Airport) Zones of the City of Banning General Plan area. Associated project entitlement actions include a General Plan Amendment (GPA) and Zone Change (ZC), changing the land use and zoning of Public Facilities-Airport (PF-A) to Airport Industrial (AI) on a portion of the subject site.

COMMENTS AND RECOMMENDATIONS

The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species (i.e., biological resources); and administers the Natural Community Conservation Planning Program (NCCP Program). The Department offers the comments and

recommendations presented below to assist the City of Banning (City; the CEQA lead agency) in adequately identifying and/or mitigating the project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable the Department to adequately review and comment on the proposed project with respect to impacts on biological resources and the project's consistency with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The Department recommends that the forthcoming DEIR address the following:

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable Department staff to adequately review and comment on the project, the DEIR should include a complete assessment of the flora and fauna within and adjacent to the project footprint, with particular emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. The Department recommends that the DEIR specifically include:

1. An assessment of the various habitat types located within the project footprint, and a map that identifies the location of each habitat type. The Department recommends that floristic, alliance- and/or association based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al. 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions;

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the project. The Department's California Natural Diversity Database (CNDDB) in Sacramento should be contacted at (916) 322-2493 or CNDDB@wildlife.ca.gov to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the proposed project. The Department recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data

   Please note that the Department's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. The Department recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the project site.

3. A complete, *recent* inventory of rare, threatened, endangered, and other sensitive species located within the project footprint and within offsite areas with the potential to be effected, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the project area and should not be limited to resident species. Focused species-specific/MSHCP surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are

active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service, where necessary. Note that the Department generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed project may warrant periodic updated surveys for certain sensitive taxa, particularly if the project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.

4. A thorough, recent, floristic-based assessment of special status plants and natural communities, following the Department's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see https://www.wildlife.ca.gov/Conservation/Plants);

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]);

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The DEIR should provide a thorough discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources as a result of the project. To ensure that project impacts to biological resources are fully analyzed, the following information should be included in the DEIR:

1. A discussion of potential impacts from lighting, noise, human activity (e.g., recreation), defensible space, and wildlife-human interactions created by zoning of development projects or other project activities adjacent to natural areas, exotic and/or invasive species, and drainage. The latter subject should address project-related changes on drainage patterns and water quality within, upstream, and downstream of the project site, including: volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site.

   With respect to defensible space: please ensure that the DEIR fully describes and identifies the location, acreage, and composition of defensible space *within* the proposed project footprint. Please ensure that any graphics and descriptions of defensible space associated with this project comply with City of Banning Fire/CalFire/Riverside County Fire (or other applicable agency) regulations/ requirements. The City, through their planning processes, should be ensuring that defensible space is provided and accounted for *within proposed development areas*, and not transferred to adjacent open space or conservations lands.

2. A discussion of potential indirect project impacts on biological resources, including resources in areas adjacent to the project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Natural Community Conservation Plan, or other conserved lands).

3. A cumulative effects analysis developed as described under CEQA Guidelines § 15130.

Please include all potential direct and indirect project related impacts to riparian areas, wetlands, vernal pools, alluvial fan habitats, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and other sensitive habitats, open lands, open space, and adjacent natural habitats in the cumulative effects analysis. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Mitigation Measures for Project Impacts to Biological Resources

The DEIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the project. When proposing measures to avoid, minimize, or mitigate impacts, the Department recommends consideration of the following:

1. *Sensitive Plant Communities*: The Department considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2009). The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from project-related direct and indirect impacts.

2. *Mitigation*: The Department considers adverse project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the DEIR should include mitigation measures for adverse project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, onsite habitat restoration and/or enhancement should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

   The DEIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, including, but not limited to measures to ensure domestic animals (e.g., cats and dogs) cannot access mitigation areas, and removal procedures to implement if they do; proposed land dedications; long-term monitoring and management programs; control of illegal dumping; water pollution; and increased human intrusion, etc.

3. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific

success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

The Department recommends that local onsite propagules from the project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be initiated in the near future in order to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate.

Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the project; examples could include retention of woody material, logs, snags, rocks, and brush piles.

4. *Nesting Birds and Migratory Bird Treaty Act:* Please note that it is the project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). In addition, sections 3503, 3503.5, and 3513 of the Fish and Game Code (FGC) afford protective measures as follows: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by FGC or any regulation made pursuant thereto; Section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by FGC or any regulation adopted pursuant thereto; and Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

   The Department recommends that the DEIR include the results of avian surveys, as well as specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: project phasing and timing, monitoring of project-related noise (where applicable), sound walls, and buffers, where appropriate. The DEIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the project site. If pre-construction surveys are proposed in the DEIR, the Department recommends that they be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner.

5. *Moving out of Harm's Way:* The proposed project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, the Department recommends that the lead agency condition the DEIR to require that a Department-approved qualified biologist be retained to be onsite prior to and during all ground- and habitat-disturbing activities to move out of harm's way special status species or other wildlife of low or limited mobility that would otherwise be injured or killed from project-related

activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise by injured or killed, and individuals should be moved only as far a necessary to ensure their safety (i.e., the Department does not recommend relocation to other areas). Furthermore it should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.

6. *Translocation of Species*: The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species as studies have shown that these efforts are experimental in nature and largely unsuccessful.

California Endangered Species Act

The Department is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to the California Endangered Species Act (CESA). The Department recommends that a CESA ITP be obtained if the project has the potential to result in "take" (California Fish and Game Code Section 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the project. CESA ITPs are issued to conserve, protect, enhance, and restore State-listed CESA species and their habitats.

The Department encourages early consultation, as significant modification to the proposed project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. Please note that the proposed avoidance, minimization, and mitigation measures must be sufficient for the Department to conclude that the project's impacts are fully mitigated and the measures, when taken in aggregate, must meet the full mitigation standard. Revisions to the California Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the issuance of a CESA ITP unless the Project CEQA document addresses all Project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit.

Western Riverside County Multiple Species Habitat Conservation Plan

Within the Inland Deserts Region, the Department issued Natural Community Conservation Plan Approval and Take Authorization for the Western Riverside County MSHCP per Section 2800, *et seq*., of the California Fish and Game Code on June 22, 2004. The MSHCP establishes a multiple species conservation program to minimize and mitigate habitat loss and provides for the incidental take of covered species in association with activities covered under the permit.

Compliance with approved habitat plans, such as the MSHCP, is discussed in CEQA. Specifically, Section 15125(d) of the CEQA Guidelines requires that the CEQA document discuss any inconsistencies between a proposed Project and applicable general plans and regional plans, including habitat conservation plans and natural community conservation plans. An assessment of the impacts to the MSHCP as a result of this Project is necessary to address CEQA requirements. To obtain additional information regarding the MSHCP please go to: http://rctlma.org/epd/WR-MSHCP.

The proposed Project occurs within the MSHCP area and is subject to the provisions and policies of the MSHCP. In order to be considered a covered activity, Permittees must demonstrate that proposed actions are consistent with the MSHCP and its associated Implementing Agreement. The City of Banning is the Lead Agency and is signatory to the Implementing Agreement of the MSHCP. The project is located within the Special Linkage Area of the Pass Plan Area and the following applies (p.3-259 of the MSHCP):

> *Special Linkage Area: This Special Linkage Area will contribute to assembly of a portion of the San Gorgonio River/San Bernardino-San Jacinto Mountains Linkage. Tribal coordination regarding American Indian Lands will be necessary in this area. The San Gorgonio River/San Bernardino-San Jacinto Mountains Linkage includes locations within and outside the MSHCP Plan Area. Features of the entire linkage area are described in Missing Linkages: Restoring Connectivity to the California Landscape (Penrod, K., November 2, 2000). A copy of this report is attached as Exhibit 24 to Comment Letter D in Volume V of the MSHCP. Local Permittees will apply the following rebuttable presumption of significance, taken from Appendix G to the 1998 State CEQA Guidelines, in CEQA review of proposed public and private projects within this Special Linkage Area and apply mitigation measures as appropriate: "Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?" Draft and Final CEQA documentation prepared by Local Permittees for projects within this Special Linkage Area will be forwarded to the RCA for informational purposes to provide for MSHCP coordination regarding this area.*

The DEIR needs to address how the proposed project will affect the policies and procedures of the MSHCP. Based on aerial review there appear to be at least two washes that contain riparian and riverine resources. The project should complete a Determination of Biologically Equivalent or Superior Preservation to address impacts to the riparian/riverine resources. All surveys required by the MSHCP policies and procedures listed above to determine consistency with the MSHCP should be conducted and results included in the DEIR so that the Department can adequately assess whether the project will impact the MSHCP.

Lake and Streambed Alteration Program

Based on review of aerial photography at least two drainage features traverse the site. Depending on how the project is designed and constructed, it is likely that the project applicant will need to notify the Department per Fish and Game Code section 1602. For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream or use material from a streambed, the project applicant (or “entity”) is required to provide written notification to the Department pursuant to Section 1602 of the Fish and Game Code. Please note that streams include all those that flow at least episodically, including ephemeral streams, desert washes, and watercourses with subsurface flow. Based on the notification and supporting information, the Department determines if the proposed project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required.

The Department’s issuance of an LSA Agreement is a “project” subject to CEQA (see Pub. Resources Code 21065). Therefore, to facilitate issuance of an LSA Agreement, if necessary, the DEIR should fully identify the potential impacts to the lake, stream, or riparian resources,

and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with the Department is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to https://www.wildlife.ca.gov/Conservation/LSA/Forms.

Additional Comments and Recommendations

To ameliorate the water demands of this project, the Department recommends incorporation of water-wise concepts in project landscape design plans. In particular the Department recommends xeriscaping with locally native California species, and installing water-efficient and targeted irrigation systems (such as drip irrigation). Local water agencies/districts, and resource conservation districts in your area may be able to provide information on plant nurseries that carry locally native species, and some facilities display drought-tolerant locally native species demonstration gardens. Information on drought-tolerant landscaping and water-efficient irrigation systems is available on California's Save our Water website: http://saveourwater.com/what-you-can-do/tips/landscaping/

Further Coordination

The Department appreciates the opportunity to comment on the NOP of a DEIR for the Banning Distribution Center Project (SCH No. 2018011032) and recommends that the City of Banning address the Department's comments and concerns in the forthcoming DEIR. If you should have any questions pertaining to the comments provided in this letter, please contact Heather Pert at (858) 395-9692 or at Heather.pert@wildlife.ca.gov.

Sincerely,

Heather A. Pert
for

Leslie MacNair
Regional Manager

Literature Cited

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

SCAG
INNOVATING FOR A BETTER TOMORROW

SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90017
T: (213) 236-1800
www.scag.ca.gov

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February 20, 2018

Ms. Patty Nevins, Community Development Director
City of Banning
99 E. Ramsey Street
Banning, California 92220
Phone: (951) 922-3130
E-mail: pnevins@ci.banning.ca.us

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Banning Distribution Center [SCAG NO. IGR9514]

Dear Ms. Nevins,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the Banning Distribution Center ("proposed project") to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review (IGR) of programs proposed for Federal financial assistance and direct Federal development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

SCAG is also the designated Regional Transportation Planning Agency under state law, and is responsible for preparation of the Regional Transportation Plan (RTP) including the Sustainable Communities Strategy (SCS) pursuant to Senate Bill (SB) 375. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans.[1] SCAG's feedback is intended to assist local jurisdictions and project proponents to implement projects that have the potential to contribute to attainment of Regional Transportation Plan/Sustainable Community Strategies (RTP/SCS) goals and align with RTP/SCS policies.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Banning Distribution Center in Riverside County. The proposed project includes 1,000,000 square feet of industrial warehouse uses on 63.9 acres, as well as a General Plan amendment and zone change.

When available, please send environmental documentation to *SCAG's office in Los Angeles or by email to au@scag.ca.gov* providing, at a minimum, the full public comment period for review. Please note our new headquarters in Downtown Los Angeles is at *900 Wilshire Boulevard, Ste. 1700, Los Angeles, California 90017*.

If you have any questions regarding the attached comments, please contact the Inter-Governmental Review (IGR) Program, attn.: Anita Au, Associate Regional Planner, at (213) 236-1874 or au@scag.ca.gov. Thank you.

Sincerely,

Ping Chang
Acting Manager, Compliance and Performance Monitoring

[1] Lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the 2016 RTP/SCS for the purpose of determining consistency for CEQA. Any "consistency" finding by SCAG pursuant to the IGR process should not be construed as a determination of consistency with the 2016 RTP/SCS for CEQA.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE BANNING DISTRIBUTION CENTER [SCAG NO. IGR9514]

CONSISTENCY WITH RTP/SCS

SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS. For the purpose of determining consistency with CEQA, lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the RTP/SCS.

2016 RTP/SCS GOALS

The SCAG Regional Council adopted the 2016 RTP/SCS in April 2016. The 2016 RTP/SCS seeks to improve mobility, promote sustainability, facilitate economic development and preserve the quality of life for the residents in the region. The long-range visioning plan balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health (see http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx). The goals included in the 2016 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. Among the relevant goals of the 2016 RTP/SCS are the following:

SCAG 2016 RTP/SCS GOALS	
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*
RTP/SCS G3:	*Ensure travel safety and reliability for all people and goods in the region*
RTP/SCS G4:	*Preserve and ensure a sustainable regional transportation system*
RTP/SCS G5:	*Maximize the productivity of our transportation system*
RTP/SCS G6:	*Protect the environment and health for our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking)*
RTP/SCS G7:	*Actively encourage and create incentives for energy efficiency, where possible*
RTP/SCS G8:	*Encourage land use and growth patterns that facilitate transit and active transportation*
RTP/SCS G9:	*Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies**
	**SCAG does not yet have an agreed-upon security performance measure.*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the goals and supportive analysis in a table format. Suggested format is as follows:

SCAG 2016 RTP/SCS GOALS		
	Goal	Analysis
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

2016 RTP/SCS STRATEGIES

To achieve the goals of the 2016 RTP/SCS, a wide range of land use and transportation strategies are included in the 2016 RTP/SCS. Technical appendances of the 2016 RTP/SCS provide additional supporting information in detail. To view the 2016 RTP/SCS, please visit: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. The 2016 RTP/SCS builds upon the progress from the 2012 RTP/SCS and continues to focus on integrated, coordinated, and balanced planning for land use and transportation that the SCAG region strives toward a more sustainable region, while the region meets and exceeds in meeting all of applicable statutory requirements pertinent to the 2016 RTP/SCS. These strategies within the regional context are provided as guidance for lead agencies such as local jurisdictions when the proposed project is under consideration.

The 2016 RTP/SCS also identifies a goods movement system in the SCAG region and develops strategies to address expected growth trends and demands in goods movement. For further information on the goods movement strategies, please see the Goods Movement Appendix of the 2016 RTP/SCS (http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_GoodsMovement.pdf). For further information on SCAG's long-range comprehensive plan for the goods movement system in Southern California, please see "On the Move, Southern California Delivers the Goods" (http://www.freightworks.org/DocumentLibrary/CRGMPIS_Summary_Report_Final.pdf).

DEMOGRAPHICS AND GROWTH FORECASTS

Local input plays an important role in developing a reasonable growth forecast for the 2016 RTP/SCS. SCAG used a bottom-up local review and input process and engaged local jurisdictions in establishing the base geographic and socioeconomic projections including population, household and employment. At the time of this letter, the most recently adopted SCAG jurisdictional-level growth forecasts that were developed in accordance with the bottom-up local review and input process consist of the 2020, 2035, and 2040 population, households and employment forecasts. To view them, please visit http://www.scag.ca.gov/Documents/2016GrowthForecastByJurisdiction.pdf. The growth forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts			Adopted City of Banning Forecasts		
	Year 2020	Year 2035	Year 2040	Year 2020	Year 2035	Year 2040
Population	19,663,000	22,091,000	22,138,800	32,400	36,500	37,600
Households	6,458,000	7,325,000	7,412,300	11,900	13,500	14,000
Employment	8,414,000	9,441,000	9,871,500	10,000	13,500	14,200

MITIGATION MEASURES

SCAG staff recommends that you review the Final Program Environmental Impact Report (Final PEIR) for the 2016 RTP/SCS for guidance, as appropriate. SCAG's Regional Council certified the Final PEIR and adopted the associated Findings of Fact and a Statement of Overriding Considerations (FOF/SOC) and Mitigation Monitoring and Reporting Program (MMRP) on April 7, 2016 (please see: http://scagrtpscs.net/Pages/FINAL2016PEIR.aspx). The Final PEIR includes a list of project-level performance standards-based mitigation measures that may be considered for adoption and implementation by lead, responsible, or trustee agencies in the region, as applicable and feasible. Project-level mitigation measures are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

wittwer / parkin

February 23, 2018

VIA EMAIL

Ms. Patty Nevins, Community Development Director
City of Banning
99 E. Ramsey Street
Banning, CA 92220
pnevins@ci.banning.ca.us

Re: Initial Study/Notice of Preparation for Banning Distribution Center

Dear Ms. Nevins:

This law firm represents Southwest Regional Council of Carpenters (Southwest Carpenters) and submits this letter on the above referenced project on its behalf. Southwest Carpenters represents 50,000 union carpenters in six states, including Southern California and has a keen interest on the environmental impacts of development projects, such as the Banning Distribution Center. The City of Banning (City) prepared an Initial Study for the Banning Distribution Center (Project) and concluded that the Project may have a significant effect on the environment warranting preparation of an Environmental Impact Report (EIR). These comments should not be interpreted as being exhaustive by any means, but are simply preliminary concerns based on the Initial Study. Southwest Carpenters look forward to reviewing the EIR and its full discussion of environmental impacts, including alternatives and mitigations.

The proposed Project involves development of a non-refrigerated high-cube warehouse building and offsite improvements with 990,000 square feet of warehouse space; 10,000 square feet of office space. Project site encompasses approximately 63.9 acres and is located north and east of the Banning Airport, south of the Union Pacific Railroad line and Interstate 10, in the City of Banning, Riverside County. The proposed Project involves construction and operation of approximately 1,000,000 square feet (sf) of industrial warehouse/distribution uses on the approximate 63.9-acre site within the AI (Airport Industrial) and PF-A (Public Facilities – Airport) Zones of the City of Banning General Plan area. The Initial Study found that the Project may have a potentially significant impact on the following environmental factors:

- Air Quality
- Greenhouse Gas Emissions

- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Land Use Planning
- Noise
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

Air Quality

The Initial Study found that the proposed Project has the potential to (1) conflict with or obstruct implementation of the South Coast Air Quality Management District's Air Quality Management Plan (AQMP); (2) violate or contribute substantially to an existing or projected air quality violation; (3) result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standards; (4) expose sensitive receptors to substantial pollutant concentrations; and, (5) create objectionable odors affecting a substantial number of people.

The Initial Study relies on the South Coast Air Quality Management District's AQMP to set a significance threshold regarding air quality. The EIR should detail in plain language the quantitative significance threshold for air quality that it is relying on to assess the Project's impacts. Specifically, the EIR should explain how both the Project's short-term construction and operational activities will impact the daily significance thresholds established by the South Coast Air Quality Management District as well as how the Project's long-term operational activities, including vehicle miles traveled, might impact the Air Quality Management District's significance thresholds.

The South Coast Air Basin is a non-attainment area for various state and federal air quality standards. The Initial Study lists federal ozone, inhalable particulates, and ultra-fine particulates as examples of standards that are currently in non-attainment. The EIR should contain an exhaustive discussion of all criteria pollutants for which the South Coast Air Basin is non-attainment and quantify the Project's pollutant emissions. In addition, the EIR should evaluate how such emissions may result in a considerable net increase of any criteria pollutant. The EIR should evaluate the Project's anticipated pollutant emissions and how such projected impact may expose sensitive receptors, i.e., residential communities and schools, to substantial pollutant concentrations.

Finally, given the region's persistent air quality woes, the EIR must analyze the cumulative impacts of this Project. The dire status of air quality in the City and region means that even greater care and attention is needed to analyze the direct and cumulative impacts of this Project. Indeed, in an analogous case,

> the significance of an activity depends upon the setting. (Guidelines § 15064, subd. (b)). The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin.

Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692, 718. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." CEQA Guidelines § 15355.

Biological Resources

If the EIR establishes that the site has the potential to contain a sensitive or special status species pursuant to applicable plans, policies, and regulations, the EIR should detail how the Project will avoid impacts to such species. The Initial Study states that the Project site is not located within a Criteria Area but is located within the Pass Area Plan under the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The Initial Study states that the MSHCP indicates that the Project site is located within the designated Section 6.1.3 Narrow Endemic Plant Species Survey Area (NEPSSA) for Marvin's onion and many-stemmed dudleya but a Critical Area Species survey is not required. The EIR should explain why such a survey is not required. The Initial Study also explains that the Project area is within the survey area for Burrowing Owl but not the Los Angeles Pocket Mouse. The EIR should explain whether any surveys for the Burrowing Owl will be conducted and their reasoning for its decision.

The EIR should discuss any other applicable provisions of the MSCHP to this Project, including whether the Project requires specific habitat assessment for a particular species. In addition, the Initial Study discusses the Project site's potential to facilitate wildlife movement on a local scale. The biological resources assessment shall disclose all such potential and should set forth whether the Project site consists of any habitat to support sensitive species.

Greenhouse Gas Emissions

The scale of the Project is likely to create a significant GHG impact both in the short-term and in the long-term operational activities. The EIR should include a Project-specific GHG emissions report. Such report should explain its methodology in projecting Project-specific GHG emissions associated with the development. Because the City has not adopted a Climate Action Plan (CAP) or any other plans and policies to reduce GHGs, the EIR will have to carefully disclose how this Project will impact statewide goals. The City must consider in its greenhouse gas analysis:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project
(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions…

Center for Biological Diversity v. Department of Fish & Wildlife (2015) 62 Cal.4th 204, 217. A cursory discussion of the Project's impacts against SCAQMD's recommended industrial threshold would be insufficient to disclose to the public the Project's greenhouse gas impact.

Hydrology/Water Quality

The Project would result in potentially significant impact to existing drainage features on the Project site. The EIR should fully analyze whether the Project would substantially alter the existing drainage pattern of the site or area, including through the alteration of a watercourse or wetland which would result in substantial erosion. Similarly, the Project should explain how the Project would impact the load on the existing stormwater drainage systems including whether the Project would provide substantial additional sources of polluted runoff. Similarly, the EIR should discuss the Project's ability to substantial degrade water quality. And, provided that the Zone A of the Project is located within a 100-year flood hazard area, the EIR should address the potentially significant impacts related to flooding.

Land Use/Planning

The Initial Study broadly states that the Project has the potential to conflict with Western Riverside County Multiple Species Habitat Conservation Plan. The EIR should analyze all applicable provisions in the MSHCP as well as discuss any other regulations and policies that are applicable to the Project. The EIR should compare the Project's impact to all pertinent baselines and policies, including analysis of whether the Project exceeds any thresholds of significance.

Transportation

The Initial Study broadly states that the Project may have a potential to significantly impact the effectiveness of the circulation system. The EIR's Traffic Impact Analysis should address all applicable plans, policies and regulations to the Project and discuss the Project's anticipated impact to vehicle miles traveled for the surrounding circulation system. The Initial Study mentions that the Riverside County Transportation (RCTC) is the County of Riverside's Congestion Management Agency. The EIR should analyze the Project utilizing any applicable congestion provisions set forth under the RCTC, including analysis regarding the Project's impact on I-10.

Environmental Factors

The Initial Study states that the Project will provide approximately 6,000 linear feet of sewer line and an associated lift station. In addition, the Project will be required to contribute development impact fees for projected future needs of the City wastewater collection and treatment system. The inference is that the Project may result in creation or expansion of existing wastewater treatment facilities or at the very least the Project's wastewater impact may be significant. The EIR should explain how the Project will not only impact construction of new water or wastewater treatment facilities but whether such impacts will be growth inducing.

Similarly, the Initial Study broadly states that the Project includes construction of storm drain facilities to accommodate existing and proposed stormwater flows. The EIR should describe the current stormwater drain capacity and analyze how the Project will impact the current capacity.

The Initial Study states that the Project requires construction of an offsite water line 9,350 linear feet in length to connect to existing lines. Approximately 4,715 linear feet of the water line extension will extend north on Hathaway and then east on the extension of John Street. The remaining 4,636 linear feet will be east and south of the Project site. And, in

addition to analyzing any environmental impacts that may come from extension of storm drains, the EIR should analyze any growth inducing potential that may arise from construction of storm drain extensions.

Conclusion

The Southwest Carpenters looks forward to commenting on the EIR when the draft document is released for public review. These initial comments pertaining to the Initial Study's preliminary findings are not exhaustive and highlight the initial suite of environmental concerns the Southwest Carpenters has regarding this Project. In preparing the EIR, the lead agency should propose clear and achievable mitigation measures that will successfully address significant impacts and mitigate them to a less than significant level.

We look forward to reviewing the draft EIR when it is released, and request being forwarded all other notices and documents pertaining to this Project. Thank you for your consideration of these comments.

Very truly yours,
WITTWER PARKIN LLP



Pearl Kan

cc: Client

Appendix C.1

ALBERT A. WEBB ASSOCIATES

Technical Memorandum

To: William R. Patton; Banning Industrial LP

From: Eliza Laws, Senior Environmental Analyst
Noemi Avila, Assistant Environmental Analyst

Date: January 4, 2018

Re: Air Quality/Greenhouse Gas Analysis for the Banning Distribution Center Project, City of Banning

The following air quality assessment was prepared to evaluate whether the expected criteria air pollutant emissions generated as a result of construction and operation of the proposed Project would cause exceedances of the South Coast Air Quality Management District's (SCAQMD) thresholds for air quality in the Project area. The greenhouse gas (GHG) assessment was prepared to evaluate whether the expected criteria GHG emissions generated as a result of construction and operation of the proposed Project would exceed the SCAQMD draft screening significance thresholds. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 et seq.). The methodology follows the *CEQA Air Quality Handbook* prepared by the SCAQMD for quantification of emissions and evaluation of potential impacts to air resources. As recommended by SCAQMD staff, the **Cal**ifornia **E**missions **E**stimator **Mod**el® version 2016.3.2 (CalEEMod) was used to quantify Project-related emissions.

The Project proposes development of a one million square foot high-cube warehouse building on approximately 63.9 gross acres at the end of John Street, south of Interstate 10 and north of the Banning Municipal Airport in the City of Banning, California. The warehouse will be non-refrigerated and thus does not require trucks with transport refrigeration units (TRUs). Also, the warehouse will not be used for e-commerce. Off-site improvements associated with the Project include: extension of John Street approximately 5,688 linear feet (LF), construction of a total of approximately 9,350 LF of water line and approximately 5,968 LF of sewer line and a lift station to serve the Project site. A 3,871 LF emergency fire access road will also be constructed south of the Project site and will be composed of an all-weather surface such as gravel.

▪ Regional Significance Thresholds

The thresholds contained in the *SCAQMD CEQA Air Quality Handbook*[1] (SCAQMD 1993) are considered regional thresholds and are shown in **Table 1 – SCAQMD CEQA Daily Regional Significance Thresholds**, below. These regional thresholds were developed based on the SCAQMD's treatment of a major stationary source.

[1] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993. (Available at SCAQMD.)

Table 1 – SCAQMD CEQA Daily Regional Significance Thresholds

Emission Threshold	Units	VOC	NO_X	CO	SO_X	PM-10	PM-2.5
Construction	lbs/day	75	100	550	150	150	55
Operation	lbs/day	55	55	550	150	150	55

Air quality impacts can be described in a short- and long-term perspective. Short-term impacts occur during site grading and Project construction and consist of fugitive dust and other particulate matter, as well as exhaust emissions generated by construction-related vehicles. Long-term air quality impacts occur once the Project is in operation.

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 or more acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of this Project's disturbance area (approximately 64 gross acres), a Fugitive Dust Control Plan or a Large Operation Notification Form would be required.

Short-Term Analysis

Short-term emissions from Project construction were evaluated using the CalEEMod version 2016.3.2 program. The estimated construction period for the proposed Project is approximately 16 months, beginning no sooner than January 2019. The default parameters within CalEEMod were used, except as identified below, and these default values generally reflect a worst-case scenario, which means that Project emissions are expected to be equal to or less than the estimated emissions. In addition to the default values used, Project-specific assumptions relevant to model inputs for short-term construction emission estimates used are:

- Construction is anticipated to begin in January 2019 with grading and end with architectural coating (painting) in April 2020:

Construction Activity	Start Date	End Date	Total Working Days
Grading	January 1, 2019	March 31, 2019	64 days
Off-site Grading (John St.)	January 1, 2019	January 31, 2019	23 days
Off-site Paving (John St.)	January 25, 2019	February 7, 2019	10 days
Building Construction	April 1, 2019	March 31, 2020	262 days
Off-site Construction	April 1, 2019	August 28, 2019	108 days
Paving	March 1, 2020	March 31, 2020	22 days
Architectural Coatings	March 1, 2020	April 30, 2020	44 days

- The equipment to be used for each activity is shown below based on CalEEMod defaults. Each piece of equipment is assumed to operate 8 hours per day:

Construction Activity	Off-Road Equipment	Unit Amount
Grading	Excavators	2
	Graders	1
	Rubber Tired Dozers	1
	Scrapers	2
	Tractors/Loaders/Backhoes	2

Off-site Grading (John St.)	Graders	1
	Rubber Tired Dozers	1
	Scrapers	1
	Tractors/Loaders/Backhoes	2
Off-site Paving (John St.)	Pavers	1
	Paving Equipment	1
	Rollers	2
Building Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Off-site Construction	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coatings	Air Compressors	2

- Grading includes site preparation activities such as clear and grub and also accounts for on-site infrastructure installation. The Project site is proposed to balance, with no soil import or export required. However, during site preparation activities, truck hauling trips were included to account for debris removal. Removal of approximately one-tenth of a foot of the Project site is assumed, which equates to approximately 10,300 cubic yards of debris removal. Debris removal is assumed to occur over a one week period at the beginning of grading. Based on the CalEEMod default truck capacity of 16 cubic yards, approximately 129 truckloads of debris would be exported daily. Off-road equipment used during site preparation is (1) rubber tired dozer and two (2) scrapers.

- Off-site improvements include construction of John Street, construction of water line, sewer line, and the lift station, as well as the fire access road. This corresponds to approximately 9.11 acres of off-site paving, for John Street and portions of the off-site sewer line, as well as approximately .4.7 acres of unpaved off-site improvements for portions of the off-site sewer line and lift station, water line, and gravel fire access road.

- To evaluate Project compliance with SCAQMD Rule 403 for fugitive dust control, the Project utilized the mitigation option of watering the Project site three times daily which achieves a control efficiency of 61 percent for PM-10 and PM-2.5 emissions.

- Two (2) one-way vendor trips were added to the grading and paving on- and off-site activities to account for water truck trips.

- Four (4) one-way hauling trips were added to the off-site construction activities for John Street and other off-site infrastructure to account for material delivery and removal of excavated soils and/or construction waste.

- Approximately 1,500 cubic yards of gravel will be imported during construction of the off-site fire access road, which will remain unpaved.

The results of this analysis are summarized below.

Table 2 – Unmitigated Estimated Maximum Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO_X	CO	SO_2	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Grading – 2019	6.34	**109.18**	45.10	0.19	14.86	**5.20**
Off-site Grading (John St.) – 2019	3.28	**37.00**	19.85	0.04	5.58	**3.00**
Off-site Paving (John St.) – 2019	3.44	**10.61**	10.08	0.02	0.77	**0.58**
Building Construction – 2019	10.53	78.91	83.06	0.28	**17.72**	6.00
Off-site Construction – 2019	1.84	18.09	10.86	0.02	**4.04**	2.29
Building Construction – 2020	**9.55**	72.01	**76.79**	**0.28**	17.42	5.72
Paving – 2020	**3.78**	14.33	**15.32**	**0.03**	0.94	0.74
Architectural Coatings	**223.64**	5.26	**14.37**	**0.03**	2.91	1.00
Maximum[1]	**236.96**	**156.79**	**106.48**	**0.34**	**21.76**	**8.78**
Exceeds Threshold?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Note: [1]Maximum emissions are the greater of either Grading 2019, Off-site Grading 2019 and Off-site Paving 2019, or, Building Construction 2019 and Off-site Construction 2019, or Building Construction 2020, Paving 2020 and Architectural Coating 2020.

As shown in the table above, the emissions from construction of the Project are below the SCAQMD daily construction thresholds for all the criteria pollutants, except VOC from architectural coatings and NO_X emissions from grading operations alone and when combined with overlapping activities from off-site grading and paving. Please see the subheading "Recommended Mitigation Measures" for mitigation that reduces the Project's construction emissions.

Long-Term Analysis

Long-term emissions are evaluated at build-out of a project. The Project is assumed to be operational in 2020. Mobile source emissions refer to on-road motor vehicle emissions generated from the Project's traffic and based on the trip generation provided in the Project-specific Traffic Impact Analysis.[2] An average truck trip length of approximately 100 miles was assumed, which is the distance to the Ports of Los Angeles/Long Beach. For purposes of this analysis, it was assumed that the warehouse will not be used for e-commerce, will be un-refrigerated, and thus not require TRUs.

Area source emissions from the Project include stationary combustion emissions of natural gas used for space and water heating (shown in a separate row as energy), yard and landscape maintenance, and an average building square footage to be repainted each year. CalEEMod computes area source emissions based upon default factors and land use assumptions. CalEEMod defaults were modified with utility-specific information from the City of Banning. CalEEMod default energy consumption was used and reflects the 2016 Title 24 standards. The off-site lift station is part of the City's Master Plan and will only have 40 horsepower capacity at full build-out; however, this facility will be permitted by the SCAQMD to ensure that it will not be a significant new source of emissions.

Separate emissions were computed for both the summer and winter.

[2] Albert A. Webb Associates, *Traffic Impact Analysis Banning Distribution Center (Design Review No. 16-7002)*, April 2017.

Table 3 – Unmitigated Estimated Daily Project Operation Emissions (Summer)

Source	Peak Daily Emissions (lb/day)					
	VOC	NO_X	CO	SO_2	PM-10	PM-2.5
SCAQMD Daily Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Area	23.12	0.00	0.19	0.00	0.00	0.00
Energy	0.06	0.55	0.46	0.00	0.04	0.04
Mobile	13.35	254.57	179.97	1.28	68.15	19.90
Total	**36.53**	**255.12**	**180.62**	**1.28**	**68.19**	**19.94**
Exceeds Threshold?	**No**	**Yes**	**No**	**No**	**No**	**No**

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

Table 4 – Unmitigated Estimated Daily Project Operation Emissions (Winter)

Source	Peak Daily Emissions (lb/day)					
	VOC	NO_X	CO	SO_2	PM-10	PM-2.5
SCAQMD Daily Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Area	23.12	0.00	0.19	0.00	0.00	0.00
Energy	0.06	0.55	0.46	0.00	0.04	0.04
Mobile	13.23	262.51	168.90	1.25	68.16	19.90
Total	**36.41**	**263.06**	**169.55**	**1.25**	**68.20**	**19.94**
Exceeds Threshold?	**No**	**Yes**	**No**	**No**	**No**	**No**

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

Evaluation of the data presented on the above tables indicates that criteria pollutant emissions from operation of this Project will not exceed the SCAQMD regional daily thresholds for any pollutant during summer or winter, except for NO_X. Please see the subheading "Recommended Mitigation Measures" for mitigation that reduces the Project's operation emissions.

▪ Localized Significance Threshold Analysis

Background

As part of the SCAQMD's environmental justice program, attention has been focused on localized effects of air quality. Staff at SCAQMD has developed localized significance threshold (LST) methodology[3] that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts (both short- and long-term). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The Project is located in SRA 29.

Short-Term Analysis

According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with vendor and worker trips are mobile source emissions that occur off site. The emissions analyzed under the LST methodology are NO_2, CO, PM-10, and PM-2.5. SCAQMD has provided LST lookup tables[4] to allow users to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts for projects five acres or smaller. Although the Project site disturbs approximately 64 acres total, it is anticipated that an area of approximately four acres would be disturbed per day during construction of the Project site.[5] The proposed Project also includes the off-site construction of John Street and an emergency access road along Lincoln Street, as well as water lines that run along Hathaway Street and sewer lines along Westward Ave. While the

[3] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, Revised July 2008. (Available at http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds, accessed March 2017.)

[4] http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds

[5] http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2

grading equipment for the off-site infrastructure would result in a disturbance area of two-acres per day, consistent with SCAQMD guidance, the LST for the one-acre site was used.[6] The LST threshold and tables can be used as a screening tool to determine if dispersion modeling would be necessary. Because the LST Look-Up Tables only provide thresholds for one-acre, two-acre, or five-acre site, the SCAQMD linear regression formula was utilized to predict the LST for a four-acre site and these thresholds were used in the screening-level analysis.

The LST thresholds are estimated using the maximum daily disturbed area (in acres) and the distance of the Project to the nearest sensitive receptors (in meters). The closest sensitive receptor to the Project construction site is the existing residence approximately 425 meters (1,394 feet) to the south of the Project site. However, there are several sensitive receptors located adjacent to the off-site improvements including residences directly adjacent to the off-site water line along Hathaway Street and residences located directly across Lincoln Street at the terminus of the extension of John Street at Lincoln Avenue. There is also a church facility at the corner of Lincoln Avenue and Hargrave Street approximately 120 meters from John Street. According to LST methodology, projects with boundaries closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters. Therefore, a receptor distance of 25 meters (85 feet) was used. To ensure a conservative analysis, a 4-acre LST threshold was calculated and a receptor distance of 25 meters was utilized for the maximum daily construction emissions that include both on- and off-site construction activities that overlap. LST results for a one-acre site using the 25 meter receptor distance was also estimated to show the localized emissions from construction of the off-site improvements separately to ensure impacts were not underestimated. The results are summarized below.

Table 5 – LST Results for Daily Off-Site Construction Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO_X	CO	PM-10	PM-2.5
LST Threshold for 1-acre at 25 meters	**103**	**1,000**	**6**	**4**
Off-site Grading (John Street)	36.24	18.79	5.32	2.93
Off-site Paving (John Street)	9.86	9.24	0.56	0.51
Off-site Construction	16.75	8.89	3.54	2.15
Maximum[1]	**46.10**	**28.03**	**5.88**	**3.44**
Exceeds Threshold?	**No**	**No**	**No**	**No**

Note: [1]Maximum emissions are the greater of either Off-site Grading and Off-site Paving 2019 or Off-site Construction as these activities overlap.

Table 6 – LST Results for Maximum Daily Construction Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO_X	CO	PM-10	PM-2.5
LST Threshold for 4-acre at 25 meters	**178**	**1,966**	**14**	**8**
Grading[1]	100.62	61.41	17.73	7.69
Building Construction[2]	39.21	37.50	4.92	3.45
Paving	14.07	14.65	0.75	0.69
Maximum	**100.62**	**61.41**	**17.73**	**7.69**
Exceeds Threshold?	**No**	**No**	**Yes**	**No**

Note: SCAQMD LST for 4-acre site predicted using Appendix K of SCAQMD LST Methodology.
[1]Grading emissions include the maximum of on-site grading and off-site grading or on-site grading and off-site paving as these activities could overlap. [2]Building construction includes the maximum of either on-site and off-site construction in 2019 as these activities could overlap or on-site construction, paving, and architectural coatings in 2020.

[6] http://www.aqmd.gov/docs/default-source/cega/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2

Emissions from construction of the Project will be below the LST established by SCAQMD for the Project, except for PM-10 emissions. Please see the subheading "Recommended Mitigation Measures" for mitigation that reduces the Project's construction emissions.

Long-Term Analysis

According to the LST methodology, LSTs only apply to the operational phase if a project includes stationary sources or attracts mobile sources that may spend long periods of time idling at the site, such as warehouse/transfer facilities. Although the Project includes an off-site lift station, this facility is part of the City's Master Plan and will only have 40 horsepower capacity at full build-out; additionally, this facility will be permitted by the SCAQMD to ensure that it will not be a significant new source of emissions. Additionally, a fire pump will be installed at the Project site; however, this will only operate during emergency situations and for intermittent testing. As such, the fire pump will be a negligible source of emissions from the Project site. This fire pump generator may be diesel or gasoline fueled, and if so, it would also be permitted by SCAQMD to further ensure that it will not be a significant new source of emissions.

Because the proposed Project will operate as a logistics center and has the potential to attract mobile sources that will idle at the site, a long-term LST analysis was prepared for this Project.

CalEEMod version 2016.3.2 was utilized to estimate the Project's emissions from trucks traveling on the Project site. An on-site distance of 1 mile was conservatively assumed to be traveled for each one of the Project's truck trips identified in the Traffic Impact Analysis. The output is attached to this memo and summarized below. Idling emissions from trucks at loading docks is not available in CalEEMod; therefore, PM-10 and PM-2.5 idling emissions were calculated separately to account for 15-minutes of on-site idling per truck per day.[7] The closest sensitive receptor to the Project site is the existing residence approximately 425 meters to the south of the Project site. LST Look-Up Tables have been developed for receptor distances of 200 meters and 500 meters. Therefore, a receptor distance of 200 meters was used to ensure a conservative analysis. The five-acre operational thresholds were used, which are different than the construction LST, and are more conservative since the Project site is approximately 64 acres. The results are summarized below.

Table 7 – Unmitigated LST Results for Daily Operational Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO_X	CO	PM-10[1]	PM-2.5[1]
LST Threshold for 5-acre at 200 meters	**434**	**10,383**	**44**	**14**
On-Site Truck Travel	46.04	15.88	1.44	0.44
Exceeds Threshold?	**No**	**No**	**No**	**No**

Note: The greater of summer or winter emissions from CalEEMod is shown. Output attached hereto.

[1] CalEEMod output emissions added to idling emissions

Therefore, as indicated in the table above, Project-related long-term operational emissions will not exceed any SCAQMD operational LST.

CO Hot Spots Analysis

A carbon monoxide (CO) "hot spot" is a localized concentration of CO that is above the state or federal 1-hour or 8-hour ambient air quality standards (AAQS). Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles.

[7] Idling emission factors obtained from CalEEMod; idling calculations attached herewith

Based on the information presented below, a CO "hot spot" analysis is not needed to determine whether the addition of Project related traffic will contribute to an exceedance of either the state or federal AAQS for CO emissions in the Project area.

The analysis prepared for CO attainment in the South Coast Air Basin by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP)[8] and the Revised 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). [9] As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections (2003 AQMP Appendix V, p. V-4-32). Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of the 1992 CO Plan and subsequent plan updates and air quality management plans.

In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Blvd. and Imperial Highway (Lynwood); Wilshire Blvd. and Veteran Ave. (Westwood); Sunset Blvd. and Highland Ave. (Hollywood); and La Cienega Blvd. and Century Blvd. (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated in the 1992 CO Plan and subsequent 2003 AQMP was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day (2003 AQMP Appendix V, Table 4-7). The Los Angeles County Metropolitan Transportation Authority (MTA)[10] evaluated the LOS in the vicinity of the Wilshire Blvd./Veteran Ave. intersection and found it to be level E at peak morning traffic and Level F at peak afternoon traffic (MTA, Exhibit 2-5 and 2-6). This hot spot analysis was conducted at intersections subject to extremes in vehicle volumes and vehicle congestion, and did not predict any violation of CO standards. Considering Project-related traffic as well as existing conditions, ambient growth, and cumulative project traffic, the highest average daily trips would be 12,587 trips on Hargrave Street between East Ramsey Street to the Interstate 10 (I-10) westbound ramps, which is lower than the values studied by SCAQMD.[11] Additionally, the Project-specific traffic impact analysis[12] showed that all study intersections would operate at LOS D or better with existing plus ambient growth plus cumulative development project plus Project traffic conditions. Therefore, it can reasonably be concluded that Project-related traffic would not have daily traffic volumes exceeding those at the intersections modeled in the 2003 AQMP, nor would there be any reason unique to the meteorology to conclude that intersections affected by the Project would yield higher CO concentrations if modeled in detail. Thus, the Project would not result in CO hot spots.

▪ Greenhouse Gas Analysis

Greenhouse gases (GHG) are not presented in lbs/day like criteria pollutants; they are typically evaluated on an annual basis using the metric system. Several agencies, at various levels, have proposed draft GHG significance thresholds for use in CEQA documents. SCAQMD has been working on GHG thresholds for development projects. In December 2008, the SCAQMD adopted a threshold of 10,000 metric tonnes per year of carbon dioxide equivalents ($MTCO_2E/yr$) for stationary source projects where SCAQMD is the lead agency. The most recent draft proposal was in September 2010[13] and included screening significance thresholds for residential, commercial, and mixed-use projects at 3,500, 1,400, and 3,000 $MTCO_2E/yr$, respectively. Alternatively, a lead agency has the option to use 3,000 $MTCO_2E/yr$ as a threshold for all non-industrial projects. Although both options are recommended by SCAQMD, a lead

[8] SCAQMD, *2003 Air Quality Management Plan, August 1, 2003.* (Available at http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/2003-aqmp, accessed January 2017.)

[9] SCAQMD, *Revision to the 1992 Carbon Monoxide Attainment Plan*, September 1994. (Available at SCAQMD.)

[10] Metropolitan Transportation Authority, *2004 Congestion Management Plan for Los Angeles County*, Adopted July 22, 2004. (Available at http://www.metro.net/images/cmp_2004.pdf, accessed March 2017.)

[11] Albert A. Webb Associates, *Traffic Impact Analysis Banning Distribution Center (Design Review No. 16-7002)*, April 2017.

[12] Albert A. Webb Associates, *Traffic Impact Analysis Banning Distribution Center (Design Review No. 16-7002)*, April 2017.

[13] http://www.aqmd.gov/docs/default-source/cega/handbook/greenhouse-gases-(ghg)-cega-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2

agency is advised to use only one option and to use it consistently. The SCAQMD significance thresholds also evaluate construction emissions by amortizing them over an expected project life of 30 years. If emissions are above the screening level threshold, additional analysis may be required.

In 2014, the Western Riverside County Council of Governments (WRCOG) completed a Subregional Climate Action Plan (CAP)[14] that addresses statewide legislation for sustainability through the preparation of GHG inventories and strategies to reduce emissions consistent with AB 32, which established a statewide target to reduce GHG emission to 1990 levels by 2020. Preparing a CAP supports AB 32 at the local level. The CAP provides a policy framework for how the subregion can do its part to reduce emissions.

The WRCOG Subregional CAP establishes a community-wide emissions reduction target of 15% below 2010 emissions levels. Because the City of Banning is a participating member in the Subregional CAP, it is appropriate to use the methodology in the CAP for this analysis. Projects that demonstrate compliance with the CAP target are considered consistent with the AB 32 reduction target. Although the City of Banning has not adopted a CEQA document for the Subrebgional CAP, reliance upon the methodology in the CAP may still be used as a threshold to evaluate the Project's GHG emissions.

Accordingly, a BAU Analysis will be prepared if the Project's GHG emissions exceed the SCAQMD screening threshold level for industrial projects.

Short-Term Analysis

Construction-Related Emissions

The CalEEMod model calculates GHG emissions from fuel usage by construction equipment and construction-related activities, like construction worker trips, for the Project. The CalEEMod estimate does not analyze emissions from construction-related electricity or natural gas. Construction-related electricity and natural gas emissions vary based on the amount of electric power used during construction and other unknown factors which make them too speculative to quantify. The CalEEMod output results for construction-related GHG emissions present the GHG emissions estimates for the Project for CO_2, methane (CH_4), nitrous oxide (N_2O), and CO_2E.[15]

Table 8 – Project Construction Equipment GHG Emissions

Year	Metric Tons per year (MT/yr)			
	Total CO_2	Total CH_4	Total N_2O	Total CO_2E
2019 – On-site[1]	2,737.00	0.23	0.00	2,742.85
2019 – Off-site	157.25	0.04	0.00	158.22
2020 – On-site	905.34	0.06	0.00	906.95
Total	3,799.59	0.33	0.00	3,808.02
			Amortized[2]	**126.93**

Note: [1]"On-site" refers to construction activities on the Project site and "Off-site" refers to construction of off-site improvements.
[2]Construction emissions were amortized over a 30 year period, as recommended by SCAQMD.

Evaluation of **Table 8** indicates that an estimated 3,808.02 $MTCO_2E$ will occur from Project construction equipment over the course of the estimated approximately 1.3 year construction period. Since the draft SCAQMD GHG threshold guidance document released in October 2008[16] recommends that construction emissions be amortized for a project lifetime of 30 years to ensure that GHG reduction measures address construction GHG emissions as part of the operational reduction strategies, the total GHG emissions from Project construction were amortized and are included in **Table 10**, below.

[14] http://www.wrcog.cog.ca.us/uploads/media_items/wrcog-climate-action-plan-final-draft-april-2014.original.pdf

[15] CO_2E is the sum of CO_2 emissions estimated plus the sum of CH_4 and N_2O emissions estimated multiplied by their respective global warming potential (GWP).

[16] http://www.aqmd.gov/docs/default-source/cega/handbook/greenhouse-gases-(ghg)-cega-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2

Long-Term Analysis

Area Source Emissions

CalEEMod estimates the GHG emissions associated with area sources which include landscape equipment emissions, architectural coating, consumer products, and hearths. Landscape equipment servicing the Project site create CO_2 resulting from fuel combustion based on the Project's land uses. Consumer products consist of consumer use of solvents and personal care products and architectural coatings consist of an average building square footage to be repainted each year. **Table 10** summarizes the Project's area source emissions.

Energy-Related Emissions

CalEEMod estimates the GHG emissions associated with building electricity and natural gas usage (non-hearth) for each land use type. Electricity and natural gas used in buildings is typically generated at an off-site power plant which indirectly generates GHG emissions. The default energy usage values used in CalEEMod are based on the CEC sponsored California Commercial End Use Survey and Residential Appliance Saturation Survey studies and reflect 2016 Title 24 improvements (CalEEMod User's Guide, Appendix A p. 36). As stated above, the emissions have been adjusted to incorporate utility-specific information from the City of Banning Utility Company.[17] **Table 9** summarizes the GHG emissions estimates reported by CalEEMod for the Project.

Table 9 – Energy-Related GHG Emissions

Source	Metric Tons per year (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2E
Electricity	732.85	0.03	0.01	736.82
Natural Gas	108.33	0.00	0.00	108.97
Total	**841.18**	**0.03**	**0.01**	**845.79**

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

Mobile Source Emissions

CalEEMod estimates the annual GHG emissions from Project-related vehicle usage based on trip generation data contained in defaults or in a project-specific traffic analyses. The trip generation rate and fleet mix were adjusted based on the rates and ratios found in the Project-specific Traffic Study prepared by Albert A. Webb Associates in April 2017. Trip length data was based on CalEEMod defaults and the distance from the Ports of Los Angeles and Long Beach to the Project site of approximately 100 miles. **Table 10** shows the mobile source emissions of GHG from the Project.

Solid Waste Emissions

CalEEMod also calculates the GHG emissions associated with the disposal of solid waste into landfills based on default data contained within the model for waste disposal rates, composition, and the characteristics of landfills throughout the state. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. This analysis assumes a solid waste diversion from the landfills of 75 percent as required by Assembly Bill 341. **Table 10** shows the solid waste GHG emissions from the Project.

Water-Related Energy Usage

Electricity is also indirectly used in water supply, treatment, and distribution, as well as wastewater treatment in Southern California and plays a large role in GHG production. There are three processes necessary to supply potable water to urban users (i.e., residential, commercial, and industrial): (1) supply and conveyance of the water from the source; (2) treatment of the water to potable standards; and (3) distribution of the water to individual users. After use, the wastewater is treated and either reused as reclaimed/recycled water or returned to the environment. CalEEMod calculates the GHG emissions from these processes based on default emissions factors and water/wastewater generation rates for a project's location. Default values were used for electricity intensity factor associated with the supply and

[17] Per WRCOG Subregional CAP.

conveyance of water from its source which assumes that the water is being imported from Northern California. Water demand was obtained from the Water Supply Assessment[18]. The Project's emissions were adjusted to account for the CalGreen building code which requires a 20 percent reduction in indoor water use. **Table 10** shows the GHG emissions from water-related energy usage for the Project.

Total Project GHG Emissions

As shown on **Table 10 – Total Unmitigated Project-Related GHG Emissions**, using all the emissions quantified above, the total GHG emissions generated from the Project is approximately 23,018 $MTCO_2E$/yr which includes construction-related emissions amortized over a typical project life of 30 years.

Table 10 – Total Unmitigated Project-Related GHG Emissions

Source	Metric Tons per year (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2E
Amortized Construction	--	--	--	126.93
Area	0.05	0.00	0.00	0.05
Energy	841.18	0.03	0.01	845.79
Mobile	21,840.66	1.04	0.00	21,866.59
Solid Waste	47.70	2.82	0.00	118.18
Water	53.16	0.22	0.01	60.46
Total	**22,782.75**	**4.11**	**0.02**	**23.018.00**

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

The total GHG emissions from the Project are above the SCAQMD interim screening threshold level of 10,000 $MTCO_2E$/yr for industrial projects. Therefore, a BAU analysis was prepared in accordance with the Subregional CAP to determine the Project's consistency with AB 32.

Business-As-Usual (BAU) Analysis

The BAU analysis presented herein was performed to determine if the Project's GHG emissions would meet the Subregional CAP reduction target in 2020, which equals a reduction of 15%. BAU is an estimate of the GHG emissions expected to occur if none of the foreseeable measures in the Subregional CAP were implemented. These measures are implemented at the state, regional, and local level.

Many aspects of the GHG estimates for the BAU analysis are similar to those analyzed for the proposed Project. BAU emissions for construction will be similar to those shown for the Project, as the same Project footprint will be disturbed. Therefore, construction under the BAU analysis is assumed to be equivalent to that of the Project and was not modeled separately. BAU emissions for the remaining sources of GHG emissions were estimated using CalEEMod and are similar to the GHG estimates for the Project with the following exceptions:

- The operational year selected was 2010, to reflect the baseline year of the Subregional CAP.
- The energy-related GHG emissions were estimated according to the 2008 Title 24 standards.[19]
- Mobile source emissions factors exclude the Pavley motor vehicle standards for cars and light trucks and the Low Carbon Fuel Standard (LCFS) for motor vehicle fuels.
- No adjustments were made to water demand because the CalGreen code requirements were not in effect at the time the Subregional CAP baseline was set.
- The City's solid waste diversion rate of 53% was used consistent with what was occurring prior to Assembly Bill 341.

Table 11, below, indicates that the BAU GHG emissions based on the assumptions outlined above, result in 26,201.05 $MTCO_2E$/year.

[18] Albert A. Webb Associates. *Water Supply Assessment Banning Distribution Center,* November 3, 2017.

[19] Energy usage factors from Appendix D of CalEEMod User's Guide for version 2011.1.1, which reflect 2008 Title 24 standards.

Table 11 – Total BAU GHG Emissions

Source	Metric Tons per year (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2E
Amortized Construction	--	--	--	126.93
Area	0.05	0.00	0.00	0.05
Energy	1,373.91	0.04	0.02	1,379.67
Mobile	24,339.25	1.74	0.00	24,382.79
Solid Waste	89.68	5.30	0.00	222.18
Water	80.34	0.27	0.01	89.43
Total	**25,883.23**	**7.36**	**0.03**	**26,201.05**

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

Because the Subregional CAP target year is 2020, and the Project will be operational in 2020, the Subregional CAP will be fully implemented at this time. For example, the Renewable Portfolio Standard (RPS) which requires 33 percent of each utility company's energy sources to be renewable by 2020 was included in CalEEMod for the Project. **Table 10 – Total Project-Related GHG Emissions**, above, shows the Project's GHG emissions in 2020 which includes full implementation of the following statewide GHG reduction measures in addition to the Project design features described previously:

- RPS where renewable energy sources are required to be 33 percent. This is not directly calculated within CalEEMod, but adjustments were made to the default CO_2 electricity intensity factor within the model.
- 75% reduction in waste disposed per AB 341 requirements, which will be fully implemented in 2020.[20]

The Project will implement mitigation measure **MM AQ 6** to require installation of high efficiency lighting and reduce electricity use. As shown in **Table 12 – Total Mitigated Project-Related GHG Emissions**, this will reduce the Project's GHG emissions to 22,744.03 $MTCO_2E$ /year.

Table 12 – Total Mitigated Project-Related GHG Emissions

Source	Metric Tons per year (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2E
Amortized Construction	--	--	--	126.93
Area	0.05	0.00	0.00	0.05
Energy	568.69	0.02	0.01	571.82
Mobile	21,840.66	1.04	0.00	21,866.59
Solid Waste	47.70	2.82	0.00	118.18
Water	53.16	0.22	0.01	60.46
Total	**22,510.26**	**4.10**	**0.02**	**22,744.03**

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

A comparison of the Project's GHG emissions in 2020 from **Table 12** (22,744.03 $MTCO_2E$ /year) to the BAU GHG emissions estimated in **Table 11** (26,201.05 $MTCO_2E$/year) corresponds to a 13.2 percent reduction, which does not achieve the 15 percent reduction target to meet the goal of the Subregional CAP.

[20] http://leginfo.ca.gov/pub/11-12/bill/asm/ab_0301-0350/ab_341_bill_20111006_chaptered.pdf

Recommended Mitigation Measures

The following mitigation measures are recommended to reduce VOC and NO_X emissions from Project construction:

MM AQ 1: To reduce VOC emissions associated with architectural coating, the project designer and contractor shall reduce the use of paints and solvents by utilizing pre-coated materials (e.g. bathroom stall dividers, metal awnings), materials that do not require painting, and require coatings and solvents with a VOC content lower than required under Rule 1113 to be utilized. The construction contractor shall be required to utilize "Super-Compliant" VOC paints, which are defined in SCAQMD's Rule 1113. Construction specifications shall be included in building specifications that assure these requirements are implemented. The specifications for each implementing development project shall be reviewed by the City of Banning's Building and Safety Division for compliance with this mitigation measure prior to issuance of a building permit.

MM AQ 2: To reduce NO_X emissions associated with off-road construction equipment, the construction schedule for Site Preparation (clear and grub) and Grading of the Project site shall not overlap. During on-site Site Preparation and Off-site Grading (John Street) activities, heavy-duty construction equipment greater than 75 horsepower shall be certified to meet or exceed United States Environmental Protection Agency (USEPA) Tier 3 standards. Proof of compliance shall be reviewed by the Public Works Department Engineering Division prior to issuance of a grading permit.

The following mitigation measures are recommended to reduce NO_X emissions from Project operation:

MM AQ 3: Although the Project does not include refrigerated warehouse space, trucks accessing the Project site may have auxiliary power units (APU) and/or transport refrigeration units (TRUs). Therefore, electrical hookups shall be installed at all loading docks to allow trucks with APU and/or TRUs with electric standby capabilities to plug in when TRUs are in use. The City shall verify electrical hookups have been installed prior to occupancy.

MM AQ 4: All facilities shall post signs informing users of requirements limiting idling to five minutes or less pursuant to Title 13 of the California Code of Regulations, Section 2485. No overnight/long-term parking will be allowed. The City shall verify signage has been installed prior to occupancy.

MM AQ 5: Service equipment (i.e., yard hostlers and forklifts) used within the site shall be electric or compressed natural gas-powered.

The following mitigation measure is recommended to reduce greenhouse gas emissions from Project operation:

MM AQ 6: High efficiency lighting shall be installed at the Project site.

Impacts after Mitigation

Implementation of mitigation measures **MM AQ 1** and **MM AQ 2** will reduce the Project's short-term construction-related emissions. **MM AQ 1** and **MM AQ 2** have quantitative reductions associated with them available in CalEEMod. The mitigated regional emissions are shown in **Table 13**, below, and indicate that VOC emissions from architectural coatings (painting) activities and NO_X emissions from off-road equipment and overlapping construction activities for the proposed warehouse building will be reduced below the SCAQMD thresholds with implementation of **MM AQ 1** and **MM AQ 2**.

Table 13 – Mitigated Estimated Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO_X	CO	SO_2	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Site Preparation 2019[1]	2.50	73.07	31.84	0.17	11.26	3.48
Grading – 2019[2]	4.85	54.82	34.33	0.06	6.75	3.74
Off-site Grading (John St.) – 2019	0.99	18.59	21.56	0.04	3.51	2.15
Off-site Paving (John St.) – 2019[2]	3.44	10.61	10.08	0.02	0.77	0.58
Building Construction – 2019[2]	10.53	**78.91**	83.06	0.28	**17.72**	**6.00**
Off-site Construction – 2019[2]	1.84	**18.09**	10.86	0.02	**4.04**	**2.29**
Building Construction – 2020[2]	**9.55**	72.01	**76.79**	**0.28**	17.42	5.72
Paving – 2020[2]	**3.78**	14.33	**15.32**	**0.03**	0.94	0.74
Architectural Coatings – 2020	**34.02**	5.26	**14.37**	**0.03**	2.91	1.00
Maximum[3]	**47.35**	**97.00**	**106.48**	**0.34**	**21.76**	**8.29**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Note: [1] Site preparation includes one rubber tired dozer and two scrapers operating eight hours per day and approximately 129 truckloads of debris exported daily for five days.
[2] Represents unmitigated emissions reported in Table 2.
[3] Maximum emissions are the greater of either: 1) the sum of Site Preparation 2019 and Off-site Grading (John St.); 2) Grading 2019, Off-site Grading 2019 and Off-site Paving 2019; 3) Building Construction 2019 and Off-site Construction 2019, or 4) Building Construction 2020, Paving 2020 and Architectural Coating 2020.

Implementation of **MM AQ 2** also reduces the LST emissions of PM-10 from overlapping activities. The mitigated LST emissions are shown in **Table 14**, below, and indicate the PM-10 emissions from overlapping construction activities are reduced below the LST.

Table 14 – Mitigated LST Results for Maximum Daily Construction Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO_X	CO	PM-10	PM-2.5
LST Threshold for 4-acre at 25 meters	**178**	**1,966**	**14**	**8**
Site Preparation[1]	18.46	20.69	8.39	2.57
Grading[2]	54.52	33.38	6.51	3.67
Off-site Grading (John St.)	17.86	20.81	3.32	2.10
Off-site Paving (John St.)[2]	9.86	9.24	0.56	0.51
Building Construction[2,3]	39.46	37.50	4.92	3.45
Maximum[4]	**82.24**	**63.43**	**11.71**	**6.29**
Exceeds Threshold?	**No**	**No**	**No**	**No**

Note: SCAQMD LST for 4-acre site predicted using Appendix K of SCAQMD LST Methodology.
[1] Site preparation includes one rubber tired dozer and two scrapers operating eight hours per day and approximately 129 truckloads of debris exported daily for five days.
[2] Represents unmitigated emissions reported in Table 6.
[3] Building construction includes the maximum of either on-site and off-site construction in 2019 as these activities could overlap or on-site construction, paving, and architectural coatings in 2020.
[4] Maximum emissions are the greater of either: 1) the sum of Site Preparation 2019 and Off-site Grading (John St.); 2) Grading 2019, Off-site Grading 2019 and Off-site Paving 2019; 3) Building Construction 2019 and Off-site Construction 2019, or 4) Building Construction 2020, Paving 2020 and Architectural Coating 2020.

Implementation of mitigation measures **MM AQ 3** through **MM AQ 5** will reduce operational emissions of NO_X from transportation emissions however; they do not have quantitative reductions associated with them available in CalEEMod. Therefore, after implementation of mitigation measures, the operational emissions of NO_X exceed the SCAQMD threshold.

Implementation of **MM AQ 6** will reduce Project-related energy emissions, shown in **Table 12**, above, by approximately 274 $MTCO_2E$/year. However, the Project's mitigated GHG emissions do not achieve the 15 percent reduction target to meet the goal of the Subregional CAP.

▪ Conclusion

The conclusion of this analysis indicates that construction of the proposed Project will not exceed criteria pollutant thresholds established by SCAQMD on a regional or localized level after implementation of mitigation measures. The analysis also concludes that operation of the proposed Project will exceed criteria pollutant thresholds for NO_X established by SCAQMD on a regional level after implementation of mitigation measures. The Project's operation will not exceed criteria pollutant thresholds established by SCAQMD on a localized level without mitigation required. In addition, the Project will not create a CO hot spot. The Project has a 13.2 percent GHG reduction, which does not achieve the 15 percent GHG reduction target set forth in the Subregional CAP.

Should you have any questions, please contact me at (951) 686-1070.

CALEEMOD OUTPUT FILES

List of CalEEMod Files:

- **Project**
  - Project (Summer)
  - Project (Winter)
  - Project (Annual)
  - VOC Mitigation (Summer)
  - VOC Mitigation (Winter)
  - Site Prep - Mitigated (Summer)
  - Site Prep - Mitigated (Winter)
- **Off-site Construction**
  - Off-sites (Summer)
  - Off-sites (Winter)
  - Off-sites (Annual)
  - Off-sites Grading Tier 3 (Summer)
  - Off-sites Grading Tier 3 (Winter)
  - Off-sites Grading Tier 3 (Annual)
- **Business As Usual (BAU)**
  - BAU (Annual)
- **Operation Localized Significant Threshold (LST)**
  - Operation LST (Summer)
  - Operation LST (Winter)

Banning Dist. Center

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Vehicle Trips - 100 miles from ports, TIA truck trips.

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Energy Mitigation - Project Mitigation for High Efficiency Lighting

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23

tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.0370e-003	1.5600e-003
tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003
tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,406,966.94
tblWater	OutdoorWaterUseRate	0.00	6,908,050.35

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	9.9487	109.0399	83.0572	0.2840	27.1094	2.5528	29.6621	6.0652	2.3547	8.4199	0.0000	29,014.1548	29,014.1548	3.0315	0.0000	29,062.8429
2020	236.3144	91.2359	106.4753	0.3385	18.6614	2.5994	21.2608	5.0152	2.4465	7.4617	0.0000	34,306.2082	34,306.2082	2.7017	0.0000	34,373.7502
Maximum	**236.3144**	**109.0399**	**106.4753**	**0.3385**	**27.1094**	**2.5994**	**29.6621**	**6.0652**	**2.4465**	**8.4199**	**0.0000**	**34,306.2082**	**34,306.2082**	**3.0315**	**0.0000**	**34,373.7502**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	9.9487	109.0399	83.0572	0.2840	15.8877	2.5528	17.7124	4.2793	2.3547	5.9967	0.0000	29,014.1548	29,014.1548	3.0315	0.0000	29,062.8429
2020	236.3144	91.2359	106.4753	0.3385	18.6614	2.5994	21.2608	5.0152	2.4465	7.4617	0.0000	34,306.2082	34,306.2082	2.7017	0.0000	34,373.7502
Maximum	**236.3144**	**109.0399**	**106.4753**	**0.3385**	**18.6614**	**2.5994**	**21.2608**	**5.0152**	**2.4465**	**7.4617**	**0.0000**	**34,306.2082**	**34,306.2082**	**3.0315**	**0.0000**	**34,373.7502**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.52**	**0.00**	**23.47**	**16.12**	**0.00**	**15.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	13.3535	254.5680	179.9654	1.2807	66.2418	1.9086	68.1504	18.0786	1.8173	19.8959		134,517.9384	134,517.9384	6.2941		134,675.2905
Total	**36.5316**	**255.1150**	**180.6164**	**1.2840**	**66.2418**	**1.9508**	**68.1925**	**18.0786**	**1.8594**	**19.9380**		**135,172.6603**	**135,172.6603**	**6.3077**	**0.0120**	**135,333.9282**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	13.3535	254.5680	179.9654	1.2807	66.2418	1.9086	68.1504	18.0786	1.8173	19.8959		134,517.9384	134,517.9384	6.2941		134,675.2905
Total	**36.5316**	**255.1150**	**180.6164**	**1.2840**	**66.2418**	**1.9508**	**68.1925**	**18.0786**	**1.8594**	**19.9380**		**135,172.6603**	**135,172.6603**	**6.3077**	**0.0120**	**135,333.9282**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	Debris Removal
2	Grading	Grading	1/1/2019	3/31/2019	5	64	
3	Building Construction	Building Construction	4/1/2019	3/31/2020	5	262	
4	Paving	Paving	3/1/2020	3/31/2020	5	22	
5	Architectural Coating	Architectural Coating	3/1/2020	4/30/2020	5	44	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 275

Acres of Paving: 40.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,500,000; Non-Residential Outdoor: 500,000; Striped Parking Area: 105,986 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,162.00	453.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	232.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.7034	0.0000	13.7034	1.4898	0.0000	1.4898			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**13.7034**	**0.0000**	**13.7034**	**1.4898**	**0.0000**	**1.4898**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4269	54.2227	9.5609	0.1284	2.5907	0.1668	2.7575	0.7102	0.1596	0.8698		13,860.9111	13,860.9111	1.0778		13,887.8567
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.4269**	**54.2227**	**9.5609**	**0.1284**	**2.5907**	**0.1668**	**2.7575**	**0.7102**	**0.1596**	**0.8698**		**13,860.9111**	**13,860.9111**	**1.0778**		**13,887.8567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3443	0.0000	5.3443	0.5810	0.0000	0.5810			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.3443**	**0.0000**	**5.3443**	**0.5810**	**0.0000**	**0.5810**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4269	54.2227	9.5609	0.1284	2.5907	0.1668	2.7575	0.7102	0.1596	0.8698		13,860.9111	13,860.9111	1.0778		13,887.8567
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.4269**	**54.2227**	**9.5609**	**0.1284**	**2.5907**	**0.1668**	**2.7575**	**0.7102**	**0.1596**	**0.8698**		**13,860.9111**	**13,860.9111**	**1.0778**		**13,887.8567**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.5789	0.0000	10.5789	3.8023	0.0000	3.8023			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**10.5789**	**2.3827**	**12.9616**	**3.8023**	**2.1920**	**5.9943**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.7100e-003	0.2289	0.0553	5.2000e-004	0.0128	1.5200e-003	0.0143	3.6900e-003	1.4500e-003	5.1400e-003		55.2439	55.2439	3.6600e-003		55.3353
Worker	0.0980	0.0682	0.8987	2.3700e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		236.1978	236.1978	7.3900e-003		236.3825
Total	**0.1057**	**0.2970**	**0.9540**	**2.8900e-003**	**0.2364**	**3.2600e-003**	**0.2396**	**0.0630**	**3.0500e-003**	**0.0660**		**291.4418**	**291.4418**	**0.0111**		**291.7178**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.1258	0.0000	4.1258	1.4829	0.0000	1.4829			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**4.1258**	**2.3827**	**6.5084**	**1.4829**	**2.1920**	**3.6749**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.7100e-003	0.2289	0.0553	5.2000e-004	0.0128	1.5200e-003	0.0143	3.6900e-003	1.4500e-003	5.1400e-003		55.2439	55.2439	3.6600e-003		55.3353
Worker	0.0980	0.0682	0.8987	2.3700e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		236.1978	236.1978	7.3900e-003		236.3825
Total	**0.1057**	**0.2970**	**0.9540**	**2.8900e-003**	**0.2364**	**3.2600e-003**	**0.2396**	**0.0630**	**3.0500e-003**	**0.0660**		**291.4418**	**291.4418**	**0.0111**		**291.7178**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.7464	51.8340	12.5305	0.1174	2.8993	0.3433	3.2426	0.8347	0.3284	1.1631		12,512.7526	12,512.7526	0.8279		12,533.4507
Worker	5.6908	3.9601	52.2129	0.1378	12.9884	0.1011	13.0895	3.4446	0.0931	3.5377		13,723.0926	13,723.0926	0.4292		13,733.8223
Total	**7.4372**	**55.7941**	**64.7433**	**0.2552**	**15.8877**	**0.4444**	**16.3322**	**4.2793**	**0.4216**	**4.7009**		**26,235.8451**	**26,235.8451**	**1.2571**		**26,267.2730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.7464	51.8340	12.5305	0.1174	2.8993	0.3433	3.2426	0.8347	0.3284	1.1631		12,512.7526	12,512.7526	0.8279		12,533.4507
Worker	5.6908	3.9601	52.2129	0.1378	12.9884	0.1011	13.0895	3.4446	0.0931	3.5377		13,723.0926	13,723.0926	0.4292		13,733.8223
Total	**7.4372**	**55.7941**	**64.7433**	**0.2552**	**15.8877**	**0.4444**	**16.3322**	**4.2793**	**0.4216**	**4.7009**		**26,235.8451**	**26,235.8451**	**1.2571**		**26,267.2730**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218		2,735.6999	2,735.6999	0.6819		2,752.7481
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**		**2,735.6999**	**2,735.6999**	**0.6819**		**2,752.7481**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.4877	47.5356	11.3192	0.1166	2.8993	0.2355	3.1348	0.8347	0.2253	1.0600		12,432.5150	12,432.5150	0.7806		12,452.0293
Worker	5.2574	3.5340	47.5047	0.1335	12.9884	0.0985	13.0869	3.4446	0.0908	3.5353		13,298.1308	13,298.1308	0.3823		13,307.6891
Total	**6.7451**	**51.0696**	**58.8239**	**0.2501**	**15.8877**	**0.3340**	**16.2217**	**4.2793**	**0.3160**	**4.5953**		**25,730.6459**	**25,730.6459**	**1.1629**		**25,759.7184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218	0.0000	2,735.6999	2,735.6999	0.6819		2,752.7481
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**	**0.0000**	**2,735.6999**	**2,735.6999**	**0.6819**		**2,752.7481**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.4877	47.5356	11.3192	0.1166	2.8993	0.2355	3.1348	0.8347	0.2253	1.0600		12,432.5150	12,432.5150	0.7806		12,452.0293
Worker	5.2574	3.5340	47.5047	0.1335	12.9884	0.0985	13.0869	3.4446	0.0908	3.5353		13,298.1308	13,298.1308	0.3823		13,307.6891
Total	**6.7451**	**51.0696**	**58.8239**	**0.2501**	**15.8877**	**0.3340**	**16.2217**	**4.2793**	**0.3160**	**4.5953**		**25,730.6459**	**25,730.6459**	**1.1629**		**25,759.7184**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	2.3413					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6979**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.5700e-003	0.2099	0.0500	5.1000e-004	0.0128	1.0400e-003	0.0138	3.6900e-003	9.9000e-004	4.6800e-003		54.8897	54.8897	3.4500e-003		54.9759
Worker	0.0679	0.0456	0.6132	1.7200e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		171.6626	171.6626	4.9400e-003		171.7860
Total	**0.0744**	**0.2555**	**0.6632**	**2.2300e-003**	**0.1805**	**2.3100e-003**	**0.1828**	**0.0482**	**2.1600e-003**	**0.0503**		**226.5523**	**226.5523**	**8.3900e-003**		**226.7619**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	2.3413					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6979**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.5700e-003	0.2099	0.0500	5.1000e-004	0.0128	1.0400e-003	0.0138	3.6900e-003	9.9000e-004	4.6800e-003		54.8897	54.8897	3.4500e-003		54.9759
Worker	0.0679	0.0456	0.6132	1.7200e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		171.6626	171.6626	4.9400e-003		171.7860
Total	**0.0744**	**0.2555**	**0.6632**	**2.2300e-003**	**0.1805**	**2.3100e-003**	**0.1828**	**0.0482**	**2.1600e-003**	**0.0503**		**226.5523**	**226.5523**	**8.3900e-003**		**226.7619**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	221.8465					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958		750.5281	750.5281	0.0581		751.9809
Total	**222.4923**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**		**750.5281**	**750.5281**	**0.0581**		**751.9809**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0497	0.7056	9.4846	0.0267	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,655.0485	2,655.0485	0.0763		2,656.9569
Total	**1.0497**	**0.7056**	**9.4846**	**0.0267**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,655.0485**	**2,655.0485**	**0.0763**		**2,656.9569**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	221.8465					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958	0.0000	750.5281	750.5281	0.0581		751.9809
Total	**222.4923**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**	**0.0000**	**750.5281**	**750.5281**	**0.0581**		**751.9809**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0497	0.7056	9.4846	0.0267	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,655.0485	2,655.0485	0.0763		2,656.9569
Total	**1.0497**	**0.7056**	**9.4846**	**0.0267**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,655.0485**	**2,655.0485**	**0.0763**		**2,656.9569**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.3535	254.5680	179.9654	1.2807	66.2418	1.9086	68.1504	18.0786	1.8173	19.8959		134,517.9384	134,517.9384	6.2941		134,675.2905
Unmitigated	13.3535	254.5680	179.9654	1.2807	66.2418	1.9086	68.1504	18.0786	1.8173	19.8959		134,517.9384	134,517.9384	6.2941		134,675.2905

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	29,582,525	29,582,525
Total	1,680.00	1,680.00	1,680.00	29,582,525	29,582,525

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	100.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.423330	0.033690	0.154040	0.000000	0.000000	0.064880	0.086300	0.229800	0.001560	0.001490	0.003640	0.000540	0.000730

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
NaturalGas Unmitigated	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	5561.64	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Total		**0.0600**	**0.5453**	**0.4580**	**3.2700e-003**		**0.0414**	**0.0414**		**0.0414**	**0.0414**		**654.3110**	**654.3110**	**0.0125**	**0.0120**	**658.1993**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	5.56164	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Total		**0.0600**	**0.5453**	**0.4580**	**3.2700e-003**		**0.0414**	**0.0414**		**0.0414**	**0.0414**		**654.3110**	**654.3110**	**0.0125**	**0.0120**	**658.1993**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Unmitigated	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6743					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	20.4257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0182	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Total	**23.1181**	**1.7800e-003**	**0.1929**	**1.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**		**0.4109**	**0.4109**	**1.1000e-003**		**0.4384**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6743					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	20.4257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0182	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Total	**23.1181**	**1.7800e-003**	**0.1929**	**1.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**		**0.4109**	**0.4109**	**1.1000e-003**		**0.4384**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Banning Dist. Center

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Vehicle Trips - 100 miles from ports, TIA truck trips.

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Energy Mitigation - Project Mitigation for High Efficiency Lighting

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23

tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.0370e-003	1.5600e-003
tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003
tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,406,966.94
tblWater	OutdoorWaterUseRate	0.00	6,908,050.35

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	10.5320	109.1785	79.3746	0.2718	27.1094	2.5580	29.6674	6.0652	2.3598	8.4250	0.0000	27,769.1364	27,769.1364	3.0989	0.0000	27,818.6644
2020	236.9633	91.5933	102.0429	0.3246	18.6614	2.6029	21.2643	5.0152	2.4499	7.4651	0.0000	32,901.7364	32,901.7364	2.7286	0.0000	32,969.9515
Maximum	**236.9633**	**109.1785**	**102.0429**	**0.3246**	**27.1094**	**2.6029**	**29.6674**	**6.0652**	**2.4499**	**8.4250**	**0.0000**	**32,901.7364**	**32,901.7364**	**3.0989**	**0.0000**	**32,969.9515**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	10.5320	109.1785	79.3746	0.2718	15.8877	2.5580	17.7178	4.2793	2.3598	6.0019	0.0000	27,769.1364	27,769.1364	3.0989	0.0000	27,818.6644
2020	236.9633	91.5933	102.0429	0.3246	18.6614	2.6029	21.2643	5.0152	2.4499	7.4651	0.0000	32,901.7364	32,901.7364	2.7286	0.0000	32,969.9515
Maximum	**236.9633**	**109.1785**	**102.0429**	**0.3246**	**18.6614**	**2.6029**	**21.2643**	**5.0152**	**2.4499**	**7.4651**	**0.0000**	**32,901.7364**	**32,901.7364**	**3.0989**	**0.0000**	**32,969.9515**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.52**	**0.00**	**23.46**	**16.12**	**0.00**	**15.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	13.2269	262.5086	168.8973	1.2507	66.2418	1.9141	68.1559	18.0786	1.8226	19.9012		131,490.5743	131,490.5743	6.3274		131,648.7585
Total	**36.4050**	**263.0557**	**169.5483**	**1.2540**	**66.2418**	**1.9563**	**68.1980**	**18.0786**	**1.8647**	**19.9433**		**132,145.2962**	**132,145.2962**	**6.3410**	**0.0120**	**132,307.3961**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	13.2269	262.5086	168.8973	1.2507	66.2418	1.9141	68.1559	18.0786	1.8226	19.9012		131,490.5743	131,490.5743	6.3274		131,648.7585
Total	**36.4050**	**263.0557**	**169.5483**	**1.2540**	**66.2418**	**1.9563**	**68.1980**	**18.0786**	**1.8647**	**19.9433**		**132,145.2962**	**132,145.2962**	**6.3410**	**0.0120**	**132,307.3961**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	Debris Removal
2	Grading	Grading	1/1/2019	3/31/2019	5	64	
3	Building Construction	Building Construction	4/1/2019	3/31/2020	5	262	
4	Paving	Paving	3/1/2020	3/31/2020	5	22	
5	Architectural Coating	Architectural Coating	3/1/2020	4/30/2020	5	44	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 275

Acres of Paving: 40.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,500,000; Non-Residential Outdoor: 500,000; Striped Parking Area: 105,986 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,162.00	453.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	232.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.7034	0.0000	13.7034	1.4898	0.0000	1.4898			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**13.7034**	**0.0000**	**13.7034**	**1.4898**	**0.0000**	**1.4898**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4895	54.3546	10.7671	0.1247	2.5907	0.1721	2.7628	0.7102	0.1647	0.8748		13,465.0513	13,465.0513	1.1454		13,493.6868
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.4895**	**54.3546**	**10.7671**	**0.1247**	**2.5907**	**0.1721**	**2.7628**	**0.7102**	**0.1647**	**0.8748**		**13,465.0513**	**13,465.0513**	**1.1454**		**13,493.6868**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3443	0.0000	5.3443	0.5810	0.0000	0.5810			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.3443**	**0.0000**	**5.3443**	**0.5810**	**0.0000**	**0.5810**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4895	54.3546	10.7671	0.1247	2.5907	0.1721	2.7628	0.7102	0.1647	0.8748		13,465.0513	13,465.0513	1.1454		13,493.6868
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.4895**	**54.3546**	**10.7671**	**0.1247**	**2.5907**	**0.1721**	**2.7628**	**0.7102**	**0.1647**	**0.8748**		**13,465.0513**	**13,465.0513**	**1.1454**		**13,493.6868**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.5789	0.0000	10.5789	3.8023	0.0000	3.8023			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**10.5789**	**2.3827**	**12.9616**	**3.8023**	**2.1920**	**5.9943**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.0500e-003	0.2290	0.0616	5.0000e-004	0.0128	1.5400e-003	0.0143	3.6900e-003	1.4700e-003	5.1600e-003		53.6633	53.6633	3.9300e-003		53.7615
Worker	0.1067	0.0747	0.8108	2.2200e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		220.9312	220.9312	6.9000e-003		221.1037
Total	**0.1147**	**0.3037**	**0.8724**	**2.7200e-003**	**0.2364**	**3.2800e-003**	**0.2396**	**0.0630**	**3.0700e-003**	**0.0661**		**274.5944**	**274.5944**	**0.0108**		**274.8652**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.1258	0.0000	4.1258	1.4829	0.0000	1.4829			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**4.1258**	**2.3827**	**6.5084**	**1.4829**	**2.1920**	**3.6749**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.0500e-003	0.2290	0.0616	5.0000e-004	0.0128	1.5400e-003	0.0143	3.6900e-003	1.4700e-003	5.1600e-003		53.6633	53.6633	3.9300e-003		53.7615
Worker	0.1067	0.0747	0.8108	2.2200e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		220.9312	220.9312	6.9000e-003		221.1037
Total	**0.1147**	**0.3037**	**0.8724**	**2.7200e-003**	**0.2364**	**3.2800e-003**	**0.2396**	**0.0630**	**3.0700e-003**	**0.0661**		**274.5944**	**274.5944**	**0.0108**		**274.8652**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8244	51.8706	13.9550	0.1141	2.8993	0.3487	3.2481	0.8347	0.3336	1.1683		12,154.7270	12,154.7270	0.8897		12,176.9688
Worker	6.1961	4.3376	47.1057	0.1289	12.9884	0.1011	13.0895	3.4446	0.0931	3.5377		12,836.0997	12,836.0997	0.4010		12,846.1256
Total	**8.0206**	**56.2081**	**61.0607**	**0.2430**	**15.8877**	**0.4498**	**16.3376**	**4.2793**	**0.4268**	**4.7060**		**24,990.8267**	**24,990.8267**	**1.2907**		**25,023.0945**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8244	51.8706	13.9550	0.1141	2.8993	0.3487	3.2481	0.8347	0.3336	1.1683		12,154.7270	12,154.7270	0.8897		12,176.9688
Worker	6.1961	4.3376	47.1057	0.1289	12.9884	0.1011	13.0895	3.4446	0.0931	3.5377		12,836.0997	12,836.0997	0.4010		12,846.1256
Total	**8.0206**	**56.2081**	**61.0607**	**0.2430**	**15.8877**	**0.4498**	**16.3376**	**4.2793**	**0.4268**	**4.7060**		**24,990.8267**	**24,990.8267**	**1.2907**		**25,023.0945**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218		2,735.6999	2,735.6999	0.6819		2,752.7481
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**		**2,735.6999**	**2,735.6999**	**0.6819**		**2,752.7481**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5584	47.4864	12.6199	0.1132	2.8993	0.2390	3.1383	0.8347	0.2287	1.0633		12,073.0301	12,073.0301	0.8383		12,093.9883
Worker	5.7340	3.8696	42.7718	0.1248	12.9884	0.0985	13.0869	3.4446	0.0908	3.5353		12,437.6408	12,437.6408	0.3567		12,446.5582
Total	**7.2924**	**51.3559**	**55.3917**	**0.2381**	**15.8877**	**0.3376**	**16.2253**	**4.2793**	**0.3194**	**4.5987**		**24,510.6709**	**24,510.6709**	**1.1950**		**24,540.5465**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218	0.0000	2,735.6999	2,735.6999	0.6819		2,752.7481
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**	**0.0000**	**2,735.6999**	**2,735.6999**	**0.6819**		**2,752.7481**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5584	47.4864	12.6199	0.1132	2.8993	0.2390	3.1383	0.8347	0.2287	1.0633		12,073.0301	12,073.0301	0.8383		12,093.9883
Worker	5.7340	3.8696	42.7718	0.1248	12.9884	0.0985	13.0869	3.4446	0.0908	3.5353		12,437.6408	12,437.6408	0.3567		12,446.5582
Total	**7.2924**	**51.3559**	**55.3917**	**0.2381**	**15.8877**	**0.3376**	**16.2253**	**4.2793**	**0.3194**	**4.5987**		**24,510.6709**	**24,510.6709**	**1.1950**		**24,540.5465**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	2.3413					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6979**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.8800e-003	0.2097	0.0557	5.0000e-004	0.0128	1.0600e-003	0.0139	3.6900e-003	1.0100e-003	4.6900e-003		53.3026	53.3026	3.7000e-003		53.3951
Worker	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699
Total	**0.0809**	**0.2596**	**0.6079**	**2.1100e-003**	**0.1805**	**2.3300e-003**	**0.1828**	**0.0482**	**2.1800e-003**	**0.0503**		**213.8573**	**213.8573**	**8.3000e-003**		**214.0650**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	2.3413					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6979**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.8800e-003	0.2097	0.0557	5.0000e-004	0.0128	1.0600e-003	0.0139	3.6900e-003	1.0100e-003	4.6900e-003		53.3026	53.3026	3.7000e-003		53.3951
Worker	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699
Total	**0.0809**	**0.2596**	**0.6079**	**2.1100e-003**	**0.1805**	**2.3300e-003**	**0.1828**	**0.0482**	**2.1800e-003**	**0.0503**		**213.8573**	**213.8573**	**8.3000e-003**		**214.0650**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	221.8465					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958		750.5281	750.5281	0.0581		751.9809
Total	**222.4923**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**		**750.5281**	**750.5281**	**0.0581**		**751.9809**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1448	0.7726	8.5396	0.0249	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,483.2467	2,483.2467	0.0712		2,485.0271
Total	**1.1448**	**0.7726**	**8.5396**	**0.0249**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,483.2467**	**2,483.2467**	**0.0712**		**2,485.0271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	221.8465					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958	0.0000	750.5281	750.5281	0.0581		751.9809
Total	**222.4923**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**	**0.0000**	**750.5281**	**750.5281**	**0.0581**		**751.9809**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1448	0.7726	8.5396	0.0249	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,483.2467	2,483.2467	0.0712		2,485.0271
Total	**1.1448**	**0.7726**	**8.5396**	**0.0249**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,483.2467**	**2,483.2467**	**0.0712**		**2,485.0271**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.2269	262.5086	168.8973	1.2507	66.2418	1.9141	68.1559	18.0786	1.8226	19.9012		131,490.5743	131,490.5743	6.3274		131,648.7585
Unmitigated	13.2269	262.5086	168.8973	1.2507	66.2418	1.9141	68.1559	18.0786	1.8226	19.9012		131,490.5743	131,490.5743	6.3274		131,648.7585

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	29,582,525	29,582,525
Total	1,680.00	1,680.00	1,680.00	29,582,525	29,582,525

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	100.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.423330	0.033690	0.154040	0.000000	0.000000	0.064880	0.086300	0.229800	0.001560	0.001490	0.003640	0.000540	0.000730

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
NaturalGas Unmitigated	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	5561.64	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Total		**0.0600**	**0.5453**	**0.4580**	**3.2700e-003**		**0.0414**	**0.0414**		**0.0414**	**0.0414**		**654.3110**	**654.3110**	**0.0125**	**0.0120**	**658.1993**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	5.56164	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Total		**0.0600**	**0.5453**	**0.4580**	**3.2700e-003**		**0.0414**	**0.0414**		**0.0414**	**0.0414**		**654.3110**	**654.3110**	**0.0125**	**0.0120**	**658.1993**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Unmitigated	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6743					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	20.4257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0182	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Total	**23.1181**	**1.7800e-003**	**0.1929**	**1.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**		**0.4109**	**0.4109**	**1.1000e-003**		**0.4384**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6743					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	20.4257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0182	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Total	**23.1181**	**1.7800e-003**	**0.1929**	**1.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**		**0.4109**	**0.4109**	**1.1000e-003**		**0.4384**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Banning Dist. Center

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Vehicle Trips - 100 miles from ports, TIA truck trips.

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Energy Mitigation - Project Mitigation for High Efficiency Lighting

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23

tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.0370e-003	1.5600e-003
tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003
tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,406,966.94
tblWater	OutdoorWaterUseRate	0.00	6,908,050.35

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	1.1341	9.7715	9.0025	0.0296	1.9236	0.2567	2.1803	0.5438	0.2400	0.7838	0.0000	2,736.9999	2,736.9999	0.2338	0.0000	2,742.8453
2020	5.2503	2.6454	2.8722	9.8100e-003	0.5651	0.0650	0.6301	0.1522	0.0613	0.2135	0.0000	905.3441	905.3441	0.0644	0.0000	906.9539
Maximum	**5.2503**	**9.7715**	**9.0025**	**0.0296**	**1.9236**	**0.2567**	**2.1803**	**0.5438**	**0.2400**	**0.7838**	**0.0000**	**2,736.9999**	**2,736.9999**	**0.2338**	**0.0000**	**2,742.8453**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	1.1341	9.7715	9.0025	0.0296	1.6962	0.2567	1.9529	0.4673	0.2400	0.7073	0.0000	2,736.9994	2,736.9994	0.2338	0.0000	2,742.8447
2020	5.2503	2.6454	2.8722	9.8100e-003	0.5651	0.0650	0.6301	0.1522	0.0613	0.2135	0.0000	905.3440	905.3440	0.0644	0.0000	906.9538
Maximum	**5.2503**	**9.7715**	**9.0025**	**0.0296**	**1.6962**	**0.2567**	**1.9529**	**0.4673**	**0.2400**	**0.7073**	**0.0000**	**2,736.9994**	**2,736.9994**	**0.2338**	**0.0000**	**2,742.8447**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**9.14**	**0.00**	**8.09**	**10.99**	**0.00**	**7.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	2.0578	2.0578
2	4-1-2019	6-30-2019	2.8746	2.8746
3	7-1-2019	9-30-2019	2.9062	2.9062
4	10-1-2019	12-31-2019	2.9390	2.9390
5	1-1-2020	3-31-2020	5.3852	5.3852
6	4-1-2020	6-30-2020	2.4508	2.4508
		Highest	5.3852	5.3852

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.2180	2.2000e-004	0.0241	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0497
Energy	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	841.1778	841.1778	0.0331	0.0127	845.7876
Mobile	2.3974	48.5267	31.1208	0.2291	11.8484	0.3474	12.1958	3.2394	0.3308	3.5701	0.0000	21,840.6593	21,840.6593	1.0371	0.0000	21,866.5877
Waste						0.0000	0.0000		0.0000	0.0000	190.8115	0.0000	190.8115	11.2766	0.0000	472.7274
Water						0.0000	0.0000		0.0000	0.0000	2.6671	57.8254	60.4925	0.2764	7.3100e-003	69.5816
Total	**6.6264**	**48.6264**	**31.2285**	**0.2297**	**11.8484**	**0.3550**	**12.2034**	**3.2394**	**0.3384**	**3.5778**	**193.4787**	**22,739.7090**	**22,933.1877**	**12.6234**	**0.0200**	**23,254.7340**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.2180	2.2000e-004	0.0241	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0497
Energy	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	568.6883	568.6883	0.0216	8.7100e-003	571.8234
Mobile	2.3974	48.5267	31.1208	0.2291	11.8484	0.3474	12.1958	3.2394	0.3308	3.5701	0.0000	21,840.6593	21,840.6593	1.0371	0.0000	21,866.5877
Waste						0.0000	0.0000		0.0000	0.0000	47.7029	0.0000	47.7029	2.8192	0.0000	118.1819
Water						0.0000	0.0000		0.0000	0.0000	2.1337	51.0268	53.1606	0.2213	5.9200e-003	60.4576
Total	**6.6264**	**48.6264**	**31.2285**	**0.2297**	**11.8484**	**0.3550**	**12.2034**	**3.2394**	**0.3384**	**3.5778**	**49.8366**	**22,460.4210**	**22,510.2576**	**4.0993**	**0.0146**	**22,617.1003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**74.24**	**1.23**	**1.84**	**67.53**	**26.85**	**2.74**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	Debris Removal
2	Grading	Grading	1/1/2019	3/31/2019	5	64	
3	Building Construction	Building Construction	4/1/2019	3/31/2020	5	262	
4	Paving	Paving	3/1/2020	3/31/2020	5	22	
5	Architectural Coating	Architectural Coating	3/1/2020	4/30/2020	5	44	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 275

Acres of Paving: 40.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,500,000; Non-Residential Outdoor: 500,000; Striped Parking Area: 105,986 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,162.00	453.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	232.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0343	0.0000	0.0343	3.7200e-003	0.0000	3.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0343**	**0.0000**	**0.0343**	**3.7200e-003**	**0.0000**	**3.7200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6300e-003	0.1385	0.0253	3.2000e-004	6.3700e-003	4.2000e-004	6.8000e-003	1.7500e-003	4.0000e-004	2.1500e-003	0.0000	31.0589	31.0589	2.5100e-003	0.0000	31.1217
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6300e-003**	**0.1385**	**0.0253**	**3.2000e-004**	**6.3700e-003**	**4.2000e-004**	**6.8000e-003**	**1.7500e-003**	**4.0000e-004**	**2.1500e-003**	**0.0000**	**31.0589**	**31.0589**	**2.5100e-003**	**0.0000**	**31.1217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0134	0.0000	0.0134	1.4500e-003	0.0000	1.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0134**	**0.0000**	**0.0134**	**1.4500e-003**	**0.0000**	**1.4500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6300e-003	0.1385	0.0253	3.2000e-004	6.3700e-003	4.2000e-004	6.8000e-003	1.7500e-003	4.0000e-004	2.1500e-003	0.0000	31.0589	31.0589	2.5100e-003	0.0000	31.1217
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6300e-003**	**0.1385**	**0.0253**	**3.2000e-004**	**6.3700e-003**	**4.2000e-004**	**6.8000e-003**	**1.7500e-003**	**4.0000e-004**	**2.1500e-003**	**0.0000**	**31.0589**	**31.0589**	**2.5100e-003**	**0.0000**	**31.1217**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3385	0.0000	0.3385	0.1217	0.0000	0.1217	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1517	1.7447	1.0681	1.9800e-003		0.0762	0.0762		0.0702	0.0702	0.0000	178.2442	178.2442	0.0564	0.0000	179.6541
Total	**0.1517**	**1.7447**	**1.0681**	**1.9800e-003**	**0.3385**	**0.0762**	**0.4148**	**0.1217**	**0.0702**	**0.1918**	**0.0000**	**178.2442**	**178.2442**	**0.0564**	**0.0000**	**179.6541**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	7.4600e-003	1.8700e-003	2.0000e-005	4.0000e-004	5.0000e-005	4.5000e-004	1.2000e-004	5.0000e-005	1.6000e-004	0.0000	1.5845	1.5845	1.1000e-004	0.0000	1.5872
Worker	3.0900e-003	2.4600e-003	0.0267	7.0000e-005	7.0200e-003	6.0000e-005	7.0800e-003	1.8600e-003	5.0000e-005	1.9200e-003	0.0000	6.5235	6.5235	2.0000e-004	0.0000	6.5286
Total	**3.3400e-003**	**9.9200e-003**	**0.0286**	**9.0000e-005**	**7.4200e-003**	**1.1000e-004**	**7.5300e-003**	**1.9800e-003**	**1.0000e-004**	**2.0800e-003**	**0.0000**	**8.1079**	**8.1079**	**3.1000e-004**	**0.0000**	**8.1158**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1320	0.0000	0.1320	0.0475	0.0000	0.0475	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1516	1.7446	1.0681	1.9800e-003		0.0762	0.0762		0.0702	0.0702	0.0000	178.2440	178.2440	0.0564	0.0000	179.6539
Total	**0.1516**	**1.7446**	**1.0681**	**1.9800e-003**	**0.1320**	**0.0762**	**0.2083**	**0.0475**	**0.0702**	**0.1176**	**0.0000**	**178.2440**	**178.2440**	**0.0564**	**0.0000**	**179.6539**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	7.4600e-003	1.8700e-003	2.0000e-005	4.0000e-004	5.0000e-005	4.5000e-004	1.2000e-004	5.0000e-005	1.6000e-004	0.0000	1.5845	1.5845	1.1000e-004	0.0000	1.5872
Worker	3.0900e-003	2.4600e-003	0.0267	7.0000e-005	7.0200e-003	6.0000e-005	7.0800e-003	1.8600e-003	5.0000e-005	1.9200e-003	0.0000	6.5235	6.5235	2.0000e-004	0.0000	6.5286
Total	**3.3400e-003**	**9.9200e-003**	**0.0286**	**9.0000e-005**	**7.4200e-003**	**1.1000e-004**	**7.5300e-003**	**1.9800e-003**	**1.0000e-004**	**2.0800e-003**	**0.0000**	**8.1079**	**8.1079**	**3.1000e-004**	**0.0000**	**8.1158**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2474	2.2366	1.8039	2.8400e-003		0.1360	0.1360		0.1276	0.1276	0.0000	248.2634	248.2634	0.0617	0.0000	249.8057
Total	**0.2474**	**2.2366**	**1.8039**	**2.8400e-003**		**0.1360**	**0.1360**		**0.1276**	**0.1276**	**0.0000**	**248.2634**	**248.2634**	**0.0617**	**0.0000**	**249.8057**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1753	5.2028	1.3047	0.0114	0.2813	0.0340	0.3153	0.0812	0.0326	0.1137	0.0000	1,104.6743	1,104.6743	0.0764	0.0000	1,106.5853
Worker	0.5528	0.4391	4.7720	0.0129	1.2557	9.9600e-003	1.2657	0.3335	9.1700e-003	0.3427	0.0000	1,166.6512	1,166.6512	0.0365	0.0000	1,167.5627
Total	**0.7281**	**5.6419**	**6.0767**	**0.0243**	**1.5370**	**0.0440**	**1.5810**	**0.4147**	**0.0417**	**0.4564**	**0.0000**	**2,271.3254**	**2,271.3254**	**0.1129**	**0.0000**	**2,274.1480**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2474	2.2366	1.8039	2.8400e-003		0.1360	0.1360		0.1276	0.1276	0.0000	248.2631	248.2631	0.0617	0.0000	249.8054
Total	**0.2474**	**2.2366**	**1.8039**	**2.8400e-003**		**0.1360**	**0.1360**		**0.1276**	**0.1276**	**0.0000**	**248.2631**	**248.2631**	**0.0617**	**0.0000**	**249.8054**

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1753	5.2028	1.3047	0.0114	0.2813	0.0340	0.3153	0.0812	0.0326	0.1137	0.0000	1,104.6743	1,104.6743	0.0764	0.0000	1,106.5853
Worker	0.5528	0.4391	4.7720	0.0129	1.2557	9.9600e-003	1.2657	0.3335	9.1700e-003	0.3427	0.0000	1,166.6512	1,166.6512	0.0365	0.0000	1,167.5627
Total	**0.7281**	**5.6419**	**6.0767**	**0.0243**	**1.5370**	**0.0440**	**1.5810**	**0.4147**	**0.0417**	**0.4564**	**0.0000**	**2,271.3254**	**2,271.3254**	**0.1129**	**0.0000**	**2,274.1480**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0733	0.6711	0.5840	9.4000e-004		0.0388	0.0388		0.0365	0.0365	0.0000	80.6580	80.6580	0.0201	0.0000	81.1607
Total	**0.0733**	**0.6711**	**0.5840**	**9.4000e-004**		**0.0388**	**0.0388**		**0.0365**	**0.0365**	**0.0000**	**80.6580**	**80.6580**	**0.0201**	**0.0000**	**81.1607**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0493	1.5711	0.3892	3.7400e-003	0.0928	7.7000e-003	0.1005	0.0268	7.3700e-003	0.0341	0.0000	362.1027	362.1027	0.0238	0.0000	362.6969
Worker	0.1686	0.1293	1.4303	4.1300e-003	0.4143	3.2000e-003	0.4175	0.1100	2.9500e-003	0.1130	0.0000	372.9921	372.9921	0.0107	0.0000	373.2597
Total	**0.2179**	**1.7004**	**1.8195**	**7.8700e-003**	**0.5071**	**0.0109**	**0.5180**	**0.1368**	**0.0103**	**0.1471**	**0.0000**	**735.0948**	**735.0948**	**0.0345**	**0.0000**	**735.9566**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0733	0.6711	0.5840	9.4000e-004		0.0388	0.0388		0.0365	0.0365	0.0000	80.6579	80.6579	0.0201	0.0000	81.1606
Total	**0.0733**	**0.6711**	**0.5840**	**9.4000e-004**		**0.0388**	**0.0388**		**0.0365**	**0.0365**	**0.0000**	**80.6579**	**80.6579**	**0.0201**	**0.0000**	**81.1606**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0493	1.5711	0.3892	3.7400e-003	0.0928	7.7000e-003	0.1005	0.0268	7.3700e-003	0.0341	0.0000	362.1027	362.1027	0.0238	0.0000	362.6969
Worker	0.1686	0.1293	1.4303	4.1300e-003	0.4143	3.2000e-003	0.4175	0.1100	2.9500e-003	0.1130	0.0000	372.9921	372.9921	0.0107	0.0000	373.2597
Total	**0.2179**	**1.7004**	**1.8195**	**7.8700e-003**	**0.5071**	**0.0109**	**0.5180**	**0.1368**	**0.0103**	**0.1471**	**0.0000**	**735.0948**	**735.0948**	**0.0345**	**0.0000**	**735.9566**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0149	0.1547	0.1612	2.5000e-004		8.2800e-003	8.2800e-003		7.6200e-003	7.6200e-003	0.0000	22.0310	22.0310	7.1300e-003	0.0000	22.2092
Paving	0.0258					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0407**	**0.1547**	**0.1612**	**2.5000e-004**		**8.2800e-003**	**8.2800e-003**		**7.6200e-003**	**7.6200e-003**	**0.0000**	**22.0310**	**22.0310**	**7.1300e-003**	**0.0000**	**22.2092**

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.3500e-003	5.8000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5411	0.5411	4.0000e-005	0.0000	0.5420
Worker	7.4000e-004	5.6000e-004	6.2500e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.6297	1.6297	5.0000e-005	0.0000	1.6308
Total	**8.1000e-004**	**2.9100e-003**	**6.8300e-003**	**3.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9700e-003**	**5.2000e-004**	**2.0000e-005**	**5.4000e-004**	**0.0000**	**2.1707**	**2.1707**	**9.0000e-005**	**0.0000**	**2.1728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0149	0.1547	0.1612	2.5000e-004		8.2800e-003	8.2800e-003		7.6200e-003	7.6200e-003	0.0000	22.0310	22.0310	7.1300e-003	0.0000	22.2092
Paving	0.0258					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0407**	**0.1547**	**0.1612**	**2.5000e-004**		**8.2800e-003**	**8.2800e-003**		**7.6200e-003**	**7.6200e-003**	**0.0000**	**22.0310**	**22.0310**	**7.1300e-003**	**0.0000**	**22.2092**

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.3500e-003	5.8000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5411	0.5411	4.0000e-005	0.0000	0.5420
Worker	7.4000e-004	5.6000e-004	6.2500e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.6297	1.6297	5.0000e-005	0.0000	1.6308
Total	**8.1000e-004**	**2.9100e-003**	**6.8300e-003**	**3.0000e-005**	**1.9500e-003**	**2.0000e-005**	**1.9700e-003**	**5.2000e-004**	**2.0000e-005**	**5.4000e-004**	**0.0000**	**2.1707**	**2.1707**	**9.0000e-005**	**0.0000**	**2.1728**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.8806					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.0988	0.1074	1.7000e-004		6.5100e-003	6.5100e-003		6.5100e-003	6.5100e-003	0.0000	14.9791	14.9791	1.1600e-003	0.0000	15.0081
Total	**4.8948**	**0.0988**	**0.1074**	**1.7000e-004**		**6.5100e-003**	**6.5100e-003**		**6.5100e-003**	**6.5100e-003**	**0.0000**	**14.9791**	**14.9791**	**1.1600e-003**	**0.0000**	**15.0081**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0228	0.0175	0.1933	5.6000e-004	0.0560	4.3000e-004	0.0564	0.0149	4.0000e-004	0.0153	0.0000	50.4105	50.4105	1.4500e-003	0.0000	50.4466
Total	**0.0228**	**0.0175**	**0.1933**	**5.6000e-004**	**0.0560**	**4.3000e-004**	**0.0564**	**0.0149**	**4.0000e-004**	**0.0153**	**0.0000**	**50.4105**	**50.4105**	**1.4500e-003**	**0.0000**	**50.4466**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.8806					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.0988	0.1074	1.7000e-004		6.5100e-003	6.5100e-003		6.5100e-003	6.5100e-003	0.0000	14.9791	14.9791	1.1600e-003	0.0000	15.0081
Total	**4.8948**	**0.0988**	**0.1074**	**1.7000e-004**		**6.5100e-003**	**6.5100e-003**		**6.5100e-003**	**6.5100e-003**	**0.0000**	**14.9791**	**14.9791**	**1.1600e-003**	**0.0000**	**15.0081**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0228	0.0175	0.1933	5.6000e-004	0.0560	4.3000e-004	0.0564	0.0149	4.0000e-004	0.0153	0.0000	50.4105	50.4105	1.4500e-003	0.0000	50.4466
Total	**0.0228**	**0.0175**	**0.1933**	**5.6000e-004**	**0.0560**	**4.3000e-004**	**0.0564**	**0.0149**	**4.0000e-004**	**0.0153**	**0.0000**	**50.4105**	**50.4105**	**1.4500e-003**	**0.0000**	**50.4466**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.3974	48.5267	31.1208	0.2291	11.8484	0.3474	12.1958	3.2394	0.3308	3.5701	0.0000	21,840.6593	21,840.6593	1.0371	0.0000	21,866.5877
Unmitigated	2.3974	48.5267	31.1208	0.2291	11.8484	0.3474	12.1958	3.2394	0.3308	3.5701	0.0000	21,840.6593	21,840.6593	1.0371	0.0000	21,866.5877

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	29,582,525	29,582,525
Total	1,680.00	1,680.00	1,680.00	29,582,525	29,582,525

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	100.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.423330	0.033690	0.154040	0.000000	0.000000	0.064880	0.086300	0.229800	0.001560	0.001490	0.003640	0.000540	0.000730

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	460.3597	460.3597	0.0195	6.7200e-003	462.8512
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	732.8492	732.8492	0.0310	0.0107	736.8154
NaturalGas Mitigated	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723
NaturalGas Unmitigated	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.03e+006	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723
Total		**0.0110**	**0.0995**	**0.0836**	**6.0000e-004**		**7.5600e-003**	**7.5600e-003**		**7.5600e-003**	**7.5600e-003**	**0.0000**	**108.3285**	**108.3285**	**2.0800e-003**	**1.9900e-003**	**108.9723**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.03e+006	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723
Total		**0.0110**	**0.0995**	**0.0836**	**6.0000e-004**		**7.5600e-003**	**7.5600e-003**		**7.5600e-003**	**7.5600e-003**	**0.0000**	**108.3285**	**108.3285**	**2.0800e-003**	**1.9900e-003**	**108.9723**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.36e+006	732.8492	0.0310	0.0107	736.8154
Total		**732.8492**	**0.0310**	**0.0107**	**736.8154**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.4825e+006	460.3597	0.0195	6.7200e-003	462.8512
Total		**460.3597**	**0.0195**	**6.7200e-003**	**462.8512**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2180	2.2000e-004	0.0241	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0497
Unmitigated	4.2180	2.2000e-004	0.0241	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0497

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4881					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.7277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.2700e-003	2.2000e-004	0.0241	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0497
Total	**4.2180**	**2.2000e-004**	**0.0241**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0466**	**0.0466**	**1.2000e-004**	**0.0000**	**0.0497**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4881					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.7277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.2700e-003	2.2000e-004	0.0241	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0497
Total	**4.2180**	**2.2000e-004**	**0.0241**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0466**	**0.0466**	**1.2000e-004**	**0.0000**	**0.0497**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	53.1606	0.2213	5.9200e-003	60.4576
Unmitigated	60.4925	0.2764	7.3100e-003	69.5816

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	8.40697 / 6.90805	60.4925	0.2764	7.3100e-003	69.5816
Total		**60.4925**	**0.2764**	**7.3100e-003**	**69.5816**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.72557 / 6.90805	53.1606	0.2213	5.9200e-003	60.4576
Total		**53.1606**	**0.2213**	**5.9200e-003**	**60.4576**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	47.7029	2.8192	0.0000	118.1819
Unmitigated	190.8115	11.2766	0.0000	472.7274

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	940	190.8115	11.2766	0.0000	472.7274
Total		**190.8115**	**11.2766**	**0.0000**	**472.7274**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	235	47.7029	2.8192	0.0000	118.1819
Total		**47.7029**	**2.8192**	**0.0000**	**118.1819**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/3/2018 6:00 PM

Banning Dist. Center VOC Mitigation - South Coast AQMD Air District, Summer

Banning Dist. Center VOC Mitigation

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Architectural Coating - VOC Mitigation

Vehicle Trips - 100 miles from ports, TIA truck trips.

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.0370e-003	1.5600e-003

tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003
tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,442,131.00
tblWater	OutdoorWaterUseRate	0.00	6,875,456.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	9.9487	109.0399	83.0572	0.2840	27.1094	2.5528	29.6621	6.0652	2.3547	8.4199	0.0000	29,014.1548	29,014.1548	3.0315	0.0000	29,062.8429
2020	46.7008	91.2359	106.4753	0.3385	18.6614	2.5994	21.2608	5.0152	2.4465	7.4617	0.0000	34,306.2082	34,306.2082	2.7017	0.0000	34,373.7502
Maximum	**46.7008**	**109.0399**	**106.4753**	**0.3385**	**27.1094**	**2.5994**	**29.6621**	**6.0652**	**2.4465**	**8.4199**	**0.0000**	**34,306.2082**	**34,306.2082**	**3.0315**	**0.0000**	**34,373.7502**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	9.9487	109.0399	83.0572	0.2840	15.8877	2.5528	17.7124	4.2793	2.3547	5.9967	0.0000	29,014.1548	29,014.1548	3.0315	0.0000	29,062.8429
2020	46.7008	91.2359	106.4753	0.3385	18.6614	2.5994	21.2608	5.0152	2.4465	7.4617	0.0000	34,306.2082	34,306.2082	2.7017	0.0000	34,373.7502
Maximum	**46.7008**	**109.0399**	**106.4753**	**0.3385**	**18.6614**	**2.5994**	**21.2608**	**5.0152**	**2.4465**	**7.4617**	**0.0000**	**34,306.2082**	**34,306.2082**	**3.0315**	**0.0000**	**34,373.7502**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.52**	**0.00**	**23.47**	**16.12**	**0.00**	**15.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	Debris Removal
2	Grading	Grading	1/1/2019	3/31/2019	5	64	
3	Building Construction	Building Construction	4/1/2019	3/31/2020	5	262	
4	Paving	Paving	3/1/2020	3/31/2020	5	22	
5	Architectural Coating	Architectural Coating	3/1/2020	4/30/2020	5	44	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 275

Acres of Paving: 40.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,500,000; Non-Residential Outdoor: 500,000; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42

Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,162.00	453.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	232.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	32.2328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958		750.5281	750.5281	0.0581		751.9809
Total	**32.8786**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**		**750.5281**	**750.5281**	**0.0581**		**751.9809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0497	0.7056	9.4846	0.0267	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,655.0485	2,655.0485	0.0763		2,656.9569
Total	**1.0497**	**0.7056**	**9.4846**	**0.0267**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,655.0485**	**2,655.0485**	**0.0763**		**2,656.9569**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	32.2328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958	0.0000	750.5281	750.5281	0.0581		751.9809
Total	**32.8786**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**	**0.0000**	**750.5281**	**750.5281**	**0.0581**		**751.9809**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0497	0.7056	9.4846	0.0267	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,655.0485	2,655.0485	0.0763		2,656.9569
Total	**1.0497**	**0.7056**	**9.4846**	**0.0267**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,655.0485**	**2,655.0485**	**0.0763**		**2,656.9569**

CalEEMod Version: CalEEMod.2016.3.2

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Banning Dist. Center VOC Mitigation - South Coast AQMD Air District, Winter

Banning Dist. Center VOC Mitigation

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Architectural Coating - VOC Mitigation

Vehicle Trips - 100 miles from ports, TIA truck trips.

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	10.00
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09

tblFleetMix	OBUS	2.0370e-003	1.5600e-003
tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003
tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,442,131.00
tblWater	OutdoorWaterUseRate	0.00	6,875,456.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	10.5320	109.1785	79.3746	0.2718	27.1094	2.5580	29.6674	6.0652	2.3598	8.4250	0.0000	27,769.1364	27,769.1364	3.0989	0.0000	27,818.6644
2020	47.3497	91.5933	102.0429	0.3246	18.6614	2.6029	21.2643	5.0152	2.4499	7.4651	0.0000	32,901.7364	32,901.7364	2.7286	0.0000	32,969.9515
Maximum	**47.3497**	**109.1785**	**102.0429**	**0.3246**	**27.1094**	**2.6029**	**29.6674**	**6.0652**	**2.4499**	**8.4250**	**0.0000**	**32,901.7364**	**32,901.7364**	**3.0989**	**0.0000**	**32,969.9515**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	10.5320	109.1785	79.3746	0.2718	15.8877	2.5580	17.7178	4.2793	2.3598	6.0019	0.0000	27,769.1364	27,769.1364	3.0989	0.0000	27,818.6644
2020	47.3497	91.5933	102.0429	0.3246	18.6614	2.6029	21.2643	5.0152	2.4499	7.4651	0.0000	32,901.7364	32,901.7364	2.7286	0.0000	32,969.9515
Maximum	**47.3497**	**109.1785**	**102.0429**	**0.3246**	**18.6614**	**2.6029**	**21.2643**	**5.0152**	**2.4499**	**7.4651**	**0.0000**	**32,901.7364**	**32,901.7364**	**3.0989**	**0.0000**	**32,969.9515**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.52**	**0.00**	**23.46**	**16.12**	**0.00**	**15.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	Debris Removal
2	Grading	Grading	1/1/2019	3/31/2019	5	64	
3	Building Construction	Building Construction	4/1/2019	3/31/2020	5	262	
4	Paving	Paving	3/1/2020	3/31/2020	5	22	
5	Architectural Coating	Architectural Coating	3/1/2020	4/30/2020	5	44	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 275

Acres of Paving: 40.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,500,000; Non-Residential Outdoor: 500,000; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42

Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,162.00	453.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	232.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	32.2328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958		750.5281	750.5281	0.0581		751.9809
Total	**32.8786**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**		**750.5281**	**750.5281**	**0.0581**		**751.9809**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1448	0.7726	8.5396	0.0249	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,483.2467	2,483.2467	0.0712		2,485.0271
Total	**1.1448**	**0.7726**	**8.5396**	**0.0249**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,483.2467**	**2,483.2467**	**0.0712**		**2,485.0271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	32.2328					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6458	4.4902	4.8838	7.9200e-003		0.2958	0.2958		0.2958	0.2958	0.0000	750.5281	750.5281	0.0581		751.9809
Total	**32.8786**	**4.4902**	**4.8838**	**7.9200e-003**		**0.2958**	**0.2958**		**0.2958**	**0.2958**	**0.0000**	**750.5281**	**750.5281**	**0.0581**		**751.9809**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1448	0.7726	8.5396	0.0249	2.5932	0.0197	2.6129	0.6877	0.0181	0.7059		2,483.2467	2,483.2467	0.0712		2,485.0271
Total	**1.1448**	**0.7726**	**8.5396**	**0.0249**	**2.5932**	**0.0197**	**2.6129**	**0.6877**	**0.0181**	**0.7059**		**2,483.2467**	**2,483.2467**	**0.0712**		**2,485.0271**

CalEEMod Version: CalEEMod.2016.3.2

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Banning Dist. Center Site Prep -Mitigated

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	63.51	Acre	63.51	2,766,495.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electronic Dept. 33% RPS included

Land Use - Per Engineer

Construction Phase - Per Engineer Estimates

Off-road Equipment - Per Engineer

Trips and VMT - Added water truck trips per Rule 403. 11.5 miles to the nearest landfill.

Grading - Per Engineer

Energy Use -

Construction Off-road Equipment Mitigation - Per Rule 403; Tier 3 equipment

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	40.00	5.00
tblGrading	AcresOfGrading	10.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.7389	92.3809	30.3826	0.1687	22.4184	1.7698	24.1882	5.5376	1.6344	7.1720	0.0000	17,855.6916	17,855.6916	2.3010	0.0000	17,913.2159
Maximum	**4.7389**	**92.3809**	**30.3826**	**0.1687**	**22.4184**	**1.7698**	**24.1882**	**5.5376**	**1.6344**	**7.1720**	**0.0000**	**17,855.6916**	**17,855.6916**	**2.3010**	**0.0000**	**17,913.2159**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.4286	72.9377	30.6623	0.1687	10.3858	0.8692	11.2551	2.6096	0.8619	3.4715	0.0000	17,855.6916	17,855.6916	2.3010	0.0000	17,913.2159
Maximum	**2.4286**	**72.9377**	**30.6623**	**0.1687**	**10.3858**	**0.8692**	**11.2551**	**2.6096**	**0.8619**	**3.4715**	**0.0000**	**17,855.6916**	**17,855.6916**	**2.3010**	**0.0000**	**17,913.2159**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**48.75**	**21.05**	**-0.92**	**0.00**	**53.67**	**50.89**	**53.47**	**52.88**	**47.27**	**51.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 0

Acres of Paving: 63.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	2	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	2.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.7255	0.0000	19.7255	4.8000	0.0000	4.8000			0.0000			0.0000
Off-Road	3.2651	37.9021	20.4070	0.0388		1.6007	1.6007		1.4727	1.4727		3,845.0575	3,845.0575	1.2165		3,875.4709
Total	**3.2651**	**37.9021**	**20.4070**	**0.0388**	**19.7255**	**1.6007**	**21.3263**	**4.8000**	**1.4727**	**6.2727**		**3,845.0575**	**3,845.0575**	**1.2165**		**3,875.4709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4269	54.2227	9.5609	0.1284	2.5907	0.1668	2.7575	0.7102	0.1596	0.8698		13,860.9111	13,860.9111	1.0778		13,887.8567
Vendor	7.7100e-003	0.2289	0.0553	5.2000e-004	0.0128	1.5200e-003	0.0143	3.6900e-003	1.4500e-003	5.1400e-003		55.2439	55.2439	3.6600e-003		55.3353
Worker	0.0392	0.0273	0.3595	9.5000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		94.4791	94.4791	2.9500e-003		94.5530
Total	**1.4738**	**54.4788**	**9.9757**	**0.1299**	**2.6929**	**0.1691**	**2.8619**	**0.7376**	**0.1617**	**0.8993**		**14,010.6341**	**14,010.6341**	**1.0844**		**14,037.7450**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6930	0.0000	7.6930	1.8720	0.0000	1.8720			0.0000			0.0000
Off-Road	0.9548	18.4588	20.6866	0.0388		0.7002	0.7002		0.7002	0.7002	0.0000	3,845.0575	3,845.0575	1.2165		3,875.4709
Total	**0.9548**	**18.4588**	**20.6866**	**0.0388**	**7.6930**	**0.7002**	**8.3931**	**1.8720**	**0.7002**	**2.5722**	**0.0000**	**3,845.0575**	**3,845.0575**	**1.2165**		**3,875.4709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4269	54.2227	9.5609	0.1284	2.5907	0.1668	2.7575	0.7102	0.1596	0.8698		13,860.9111	13,860.9111	1.0778		13,887.8567
Vendor	7.7100e-003	0.2289	0.0553	5.2000e-004	0.0128	1.5200e-003	0.0143	3.6900e-003	1.4500e-003	5.1400e-003		55.2439	55.2439	3.6600e-003		55.3353
Worker	0.0392	0.0273	0.3595	9.5000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		94.4791	94.4791	2.9500e-003		94.5530
Total	**1.4738**	**54.4788**	**9.9757**	**0.1299**	**2.6929**	**0.1691**	**2.8619**	**0.7376**	**0.1617**	**0.8993**		**14,010.6341**	**14,010.6341**	**1.0844**		**14,037.7450**

CalEEMod Version: CalEEMod.2016.3.2

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Banning Dist. Center Site Prep -Mitigated

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	63.51	Acre	63.51	2,766,495.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electronic Dept. 33% RPS included

Land Use - Per Engineer

Construction Phase - Per Engineer Estimates

Off-road Equipment - Per Engineer

Trips and VMT - Added water truck trips per Rule 403. 11.5 miles to the nearest landfill.

Grading - Per Engineer

Energy Use -

Construction Off-road Equipment Mitigation - Per Rule 403; Tier 3 equipment

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	40.00	5.00
tblGrading	AcresOfGrading	10.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8053	92.5156	31.5600	0.1650	22.4184	1.7751	24.1935	5.5376	1.6395	7.1770	0.0000	17,452.14 45	17,452.144 5	2.3687	0.0000	17,511.36 06
Maximum	**4.8053**	**92.5156**	**31.5600**	**0.1650**	**22.4184**	**1.7751**	**24.1935**	**5.5376**	**1.6395**	**7.1770**	**0.0000**	**17,452.14 45**	**17,452.144 5**	**2.3687**	**0.0000**	**17,511.36 06**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.4949	73.0723	31.8396	0.1650	10.3858	0.8745	11.2603	2.6096	0.8669	3.4765	0.0000	17,452.14 45	17,452.144 5	2.3687	0.0000	17,511.36 06
Maximum	**2.4949**	**73.0723**	**31.8396**	**0.1650**	**10.3858**	**0.8745**	**11.2603**	**2.6096**	**0.8669**	**3.4765**	**0.0000**	**17,452.14 45**	**17,452.144 5**	**2.3687**	**0.0000**	**17,511.36 06**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**48.08**	**21.02**	**-0.89**	**0.00**	**53.67**	**50.73**	**53.46**	**52.88**	**47.12**	**51.56**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	1/7/2019	5	5	

Acres of Grading (Site Preparation Phase): 63.51

Acres of Grading (Grading Phase): 0

Acres of Paving: 63.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	2	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	2.00	1,288.00	14.70	6.90	11.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.7255	0.0000	19.7255	4.8000	0.0000	4.8000			0.0000			0.0000
Off-Road	3.2651	37.9021	20.4070	0.0388		1.6007	1.6007		1.4727	1.4727		3,845.0575	3,845.0575	1.2165		3,875.4709
Total	**3.2651**	**37.9021**	**20.4070**	**0.0388**	**19.7255**	**1.6007**	**21.3263**	**4.8000**	**1.4727**	**6.2727**		**3,845.0575**	**3,845.0575**	**1.2165**		**3,875.4709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4895	54.3546	10.7671	0.1247	2.5907	0.1721	2.7628	0.7102	0.1647	0.8748		13,465.0513	13,465.0513	1.1454		13,493.6868
Vendor	8.0500e-003	0.2290	0.0616	5.0000e-004	0.0128	1.5400e-003	0.0143	3.6900e-003	1.4700e-003	5.1600e-003		53.6633	53.6633	3.9300e-003		53.7615
Worker	0.0427	0.0299	0.3243	8.9000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		88.3725	88.3725	2.7600e-003		88.4415
Total	**1.5402**	**54.6135**	**11.1530**	**0.1261**	**2.6929**	**0.1744**	**2.8672**	**0.7376**	**0.1668**	**0.9044**		**13,607.0871**	**13,607.0871**	**1.1521**		**13,635.8898**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6930	0.0000	7.6930	1.8720	0.0000	1.8720			0.0000			0.0000
Off-Road	0.9548	18.4588	20.6866	0.0388		0.7002	0.7002		0.7002	0.7002	0.0000	3,845.0575	3,845.0575	1.2165		3,875.4709
Total	**0.9548**	**18.4588**	**20.6866**	**0.0388**	**7.6930**	**0.7002**	**8.3931**	**1.8720**	**0.7002**	**2.5722**	**0.0000**	**3,845.0575**	**3,845.0575**	**1.2165**		**3,875.4709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4895	54.3546	10.7671	0.1247	2.5907	0.1721	2.7628	0.7102	0.1647	0.8748		13,465.0513	13,465.0513	1.1454		13,493.6868
Vendor	8.0500e-003	0.2290	0.0616	5.0000e-004	0.0128	1.5400e-003	0.0143	3.6900e-003	1.4700e-003	5.1600e-003		53.6633	53.6633	3.9300e-003		53.7615
Worker	0.0427	0.0299	0.3243	8.9000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		88.3725	88.3725	2.7600e-003		88.4415
Total	**1.5402**	**54.6135**	**11.1530**	**0.1261**	**2.6929**	**0.1744**	**2.8672**	**0.7376**	**0.1668**	**0.9044**		**13,607.0871**	**13,607.0871**	**1.1521**		**13,635.8898**

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/4/2018 11:39 AM

Banning Dist Center Unmitigated_Offsites

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	396.86	1000sqft	9.11	396,863.50	0
Other Non-Asphalt Surfaces	203.14	1000sqft	4.66	203,136.50	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Banning Electrical Co. RPS 33% reduction

Land Use - Paved and unpaved area for offsite wet utilities, John St. and fire access

Construction Phase - Per engineer estimates

Off-road Equipment - Per Engineer

Off-road Equipment - Per Engineer

Off-road Equipment - Per Engineer

Trips and VMT - 2 water truck trips for dust control, material import and export.

Grading - 1,500 CY gravel imported for fire access road

Energy Use -

Construction Off-road Equipment Mitigation - Per Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	23.00
tblConstructionPhase	NumDays	30.00	108.00
tblConstructionPhase	NumDays	20.00	10.00
tblGrading	AcresOfGrading	34.50	75.00
tblGrading	AcresOfGrading	0.00	75.00
tblGrading	MaterialImported	0.00	1,500.00
tblLandUse	LandUseSquareFeet	396,860.00	396,863.50
tblLandUse	LandUseSquareFeet	203,140.00	203,136.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	38.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.7104	47.5979	29.9332	0.0578	9.9483	2.1897	12.1380	3.8095	2.0149	5.8244	0.0000	5,750.9486	5,750.9486	1.6188	0.0000	5,791.4174
Maximum	**6.7104**	**47.5979**	**29.9332**	**0.0578**	**9.9483**	**2.1897**	**12.1380**	**3.8095**	**2.0149**	**5.8244**	**0.0000**	**5,750.9486**	**5,750.9486**	**1.6188**	**0.0000**	**5,791.4174**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.7104	47.5979	29.9332	0.0578	4.1653	2.1897	6.3551	1.5625	2.0149	3.5774	0.0000	5,750.9486	5,750.9486	1.6188	0.0000	5,791.4174
Maximum	**6.7104**	**47.5979**	**29.9332**	**0.0578**	**4.1653**	**2.1897**	**6.3551**	**1.5625**	**2.0149**	**3.5774**	**0.0000**	**5,750.9486**	**5,750.9486**	**1.6188**	**0.0000**	**5,791.4174**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.13**	**0.00**	**47.64**	**58.98**	**0.00**	**38.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/31/2019	5	23	
2	Paving	Paving	1/25/2019	2/7/2019	5	10	
3	Construction of other Offsites	Grading	4/1/2019	8/28/2019	5	108	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 13.77

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Construction of other Offsites	Cranes	0	7.00	231	0.29
Construction of other Offsites	Excavators	0	8.00	158	0.38
Construction of other Offsites	Forklifts	0	8.00	89	0.20
Construction of other Offsites	Generator Sets	0	8.00	84	0.74
Construction of other Offsites	Graders	0	8.00	187	0.41
Construction of other Offsites	Rubber Tired Dozers	1	8.00	247	0.40
Construction of other Offsites	Scrapers	0	8.00	367	0.48

Construction of other Offsites	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Construction of other Offsites	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	20.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	15.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Construction of other Offsites	3	38.00	6.00	188.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.4802	0.0000	9.4802	3.6836	0.0000	3.6836			0.0000			0.0000
Off-Road	3.1522	36.2426	18.7889	0.0365		1.6180	1.6180		1.4885	1.4885		3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**3.1522**	**36.2426**	**18.7889**	**0.0365**	**9.4802**	**1.6180**	**11.0982**	**3.6836**	**1.4885**	**5.1722**		**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.0980	0.0682	0.8987	2.3700e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		236.1978	236.1978	7.3900e-003		236.3825
Total	**0.1211**	**0.7547**	**1.0646**	**3.9300e-003**	**0.2620**	**6.2900e-003**	**0.2682**	**0.0704**	**5.9500e-003**	**0.0763**		**401.9296**	**401.9296**	**0.0184**		**402.3885**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6973	0.0000	3.6973	1.4366	0.0000	1.4366			0.0000			0.0000
Off-Road	3.1522	36.2426	18.7889	0.0365		1.6180	1.6180		1.4885	1.4885	0.0000	3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**3.1522**	**36.2426**	**18.7889**	**0.0365**	**3.6973**	**1.6180**	**5.3153**	**1.4366**	**1.4885**	**2.9252**	**0.0000**	**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.0980	0.0682	0.8987	2.3700e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		236.1978	236.1978	7.3900e-003		236.3825
Total	**0.1211**	**0.7547**	**1.0646**	**3.9300e-003**	**0.2620**	**6.2900e-003**	**0.2682**	**0.0704**	**5.9500e-003**	**0.0763**		**401.9296**	**401.9296**	**0.0184**		**402.3885**

3.3 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9538	9.8629	9.2397	0.0140		0.5596	0.5596		0.5149	0.5149		1,388.1850	1,388.1850	0.4392		1,399.1652
Paving	2.3868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3406**	**9.8629**	**9.2397**	**0.0140**		**0.5596**	**0.5596**		**0.5149**	**0.5149**		**1,388.1850**	**1,388.1850**	**0.4392**		**1,399.1652**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0966**	**0.7377**	**0.8400**	**3.3400e-003**	**0.2061**	**5.8500e-003**	**0.2119**	**0.0555**	**5.5500e-003**	**0.0611**		**342.8802**	**342.8802**	**0.0165**		**343.2928**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9538	9.8629	9.2397	0.0140		0.5596	0.5596		0.5149	0.5149	0.0000	1,388.1850	1,388.1850	0.4392		1,399.1652
Paving	2.3868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3406**	**9.8629**	**9.2397**	**0.0140**		**0.5596**	**0.5596**		**0.5149**	**0.5149**	**0.0000**	**1,388.1850**	**1,388.1850**	**0.4392**		**1,399.1652**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0966**	**0.7377**	**0.8400**	**3.3400e-003**	**0.2061**	**5.8500e-003**	**0.2119**	**0.0555**	**5.5500e-003**	**0.0611**		**342.8802**	**342.8802**	**0.0165**		**343.2928**

3.4 Construction of other Offsites - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7601	0.0000	6.7601	3.3900	0.0000	3.3900			0.0000			0.0000
Off-Road	1.6002	16.7492	8.8895	0.0147		0.9008	0.9008		0.8288	0.8288		1,460.5122	1,460.5122	0.4621		1,472.0645
Total	**1.6002**	**16.7492**	**8.8895**	**0.0147**	**6.7601**	**0.9008**	**7.6609**	**3.3900**	**0.8288**	**4.2187**		**1,460.5122**	**1,460.5122**	**0.4621**		**1,472.0645**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0143	0.5068	0.0970	1.3700e-003	0.0304	1.8800e-003	0.0323	8.3400e-003	1.8000e-003	0.0101		147.4089	147.4089	0.0101		147.6603
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.1861	0.1295	1.7075	4.5100e-003	0.4248	3.3100e-003	0.4281	0.1127	3.0500e-003	0.1157		448.7758	448.7758	0.0140		449.1267
Total	**0.2235**	**1.3228**	**1.9705**	**7.4400e-003**	**0.4936**	**9.7400e-003**	**0.5033**	**0.1321**	**9.2000e-003**	**0.1412**		**761.9166**	**761.9166**	**0.0351**		**762.7930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6364	0.0000	2.6364	1.3221	0.0000	1.3221			0.0000			0.0000
Off-Road	1.6002	16.7492	8.8895	0.0147		0.9008	0.9008		0.8288	0.8288	0.0000	1,460.5122	1,460.5122	0.4621		1,472.0645
Total	**1.6002**	**16.7492**	**8.8895**	**0.0147**	**2.6364**	**0.9008**	**3.5373**	**1.3221**	**0.8288**	**2.1508**	**0.0000**	**1,460.5122**	**1,460.5122**	**0.4621**		**1,472.0645**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0143	0.5068	0.0970	1.3700e-003	0.0304	1.8800e-003	0.0323	8.3400e-003	1.8000e-003	0.0101		147.4089	147.4089	0.0101		147.6603
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.1861	0.1295	1.7075	4.5100e-003	0.4248	3.3100e-003	0.4281	0.1127	3.0500e-003	0.1157		448.7758	448.7758	0.0140		449.1267
Total	**0.2235**	**1.3228**	**1.9705**	**7.4400e-003**	**0.4936**	**9.7400e-003**	**0.5033**	**0.1321**	**9.2000e-003**	**0.1412**		**761.9166**	**761.9166**	**0.0351**		**762.7930**

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/4/2018 11:42 AM

Banning Dist Center Unmitigated_Offsites - South Coast AQMD Air District, Winter

Banning Dist Center Unmitigated_Offsites

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	396.86	1000sqft	9.11	396,863.50	0
Other Non-Asphalt Surfaces	203.14	1000sqft	4.66	203,136.50	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Banning Electrical Co. RPS 33% reduction

Land Use - Paved and unpaved area for offsite wet utilities, John St. and fire access

Construction Phase - Per engineer estimates

Off-road Equipment - Per Engineer

Off-road Equipment - Per Engineer

Off-road Equipment - Per Engineer

Trips and VMT - 2 water truck trips for dust control, material import and export.

Grading - 1,500 CY gravel imported for fire access road

Energy Use -

Construction Off-road Equipment Mitigation - Per Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	23.00
tblConstructionPhase	NumDays	30.00	108.00
tblConstructionPhase	NumDays	20.00	10.00
tblGrading	AcresOfGrading	34.50	75.00
tblGrading	AcresOfGrading	0.00	75.00
tblGrading	MaterialImported	0.00	1,500.00
tblLandUse	LandUseSquareFeet	396,860.00	396,863.50
tblLandUse	LandUseSquareFeet	203,140.00	203,136.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	38.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.7277	47.6102	29.8171	0.0574	9.9483	2.1899	12.1381	3.8095	2.0150	5.8245	0.0000	5,714.7479	5,714.7479	1.6195	0.0000	5,755.2363
Maximum	**6.7277**	**47.6102**	**29.8171**	**0.0574**	**9.9483**	**2.1899**	**12.1381**	**3.8095**	**2.0150**	**5.8245**	**0.0000**	**5,714.7479**	**5,714.7479**	**1.6195**	**0.0000**	**5,755.2363**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.7277	47.6102	29.8171	0.0574	4.1653	2.1899	6.3552	1.5625	2.0150	3.5775	0.0000	5,714.7479	5,714.7479	1.6195	0.0000	5,755.2363
Maximum	**6.7277**	**47.6102**	**29.8171**	**0.0574**	**4.1653**	**2.1899**	**6.3552**	**1.5625**	**2.0150**	**3.5775**	**0.0000**	**5,714.7479**	**5,714.7479**	**1.6195**	**0.0000**	**5,755.2363**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.13**	**0.00**	**47.64**	**58.98**	**0.00**	**38.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/31/2019	5	23	
2	Paving	Paving	1/25/2019	2/7/2019	5	10	
3	Construction of other Offsites	Grading	4/1/2019	8/28/2019	5	108	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 13.77

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Construction of other Offsites	Cranes	0	7.00	231	0.29
Construction of other Offsites	Excavators	0	8.00	158	0.38
Construction of other Offsites	Forklifts	0	8.00	89	0.20
Construction of other Offsites	Generator Sets	0	8.00	84	0.74
Construction of other Offsites	Graders	0	8.00	187	0.41
Construction of other Offsites	Rubber Tired Dozers	1	8.00	247	0.40

Construction of other Offsites	Scrapers	0	8.00	367	0.48
Construction of other Offsites	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Construction of other Offsites	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	20.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	15.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Construction of other Offsites	3	38.00	6.00	188.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.4802	0.0000	9.4802	3.6836	0.0000	3.6836			0.0000			0.0000
Off-Road	3.1522	36.2426	18.7889	0.0365		1.6180	1.6180		1.4885	1.4885		3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**3.1522**	**36.2426**	**18.7889**	**0.0365**	**9.4802**	**1.6180**	**11.0982**	**3.6836**	**1.4885**	**5.1722**		**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.1067	0.0747	0.8108	2.2200e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		220.9312	220.9312	6.9000e-003		221.1037
Total	**0.1308**	**0.7617**	**0.9956**	**3.7300e-003**	**0.2620**	**6.3600e-003**	**0.2683**	**0.0704**	**6.0200e-003**	**0.0764**		**381.9209**	**381.9209**	**0.0187**		**382.3881**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6973	0.0000	3.6973	1.4366	0.0000	1.4366			0.0000			0.0000
Off-Road	3.1522	36.2426	18.7889	0.0365		1.6180	1.6180		1.4885	1.4885	0.0000	3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**3.1522**	**36.2426**	**18.7889**	**0.0365**	**3.6973**	**1.6180**	**5.3153**	**1.4366**	**1.4885**	**2.9252**	**0.0000**	**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.1067	0.0747	0.8108	2.2200e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		220.9312	220.9312	6.9000e-003		221.1037
Total	**0.1308**	**0.7617**	**0.9956**	**3.7300e-003**	**0.2620**	**6.3600e-003**	**0.2683**	**0.0704**	**6.0200e-003**	**0.0764**		**381.9209**	**381.9209**	**0.0187**		**382.3881**

3.3 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9538	9.8629	9.2397	0.0140		0.5596	0.5596		0.5149	0.5149		1,388.1850	1,388.1850	0.4392		1,399.1652
Paving	2.3868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3406**	**9.8629**	**9.2397**	**0.0140**		**0.5596**	**0.5596**		**0.5149**	**0.5149**		**1,388.1850**	**1,388.1850**	**0.4392**		**1,399.1652**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.1041**	**0.7430**	**0.7929**	**3.1700e-003**	**0.2061**	**5.9200e-003**	**0.2120**	**0.0555**	**5.6200e-003**	**0.0611**		**326.6881**	**326.6881**	**0.0170**		**327.1121**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9538	9.8629	9.2397	0.0140		0.5596	0.5596		0.5149	0.5149	0.0000	1,388.1850	1,388.1850	0.4392		1,399.1652
Paving	2.3868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3406**	**9.8629**	**9.2397**	**0.0140**		**0.5596**	**0.5596**		**0.5149**	**0.5149**	**0.0000**	**1,388.1850**	**1,388.1850**	**0.4392**		**1,399.1652**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.1041**	**0.7430**	**0.7929**	**3.1700e-003**	**0.2061**	**5.9200e-003**	**0.2120**	**0.0555**	**5.6200e-003**	**0.0611**		**326.6881**	**326.6881**	**0.0170**		**327.1121**

3.4 Construction of other Offsites - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7601	0.0000	6.7601	3.3900	0.0000	3.3900			0.0000			0.0000
Off-Road	1.6002	16.7492	8.8895	0.0147		0.9008	0.9008		0.8288	0.8288		1,460.5122	1,460.5122	0.4621		1,472.0645
Total	**1.6002**	**16.7492**	**8.8895**	**0.0147**	**6.7601**	**0.9008**	**7.6609**	**3.3900**	**0.8288**	**4.2187**		**1,460.5122**	**1,460.5122**	**0.4621**		**1,472.0645**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0147	0.5136	0.1049	1.3400e-003	0.0304	1.9200e-003	0.0323	8.3400e-003	1.8300e-003	0.0102		144.7339	144.7339	0.0105		144.9967
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.2026	0.1419	1.5405	4.2200e-003	0.4248	3.3100e-003	0.4281	0.1127	3.0500e-003	0.1157		419.7692	419.7692	0.0131		420.0971
Total	**0.2415**	**1.3425**	**1.8302**	**7.0700e-003**	**0.4936**	**9.8500e-003**	**0.5034**	**0.1321**	**9.3000e-003**	**0.1413**		**725.4928**	**725.4928**	**0.0354**		**726.3781**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6364	0.0000	2.6364	1.3221	0.0000	1.3221			0.0000			0.0000
Off-Road	1.6002	16.7492	8.8895	0.0147		0.9008	0.9008		0.8288	0.8288	0.0000	1,460.5122	1,460.5122	0.4621		1,472.0645
Total	**1.6002**	**16.7492**	**8.8895**	**0.0147**	**2.6364**	**0.9008**	**3.5373**	**1.3221**	**0.8288**	**2.1508**	**0.0000**	**1,460.5122**	**1,460.5122**	**0.4621**		**1,472.0645**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0147	0.5136	0.1049	1.3400e-003	0.0304	1.9200e-003	0.0323	8.3400e-003	1.8300e-003	0.0102		144.7339	144.7339	0.0105		144.9967
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.2026	0.1419	1.5405	4.2200e-003	0.4248	3.3100e-003	0.4281	0.1127	3.0500e-003	0.1157		419.7692	419.7692	0.0131		420.0971
Total	**0.2415**	**1.3425**	**1.8302**	**7.0700e-003**	**0.4936**	**9.8500e-003**	**0.5034**	**0.1321**	**9.3000e-003**	**0.1413**		**725.4928**	**725.4928**	**0.0354**		**726.3781**

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/4/2018 11:36 AM

Banning Dist Center Unmitigated_Offsites - South Coast AQMD Air District, Annual

Banning Dist Center Unmitigated_Offsites

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	396.86	1000sqft	9.11	396,863.50	0
Other Non-Asphalt Surfaces	203.14	1000sqft	4.66	203,136.50	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Banning Electrical Co. RPS 33% reduction

Land Use - Paved and unpaved area for offsite wet utilities, John St. and fire access

Construction Phase - Per engineer estimates

Off-road Equipment - Per Engineer

Off-road Equipment - Per Engineer

Off-road Equipment - Per Engineer

Trips and VMT - 2 water truck trips for dust control, material import and export.

Grading - 1,500 CY gravel imported for fire access road

Energy Use -

Construction Off-road Equipment Mitigation - Per Rule 403

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	23.00
tblConstructionPhase	NumDays	30.00	108.00
tblConstructionPhase	NumDays	20.00	10.00
tblGrading	AcresOfGrading	34.50	75.00
tblGrading	AcresOfGrading	0.00	75.00
tblGrading	MaterialImported	0.00	1,500.00
tblLandUse	LandUseSquareFeet	396,860.00	396,863.50
tblLandUse	LandUseSquareFeet	203,140.00	203,136.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblTripsAndVMT	WorkerTripNumber	8.00	38.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1532	1.4572	0.8584	1.7300e-003	0.5042	0.0707	0.5749	0.2335	0.0650	0.2985	0.0000	157.2522	157.2522	0.0386	0.0000	158.2159
Maximum	**0.1532**	**1.4572**	**0.8584**	**1.7300e-003**	**0.5042**	**0.0707**	**0.5749**	**0.2335**	**0.0650**	**0.2985**	**0.0000**	**157.2522**	**157.2522**	**0.0386**	**0.0000**	**158.2159**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1532	1.4572	0.8584	1.7300e-003	0.2150	0.0707	0.2857	0.0960	0.0650	0.1610	0.0000	157.2521	157.2521	0.0386	0.0000	158.2158
Maximum	**0.1532**	**1.4572**	**0.8584**	**1.7300e-003**	**0.2150**	**0.0707**	**0.2857**	**0.0960**	**0.0650**	**0.1610**	**0.0000**	**157.2521**	**157.2521**	**0.0386**	**0.0000**	**158.2158**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.35**	**0.00**	**50.30**	**58.89**	**0.00**	**46.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.5163	0.5163
2	4-1-2019	6-30-2019	0.6466	0.6466
3	7-1-2019	9-30-2019	0.4192	0.4192
		Highest	0.6466	0.6466

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/31/2019	5	23	
2	Paving	Paving	1/25/2019	2/7/2019	5	10	
3	Construction of other Offsites	Grading	4/1/2019	8/28/2019	5	108	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 13.77

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Construction of other Offsites	Cranes	0	7.00	231	0.29
Construction of other Offsites	Excavators	0	8.00	158	0.38
Construction of other Offsites	Forklifts	0	8.00	89	0.20
Construction of other Offsites	Generator Sets	0	8.00	84	0.74
Construction of other Offsites	Graders	0	8.00	187	0.41
Construction of other Offsites	Rubber Tired Dozers	1	8.00	247	0.40
Construction of other Offsites	Scrapers	0	8.00	367	0.48

Construction of other Offsites	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Construction of other Offsites	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	20.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	15.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Construction of other Offsites	3	38.00	6.00	188.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1090	0.0000	0.1090	0.0424	0.0000	0.0424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0363	0.4168	0.2161	4.2000e-004		0.0186	0.0186		0.0171	0.0171	0.0000	37.7448	37.7448	0.0119	0.0000	38.0433
Total	**0.0363**	**0.4168**	**0.2161**	**4.2000e-004**	**0.1090**	**0.0186**	**0.1276**	**0.0424**	**0.0171**	**0.0595**	**0.0000**	**37.7448**	**37.7448**	**0.0119**	**0.0000**	**38.0433**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	8.0500e-003	2.0200e-003	2.0000e-005	4.3000e-004	5.0000e-005	4.9000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	1.7082	1.7082	1.2000e-004	0.0000	1.7112
Worker	1.1100e-003	8.8000e-004	9.5900e-003	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3444	2.3444	7.0000e-005	0.0000	2.3462
Total	**1.3800e-003**	**8.9300e-003**	**0.0116**	**5.0000e-005**	**2.9500e-003**	**7.0000e-005**	**3.0300e-003**	**8.0000e-004**	**7.0000e-005**	**8.7000e-004**	**0.0000**	**4.0526**	**4.0526**	**1.9000e-004**	**0.0000**	**4.0574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0425	0.0000	0.0425	0.0165	0.0000	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0363	0.4168	0.2161	4.2000e-004		0.0186	0.0186		0.0171	0.0171	0.0000	37.7447	37.7447	0.0119	0.0000	38.0433
Total	**0.0363**	**0.4168**	**0.2161**	**4.2000e-004**	**0.0425**	**0.0186**	**0.0611**	**0.0165**	**0.0171**	**0.0336**	**0.0000**	**37.7447**	**37.7447**	**0.0119**	**0.0000**	**38.0433**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	8.0500e-003	2.0200e-003	2.0000e-005	4.3000e-004	5.0000e-005	4.9000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	1.7082	1.7082	1.2000e-004	0.0000	1.7112
Worker	1.1100e-003	8.8000e-004	9.5900e-003	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3444	2.3444	7.0000e-005	0.0000	2.3462
Total	**1.3800e-003**	**8.9300e-003**	**0.0116**	**5.0000e-005**	**2.9500e-003**	**7.0000e-005**	**3.0300e-003**	**8.0000e-004**	**7.0000e-005**	**8.7000e-004**	**0.0000**	**4.0526**	**4.0526**	**1.9000e-004**	**0.0000**	**4.0574**

3.3 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7700e-003	0.0493	0.0462	7.0000e-005		2.8000e-003	2.8000e-003		2.5700e-003	2.5700e-003	0.0000	6.2967	6.2967	1.9900e-003	0.0000	6.3465
Paving	0.0119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0167**	**0.0493**	**0.0462**	**7.0000e-005**		**2.8000e-003**	**2.8000e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**6.2967**	**6.2967**	**1.9900e-003**	**0.0000**	**6.3465**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2000e-004	3.5000e-003	8.8000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	5.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.7427	0.7427	5.0000e-005	0.0000	0.7440
Worker	3.6000e-004	2.9000e-004	3.1300e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7651
Total	**4.8000e-004**	**3.7900e-003**	**4.0100e-003**	**2.0000e-005**	**1.0100e-003**	**3.0000e-005**	**1.0400e-003**	**2.7000e-004**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**1.5072**	**1.5072**	**7.0000e-005**	**0.0000**	**1.5091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7700e-003	0.0493	0.0462	7.0000e-005		2.8000e-003	2.8000e-003		2.5700e-003	2.5700e-003	0.0000	6.2967	6.2967	1.9900e-003	0.0000	6.3465
Paving	0.0119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0167**	**0.0493**	**0.0462**	**7.0000e-005**		**2.8000e-003**	**2.8000e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**6.2967**	**6.2967**	**1.9900e-003**	**0.0000**	**6.3465**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2000e-004	3.5000e-003	8.8000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	5.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.7427	0.7427	5.0000e-005	0.0000	0.7440
Worker	3.6000e-004	2.9000e-004	3.1300e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7651
Total	**4.8000e-004**	**3.7900e-003**	**4.0100e-003**	**2.0000e-005**	**1.0100e-003**	**3.0000e-005**	**1.0400e-003**	**2.7000e-004**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**1.5072**	**1.5072**	**7.0000e-005**	**0.0000**	**1.5091**

3.4 Construction of other Offsites - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3651	0.0000	0.3651	0.1831	0.0000	0.1831	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0864	0.9045	0.4800	8.0000e-004		0.0486	0.0486		0.0448	0.0448	0.0000	71.5475	71.5475	0.0226	0.0000	72.1135
Total	**0.0864**	**0.9045**	**0.4800**	**8.0000e-004**	**0.3651**	**0.0486**	**0.4137**	**0.1831**	**0.0448**	**0.2278**	**0.0000**	**71.5475**	**71.5475**	**0.0226**	**0.0000**	**72.1135**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8000e-004	0.0282	5.4300e-003	7.0000e-005	1.6200e-003	1.0000e-004	1.7200e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	7.1662	7.1662	5.0000e-004	0.0000	7.1788
Vendor	1.2700e-003	0.0378	9.4700e-003	8.0000e-005	2.0400e-003	2.5000e-004	2.2900e-003	5.9000e-004	2.4000e-004	8.3000e-004	0.0000	8.0213	8.0213	5.6000e-004	0.0000	8.0352
Worker	9.9100e-003	7.8700e-003	0.0856	2.3000e-004	0.0225	1.8000e-004	0.0227	5.9800e-003	1.6000e-004	6.1400e-003	0.0000	20.9159	20.9159	6.5000e-004	0.0000	20.9322
Total	**0.0120**	**0.0739**	**0.1005**	**3.8000e-004**	**0.0262**	**5.3000e-004**	**0.0267**	**7.0100e-003**	**5.0000e-004**	**7.5100e-003**	**0.0000**	**36.1034**	**36.1034**	**1.7100e-003**	**0.0000**	**36.1462**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1424	0.0000	0.1424	0.0714	0.0000	0.0714	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0864	0.9045	0.4800	8.0000e-004		0.0486	0.0486		0.0448	0.0448	0.0000	71.5475	71.5475	0.0226	0.0000	72.1134
Total	**0.0864**	**0.9045**	**0.4800**	**8.0000e-004**	**0.1424**	**0.0486**	**0.1910**	**0.0714**	**0.0448**	**0.1161**	**0.0000**	**71.5475**	**71.5475**	**0.0226**	**0.0000**	**72.1134**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.8000e-004	0.0282	5.4300e-003	7.0000e-005	1.6200e-003	1.0000e-004	1.7200e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	7.1662	7.1662	5.0000e-004	0.0000	7.1788
Vendor	1.2700e-003	0.0378	9.4700e-003	8.0000e-005	2.0400e-003	2.5000e-004	2.2900e-003	5.9000e-004	2.4000e-004	8.3000e-004	0.0000	8.0213	8.0213	5.6000e-004	0.0000	8.0352
Worker	9.9100e-003	7.8700e-003	0.0856	2.3000e-004	0.0225	1.8000e-004	0.0227	5.9800e-003	1.6000e-004	6.1400e-003	0.0000	20.9159	20.9159	6.5000e-004	0.0000	20.9322
Total	**0.0120**	**0.0739**	**0.1005**	**3.8000e-004**	**0.0262**	**5.3000e-004**	**0.0267**	**7.0100e-003**	**5.0000e-004**	**7.5100e-003**	**0.0000**	**36.1034**	**36.1034**	**1.7100e-003**	**0.0000**	**36.1462**

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/3/2018 10:13 AM

Banning Dist. Center John Street Grading - Mitigated - South Coast AQMD Air District, Summer

Banning Dist. Center John Street Grading - Mitigated

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	396.86	1000sqft	9.11	396,863.50	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. RPS 33% reduction

Land Use - John Street

Construction Phase - Per Engineer Estimates

Off-road Equipment - Per Engineer

Trips and VMT - Water truck trips per Rule 403 and Material delivery

Construction Off-road Equipment Mitigation - Water per Rule 403, Tier 2 Equipment

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	23.00
tblGrading	AcresOfGrading	34.50	10.00
tblLandUse	LandUseSquareFeet	396,860.00	396,863.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	VendorTripNumber	0.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.2390	36.9734	19.5390	0.0396	6.6669	1.6237	8.2905	3.4096	1.4939	4.9035	0.0000	3,937.2142	3,937.2142	1.1605	0.0000	3,966.2255
Maximum	**3.2390**	**36.9734**	**19.5390**	**0.0396**	**6.6669**	**1.6237**	**8.2905**	**3.4096**	**1.4939**	**4.9035**	**0.0000**	**3,937.2142**	**3,937.2142**	**1.1605**	**0.0000**	**3,966.2255**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.9829	18.5876	21.5586	0.0396	2.7122	0.7945	3.5067	1.3600	0.7942	2.1542	0.0000	3,937.2142	3,937.2142	1.1605	0.0000	3,966.2255
Maximum	**0.9829**	**18.5876**	**21.5586**	**0.0396**	**2.7122**	**0.7945**	**3.5067**	**1.3600**	**0.7942**	**2.1542**	**0.0000**	**3,937.2142**	**3,937.2142**	**1.1605**	**0.0000**	**3,966.2255**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**69.65**	**49.73**	**-10.34**	**0.00**	**59.32**	**51.07**	**57.70**	**60.11**	**46.84**	**56.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/31/2019	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 9.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	13.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4832	0.0000	6.4832	3.3600	0.0000	3.3600			0.0000			0.0000
Off-Road	3.1522	36.2426	18.7889	0.0365		1.6180	1.6180		1.4885	1.4885		3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**3.1522**	**36.2426**	**18.7889**	**0.0365**	**6.4832**	**1.6180**	**8.1012**	**3.3600**	**1.4885**	**4.8486**		**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.0637	0.0443	0.5841	1.5400e-003	0.1453	1.1300e-003	0.1464	0.0385	1.0400e-003	0.0396		153.5286	153.5286	4.8000e-003		153.6486
Total	**0.0868**	**0.7308**	**0.7501**	**3.1000e-003**	**0.1837**	**5.6800e-003**	**0.1894**	**0.0496**	**5.3900e-003**	**0.0550**		**319.2604**	**319.2604**	**0.0158**		**319.6546**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5284	0.0000	2.5284	1.3104	0.0000	1.3104			0.0000			0.0000
Off-Road	0.8961	17.8567	20.8085	0.0365		0.7888	0.7888		0.7888	0.7888	0.0000	3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**0.8961**	**17.8567**	**20.8085**	**0.0365**	**2.5284**	**0.7888**	**3.3173**	**1.3104**	**0.7888**	**2.0992**	**0.0000**	**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0231	0.6865	0.1660	1.5600e-003	0.0384	4.5500e-003	0.0430	0.0111	4.3500e-003	0.0154		165.7318	165.7318	0.0110		166.0060
Worker	0.0637	0.0443	0.5841	1.5400e-003	0.1453	1.1300e-003	0.1464	0.0385	1.0400e-003	0.0396		153.5286	153.5286	4.8000e-003		153.6486
Total	**0.0868**	**0.7308**	**0.7501**	**3.1000e-003**	**0.1837**	**5.6800e-003**	**0.1894**	**0.0496**	**5.3900e-003**	**0.0550**		**319.2604**	**319.2604**	**0.0158**		**319.6546**

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/3/2018 10:14 AM

Banning Dist. Center John Street Grading - Mitigated - South Coast AQMD Air District, Winter

Banning Dist. Center John Street Grading - Mitigated

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	396.86	1000sqft	9.11	396,863.50	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. RPS 33% reduction

Land Use - John Street

Construction Phase - Per Engineer Estimates

Off-road Equipment - Per Engineer

Trips and VMT - Water truck trips per Rule 403 and Material delivery

Construction Off-road Equipment Mitigation - Water per Rule 403, Tier 2 Equipment

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	23.00
tblGrading	AcresOfGrading	34.50	10.00
tblLandUse	LandUseSquareFeet	396,860.00	396,863.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	VendorTripNumber	0.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	3.2457	36.9782	19.5008	0.0395	6.6669	1.6237	8.2906	3.4096	1.4940	4.9036	0.0000	3,922.5489	3,922.5489	1.1610	0.0000	3,951.5727
Maximum	**3.2457**	**36.9782**	**19.5008**	**0.0395**	**6.6669**	**1.6237**	**8.2906**	**3.4096**	**1.4940**	**4.9036**	**0.0000**	**3,922.5489**	**3,922.5489**	**1.1610**	**0.0000**	**3,951.5727**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.9896	18.5923	21.5204	0.0395	2.7122	0.7946	3.5067	1.3600	0.7943	2.1543	0.0000	3,922.5489	3,922.5489	1.1610	0.0000	3,951.5727
Maximum	**0.9896**	**18.5923**	**21.5204**	**0.0395**	**2.7122**	**0.7946**	**3.5067**	**1.3600**	**0.7943**	**2.1543**	**0.0000**	**3,922.5489**	**3,922.5489**	**1.1610**	**0.0000**	**3,951.5727**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**69.51**	**49.72**	**-10.36**	**0.00**	**59.32**	**51.07**	**57.70**	**60.11**	**46.84**	**56.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/31/2019	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 9.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	13.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4832	0.0000	6.4832	3.3600	0.0000	3.3600			0.0000			0.0000
Off-Road	3.1522	36.2426	18.7889	0.0365		1.6180	1.6180		1.4885	1.4885		3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**3.1522**	**36.2426**	**18.7889**	**0.0365**	**6.4832**	**1.6180**	**8.1012**	**3.3600**	**1.4885**	**4.8486**		**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.0693	0.0485	0.5270	1.4400e-003	0.1453	1.1300e-003	0.1464	0.0385	1.0400e-003	0.0396		143.6053	143.6053	4.4900e-003		143.7174
Total	**0.0935**	**0.7356**	**0.7118**	**2.9500e-003**	**0.1837**	**5.7500e-003**	**0.1895**	**0.0496**	**5.4600e-003**	**0.0551**		**304.5950**	**304.5950**	**0.0163**		**305.0018**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5284	0.0000	2.5284	1.3104	0.0000	1.3104			0.0000			0.0000
Off-Road	0.8961	17.8567	20.8085	0.0365		0.7888	0.7888		0.7888	0.7888	0.0000	3,617.9538	3,617.9538	1.1447		3,646.5709
Total	**0.8961**	**17.8567**	**20.8085**	**0.0365**	**2.5284**	**0.7888**	**3.3173**	**1.3104**	**0.7888**	**2.0992**	**0.0000**	**3,617.9538**	**3,617.9538**	**1.1447**		**3,646.5709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0242	0.6870	0.1848	1.5100e-003	0.0384	4.6200e-003	0.0430	0.0111	4.4200e-003	0.0155		160.9898	160.9898	0.0118		161.2844
Worker	0.0693	0.0485	0.5270	1.4400e-003	0.1453	1.1300e-003	0.1464	0.0385	1.0400e-003	0.0396		143.6053	143.6053	4.4900e-003		143.7174
Total	**0.0935**	**0.7356**	**0.7118**	**2.9500e-003**	**0.1837**	**5.7500e-003**	**0.1895**	**0.0496**	**5.4600e-003**	**0.0551**		**304.5950**	**304.5950**	**0.0163**		**305.0018**

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/3/2018 10:11 AM

Banning Dist. Center John Street Grading - Mitigated - South Coast AQMD Air District, Annual

Banning Dist. Center John Street Grading - Mitigated

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	396.86	1000sqft	9.11	396,863.50	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. RPS 33% reduction

Land Use - John Street

Construction Phase - Per Engineer Estimates

Off-road Equipment - Per Engineer

Trips and VMT - Water truck trips per Rule 403 and Material delivery

Construction Off-road Equipment Mitigation - Water per Rule 403, Tier 2 Equipment

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	23.00
tblGrading	AcresOfGrading	34.50	10.00
tblLandUse	LandUseSquareFeet	396,860.00	396,863.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	VendorTripNumber	0.00	6.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0372	0.4254	0.2243	4.5000e-004	0.0766	0.0187	0.0953	0.0392	0.0172	0.0564	0.0000	40.9768	40.9768	0.0121	0.0000	41.2795
Maximum	**0.0372**	**0.4254**	**0.2243**	**4.5000e-004**	**0.0766**	**0.0187**	**0.0953**	**0.0392**	**0.0172**	**0.0564**	**0.0000**	**40.9768**	**40.9768**	**0.0121**	**0.0000**	**41.2795**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0113	0.2140	0.2476	4.5000e-004	0.0312	9.1400e-003	0.0403	0.0156	9.1300e-003	0.0248	0.0000	40.9768	40.9768	0.0121	0.0000	41.2795
Maximum	**0.0113**	**0.2140**	**0.2476**	**4.5000e-004**	**0.0312**	**9.1400e-003**	**0.0403**	**0.0156**	**9.1300e-003**	**0.0248**	**0.0000**	**40.9768**	**40.9768**	**0.0121**	**0.0000**	**41.2795**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**69.66**	**49.70**	**-10.36**	**0.00**	**59.35**	**51.04**	**57.72**	**60.13**	**46.86**	**56.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	0.4453	0.2168
		Highest	0.4453	0.2168

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2019	1/31/2019	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 9.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	13.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0746	0.0000	0.0746	0.0386	0.0000	0.0386	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0363	0.4168	0.2161	4.2000e-004		0.0186	0.0186		0.0171	0.0171	0.0000	37.7448	37.7448	0.0119	0.0000	38.0433
Total	**0.0363**	**0.4168**	**0.2161**	**4.2000e-004**	**0.0746**	**0.0186**	**0.0932**	**0.0386**	**0.0171**	**0.0558**	**0.0000**	**37.7448**	**37.7448**	**0.0119**	**0.0000**	**38.0433**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	8.0500e-003	2.0200e-003	2.0000e-005	4.3000e-004	5.0000e-005	4.9000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	1.7082	1.7082	1.2000e-004	0.0000	1.7112
Worker	7.2000e-004	5.7000e-004	6.2300e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5238	1.5238	5.0000e-005	0.0000	1.5250
Total	**9.9000e-004**	**8.6200e-003**	**8.2500e-003**	**4.0000e-005**	**2.0700e-003**	**6.0000e-005**	**2.1400e-003**	**5.7000e-004**	**6.0000e-005**	**6.3000e-004**	**0.0000**	**3.2321**	**3.2321**	**1.7000e-004**	**0.0000**	**3.2362**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0291	0.0000	0.0291	0.0151	0.0000	0.0151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.2054	0.2393	4.2000e-004		9.0700e-003	9.0700e-003		9.0700e-003	9.0700e-003	0.0000	37.7447	37.7447	0.0119	0.0000	38.0433
Total	**0.0103**	**0.2054**	**0.2393**	**4.2000e-004**	**0.0291**	**9.0700e-003**	**0.0382**	**0.0151**	**9.0700e-003**	**0.0241**	**0.0000**	**37.7447**	**37.7447**	**0.0119**	**0.0000**	**38.0433**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	8.0500e-003	2.0200e-003	2.0000e-005	4.3000e-004	5.0000e-005	4.9000e-004	1.3000e-004	5.0000e-005	1.8000e-004	0.0000	1.7082	1.7082	1.2000e-004	0.0000	1.7112
Worker	7.2000e-004	5.7000e-004	6.2300e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5238	1.5238	5.0000e-005	0.0000	1.5250
Total	**9.9000e-004**	**8.6200e-003**	**8.2500e-003**	**4.0000e-005**	**2.0700e-003**	**6.0000e-005**	**2.1400e-003**	**5.7000e-004**	**6.0000e-005**	**6.3000e-004**	**0.0000**	**3.2321**	**3.2321**	**1.7000e-004**	**0.0000**	**3.2362**

Banning Dist. Center BAU

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2010
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	919.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Banning Dist. Center BAU - South Coast AQMD Air District, Annual

Project Characteristics - BAU Baseline 2010 per Riverside CAP; City of Banning Electricity Co.

Land Use - Per Site Plan

Construction Phase - Construction not modeled

Off-road Equipment - Construction not modeled

Vehicle Trips - 100 miles from ports, TIA truck trips

Waste Mitigation - Per CalReclycle diversion rate for Banning 2006

Fleet Mix - per TIA truck trip

Water And Wastewater - Per Landscape Architect

Energy Use - Per Banning Utility

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	70.00	0.00
tblEnergyUse	LightingElect	1.17	1.75
tblEnergyUse	T24E	0.37	0.45
tblEnergyUse	T24NG	2.00	2.11
tblFleetMix	HHD	0.03	0.23
tblFleetMix	LDA	0.52	0.42
tblFleetMix	LDT1	0.06	0.03
tblFleetMix	LDT2	0.18	0.15
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.2360e-003	0.06
tblFleetMix	MCY	4.2900e-003	3.6400e-003
tblFleetMix	MDV	0.15	0.00
tblFleetMix	MH	1.5180e-003	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	1.8960e-003	1.5600e-003

tblFleetMix	SBUS	6.2000e-004	5.4000e-004
tblFleetMix	UBUS	2.9080e-003	1.4900e-003
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	919.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,406,966.94
tblWater	OutdoorWaterUseRate	0.00	6,908,050.35

2.0 Emissions Summary

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9140	2.6000e-004	0.0267	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	0.0466	0.0466	1.6000e-004	0.0000	0.0507
Energy	0.0115	0.1049	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	1,373.9117	1,373.9117	0.0419	0.0158	1,379.6656
Mobile	11.8380	142.7320	103.9904	0.2596	11.8462	4.5640	16.4101	3.2388	4.3640	7.6028	0.0000	24,339.2504	24,339.2504	1.7416	0.0000	24,382.7914
Waste						0.0000	0.0000		0.0000	0.0000	190.8115	0.0000	190.8115	11.2766	0.0000	472.7274
Water						0.0000	0.0000		0.0000	0.0000	2.6671	77.6749	80.3420	0.2764	7.3100e-003	89.4311
Total	**16.7635**	**142.8372**	**104.1052**	**0.2602**	**11.8462**	**4.5720**	**16.4182**	**3.2388**	**4.3721**	**7.6109**	**193.4787**	**25,790.8836**	**25,984.3622**	**13.3367**	**0.0231**	**26,324.6661**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9140	2.6000e-004	0.0267	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	0.0466	0.0466	1.6000e-004	0.0000	0.0507
Energy	0.0115	0.1049	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	1,373.9117	1,373.9117	0.0419	0.0158	1,379.6656
Mobile	11.8380	142.7320	103.9904	0.2596	11.8462	4.5640	16.4101	3.2388	4.3640	7.6028	0.0000	24,339.2504	24,339.2504	1.7416	0.0000	24,382.7914
Waste						0.0000	0.0000		0.0000	0.0000	89.6814	0.0000	89.6814	5.3000	0.0000	222.1819
Water						0.0000	0.0000		0.0000	0.0000	2.6671	77.6749	80.3420	0.2764	7.3100e-003	89.4311
Total	**16.7635**	**142.8372**	**104.1052**	**0.2602**	**11.8462**	**4.5720**	**16.4182**	**3.2388**	**4.3721**	**7.6109**	**92.3486**	**25,790.8836**	**25,883.2321**	**7.3601**	**0.0231**	**26,074.1206**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**52.27**	**0.00**	**0.39**	**44.81**	**0.00**	**0.95**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2010	12/31/2009	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	11.8380	142.7320	103.9904	0.2596	11.8462	4.5640	16.4101	3.2388	4.3640	7.6028	0.0000	24,339.2504	24,339.2504	1.7416	0.0000	24,382.7914
Unmitigated	11.8380	142.7320	103.9904	0.2596	11.8462	4.5640	16.4101	3.2388	4.3640	7.6028	0.0000	24,339.2504	24,339.2504	1.7416	0.0000	24,382.7914

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	29,582,525	29,582,525
Total	1,680.00	1,680.00	1,680.00	29,582,525	29,582,525

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	100.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.519095	0.057577	0.184040	0.150110	0.028748	0.006236	0.016781	0.026181	0.001896	0.002908	0.004290	0.000620	0.001518
Other Non-Asphalt Surfaces	0.519095	0.057577	0.184040	0.150110	0.028748	0.006236	0.016781	0.026181	0.001896	0.002908	0.004290	0.000620	0.001518
Unrefrigerated Warehouse-No Rail	0.423330	0.033690	0.150400	0.000000	0.000000	0.064880	0.086300	0.229800	0.001560	0.001490	0.003640	0.000540	0.000730

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,259.7131	1,259.7131	0.0397	0.0137	1,264.7884
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,259.7131	1,259.7131	0.0397	0.0137	1,264.7884
NaturalGas Mitigated	0.0115	0.1049	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	114.1986	114.1986	2.1900e-003	2.0900e-003	114.8772
NaturalGas Unmitigated	0.0115	0.1049	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	114.1986	114.1986	2.1900e-003	2.0900e-003	114.8772

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.14e+006	0.0115	0.1049	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	114.1986	114.1986	2.1900e-003	2.0900e-003	114.8772
Total		**0.0115**	**0.1049**	**0.0881**	**6.3000e-004**		**7.9700e-003**	**7.9700e-003**		**7.9700e-003**	**7.9700e-003**	**0.0000**	**114.1986**	**114.1986**	**2.1900e-003**	**2.0900e-003**	**114.8772**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.14e+006	0.0115	0.1049	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	114.1986	114.1986	2.1900e-003	2.0900e-003	114.8772
Total		**0.0115**	**0.1049**	**0.0881**	**6.3000e-004**		**7.9700e-003**	**7.9700e-003**		**7.9700e-003**	**7.9700e-003**	**0.0000**	**114.1986**	**114.1986**	**2.1900e-003**	**2.0900e-003**	**114.8772**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	3.02e+006	1,259.7131	0.0397	0.0137	1,264.7884
Total		**1,259.7131**	**0.0397**	**0.0137**	**1,264.7884**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	3.02e+006	1,259.7131	0.0397	0.0137	1,264.7884
Total		**1,259.7131**	**0.0397**	**0.0137**	**1,264.7884**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9140	2.6000e-004	0.0267	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	0.0466	0.0466	1.6000e-004	0.0000	0.0507
Unmitigated	4.9140	2.6000e-004	0.0267	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	0.0466	0.0466	1.6000e-004	0.0000	0.0507

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1833					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.7277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9700e-003	2.6000e-004	0.0267	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	0.0466	0.0466	1.6000e-004	0.0000	0.0507
Total	**4.9140**	**2.6000e-004**	**0.0267**	**0.0000**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0466**	**0.0466**	**1.6000e-004**	**0.0000**	**0.0507**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1833					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.7277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9700e-003	2.6000e-004	0.0267	0.0000		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	0.0466	0.0466	1.6000e-004	0.0000	0.0507
Total	**4.9140**	**2.6000e-004**	**0.0267**	**0.0000**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0466**	**0.0466**	**1.6000e-004**	**0.0000**	**0.0507**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	80.3420	0.2764	7.3100e-003	89.4311
Unmitigated	80.3420	0.2764	7.3100e-003	89.4311

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	8.40697 / 6.90805	80.3420	0.2764	7.3100e-003	89.4311
Total		**80.3420**	**0.2764**	**7.3100e-003**	**89.4311**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	8.40697 / 6.90805	80.3420	0.2764	7.3100e-003	89.4311
Total		**80.3420**	**0.2764**	**7.3100e-003**	**89.4311**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	89.6814	5.3000	0.0000	222.1819
Unmitigated	190.8115	11.2766	0.0000	472.7274

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	940	190.8115	11.2766	0.0000	472.7274
Total		**190.8115**	**11.2766**	**0.0000**	**472.7274**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.8	89.6814	5.3000	0.0000	222.1819
Total		**89.6814**	**5.3000**	**0.0000**	**222.1819**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/14/2017 11:57 AM

Banning Dist. Center Unmitigated - South Coast AQMD Air District, Summer

Banning Dist. Center Operation LST

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Vehicle Trips - Onsite trip length

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.0370e-003	1.5600e-003
tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003

tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CNW_TL	6.90	1.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TL	16.60	1.00
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,442,131.00
tblWater	OutdoorWaterUseRate	0.00	6,875,456.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	2.2273	46.0404	13.5893	0.0699	1.3693	0.0602	1.4295	0.3737	0.0572	0.4309		7,429.1774	7,429.1774	0.8765		7,451.0907
Total	**25.4054**	**46.5874**	**14.2402**	**0.0732**	**1.3693**	**0.1023**	**1.4716**	**0.3737**	**0.0993**	**0.4730**		**8,083.8993**	**8,083.8993**	**0.8902**	**0.0120**	**8,109.7284**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	2.2273	46.0404	13.5893	0.0699	1.3693	0.0602	1.4295	0.3737	0.0572	0.4309		7,429.1774	7,429.1774	0.8765		7,451.0907
Total	**25.4054**	**46.5874**	**14.2402**	**0.0732**	**1.3693**	**0.1023**	**1.4716**	**0.3737**	**0.0993**	**0.4730**		**8,083.8993**	**8,083.8993**	**0.8902**	**0.0120**	**8,109.7284**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2273	46.0404	13.5893	0.0699	1.3693	0.0602	1.4295	0.3737	0.0572	0.4309		7,429.1774	7,429.1774	0.8765		7,451.0907
Unmitigated	2.2273	46.0404	13.5893	0.0699	1.3693	0.0602	1.4295	0.3737	0.0572	0.4309		7,429.1774	7,429.1774	0.8765		7,451.0907

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	611,520	611,520
Total	1,680.00	1,680.00	1,680.00	611,520	611,520

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No ...	1.00	8.40	1.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.423330	0.033690	0.154040	0.000000	0.000000	0.064880	0.086300	0.229800	0.001560	0.001490	0.003640	0.000540	0.000730

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/14/2017 12:06 PM

Banning Dist. Center Unmitigated - South Coast AQMD Air District, Winter

Banning Dist. Center Operation LST

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	684.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 33%RPS included

Land Use - Per Site Plan

Construction Phase - Per Developer

Off-road Equipment - Part of Grading Phase

Off-road Equipment - Equipment assumed to run 8 hr/day

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Part of Grading Phase

Trips and VMT - Added water truck trips to grading/paving. 11.5 miles to the nearest landfill

Grading - Per Engineer

Vehicle Trips - Onsite trip length

Landscape Equipment -

Energy Use -

Water And Wastewater - Per WSA

Construction Off-road Equipment Mitigation - Per Rule 403

Water Mitigation - Per CalGreen

Waste Mitigation - Per AB 341

Fleet Mix - Per TIA truck trip

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	44.00
tblConstructionPhase	NumDays	1,110.00	262.00
tblConstructionPhase	NumDays	110.00	64.00
tblConstructionPhase	NumDays	75.00	22.00
tblConstructionPhase	NumDays	40.00	5.00
tblFleetMix	HHD	0.03	0.23
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.20	0.15
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.06
tblFleetMix	MCY	4.7770e-003	3.6400e-003
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	7.3000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.0370e-003	1.5600e-003
tblFleetMix	SBUS	7.0500e-004	5.4000e-004
tblFleetMix	UBUS	1.9440e-003	1.4900e-003

tblGrading	AcresOfGrading	160.00	275.00
tblGrading	AcresOfGrading	0.00	63.51
tblGrading	MaterialExported	0.00	10,300.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	684.6
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblTripsAndVMT	HaulingTripLength	20.00	11.50
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CNW_TL	6.90	1.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TL	16.60	1.00
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,442,131.00
tblWater	OutdoorWaterUseRate	0.00	6,875,456.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	2.2356	44.7514	15.8801	0.0638	1.3693	0.0657	1.4350	0.3737	0.0625	0.4362		6,776.6021	6,776.6021	0.9746		6,800.9677
Total	**25.4137**	**45.2984**	**16.5310**	**0.0671**	**1.3693**	**0.1078**	**1.4772**	**0.3737**	**0.1046**	**0.4783**		**7,431.3240**	**7,431.3240**	**0.9883**	**0.0120**	**7,459.6054**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	23.1181	1.7800e-003	0.1929	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004		0.4109	0.4109	1.1000e-003		0.4384
Energy	0.0600	0.5453	0.4580	3.2700e-003		0.0414	0.0414		0.0414	0.0414		654.3110	654.3110	0.0125	0.0120	658.1993
Mobile	2.2356	44.7514	15.8801	0.0638	1.3693	0.0657	1.4350	0.3737	0.0625	0.4362		6,776.6021	6,776.6021	0.9746		6,800.9677
Total	**25.4137**	**45.2984**	**16.5310**	**0.0671**	**1.3693**	**0.1078**	**1.4772**	**0.3737**	**0.1046**	**0.4783**		**7,431.3240**	**7,431.3240**	**0.9883**	**0.0120**	**7,459.6054**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2356	44.7514	15.8801	0.0638	1.3693	0.0657	1.4350	0.3737	0.0625	0.4362		6,776.6021	6,776.6021	0.9746		6,800.9677
Unmitigated	2.2356	44.7514	15.8801	0.0638	1.3693	0.0657	1.4350	0.3737	0.0625	0.4362		6,776.6021	6,776.6021	0.9746		6,800.9677

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	611,520	611,520
Total	1,680.00	1,680.00	1,680.00	611,520	611,520

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	1.00	8.40	1.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.423330	0.033690	0.154040	0.000000	0.000000	0.064880	0.086300	0.229800	0.001560	0.001490	0.003640	0.000540	0.000730

Operation LST CalCulation for Truck Idling

Pollutant	Emission Factor[1]	Idling Time	Daily Truck Trips[2]	Idling Emissions	Idling Emissions
	(g/hr-veh)	(min)		(g/day)	(lb/day)
LHDT1					
PM-10	0.000838	15	109	0.022836	5.03E-05
PM-2.5	0.000802	15	109	0.021855	4.82E-05
MHDT					
PM-10	0.002572	15	145	0.093235	0.000206
PM-2.5	0.00246	15	145	0.089175	0.000197
HHDT					
PM-10	0.019213	15	386	1.854055	0.004088
PM-2.5	0.018382	15	386	1.773863	0.003911
PM-10 Sub-Total					0.004343
PM-2.5 Sub-Total					0.004155
CalEEMod Total					
PM-10 Total					1.44
PM-2.5 Total					0.44
Operation LST Total					
PM-10 Total					1.444343
PM-2.5 Total					0.444155

* Emission factors from CalEEMod

** Per Project-specific Traffic Impact Analysis, December 2017

Appendix C.2

Health Risk Assessment Modeling Methodology

Modeling Parameters

Health risk associated with the Project's operational truck traffic on local roadways were modeled for the potential to exposure sensitive receptors to cancer and non-cancer risk in excess of applicable thresholds.

The health risk assessment was performed using AERMOD version 16216r and in accordance with the South Coast Air Quality management District's (SCAQMD's) *Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis* (SCAQMD 2003) and the 2017 Risk Assessment Procedures for Rules 1401, 1401.1 and 212 Version 8.1 based on the Office of Environmental health Hazard Assessment's (OEHHA's) *The Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* ("Guidance Manual"), March 2015.

SCAQMD recommends using the USEPA's AERMOD model for mobile source emissions impact assessments by modeling the individual roadways as line sources represented by adjacent volume sources, consistent with the USEPA Haul Road Workgroup Recommendations (USEPA 2012). For dispersion analysis, AERMOD has four source types that the user can choose from. Point sources refer to stacks, where the pollutants are released from a single point. The area source model is used to simulate the effects of fugitive emissions from sources such as storage piles and slag lumps. The open pit source model is used to stimulate fugitive emissions from below-grade open pits, such as surface coal mines or stone quarries. The volume source model is used to simulate the effects of emissions from sources such as building roof monitors and line sources, which include roads. This analysis uses the line volume source model.

Tables showing the roadways and volume sources modeled are attached hereto. In order to model the mobile source emissions from the Project's diesel truck traffic, the local roadways were treated as line sources represented by multiple adjacent volume sources. The initial horizontal and vertical plume standard deviations must be computed for each volume source modeled. According to the AERMOD user's guide, the initial horizontal standard deviation (σ_y) of individual volume sources should be estimated as the distance between separate volume sources divided by 2.15. In a similar manner, the AERMOD user guide specifies that the source initial vertical standard deviation (σ_z) for a surface-based source (simulating truck travel on roadways or idling at truck bays) should be estimated as the height of the building divided by the same factor of 2.15. For roadway parameters, the USEPA Haul Road Workgroup Recommendations was utilized for calculating the volume source characteristics based on the height and width of heavy duty diesel trucks.

The area studied as part of this health risk assessment is larger than the Project site itself and is bounded by Interstate 10 (I-10) to the north, Adams Street to the south, and South Florida Street to the west. The local roadway segments modeled are attached hereto and are based on the truck distribution patterns identified in the Project-specific Traffic Impact Analysis (TIA).

In order to do the dispersion analysis, the initial concentration of diesel particulate matter (DPM) emitted per local roadway segment modeled has to be estimated. The EMFAC2014 developed by the California Air Resources Board (CARB) was utilized to obtain an average emission factor for 2019 (Project opening year) using the meteorological data for the Banning area to estimate the particulate matter (PM) emissions generated by the truck traffic on the local roads near the Project site.

EMFAC2014 results are available by vehicle category. Vehicle categories from EMFAC2007 were used to develop the DPM emissions because they correspond to the vehicle classes used in the TIA and SCAQMD guidance. The Project-specific TIA provides truck data by axle number categorizing trucks as either 2-axle, 3-axle, or 4+-axle. To convert the axle-based truck categories to those within EMFAC2014, one of SCAQMD's recommended methods was used which equates 2-axle trucks to Light-Heavy Duty Diesel trucks (LHDT), 3-axle trucks to Medium-Heavy Duty Diesel Trucks (MHDT), and 4+-axle trucks to Heavy-Heavy Duty Diesel Truck (HHDT).[1]

Since PM emissions are also a function of vehicle speed, the modeled vehicle speeds along local roads and ranging between 5 miles per hour (mph) and 25 mph, depending on the road segment, were used. On-site truck travel was modeled as 5 miles per hour. An average vehicle speed of 5 mph was modeled for the trucks traveling within the Project site. These vehicle speeds were chosen after consultation with staff at SCAQMD,[2] who suggested that the average vehicle speed be reduced for each roadway below the posted speed limit in order to model emissions from diesel trucks while they are idling at traffic lights or in congested traffic conditions. The emission factors and corresponding vehicle speeds used are attached hereto.

The emission factors were adjusted to reflect actual percentages for each truck category identified in the TIA for the modeled scenarios on each road modeled to produce an average emission factor for each road segment modeled. The annual average emissions were calculated for each year within the extent of the risk assessment period and averaged for each of the four age bins in the 2017 SCAQMD Guidance. The emissions rates for each age bin were averaged starting in 2019 to provide a conservative analysis. For assessment of residential cancer risk, the risk is calculated in four individual age bins (e.g., third trimester, 0 to 2 years, etc.) rather than a single lifetime calculation, whereas, for offsite workers the default assumption is that working age begins at 16 years. These age bins are based on scientific data, which has shown that young animals are more sensitive than adult animals to exposure to many carcinogens, and are designed to take into account the increased sensitivity to carcinogens during early-in-life exposure. Each age bin is adjusted by an Age Sensitivity Factor (ASF) when calculating cancer risks to account for this increased sensitivity.

Truck Counts

The number of Project-generated trucks using local roads in 2019 was modeled based on the TIA, which estimated total average daily truck trips and the truck distribution showing the roadways used to access the Project site. The assumptions for truck distributions (LHDT, MHDT, and HHDT) are attached hereto. Trucks were also modeled traveling on the Project site.

Truck Idling

In addition to the emissions of DPM from trucks traveling along the roadways, it is also important to model the emissions of DPM from trucks while they are idling at the loading areas of the Project site. There are three loading areas at the Project site. The emissions from the loading areas were calculated as line volume sources utilizing the idling emission factor calculated by EMFAC2014. All trucks were assumed to idle in the loading areas for 15 minutes. Truck auxiliary power units (APUs) or transportation

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[1] http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/high-cube-resource-caleemod-appendix-e.pdf?sfvrsn=2

[2] Staff communication with James Koizumi on March 5, 2004.

refrigeration units (TRUs) were not modeled because the warehouse will be unrefrigerated and electrical hookups will be installed at the loading docks to avoid unnecessary idling.

Diesel Particulate Matter Dispersion Modeling

The AERMOD dispersion model uses available meteorological data (provided by SCAQMD) for the Project area in order to estimate the DPM concentrations at receptor locations. The meteorological data provided by SCAQMD used was for Banning, CA. A uniform Cartesian receptor grid, with receptors placed at 100 meter intervals, extending in each direction of the Project boundary was used. Receptor height was set a zero meters. The urban modeling option with regulatory defaults was utilized, consistent with SCAQMD guidance.[3]

Modeled Receptors

Sensitive and off-site worker receptors were placed at discrete residential and non-residential locations. The existing land use designations surrounding the Project site and the extension of John Street include airport-related and other industrial uses. The closest sensitive land use to the Project site is very low density residential approximately 2,700 feet southwest of the Project boundary. However, existing residential and sensitive uses currently exist within these areas and are in closer proximity to the Project site and roadways used to access the Project site. There are pockets of residential uses west of Hargrave Street and south of Barbour Street as well as scattered residential uses off of Lincoln Avenue and Westward Avenue.

Eleven (11) separate discrete receptors located at sensitive receptors and off-site worker receptors within the Project vicinity were modeled. Receptors 1 through 6 are located at the edge of the existing residential uses on Hargrave Street between the I-10 freeway and Lincoln Avenue. Receptor 7 is a church located on the southeast corner of Hargrave Street and Lincoln Avenue. Receptor 8 is an existing residence located on Lincoln Avenue, southwest of the proposed extension of John Street. Receptors 9 through 11 are off-site worker receptors located at the non-residential uses on Hargrave Street, Lincoln Avenue, and Barbour Street.

Estimation of Health Risks

Cancer Risks

Cancer risks are a calculated probability of the number of people who will develop cancer after exposure to DPM at the same concentration, 24 hours a day, 350 days a year for a lifetime of 30 years. As a conservative measure, the SCAQMD does not recognize indoor adjustments for residents. However, a study by published in the Journal of Air and Waste Management Association in 2001 (Cackette/Lloyd, pp. 809–847) shows that the typical person spends approximately 87 percent of their time indoors, 5 percent of their time outdoors, and 7 percent of their time in vehicles.

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[3] http://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/modeling-guidance

The cancer risks from DPM occur exclusively through the inhalation pathway; therefore, the maximum individual cancer risk (MICR) can be estimated from the following equation:

$$*MICR_{DPM} = CP_{DPM} \bullet DI_{DPM}$$

where,

$MICR_{DPM}$ Cancer risk from diesel particulate matter (DPM); the probability of an individual developing cancer as a result of exposure to DPM.

CP_{DPM} [1] Cancer Potency factor for DPM $(mg/kg\text{-}day)^{-1}$; estimated probability that a person will contract cancer as a result of inhalation of a DPM concentration of 1mg per kilogram of bodyweight continuously over a period of 70 years CP_{DPM} value of 1.1 $(mg/kg\text{-}day)^{-1}$

DI_{DPM} Dose through inhalation (mg/kg-day)

- obtained by multiplying C_{air} x ASF x ED x FAH x DBR x (EF/70) x 10^{-6}
    - C_{air} is the Annual Average 24 hour per day concentration of DPM in air ($\mu g/m^3$) (calculated by AERMOD).
    - ASF is the age specific factor.
    - ED is the exposure duration in years.
    - FAH is the fraction of time at home.
    - DBR is the daily breathing rate
        - To be most protective, the DBR was adjusted for each age group, [2]
    - EF is the exposure factor[2]
        - Most sensitive value of 0.96 used.

* Table of data used in calculations can be found attached hereto.

1. From Table 2.0 of the 2017 SCAQMD Permit Application Package "N" (For Use in Conjunction with the Risk Assessment Procedures for Rules 1401, 1401.1 and 212 Version 8.1 [SCAQMD 2017]).
2. From Table 4.0 of the 2017 SCAQMD Permit Application Package "N".

This probability is usually expressed in terms of the number of people who will develop cancer per one million people who are also exposed. The exposure assumptions provided in the above calculations are based on the SCAQMD 2017 Permit Applications Package "N" which is based on The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments updated by OEHHA in 2015.

Non-Cancer Risks

The non-cancer risks can be described as acute (short-term, generally 1-hour peak exposures) or chronic (long-term exposure, defined as 12 percent of a lifetime or about 8 years for humans) health impacts. OEHHA has developed acute and chronic reference exposure levels (REL) for determining the non-cancer health impacts of toxic substances. Exceeding the acute or chronic REL does not necessarily indicate that an adverse health impact will occur; however, levels of exposure above the REL have an increasing but undefined probability of resulting in an adverse health impact, particularly in sensitive individuals. For DPM, there is no value for the acute REL and the chronic REL is 5 $\mu g/m^3$.

The relationship for the non-cancer health effects of DPM is given by the following equation:

$$\mathbf{HI_{DPM} = C_{DPM} / REL_{DPM}}$$

where,

HI_{DPM} Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} Annual average DPM concentration in $\mu g/m^3$.

REL_{DPM} Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

2019 Average Truck Emission Rates (grams/mile; grams/idle-hour)

	0 mph			5 mph			15 mph			25 mph		
	LHDT	MHDT	HHDT	LHDT	MHDT	HHDT	LHDT	MHDT	HHDT	LHDT	MHDT	HHDT
2019	0.786	0.265	0.029	0.114	0.200	0.055	0.061	0.130	0.038	0.038	0.085	0.028
2020	0.777	0.152	0.016	0.108	0.068	0.041	0.058	0.056	0.030	0.036	0.047	0.023
2021	0.765	0.019	0.014	0.103	0.014	0.036	0.056	0.010	0.027	0.035	0.008	0.021
2022	0.749	0.016	0.013	0.097	0.013	0.032	0.053	0.010	0.024	0.033	0.007	0.019
2023	0.732	0.007	0.008	0.091	0.007	0.013	0.050	0.005	0.009	0.032	0.004	0.008
2024	0.714	0.006	0.007	0.084	0.007	0.012	0.047	0.005	0.009	0.030	0.004	0.008
2025	0.695	0.005	0.007	0.078	0.007	0.012	0.044	0.005	0.009	0.028	0.004	0.007
2026	0.675	0.005	0.006	0.072	0.007	0.012	0.041	0.005	0.009	0.026	0.004	0.007
2027	0.653	0.004	0.006	0.066	0.007	0.012	0.038	0.005	0.009	0.024	0.004	0.007
2028	0.631	0.004	0.005	0.061	0.006	0.012	0.035	0.005	0.009	0.023	0.004	0.007
2029	0.608	0.003	0.005	0.055	0.006	0.012	0.032	0.005	0.009	0.021	0.004	0.007
2030	0.585	0.003	0.004	0.050	0.006	0.012	0.030	0.005	0.009	0.020	0.004	0.007
2031	0.561	0.003	0.004	0.045	0.006	0.012	0.027	0.005	0.009	0.018	0.004	0.007
2032	0.541	0.002	0.003	0.041	0.006	0.011	0.025	0.005	0.009	0.017	0.004	0.007
2033	0.522	0.002	0.003	0.038	0.006	0.011	0.023	0.005	0.009	0.016	0.004	0.007
2034	0.504	0.002	0.003	0.035	0.006	0.011	0.022	0.005	0.009	0.015	0.004	0.007
2035	0.486	0.002	0.002	0.032	0.006	0.011	0.020	0.005	0.008	0.014	0.004	0.007
2036	0.470	0.002	0.002	0.029	0.006	0.011	0.019	0.005	0.008	0.013	0.004	0.007
2037	0.455	0.002	0.002	0.027	0.006	0.011	0.018	0.005	0.008	0.012	0.004	0.007
2038	0.441	0.002	0.002	0.025	0.006	0.011	0.016	0.005	0.008	0.011	0.004	0.007
2039	0.428	0.002	0.002	0.023	0.006	0.011	0.015	0.005	0.008	0.011	0.004	0.007
2040	0.416	0.002	0.002	0.021	0.006	0.011	0.015	0.005	0.008	0.010	0.004	0.007
2041	0.406	0.002	0.002	0.020	0.006	0.011	0.014	0.005	0.008	0.010	0.004	0.007
2042	0.396	0.001	0.002	0.019	0.006	0.011	0.013	0.004	0.008	0.009	0.004	0.007
2043	0.388	0.001	0.002	0.018	0.006	0.011	0.013	0.004	0.008	0.009	0.004	0.007
2044	0.380	0.001	0.002	0.017	0.006	0.011	0.012	0.004	0.008	0.009	0.004	0.007
2045	0.373	0.001	0.002	0.016	0.006	0.011	0.012	0.004	0.008	0.008	0.004	0.007
2046	0.366	0.001	0.002	0.015	0.006	0.011	0.011	0.004	0.008	0.008	0.004	0.007
2047	0.360	0.001	0.002	0.014	0.006	0.011	0.011	0.004	0.008	0.008	0.004	0.007
2048	0.353	0.001	0.002	0.014	0.006	0.011	0.011	0.004	0.008	0.008	0.004	0.007
-.25 to 0	0.786	0.265	0.029	0.114	0.200	0.055	0.061	0.130	0.038	0.038	0.085	0.028
0 to 2	0.781	0.209	0.023	0.111	0.134	0.048	0.059	0.093	0.034	0.037	0.066	0.026
2 to 16	0.666	0.033	0.009	0.074	0.024	0.020	0.041	0.017	0.015	0.026	0.013	0.011
16 to 30	0.666	0.033	0.009	0.074	0.024	0.020	0.041	0.017	0.015	0.026	0.013	0.011

Project Road Segment Emission Rates with Project Truck Mix[1]

Speed►	0 mph	5 mph	15 mph	25 mph
Road # ▼				
1)				
-.25 to 0			0.063 grams/mile	
0 to 2			0.052 grams/mile	
2 to 16			0.020 grams/mile	
16 to 30			0.020 grams/mile	
2)				
-.25 to 0			0.063 grams/mile	
0 to 2			0.052 grams/mile	
2 to 16			0.019 grams/mile	
16 to 30			0.019 grams/mile	
3)				
-.25 to 0			0.063 grams/mile	
0 to 2			0.052 grams/mile	
2 to 16			0.020 grams/mile	
16 to 30			0.020 grams/mile	
4)				
-.25 to 0			0.063 grams/mile	
0 to 2			0.052 grams/mile	
2 to 16			0.020 grams/mile	
16 to 30			0.020 grams/mile	
5)				
-.25 to 0				0.043 grams/mile
0 to 2				0.037 grams/mile
2 to 16				0.014 grams/mile
16 to 30				0.014 grams/mile
6) -9) On-Site Travel Aisle				
-.25 to 0		0.098 grams/mile		
0 to 2		0.078 grams/mile		
2 to 16		0.030 grams/mile		
16 to 30		0.030 grams/mile		
10-12) Loading Areas				
-.25 to 0	0.211 grams/mile			
0 to 2	0.194 grams/mile			
2 to 16	0.126 grams/mile			
16 to 30	0.126 grams/mile			

Note: [1] Project truck mix based on Traffic Study, calculated on following tab.

Project Truck Mix

Roadway Segment	Link Segment Description	2 Axle	% of total	3 Axle	% of total	4+ Axle	% of total	total # of trucks
Hargrave Street	B/n I-10 Eastbound Ramps & Lincoln Avenue	107	17.1	142	22.6	378	60.3	627
Lincoln Avenue	West of Hargrave Street	2	15.4	3	23.1	8	61.5	13
	B/n Hargrave Street & John Street	109	17.0	145	22.7	386	60.3	640
John Street	B/n Lincoln Avenue & Project Driveway	109	17.0	145	22.7	386	60.3	640

Roadway Links Modeled (2019) - Project Only Trucks

Roadway Segment	Link Segment Description	Vol Source Spacing (ft)	Vol Source Spacing (m)	Average Speed (mph)	Age	Emission Factor (g/mi)	Existing Truck ADT	Length (m)	Total Line Emission Rate (g/s)	SLINE #
Hargrave Street	B/n I-10 Eastbound Ramps & Lincoln Avenue	28.18	8.59	15	-.25 to 0	0.063	627	243.20	**6.894E-05**	1
					0 to 2	0.052			**5.696E-05**	
					2 to 16	0.020			**2.172E-05**	
					16 to 30	0.020			**2.172E-05**	
Lincoln Avenue	West of Hargrave Street	28.18	8.59	15	-.25 to 0	0.063	13	274.70	**1.617E-06**	2
					0 to 2	0.052			**1.331E-06**	
					2 to 16	0.019			**4.974E-07**	
					16 to 30	0.019			**4.974E-07**	
	B/n Hargrave Street & John Street	28.18	8.59	15	-.25 to 0	0.063	640	210.50	**6.098E-05**	3
					0 to 2	0.052			**5.036E-05**	
					2 to 16	0.020			**1.917E-05**	
					16 to 30	0.020			**1.917E-05**	
John Street	Northbound	28.18	8.59	15	-.25 to 0	0.063	640	198.30	**5.744E-05**	4
					0 to 2	0.052			**4.744E-05**	
					2 to 16	0.020			**1.806E-05**	
					16 to 30	0.020			**1.806E-05**	

On-Site Travel

Roadway	Vol Source Spacing (ft)	Vol Source Spacing (m)	Average Speed (mph)	Age	Emission Factor (g/mi)	Project Truck ADT	Length (m)	Total Line Emission Rate (g/s)	SLINE #
Truck Travel SB, EB	28.18	8.59	5	-.25 to 0	0.098	640	821	**3.694E-04**	6
				0 to 2	0.078			**2.956E-04**	
				2 to 16	0.030			**1.130E-04**	
				16 to 30	0.030			**1.130E-04**	
Truck Travel NB, WB	28.18	8.59	5	-.25 to 0	0.098	346	1096	**2.668E-04**	7
and SB				0 to 2	0.078			**2.135E-04**	
				2 to 16	0.030			**8.159E-05**	
				16 to 30	0.030			**8.159E-05**	
Truck Travel Southern	28.18	8.59	5	-.25 to 0	0.098	294	528	**1.092E-04**	8
Loading Area				0 to 2	0.078			**8.739E-05**	
				2 to 16	0.030			**3.340E-05**	
				16 to 30	0.030			**3.340E-05**	
Truck Travel Northern	28.18	8.59	5	-.25 to 0	0.098	346	536	**1.303E-04**	9
Loading Area				0 to 2	0.078			**1.043E-04**	
				2 to 16	0.030			**3.985E-05**	
				16 to 30	0.030			**3.985E-05**	

Truck Idling (15 min)

Location	Vol Source Spacing (ft)	Vol Source Spacing (m)	Project Trucks	Age	Idling Time (min)	Emission Factor (g/hr)	Loading Areas	Total Line Emission Rate (g/s)	SLINE #
South Loading Area	28.18	8.59	294	-.25 to 0	15	0.211	1	**1.797E-04**	10
				0 to 2		0.194		**1.649E-04**	
				2 to 16		0.126		**1.072E-04**	
				16 to 30		0.126		**1.072E-04**	
North Loading Area	28.18	8.59	269	-.25 to 0	15	0.211	1	**1.644E-04**	11
				0 to 2		0.194		**1.509E-04**	
				2 to 16		0.126		**9.806E-05**	
				16 to 30		0.126		**9.806E-05**	
West Loading Area	28.18	8.59	77	-.25 to 0	15	0.211	1	**4.707E-05**	12
				0 to 2		0.194		**4.320E-05**	
				2 to 16		0.126		**2.807E-05**	
				16 to 30		0.126		**2.807E-05**	

Project trucks are estimated percentages of the total truck trips generated in the Traffic Study per loading area size.

MICR Calculations

Data for 2019 Project Cancer Risk at Sensitive Receptors

Receptor	Age Bin	DPM* Conc (µg/m3)	DBR** (Daily Breathing rate)	Age Specific Factor**	Exposure Duration**	Fraction of Time at Home**	EF** (Exposure Frequency)		CP*** (Cancer Potency Factor)	MICR (Maximum Individual Cancer Risk)	Cancer risk per million
1	-0.25 to 0	0.00719	361	10	0.25	1	0.96	1.00E-06	1.1	9.79E-08	0.1
	0 to 2	0.00595	1090	10	2	1	0.96	1.00E-06	1.1	1.96E-06	2.0
	2 to 16	0.00228	572	3	14	1	0.96	1.00E-06	1.1	8.26E-07	0.8
	16 to 30	0.00228	261	1	14	0.73	0.96	1.00E-06	1.1	9.17E-08	0.1
									Total	***2.97E-06***	***3.0***
2	-0.25 to 0	0.01234	361	10	0.25	1	0.96	1.00E-06	1.1	1.68E-07	0.2
	0 to 2	0.01021	1090	10	2	1	0.96	1.00E-06	1.1	3.36E-06	3.4
	2 to 16	0.00391	572	3	14	1	0.96	1.00E-06	1.1	1.42E-06	1.4
	16 to 30	0.00391	261	1	14	0.73	0.96	1.00E-06	1.1	1.57E-07	0.2
									Total	***5.10E-06***	***5.1***
3	-0.25 to 0	0.01240	361	10	0.25	1	0.96	1.00E-06	1.1	1.69E-07	0.2
	0 to 2	0.01026	1090	10	2	1	0.96	1.00E-06	1.1	3.37E-06	3.4
	2 to 16	0.00393	572	3	14	1	0.96	1.00E-06	1.1	1.42E-06	1.4
	16 to 30	0.00393	261	1	14	0.73	0.96	1.00E-06	1.1	1.58E-07	0.2
									Total	***5.13E-06***	***5.1***
4	-0.25 to 0	0.01776	361	10	0.25	1	0.96	1.00E-06	1.1	2.42E-07	0.2
	0 to 2	0.01468	1090	10	2	1	0.96	1.00E-06	1.1	4.83E-06	4.8
	2 to 16	0.00561	572	3	14	1	0.96	1.00E-06	1.1	2.03E-06	2.0
	16 to 30	0.00561	261	1	14	0.73	0.96	1.00E-06	1.1	2.26E-07	0.2
									Total	***7.33E-06***	***7.3***
5	-0.25 to 0	0.01327	361	10	0.25	1	0.96	1.00E-06	1.1	1.81E-07	0.2
	0 to 2	0.01097	1090	10	2	1	0.96	1.00E-06	1.1	3.61E-06	3.6
	2 to 16	0.00420	572	3	14	1	0.96	1.00E-06	1.1	1.52E-06	1.5
	16 to 30	0.00420	261	1	14	0.73	0.96	1.00E-06	1.1	1.69E-07	0.2
									Total	***5.48E-06***	***5.5***
6	-0.25 to 0	0.02039	361	10	0.25	1	0.96	1.00E-06	1.1	2.78E-07	0.3
	0 to 2	0.01685	1090	10	2	1	0.96	1.00E-06	1.1	5.54E-06	5.5
	2 to 16	0.00644	572	3	14	1	0.96	1.00E-06	1.1	2.33E-06	2.3
	16 to 30	0.00644	261	1	14	0.73	0.96	1.00E-06	1.1	2.59E-07	0.3
									Total	***8.41E-06***	***8.4***
7	-0.25 to 0	0.01132	361	10	0.25	1	0.96	1.00E-06	1.1	1.54E-07	0.2
	0 to 2	0.00936	1090	10	2	1	0.96	1.00E-06	1.1	3.08E-06	3.1
	2 to 16	0.00358	572	3	14	1	0.96	1.00E-06	1.1	1.30E-06	1.3
	16 to 30	0.00358	261	1	14	0.73	0.96	1.00E-06	1.1	1.44E-07	0.1
									Total	***4.67E-06***	***4.7***
8	-0.25 to 0	0.01933	361	10	0.25	1	0.96	1.00E-06	1.1	2.63E-07	0.3
	0 to 2	0.01599	1090	10	2	1	0.96	1.00E-06	1.1	5.26E-06	5.3
	2 to 16	0.00611	572	3	14	1	0.96	1.00E-06	1.1	2.21E-06	2.2
	16 to 30	0.00611	261	1	14	0.73	0.96	1.00E-06	1.1	2.46E-07	0.2
									Total	***7.98E-06***	***8.0***

Data for Cancer Risk at Off-Site Workers in Project Vicinity from Project OnlyTraffic

Receptor	DPM* Conc (µg/m3)	DBR** (Daily Breathing rate)	Exposure Duration**	EF** (Exposure Frequency)		CP*** (Cancer Potency Factor)	MICR (Maximum Individual Cancer Risk)	Cancer risk per million
9	0.00358	230	25	0.68	1.00E-06	1.1	2.20E-07	0.2
10	0.00609	230	25	0.68	1.00E-06	1.1	3.74E-07	0.4
11	0.00047	230	25	0.68	1.00E-06	1.1	2.89E-08	0.0
Max	0.02495	230	25	0.68	1.00E-06	1.1	1.53E-06	1.5

* DPM concentration calculated by AERMOD

** Values from Table 4.0 of 2017 Permit Application Package "N" For Use in Conjunction with SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212 version 8.1

*** CP for DPM value from Table 2.0 of 2017 Permit Application Package "N"

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.5.0
** Lakes Environmental Software Inc.
** Date: 3/19/2018
** File: C:\Users\eliza\Desktop\Banning\Project AB1\Project AB1.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE Banning Distribution Center
   TITLETWO Project Only DPM Concentration (2019) AB1
   MODELOPT DFAULT CONC
   AVERTIME PERIOD
   URBANOPT 2189641 Riverside_County
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "Project AB1.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC Hargrave St b/n I-10 EB ramps and Lincoln Ave
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00006894
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512206.123, 3753726.046, 697.06, 3.49, 4.00
** 512200.964, 3753482.939, 691.08, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0000001     VOLUME   512206.032 3753721.752 696.93
```

```
   LOCATION L0000002     VOLUME   512205.849 3753713.164 696.89
   LOCATION L0000003     VOLUME   512205.667 3753704.576 696.83
   LOCATION L0000004     VOLUME   512205.485 3753695.988 696.54
   LOCATION L0000005     VOLUME   512205.303 3753687.400 696.26
   LOCATION L0000006     VOLUME   512205.120 3753678.812 695.98
   LOCATION L0000007     VOLUME   512204.938 3753670.224 695.73
   LOCATION L0000008     VOLUME   512204.756 3753661.636 695.47
   LOCATION L0000009     VOLUME   512204.574 3753653.048 695.22
   LOCATION L0000010     VOLUME   512204.391 3753644.459 694.96
   LOCATION L0000011     VOLUME   512204.209 3753635.871 694.67
   LOCATION L0000012     VOLUME   512204.027 3753627.283 694.39
   LOCATION L0000013     VOLUME   512203.845 3753618.695 694.10
   LOCATION L0000014     VOLUME   512203.662 3753610.107 693.81
   LOCATION L0000015     VOLUME   512203.480 3753601.519 693.53
   LOCATION L0000016     VOLUME   512203.298 3753592.931 693.24
   LOCATION L0000017     VOLUME   512203.116 3753584.343 693.00
   LOCATION L0000018     VOLUME   512202.933 3753575.755 692.98
   LOCATION L0000019     VOLUME   512202.751 3753567.167 692.98
   LOCATION L0000020     VOLUME   512202.569 3753558.579 692.97
   LOCATION L0000021     VOLUME   512202.387 3753549.991 692.79
   LOCATION L0000022     VOLUME   512202.205 3753541.403 692.51
   LOCATION L0000023     VOLUME   512202.022 3753532.815 692.23
   LOCATION L0000024     VOLUME   512201.840 3753524.227 691.95
   LOCATION L0000025     VOLUME   512201.658 3753515.638 691.66
   LOCATION L0000026     VOLUME   512201.476 3753507.050 691.38
   LOCATION L0000027     VOLUME   512201.293 3753498.462 691.10
   LOCATION L0000028     VOLUME   512201.111 3753489.874 691.01
** End of LINE VOLUME Source ID = SLINE1
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC Lincoln Ave west of Hargrave St
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 1.617E-06
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512195.236, 3753483.334, 691.13, 3.49, 4.00
** 511920.568, 3753483.331, 696.21, 3.49, 4.00
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   LOCATION L0000057     VOLUME   512190.941 3753483.334 691.21
   LOCATION L0000058     VOLUME   512182.351 3753483.334 691.38
   LOCATION L0000059     VOLUME   512173.761 3753483.334 691.54
   LOCATION L0000060     VOLUME   512165.171 3753483.334 691.68
   LOCATION L0000061     VOLUME   512156.581 3753483.334 691.79
   LOCATION L0000062     VOLUME   512147.991 3753483.334 691.91
   LOCATION L0000063     VOLUME   512139.401 3753483.333 692.04
   LOCATION L0000064     VOLUME   512130.811 3753483.333 692.21
   LOCATION L0000065     VOLUME   512122.221 3753483.333 692.38
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   LOCATION L0000066     VOLUME   512113.631 3753483.333 692.55
   LOCATION L0000067     VOLUME   512105.041 3753483.333 692.80
   LOCATION L0000068     VOLUME   512096.451 3753483.333 693.09
   LOCATION L0000069     VOLUME   512087.861 3753483.333 693.38
   LOCATION L0000070     VOLUME   512079.271 3753483.333 693.59
   LOCATION L0000071     VOLUME   512070.681 3753483.333 693.59
   LOCATION L0000072     VOLUME   512062.091 3753483.333 693.59
   LOCATION L0000073     VOLUME   512053.501 3753483.332 693.59
   LOCATION L0000074     VOLUME   512044.911 3753483.332 693.68
   LOCATION L0000075     VOLUME   512036.321 3753483.332 693.80
   LOCATION L0000076     VOLUME   512027.731 3753483.332 693.92
   LOCATION L0000077     VOLUME   512019.141 3753483.332 694.05
   LOCATION L0000078     VOLUME   512010.551 3753483.332 694.22
   LOCATION L0000079     VOLUME   512001.961 3753483.332 694.38
   LOCATION L0000080     VOLUME   511993.371 3753483.332 694.55
   LOCATION L0000081     VOLUME   511984.781 3753483.332 694.81
   LOCATION L0000082     VOLUME   511976.191 3753483.332 695.10
   LOCATION L0000083     VOLUME   511967.601 3753483.332 695.39
   LOCATION L0000084     VOLUME   511959.011 3753483.331 695.62
   LOCATION L0000085     VOLUME   511950.421 3753483.331 695.74
   LOCATION L0000086     VOLUME   511941.831 3753483.331 695.86
   LOCATION L0000087     VOLUME   511933.241 3753483.331 695.98
   LOCATION L0000088     VOLUME   511924.651 3753483.331 696.14
** End of LINE VOLUME Source ID = SLINE2
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC Lincoln Ave b/n Hargrave St and John St
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00006098
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512204.907, 3753483.413, 691.07, 3.49, 4.00
** 512415.418, 3753485.606, 687.70, 3.49, 4.00
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   LOCATION L0000089     VOLUME   512209.202 3753483.458 690.90
   LOCATION L0000090     VOLUME   512217.791 3753483.547 690.78
   LOCATION L0000091     VOLUME   512226.381 3753483.637 690.67
   LOCATION L0000092     VOLUME   512234.971 3753483.726 690.53
   LOCATION L0000093     VOLUME   512243.560 3753483.816 690.36
   LOCATION L0000094     VOLUME   512252.150 3753483.905 690.19
   LOCATION L0000095     VOLUME   512260.739 3753483.995 690.02
   LOCATION L0000096     VOLUME   512269.329 3753484.084 689.90
   LOCATION L0000097     VOLUME   512277.918 3753484.174 689.79
   LOCATION L0000098     VOLUME   512286.508 3753484.263 689.68
   LOCATION L0000099     VOLUME   512295.097 3753484.353 689.50
   LOCATION L0000100     VOLUME   512303.687 3753484.442 689.22
   LOCATION L0000101     VOLUME   512312.276 3753484.532 688.94
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   LOCATION L0000102     VOLUME   512320.866 3753484.621 688.65
   LOCATION L0000103     VOLUME   512329.455 3753484.711 688.63
   LOCATION L0000104     VOLUME   512338.045 3753484.800 688.64
   LOCATION L0000105     VOLUME   512346.634 3753484.889 688.64
   LOCATION L0000106     VOLUME   512355.224 3753484.979 688.52
   LOCATION L0000107     VOLUME   512363.814 3753485.068 688.24
   LOCATION L0000108     VOLUME   512372.403 3753485.158 687.95
   LOCATION L0000109     VOLUME   512380.993 3753485.247 687.67
   LOCATION L0000110     VOLUME   512389.582 3753485.337 687.65
   LOCATION L0000111     VOLUME   512398.172 3753485.426 687.66
   LOCATION L0000112     VOLUME   512406.761 3753485.516 687.66
   LOCATION L0000113     VOLUME   512415.351 3753485.605 687.54
** End of LINE VOLUME Source ID = SLINE3
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC John St Northbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00005744
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 512415.418, 3753493.281, 687.93, 3.49, 4.00
** 512415.966, 3753572.771, 690.07, 3.49, 4.00
** 512438.991, 3753614.434, 690.99, 3.49, 4.00
** 512480.654, 3753644.585, 691.75, 3.49, 4.00
** 512499.293, 3753651.164, 691.01, 3.49, 4.00
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   LOCATION L0000114     VOLUME   512415.448 3753497.576 687.88
   LOCATION L0000115     VOLUME   512415.507 3753506.166 687.91
   LOCATION L0000116     VOLUME   512415.566 3753514.755 687.95
   LOCATION L0000117     VOLUME   512415.625 3753523.345 687.99
   LOCATION L0000118     VOLUME   512415.685 3753531.935 688.39
   LOCATION L0000119     VOLUME   512415.744 3753540.525 688.92
   LOCATION L0000120     VOLUME   512415.803 3753549.115 689.45
   LOCATION L0000121     VOLUME   512415.862 3753557.704 689.87
   LOCATION L0000122     VOLUME   512415.921 3753566.294 689.91
   LOCATION L0000123     VOLUME   512416.988 3753574.620 689.93
   LOCATION L0000124     VOLUME   512421.143 3753582.139 689.96
   LOCATION L0000125     VOLUME   512425.298 3753589.657 690.13
   LOCATION L0000126     VOLUME   512429.453 3753597.175 690.38
   LOCATION L0000127     VOLUME   512433.608 3753604.694 690.63
   LOCATION L0000128     VOLUME   512437.763 3753612.212 690.88
   LOCATION L0000129     VOLUME   512443.893 3753617.982 691.08
   LOCATION L0000130     VOLUME   512450.852 3753623.018 691.24
   LOCATION L0000131     VOLUME   512457.811 3753628.054 691.41
   LOCATION L0000132     VOLUME   512464.769 3753633.090 691.58
   LOCATION L0000133     VOLUME   512471.728 3753638.126 691.74
   LOCATION L0000134     VOLUME   512478.687 3753643.162 691.68
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   LOCATION L0000135     VOLUME   512486.465 3753646.636 691.55
   LOCATION L0000136     VOLUME   512494.565 3753649.495 691.46
** End of LINE VOLUME Source ID = SLINE4
** ----------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE5
** DESCRSRC John Street Eastbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0002993
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 512502.387, 3753650.444, 691.00, 3.49, 4.00
** 512832.772, 3753685.859, 685.86, 3.49, 4.00
** 513071.595, 3753725.931, 681.06, 3.49, 4.00
** 513203.169, 3753751.730, 679.50, 3.49, 4.00
** 513980.318, 3753976.710, 664.82, 3.49, 4.00
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   LOCATION L0000137     VOLUME   512506.658 3753650.902 691.32
   LOCATION L0000138     VOLUME   512515.199 3753651.818 691.31
   LOCATION L0000139     VOLUME   512523.740 3753652.733 691.30
   LOCATION L0000140     VOLUME   512532.281 3753653.649 691.24
   LOCATION L0000141     VOLUME   512540.822 3753654.564 690.99
   LOCATION L0000142     VOLUME   512549.363 3753655.480 690.73
   LOCATION L0000143     VOLUME   512557.904 3753656.395 690.48
   LOCATION L0000144     VOLUME   512566.445 3753657.311 690.22
   LOCATION L0000145     VOLUME   512574.986 3753658.226 689.97
   LOCATION L0000146     VOLUME   512583.528 3753659.142 689.72
   LOCATION L0000147     VOLUME   512592.069 3753660.057 689.48
   LOCATION L0000148     VOLUME   512600.610 3753660.973 689.51
   LOCATION L0000149     VOLUME   512609.151 3753661.889 689.54
   LOCATION L0000150     VOLUME   512617.692 3753662.804 689.57
   LOCATION L0000151     VOLUME   512626.233 3753663.720 689.44
   LOCATION L0000152     VOLUME   512634.774 3753664.635 689.19
   LOCATION L0000153     VOLUME   512643.315 3753665.551 688.94
   LOCATION L0000154     VOLUME   512651.856 3753666.466 688.68
   LOCATION L0000155     VOLUME   512660.397 3753667.382 688.43
   LOCATION L0000156     VOLUME   512668.938 3753668.297 688.17
   LOCATION L0000157     VOLUME   512677.479 3753669.213 687.92
   LOCATION L0000158     VOLUME   512686.020 3753670.128 687.81
   LOCATION L0000159     VOLUME   512694.561 3753671.044 687.84
   LOCATION L0000160     VOLUME   512703.102 3753671.960 687.87
   LOCATION L0000161     VOLUME   512711.644 3753672.875 687.90
   LOCATION L0000162     VOLUME   512720.185 3753673.791 687.65
   LOCATION L0000163     VOLUME   512728.726 3753674.706 687.39
   LOCATION L0000164     VOLUME   512737.267 3753675.622 687.14
   LOCATION L0000165     VOLUME   512745.808 3753676.537 687.02
   LOCATION L0000166     VOLUME   512754.349 3753677.453 687.03
   LOCATION L0000167     VOLUME   512762.890 3753678.368 687.03
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LOCATION L0000168     VOLUME   512771.431 3753679.284 687.00
LOCATION L0000169     VOLUME   512779.972 3753680.199 686.76
LOCATION L0000170     VOLUME   512788.513 3753681.115 686.54
LOCATION L0000171     VOLUME   512797.054 3753682.031 686.33
LOCATION L0000172     VOLUME   512805.595 3753682.946 686.21
LOCATION L0000173     VOLUME   512814.136 3753683.862 686.16
LOCATION L0000174     VOLUME   512822.677 3753684.777 686.09
LOCATION L0000175     VOLUME   512831.219 3753685.693 686.00
LOCATION L0000176     VOLUME   512839.703 3753687.022 685.83
LOCATION L0000177     VOLUME   512848.174 3753688.444 685.68
LOCATION L0000178     VOLUME   512856.646 3753689.865 685.56
LOCATION L0000179     VOLUME   512865.117 3753691.286 685.40
LOCATION L0000180     VOLUME   512873.589 3753692.708 685.17
LOCATION L0000181     VOLUME   512882.061 3753694.129 684.93
LOCATION L0000182     VOLUME   512890.532 3753695.551 684.70
LOCATION L0000183     VOLUME   512899.004 3753696.972 684.53
LOCATION L0000184     VOLUME   512907.475 3753698.394 684.35
LOCATION L0000185     VOLUME   512915.947 3753699.815 684.15
LOCATION L0000186     VOLUME   512924.419 3753701.237 683.99
LOCATION L0000187     VOLUME   512932.890 3753702.658 683.96
LOCATION L0000188     VOLUME   512941.362 3753704.079 683.96
LOCATION L0000189     VOLUME   512949.833 3753705.501 683.99
LOCATION L0000190     VOLUME   512958.305 3753706.922 683.77
LOCATION L0000191     VOLUME   512966.776 3753708.344 683.49
LOCATION L0000192     VOLUME   512975.248 3753709.765 683.21
LOCATION L0000193     VOLUME   512983.720 3753711.187 682.93
LOCATION L0000194     VOLUME   512992.191 3753712.608 682.65
LOCATION L0000195     VOLUME   513000.663 3753714.030 682.36
LOCATION L0000196     VOLUME   513009.134 3753715.451 682.08
LOCATION L0000197     VOLUME   513017.606 3753716.872 681.87
LOCATION L0000198     VOLUME   513026.077 3753718.294 681.72
LOCATION L0000199     VOLUME   513034.549 3753719.715 681.59
LOCATION L0000200     VOLUME   513043.021 3753721.137 681.49
LOCATION L0000201     VOLUME   513051.492 3753722.558 681.38
LOCATION L0000202     VOLUME   513059.964 3753723.980 681.24
LOCATION L0000203     VOLUME   513068.435 3753725.401 681.07
LOCATION L0000204     VOLUME   513076.880 3753726.968 680.95
LOCATION L0000205     VOLUME   513085.310 3753728.620 680.89
LOCATION L0000206     VOLUME   513093.739 3753730.273 680.87
LOCATION L0000207     VOLUME   513102.169 3753731.926 680.86
LOCATION L0000208     VOLUME   513110.598 3753733.579 680.65
LOCATION L0000209     VOLUME   513119.028 3753735.232 680.41
LOCATION L0000210     VOLUME   513127.457 3753736.885 680.21
LOCATION L0000211     VOLUME   513135.887 3753738.537 680.18
LOCATION L0000212     VOLUME   513144.316 3753740.190 680.24
LOCATION L0000213     VOLUME   513152.746 3753741.843 680.26
LOCATION L0000214     VOLUME   513161.175 3753743.496 680.26
LOCATION L0000215     VOLUME   513169.605 3753745.149 680.05
LOCATION L0000216     VOLUME   513178.034 3753746.802 679.82
LOCATION L0000217     VOLUME   513186.464 3753748.455 679.59
LOCATION L0000218     VOLUME   513194.893 3753750.107 679.37
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LOCATION L0000219     VOLUME   513203.320 3753751.774 679.14
LOCATION L0000220     VOLUME   513211.571 3753754.162 678.95
LOCATION L0000221     VOLUME   513219.822 3753756.551 678.75
LOCATION L0000222     VOLUME   513228.073 3753758.940 678.61
LOCATION L0000223     VOLUME   513236.324 3753761.328 678.43
LOCATION L0000224     VOLUME   513244.576 3753763.717 678.22
LOCATION L0000225     VOLUME   513252.827 3753766.106 678.01
LOCATION L0000226     VOLUME   513261.078 3753768.494 678.06
LOCATION L0000227     VOLUME   513269.329 3753770.883 678.07
LOCATION L0000228     VOLUME   513277.580 3753773.272 678.03
LOCATION L0000229     VOLUME   513285.832 3753775.660 677.90
LOCATION L0000230     VOLUME   513294.083 3753778.049 677.75
LOCATION L0000231     VOLUME   513302.334 3753780.438 677.65
LOCATION L0000232     VOLUME   513310.585 3753782.826 677.58
LOCATION L0000233     VOLUME   513318.836 3753785.215 677.41
LOCATION L0000234     VOLUME   513327.088 3753787.604 677.21
LOCATION L0000235     VOLUME   513335.339 3753789.993 677.02
LOCATION L0000236     VOLUME   513343.590 3753792.381 676.83
LOCATION L0000237     VOLUME   513351.841 3753794.770 676.64
LOCATION L0000238     VOLUME   513360.092 3753797.159 676.43
LOCATION L0000239     VOLUME   513368.344 3753799.547 676.23
LOCATION L0000240     VOLUME   513376.595 3753801.936 676.17
LOCATION L0000241     VOLUME   513384.846 3753804.325 676.16
LOCATION L0000242     VOLUME   513393.097 3753806.713 676.10
LOCATION L0000243     VOLUME   513401.348 3753809.102 676.00
LOCATION L0000244     VOLUME   513409.600 3753811.491 675.87
LOCATION L0000245     VOLUME   513417.851 3753813.879 675.79
LOCATION L0000246     VOLUME   513426.102 3753816.268 675.74
LOCATION L0000247     VOLUME   513434.353 3753818.657 675.67
LOCATION L0000248     VOLUME   513442.604 3753821.045 675.48
LOCATION L0000249     VOLUME   513450.856 3753823.434 675.28
LOCATION L0000250     VOLUME   513459.107 3753825.823 675.08
LOCATION L0000251     VOLUME   513467.358 3753828.211 674.82
LOCATION L0000252     VOLUME   513475.609 3753830.600 674.61
LOCATION L0000253     VOLUME   513483.860 3753832.989 674.44
LOCATION L0000254     VOLUME   513492.112 3753835.377 674.30
LOCATION L0000255     VOLUME   513500.363 3753837.766 674.11
LOCATION L0000256     VOLUME   513508.614 3753840.155 673.91
LOCATION L0000257     VOLUME   513516.865 3753842.543 673.72
LOCATION L0000258     VOLUME   513525.116 3753844.932 673.56
LOCATION L0000259     VOLUME   513533.368 3753847.321 673.44
LOCATION L0000260     VOLUME   513541.619 3753849.709 673.26
LOCATION L0000261     VOLUME   513549.870 3753852.098 673.05
LOCATION L0000262     VOLUME   513558.121 3753854.487 672.78
LOCATION L0000263     VOLUME   513566.372 3753856.876 672.54
LOCATION L0000264     VOLUME   513574.624 3753859.264 672.35
LOCATION L0000265     VOLUME   513582.875 3753861.653 672.19
LOCATION L0000266     VOLUME   513591.126 3753864.042 672.19
LOCATION L0000267     VOLUME   513599.377 3753866.430 672.14
LOCATION L0000268     VOLUME   513607.628 3753868.819 672.06
LOCATION L0000269     VOLUME   513615.880 3753871.208 671.93
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   LOCATION L0000270     VOLUME   513624.131 3753873.596 671.83
   LOCATION L0000271     VOLUME   513632.382 3753875.985 671.77
   LOCATION L0000272     VOLUME   513640.633 3753878.374 671.76
   LOCATION L0000273     VOLUME   513648.884 3753880.762 671.59
   LOCATION L0000274     VOLUME   513657.136 3753883.151 671.39
   LOCATION L0000275     VOLUME   513665.387 3753885.540 671.20
   LOCATION L0000276     VOLUME   513673.638 3753887.928 671.00
   LOCATION L0000277     VOLUME   513681.889 3753890.317 670.81
   LOCATION L0000278     VOLUME   513690.140 3753892.706 670.61
   LOCATION L0000279     VOLUME   513698.392 3753895.094 670.42
   LOCATION L0000280     VOLUME   513706.643 3753897.483 670.33
   LOCATION L0000281     VOLUME   513714.894 3753899.872 670.26
   LOCATION L0000282     VOLUME   513723.145 3753902.260 670.15
   LOCATION L0000283     VOLUME   513731.396 3753904.649 670.00
   LOCATION L0000284     VOLUME   513739.648 3753907.038 669.92
   LOCATION L0000285     VOLUME   513747.899 3753909.426 669.89
   LOCATION L0000286     VOLUME   513756.150 3753911.815 669.89
   LOCATION L0000287     VOLUME   513764.401 3753914.204 669.85
   LOCATION L0000288     VOLUME   513772.652 3753916.592 669.64
   LOCATION L0000289     VOLUME   513780.904 3753918.981 669.42
   LOCATION L0000290     VOLUME   513789.155 3753921.370 669.25
   LOCATION L0000291     VOLUME   513797.406 3753923.759 669.02
   LOCATION L0000292     VOLUME   513805.657 3753926.147 668.71
   LOCATION L0000293     VOLUME   513813.908 3753928.536 668.36
   LOCATION L0000294     VOLUME   513822.160 3753930.925 667.99
   LOCATION L0000295     VOLUME   513830.411 3753933.313 667.88
   LOCATION L0000296     VOLUME   513838.662 3753935.702 667.81
   LOCATION L0000297     VOLUME   513846.913 3753938.091 667.79
   LOCATION L0000298     VOLUME   513855.164 3753940.479 667.70
   LOCATION L0000299     VOLUME   513863.416 3753942.868 667.51
   LOCATION L0000300     VOLUME   513871.667 3753945.257 667.31
   LOCATION L0000301     VOLUME   513879.918 3753947.645 667.05
   LOCATION L0000302     VOLUME   513888.169 3753950.034 666.78
   LOCATION L0000303     VOLUME   513896.420 3753952.423 666.50
   LOCATION L0000304     VOLUME   513904.672 3753954.811 666.23
   LOCATION L0000305     VOLUME   513912.923 3753957.200 665.97
   LOCATION L0000306     VOLUME   513921.174 3753959.589 665.83
   LOCATION L0000307     VOLUME   513929.425 3753961.977 665.73
   LOCATION L0000308     VOLUME   513937.676 3753964.366 665.67
   LOCATION L0000309     VOLUME   513945.928 3753966.755 665.56
   LOCATION L0000310     VOLUME   513954.179 3753969.143 665.36
   LOCATION L0000311     VOLUME   513962.430 3753971.532 665.16
   LOCATION L0000312     VOLUME   513970.681 3753973.921 664.97
   LOCATION L0000313     VOLUME   513978.932 3753976.309 664.77
** End of LINE VOLUME Source ID = SLINE5
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE6
** DESCRSRC On-site Truck Travel SB and EB
** PREFIX
** Length of Side = 8.59
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** Configuration = Adjacent
** Emission Rate = 0.0003694
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 513987.147, 3753971.399, 664.44, 3.49, 4.00
** 513989.423, 3753765.009, 659.31, 3.49, 4.00
** 514009.910, 3753748.316, 657.84, 3.49, 4.00
** 514597.970, 3753743.004, 640.06, 3.49, 4.00
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   LOCATION L0000314     VOLUME   513987.194 3753967.104 664.19
   LOCATION L0000315     VOLUME   513987.289 3753958.515 663.90
   LOCATION L0000316     VOLUME   513987.384 3753949.925 663.61
   LOCATION L0000317     VOLUME   513987.478 3753941.336 663.32
   LOCATION L0000318     VOLUME   513987.573 3753932.746 663.03
   LOCATION L0000319     VOLUME   513987.668 3753924.157 662.74
   LOCATION L0000320     VOLUME   513987.763 3753915.567 662.45
   LOCATION L0000321     VOLUME   513987.857 3753906.978 662.17
   LOCATION L0000322     VOLUME   513987.952 3753898.388 661.88
   LOCATION L0000323     VOLUME   513988.047 3753889.799 661.59
   LOCATION L0000324     VOLUME   513988.142 3753881.209 661.36
   LOCATION L0000325     VOLUME   513988.236 3753872.620 661.20
   LOCATION L0000326     VOLUME   513988.331 3753864.030 661.04
   LOCATION L0000327     VOLUME   513988.426 3753855.441 660.87
   LOCATION L0000328     VOLUME   513988.521 3753846.852 660.74
   LOCATION L0000329     VOLUME   513988.615 3753838.262 660.61
   LOCATION L0000330     VOLUME   513988.710 3753829.673 660.48
   LOCATION L0000331     VOLUME   513988.805 3753821.083 660.27
   LOCATION L0000332     VOLUME   513988.899 3753812.494 659.98
   LOCATION L0000333     VOLUME   513988.994 3753803.904 659.69
   LOCATION L0000334     VOLUME   513989.089 3753795.315 659.41
   LOCATION L0000335     VOLUME   513989.184 3753786.725 659.41
   LOCATION L0000336     VOLUME   513989.278 3753778.136 659.41
   LOCATION L0000337     VOLUME   513989.373 3753769.546 659.41
   LOCATION L0000338     VOLUME   513992.565 3753762.449 659.19
   LOCATION L0000339     VOLUME   513999.224 3753757.023 658.79
   LOCATION L0000340     VOLUME   514005.883 3753751.597 658.39
   LOCATION L0000341     VOLUME   514013.305 3753748.285 658.03
   LOCATION L0000342     VOLUME   514021.895 3753748.207 657.74
   LOCATION L0000343     VOLUME   514030.485 3753748.130 657.45
   LOCATION L0000344     VOLUME   514039.074 3753748.052 657.16
   LOCATION L0000345     VOLUME   514047.664 3753747.975 656.87
   LOCATION L0000346     VOLUME   514056.254 3753747.897 656.58
   LOCATION L0000347     VOLUME   514064.843 3753747.819 656.29
   LOCATION L0000348     VOLUME   514073.433 3753747.742 656.00
   LOCATION L0000349     VOLUME   514082.023 3753747.664 655.72
   LOCATION L0000350     VOLUME   514090.612 3753747.587 655.43
   LOCATION L0000351     VOLUME   514099.202 3753747.509 655.14
   LOCATION L0000352     VOLUME   514107.792 3753747.431 654.85
   LOCATION L0000353     VOLUME   514116.381 3753747.354 654.56
   LOCATION L0000354     VOLUME   514124.971 3753747.276 654.34
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LOCATION L0000355     VOLUME   514133.561 3753747.199 654.23
LOCATION L0000356     VOLUME   514142.150 3753747.121 654.12
LOCATION L0000357     VOLUME   514150.740 3753747.044 654.01
LOCATION L0000358     VOLUME   514159.330 3753746.966 653.58
LOCATION L0000359     VOLUME   514167.919 3753746.888 653.11
LOCATION L0000360     VOLUME   514176.509 3753746.811 652.64
LOCATION L0000361     VOLUME   514185.098 3753746.733 652.32
LOCATION L0000362     VOLUME   514193.688 3753746.656 652.22
LOCATION L0000363     VOLUME   514202.278 3753746.578 652.11
LOCATION L0000364     VOLUME   514210.867 3753746.500 652.01
LOCATION L0000365     VOLUME   514219.457 3753746.423 651.57
LOCATION L0000366     VOLUME   514228.047 3753746.345 651.09
LOCATION L0000367     VOLUME   514236.636 3753746.268 650.62
LOCATION L0000368     VOLUME   514245.226 3753746.190 650.23
LOCATION L0000369     VOLUME   514253.816 3753746.113 649.94
LOCATION L0000370     VOLUME   514262.405 3753746.035 649.65
LOCATION L0000371     VOLUME   514270.995 3753745.957 649.36
LOCATION L0000372     VOLUME   514279.585 3753745.880 649.07
LOCATION L0000373     VOLUME   514288.174 3753745.802 648.78
LOCATION L0000374     VOLUME   514296.764 3753745.725 648.49
LOCATION L0000375     VOLUME   514305.354 3753745.647 648.20
LOCATION L0000376     VOLUME   514313.943 3753745.569 647.92
LOCATION L0000377     VOLUME   514322.533 3753745.492 647.63
LOCATION L0000378     VOLUME   514331.123 3753745.414 647.34
LOCATION L0000379     VOLUME   514339.712 3753745.337 647.05
LOCATION L0000380     VOLUME   514348.302 3753745.259 646.76
LOCATION L0000381     VOLUME   514356.891 3753745.182 646.47
LOCATION L0000382     VOLUME   514365.481 3753745.104 646.18
LOCATION L0000383     VOLUME   514374.071 3753745.026 645.89
LOCATION L0000384     VOLUME   514382.660 3753744.949 645.60
LOCATION L0000385     VOLUME   514391.250 3753744.871 645.32
LOCATION L0000386     VOLUME   514399.840 3753744.794 645.30
LOCATION L0000387     VOLUME   514408.429 3753744.716 645.30
LOCATION L0000388     VOLUME   514417.019 3753744.638 645.30
LOCATION L0000389     VOLUME   514425.609 3753744.561 645.16
LOCATION L0000390     VOLUME   514434.198 3753744.483 644.87
LOCATION L0000391     VOLUME   514442.788 3753744.406 644.58
LOCATION L0000392     VOLUME   514451.378 3753744.328 644.29
LOCATION L0000393     VOLUME   514459.967 3753744.251 644.00
LOCATION L0000394     VOLUME   514468.557 3753744.173 643.72
LOCATION L0000395     VOLUME   514477.147 3753744.095 643.43
LOCATION L0000396     VOLUME   514485.736 3753744.018 643.14
LOCATION L0000397     VOLUME   514494.326 3753743.940 642.85
LOCATION L0000398     VOLUME   514502.916 3753743.863 642.56
LOCATION L0000399     VOLUME   514511.505 3753743.785 642.27
LOCATION L0000400     VOLUME   514520.095 3753743.707 642.19
LOCATION L0000401     VOLUME   514528.684 3753743.630 642.11
LOCATION L0000402     VOLUME   514537.274 3753743.552 642.04
LOCATION L0000403     VOLUME   514545.864 3753743.475 641.89
LOCATION L0000404     VOLUME   514554.453 3753743.397 641.68
LOCATION L0000405     VOLUME   514563.043 3753743.320 641.47
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   LOCATION L0000406     VOLUME   514571.633 3753743.242 641.25
   LOCATION L0000407     VOLUME   514580.222 3753743.164 640.96
   LOCATION L0000408     VOLUME   514588.812 3753743.087 640.67
   LOCATION L0000409     VOLUME   514597.402 3753743.009 640.38
** End of LINE VOLUME Source ID = SLINE6
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE7
** DESCRSRC On-site Truck Travel NB, WB, and SB
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0002668
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 514606.317, 3753747.557, 640.08, 3.49, 4.00
** 514602.523, 3754035.137, 649.00, 3.49, 4.00
** 514208.713, 3754029.067, 659.89, 3.49, 4.00
** 514012.946, 3753980.504, 663.69, 3.49, 4.00
** 514011.428, 3753767.285, 658.77, 3.49, 4.00
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   LOCATION L0000599     VOLUME   514606.260 3753751.851 640.45
   LOCATION L0000600     VOLUME   514606.147 3753760.441 640.70
   LOCATION L0000601     VOLUME   514606.034 3753769.030 640.96
   LOCATION L0000602     VOLUME   514605.921 3753777.619 641.25
   LOCATION L0000603     VOLUME   514605.807 3753786.208 641.54
   LOCATION L0000604     VOLUME   514605.694 3753794.798 641.83
   LOCATION L0000605     VOLUME   514605.581 3753803.387 642.12
   LOCATION L0000606     VOLUME   514605.467 3753811.976 642.41
   LOCATION L0000607     VOLUME   514605.354 3753820.565 642.70
   LOCATION L0000608     VOLUME   514605.241 3753829.155 642.99
   LOCATION L0000609     VOLUME   514605.127 3753837.744 643.28
   LOCATION L0000610     VOLUME   514605.014 3753846.333 643.57
   LOCATION L0000611     VOLUME   514604.901 3753854.922 643.86
   LOCATION L0000612     VOLUME   514604.787 3753863.512 643.92
   LOCATION L0000613     VOLUME   514604.674 3753872.101 643.95
   LOCATION L0000614     VOLUME   514604.561 3753880.690 643.98
   LOCATION L0000615     VOLUME   514604.447 3753889.279 644.11
   LOCATION L0000616     VOLUME   514604.334 3753897.869 644.37
   LOCATION L0000617     VOLUME   514604.221 3753906.458 644.63
   LOCATION L0000618     VOLUME   514604.107 3753915.047 644.89
   LOCATION L0000619     VOLUME   514603.994 3753923.636 645.18
   LOCATION L0000620     VOLUME   514603.881 3753932.226 645.47
   LOCATION L0000621     VOLUME   514603.768 3753940.815 645.76
   LOCATION L0000622     VOLUME   514603.654 3753949.404 646.05
   LOCATION L0000623     VOLUME   514603.541 3753957.993 646.34
   LOCATION L0000624     VOLUME   514603.428 3753966.583 646.63
   LOCATION L0000625     VOLUME   514603.314 3753975.172 646.92
   LOCATION L0000626     VOLUME   514603.201 3753983.761 647.21
   LOCATION L0000627     VOLUME   514603.088 3753992.350 647.50
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LOCATION L0000628     VOLUME   514602.974 3754000.940 647.79
LOCATION L0000629     VOLUME   514602.861 3754009.529 648.08
LOCATION L0000630     VOLUME   514602.748 3754018.118 648.37
LOCATION L0000631     VOLUME   514602.634 3754026.707 648.66
LOCATION L0000632     VOLUME   514602.364 3754035.135 648.95
LOCATION L0000633     VOLUME   514593.775 3754035.002 649.24
LOCATION L0000634     VOLUME   514585.186 3754034.870 649.52
LOCATION L0000635     VOLUME   514576.597 3754034.737 649.80
LOCATION L0000636     VOLUME   514568.008 3754034.605 650.08
LOCATION L0000637     VOLUME   514559.419 3754034.473 650.36
LOCATION L0000638     VOLUME   514550.830 3754034.340 650.64
LOCATION L0000639     VOLUME   514542.241 3754034.208 650.93
LOCATION L0000640     VOLUME   514533.652 3754034.075 651.19
LOCATION L0000641     VOLUME   514525.063 3754033.943 651.46
LOCATION L0000642     VOLUME   514516.474 3754033.811 651.72
LOCATION L0000643     VOLUME   514507.885 3754033.678 651.99
LOCATION L0000644     VOLUME   514499.296 3754033.546 652.29
LOCATION L0000645     VOLUME   514490.707 3754033.414 652.59
LOCATION L0000646     VOLUME   514482.118 3754033.281 652.90
LOCATION L0000647     VOLUME   514473.529 3754033.149 653.16
LOCATION L0000648     VOLUME   514464.940 3754033.016 653.41
LOCATION L0000649     VOLUME   514456.351 3754032.884 653.67
LOCATION L0000650     VOLUME   514447.762 3754032.752 653.82
LOCATION L0000651     VOLUME   514439.173 3754032.619 653.84
LOCATION L0000652     VOLUME   514430.584 3754032.487 653.86
LOCATION L0000653     VOLUME   514421.995 3754032.354 653.89
LOCATION L0000654     VOLUME   514413.406 3754032.222 654.15
LOCATION L0000655     VOLUME   514404.817 3754032.090 654.44
LOCATION L0000656     VOLUME   514396.228 3754031.957 654.72
LOCATION L0000657     VOLUME   514387.639 3754031.825 655.00
LOCATION L0000658     VOLUME   514379.050 3754031.692 655.28
LOCATION L0000659     VOLUME   514370.461 3754031.560 655.56
LOCATION L0000660     VOLUME   514361.872 3754031.428 655.85
LOCATION L0000661     VOLUME   514353.283 3754031.295 656.13
LOCATION L0000662     VOLUME   514344.694 3754031.163 656.41
LOCATION L0000663     VOLUME   514336.105 3754031.030 656.69
LOCATION L0000664     VOLUME   514327.516 3754030.898 656.97
LOCATION L0000665     VOLUME   514318.927 3754030.766 657.26
LOCATION L0000666     VOLUME   514310.338 3754030.633 657.54
LOCATION L0000667     VOLUME   514301.749 3754030.501 657.82
LOCATION L0000668     VOLUME   514293.160 3754030.368 658.10
LOCATION L0000669     VOLUME   514284.571 3754030.236 658.38
LOCATION L0000670     VOLUME   514275.982 3754030.104 658.66
LOCATION L0000671     VOLUME   514267.393 3754029.971 658.81
LOCATION L0000672     VOLUME   514258.804 3754029.839 658.80
LOCATION L0000673     VOLUME   514250.215 3754029.707 658.80
LOCATION L0000674     VOLUME   514241.626 3754029.574 658.80
LOCATION L0000675     VOLUME   514233.037 3754029.442 659.07
LOCATION L0000676     VOLUME   514224.448 3754029.309 659.36
LOCATION L0000677     VOLUME   514215.859 3754029.177 659.64
LOCATION L0000678     VOLUME   514207.313 3754028.720 659.80
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   LOCATION L0000679     VOLUME   514198.975 3754026.651 659.82
   LOCATION L0000680     VOLUME   514190.638 3754024.583 659.89
   LOCATION L0000681     VOLUME   514182.301 3754022.515 659.99
   LOCATION L0000682     VOLUME   514173.964 3754020.447 660.12
   LOCATION L0000683     VOLUME   514165.626 3754018.379 660.22
   LOCATION L0000684     VOLUME   514157.289 3754016.311 660.29
   LOCATION L0000685     VOLUME   514148.952 3754014.242 660.37
   LOCATION L0000686     VOLUME   514140.614 3754012.174 660.58
   LOCATION L0000687     VOLUME   514132.277 3754010.106 660.79
   LOCATION L0000688     VOLUME   514123.940 3754008.038 661.00
   LOCATION L0000689     VOLUME   514115.602 3754005.970 661.21
   LOCATION L0000690     VOLUME   514107.265 3754003.901 661.42
   LOCATION L0000691     VOLUME   514098.928 3754001.833 661.62
   LOCATION L0000692     VOLUME   514090.590 3753999.765 661.83
   LOCATION L0000693     VOLUME   514082.253 3753997.697 662.04
   LOCATION L0000694     VOLUME   514073.916 3753995.629 662.25
   LOCATION L0000695     VOLUME   514065.578 3753993.561 662.46
   LOCATION L0000696     VOLUME   514057.241 3753991.492 662.67
   LOCATION L0000697     VOLUME   514048.904 3753989.424 662.88
   LOCATION L0000698     VOLUME   514040.567 3753987.356 663.09
   LOCATION L0000699     VOLUME   514032.229 3753985.288 663.30
   LOCATION L0000700     VOLUME   514023.892 3753983.220 663.51
   LOCATION L0000701     VOLUME   514015.555 3753981.152 663.71
   LOCATION L0000702     VOLUME   514012.904 3753974.603 663.58
   LOCATION L0000703     VOLUME   514012.842 3753966.013 663.30
   LOCATION L0000704     VOLUME   514012.781 3753957.423 663.02
   LOCATION L0000705     VOLUME   514012.720 3753948.833 662.73
   LOCATION L0000706     VOLUME   514012.659 3753940.244 662.45
   LOCATION L0000707     VOLUME   514012.598 3753931.654 662.16
   LOCATION L0000708     VOLUME   514012.537 3753923.064 661.88
   LOCATION L0000709     VOLUME   514012.476 3753914.474 661.59
   LOCATION L0000710     VOLUME   514012.414 3753905.884 661.31
   LOCATION L0000711     VOLUME   514012.353 3753897.295 661.03
   LOCATION L0000712     VOLUME   514012.292 3753888.705 660.74
   LOCATION L0000713     VOLUME   514012.231 3753880.115 660.52
   LOCATION L0000714     VOLUME   514012.170 3753871.525 660.34
   LOCATION L0000715     VOLUME   514012.109 3753862.935 660.16
   LOCATION L0000716     VOLUME   514012.048 3753854.346 659.98
   LOCATION L0000717     VOLUME   514011.987 3753845.756 659.88
   LOCATION L0000718     VOLUME   514011.925 3753837.166 659.79
   LOCATION L0000719     VOLUME   514011.864 3753828.576 659.69
   LOCATION L0000720     VOLUME   514011.803 3753819.987 659.47
   LOCATION L0000721     VOLUME   514011.742 3753811.397 659.18
   LOCATION L0000722     VOLUME   514011.681 3753802.807 658.90
   LOCATION L0000723     VOLUME   514011.620 3753794.217 658.66
   LOCATION L0000724     VOLUME   514011.559 3753785.627 658.67
   LOCATION L0000725     VOLUME   514011.497 3753777.038 658.67
   LOCATION L0000726     VOLUME   514011.436 3753768.448 658.67
** End of LINE VOLUME Source ID = SLINE7
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** Line Source Represented by Adjacent Volume Sources
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** LINE VOLUME Source ID = SLINE8
** DESCRSRC Truck Travel for Southern Loading Area
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001092
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 514095.893, 3753760.030, 655.88, 3.49, 4.00
** 514095.134, 3753804.041, 656.11, 3.49, 4.00
** 514538.280, 3753797.211, 642.99, 3.49, 4.00
** 514537.522, 3753756.235, 642.09, 3.49, 4.00
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   LOCATION L0000898     VOLUME   514095.670 3753772.913 655.90
   LOCATION L0000899     VOLUME   514095.522 3753781.501 655.94
   LOCATION L0000900     VOLUME   514095.374 3753790.090 655.98
   LOCATION L0000901     VOLUME   514095.226 3753798.679 656.09
   LOCATION L0000902     VOLUME   514098.361 3753803.991 656.21
   LOCATION L0000903     VOLUME   514106.950 3753803.859 656.13
   LOCATION L0000904     VOLUME   514115.539 3753803.726 656.05
   LOCATION L0000905     VOLUME   514124.128 3753803.594 655.94
   LOCATION L0000906     VOLUME   514132.717 3753803.462 655.72
   LOCATION L0000907     VOLUME   514141.306 3753803.329 655.51
   LOCATION L0000908     VOLUME   514149.895 3753803.197 655.29
   LOCATION L0000909     VOLUME   514158.483 3753803.064 655.01
   LOCATION L0000910     VOLUME   514167.072 3753802.932 654.72
   LOCATION L0000911     VOLUME   514175.661 3753802.800 654.43
   LOCATION L0000912     VOLUME   514184.250 3753802.667 654.14
   LOCATION L0000913     VOLUME   514192.839 3753802.535 653.85
   LOCATION L0000914     VOLUME   514201.428 3753802.403 653.56
   LOCATION L0000915     VOLUME   514210.017 3753802.270 653.27
   LOCATION L0000916     VOLUME   514218.606 3753802.138 652.98
   LOCATION L0000917     VOLUME   514227.195 3753802.006 652.69
   LOCATION L0000918     VOLUME   514235.784 3753801.873 652.40
   LOCATION L0000919     VOLUME   514244.373 3753801.741 652.11
   LOCATION L0000920     VOLUME   514252.962 3753801.608 651.82
   LOCATION L0000921     VOLUME   514261.551 3753801.476 651.53
   LOCATION L0000922     VOLUME   514270.140 3753801.344 651.23
   LOCATION L0000923     VOLUME   514278.729 3753801.211 650.94
   LOCATION L0000924     VOLUME   514287.318 3753801.079 650.65
   LOCATION L0000925     VOLUME   514295.907 3753800.947 650.36
   LOCATION L0000926     VOLUME   514304.496 3753800.814 650.07
   LOCATION L0000927     VOLUME   514313.085 3753800.682 649.78
   LOCATION L0000928     VOLUME   514321.674 3753800.550 649.49
   LOCATION L0000929     VOLUME   514330.263 3753800.417 649.20
   LOCATION L0000930     VOLUME   514338.852 3753800.285 648.91
   LOCATION L0000931     VOLUME   514347.441 3753800.152 648.62
   LOCATION L0000932     VOLUME   514356.030 3753800.020 648.33
   LOCATION L0000933     VOLUME   514364.619 3753799.888 648.04
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   LOCATION L0000934     VOLUME   514373.208 3753799.755 647.75
   LOCATION L0000935     VOLUME   514381.797 3753799.623 647.46
   LOCATION L0000936     VOLUME   514390.386 3753799.491 647.16
   LOCATION L0000937     VOLUME   514398.975 3753799.358 646.84
   LOCATION L0000938     VOLUME   514407.564 3753799.226 646.52
   LOCATION L0000939     VOLUME   514416.153 3753799.093 646.20
   LOCATION L0000940     VOLUME   514424.742 3753798.961 645.90
   LOCATION L0000941     VOLUME   514433.331 3753798.829 645.65
   LOCATION L0000942     VOLUME   514441.920 3753798.696 645.39
   LOCATION L0000943     VOLUME   514450.509 3753798.564 645.13
   LOCATION L0000944     VOLUME   514459.098 3753798.432 645.07
   LOCATION L0000945     VOLUME   514467.687 3753798.299 645.04
   LOCATION L0000946     VOLUME   514476.276 3753798.167 645.01
   LOCATION L0000947     VOLUME   514484.865 3753798.035 644.90
   LOCATION L0000948     VOLUME   514493.454 3753797.902 644.63
   LOCATION L0000949     VOLUME   514502.043 3753797.770 644.36
   LOCATION L0000950     VOLUME   514510.632 3753797.637 644.09
   LOCATION L0000951     VOLUME   514519.221 3753797.505 643.80
   LOCATION L0000952     VOLUME   514527.810 3753797.373 643.51
   LOCATION L0000953     VOLUME   514536.399 3753797.240 643.22
   LOCATION L0000954     VOLUME   514538.156 3753790.505 642.94
   LOCATION L0000955     VOLUME   514537.997 3753781.916 642.66
   LOCATION L0000956     VOLUME   514537.838 3753773.328 642.38
   LOCATION L0000957     VOLUME   514537.679 3753764.739 642.12
** End of LINE VOLUME Source ID = SLINE8
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE9
** DESCRSRC Truck Travel Northern Loading Area
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001303
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 7
** 514593.675, 3754133.588, 651.03, 3.49, 4.00
** 514514.728, 3754090.277, 653.91, 3.49, 4.00
** 514513.083, 3754080.409, 653.55, 3.49, 4.00
** 514416.592, 3754058.479, 655.75, 3.49, 4.00
** 514304.201, 3754056.286, 658.81, 3.49, 4.00
** 514493.346, 3754111.110, 655.89, 3.49, 4.00
** 514511.438, 3754090.825, 653.96, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0000958     VOLUME   514589.909 3754131.523 651.58
   LOCATION L0000959     VOLUME   514582.378 3754127.391 651.69
   LOCATION L0000960     VOLUME   514574.847 3754123.259 651.88
   LOCATION L0000961     VOLUME   514567.316 3754119.128 652.25
   LOCATION L0000962     VOLUME   514559.785 3754114.996 652.64
   LOCATION L0000963     VOLUME   514552.254 3754110.864 652.97
   LOCATION L0000964     VOLUME   514544.723 3754106.733 653.22
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LOCATION L0000965     VOLUME   514537.192 3754102.601 653.37
LOCATION L0000966     VOLUME   514529.660 3754098.469 653.49
LOCATION L0000967     VOLUME   514522.129 3754094.338 653.60
LOCATION L0000968     VOLUME   514514.703 3754090.132 653.71
LOCATION L0000969     VOLUME   514513.291 3754081.658 653.47
LOCATION L0000970     VOLUME   514505.942 3754078.786 653.62
LOCATION L0000971     VOLUME   514497.566 3754076.882 653.84
LOCATION L0000972     VOLUME   514489.189 3754074.978 654.05
LOCATION L0000973     VOLUME   514480.813 3754073.075 654.27
LOCATION L0000974     VOLUME   514472.436 3754071.171 654.49
LOCATION L0000975     VOLUME   514464.060 3754069.267 654.70
LOCATION L0000976     VOLUME   514455.684 3754067.363 654.92
LOCATION L0000977     VOLUME   514447.307 3754065.460 655.13
LOCATION L0000978     VOLUME   514438.931 3754063.556 655.32
LOCATION L0000979     VOLUME   514430.554 3754061.652 655.47
LOCATION L0000980     VOLUME   514422.178 3754059.748 655.59
LOCATION L0000981     VOLUME   514413.731 3754058.423 655.58
LOCATION L0000982     VOLUME   514405.143 3754058.255 655.64
LOCATION L0000983     VOLUME   514396.554 3754058.088 655.70
LOCATION L0000984     VOLUME   514387.966 3754057.920 655.86
LOCATION L0000985     VOLUME   514379.378 3754057.753 656.14
LOCATION L0000986     VOLUME   514370.789 3754057.585 656.42
LOCATION L0000987     VOLUME   514362.201 3754057.418 656.70
LOCATION L0000988     VOLUME   514353.613 3754057.250 656.98
LOCATION L0000989     VOLUME   514345.024 3754057.082 657.26
LOCATION L0000990     VOLUME   514336.436 3754056.915 657.54
LOCATION L0000991     VOLUME   514327.847 3754056.747 657.82
LOCATION L0000992     VOLUME   514319.259 3754056.580 658.10
LOCATION L0000993     VOLUME   514310.671 3754056.412 658.39
LOCATION L0000994     VOLUME   514306.237 3754056.876 658.55
LOCATION L0000995     VOLUME   514314.487 3754059.267 658.35
LOCATION L0000996     VOLUME   514322.738 3754061.659 658.16
LOCATION L0000997     VOLUME   514330.988 3754064.050 657.96
LOCATION L0000998     VOLUME   514339.239 3754066.442 657.77
LOCATION L0000999     VOLUME   514347.489 3754068.833 657.57
LOCATION L0001000     VOLUME   514355.739 3754071.224 657.38
LOCATION L0001001     VOLUME   514363.990 3754073.616 657.18
LOCATION L0001002     VOLUME   514372.240 3754076.007 656.99
LOCATION L0001003     VOLUME   514380.491 3754078.399 656.79
LOCATION L0001004     VOLUME   514388.741 3754080.790 656.60
LOCATION L0001005     VOLUME   514396.991 3754083.182 656.58
LOCATION L0001006     VOLUME   514405.242 3754085.573 656.66
LOCATION L0001007     VOLUME   514413.492 3754087.964 656.74
LOCATION L0001008     VOLUME   514421.743 3754090.356 656.81
LOCATION L0001009     VOLUME   514429.993 3754092.747 656.62
LOCATION L0001010     VOLUME   514438.243 3754095.139 656.42
LOCATION L0001011     VOLUME   514446.494 3754097.530 656.28
LOCATION L0001012     VOLUME   514454.744 3754099.921 656.17
LOCATION L0001013     VOLUME   514462.995 3754102.313 656.06
LOCATION L0001014     VOLUME   514471.245 3754104.704 655.94
LOCATION L0001015     VOLUME   514479.495 3754107.096 655.83
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   LOCATION L0001016     VOLUME   514487.746 3754109.487 655.62
   LOCATION L0001017     VOLUME   514495.183 3754109.051 655.23
   LOCATION L0001018     VOLUME   514500.900 3754102.640 654.67
   LOCATION L0001019     VOLUME   514506.618 3754096.230 654.18
** End of LINE VOLUME Source ID = SLINE9
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE10
** DESCRSRC South Loading Area Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001797
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514089.755, 3753831.008, 656.98, 3.49, 4.00
** 514545.053, 3753824.179, 643.96, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0000789     VOLUME   514094.050 3753830.944 657.09
   LOCATION L0000790     VOLUME   514102.639 3753830.815 656.80
   LOCATION L0000791     VOLUME   514111.228 3753830.686 656.51
   LOCATION L0000792     VOLUME   514119.817 3753830.557 656.22
   LOCATION L0000793     VOLUME   514128.406 3753830.428 656.12
   LOCATION L0000794     VOLUME   514136.995 3753830.300 656.07
   LOCATION L0000795     VOLUME   514145.584 3753830.171 656.03
   LOCATION L0000796     VOLUME   514154.173 3753830.042 655.91
   LOCATION L0000797     VOLUME   514162.762 3753829.913 655.63
   LOCATION L0000798     VOLUME   514171.351 3753829.784 655.34
   LOCATION L0000799     VOLUME   514179.940 3753829.655 655.05
   LOCATION L0000800     VOLUME   514188.529 3753829.527 654.77
   LOCATION L0000801     VOLUME   514197.118 3753829.398 654.48
   LOCATION L0000802     VOLUME   514205.707 3753829.269 654.19
   LOCATION L0000803     VOLUME   514214.296 3753829.140 653.92
   LOCATION L0000804     VOLUME   514222.885 3753829.011 653.66
   LOCATION L0000805     VOLUME   514231.474 3753828.882 653.41
   LOCATION L0000806     VOLUME   514240.063 3753828.754 653.15
   LOCATION L0000807     VOLUME   514248.652 3753828.625 652.86
   LOCATION L0000808     VOLUME   514257.241 3753828.496 652.57
   LOCATION L0000809     VOLUME   514265.830 3753828.367 652.28
   LOCATION L0000810     VOLUME   514274.419 3753828.238 651.99
   LOCATION L0000811     VOLUME   514283.008 3753828.109 651.70
   LOCATION L0000812     VOLUME   514291.598 3753827.981 651.41
   LOCATION L0000813     VOLUME   514300.187 3753827.852 651.12
   LOCATION L0000814     VOLUME   514308.776 3753827.723 650.83
   LOCATION L0000815     VOLUME   514317.365 3753827.594 650.54
   LOCATION L0000816     VOLUME   514325.954 3753827.465 650.24
   LOCATION L0000817     VOLUME   514334.543 3753827.336 649.95
   LOCATION L0000818     VOLUME   514343.132 3753827.208 649.66
   LOCATION L0000819     VOLUME   514351.721 3753827.079 649.37
   LOCATION L0000820     VOLUME   514360.310 3753826.950 649.08
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   LOCATION L0000821     VOLUME   514368.899 3753826.821 648.79
   LOCATION L0000822     VOLUME   514377.488 3753826.692 648.50
   LOCATION L0000823     VOLUME   514386.077 3753826.563 648.21
   LOCATION L0000824     VOLUME   514394.666 3753826.435 647.82
   LOCATION L0000825     VOLUME   514403.255 3753826.306 647.25
   LOCATION L0000826     VOLUME   514411.844 3753826.177 646.67
   LOCATION L0000827     VOLUME   514420.433 3753826.048 646.10
   LOCATION L0000828     VOLUME   514429.022 3753825.919 646.01
   LOCATION L0000829     VOLUME   514437.611 3753825.790 646.00
   LOCATION L0000830     VOLUME   514446.200 3753825.662 646.00
   LOCATION L0000831     VOLUME   514454.789 3753825.533 645.89
   LOCATION L0000832     VOLUME   514463.378 3753825.404 645.60
   LOCATION L0000833     VOLUME   514471.967 3753825.275 645.31
   LOCATION L0000834     VOLUME   514480.556 3753825.146 645.03
   LOCATION L0000835     VOLUME   514489.145 3753825.017 644.99
   LOCATION L0000836     VOLUME   514497.734 3753824.889 644.99
   LOCATION L0000837     VOLUME   514506.323 3753824.760 644.97
   LOCATION L0000838     VOLUME   514514.912 3753824.631 644.85
   LOCATION L0000839     VOLUME   514523.501 3753824.502 644.56
   LOCATION L0000840     VOLUME   514532.090 3753824.373 644.27
   LOCATION L0000841     VOLUME   514540.679 3753824.244 643.98
** End of LINE VOLUME Source ID = SLINE10
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE11
** DESCRSRC North Loading Area Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001644
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514225.586, 3754009.333, 658.54, 3.49, 4.00
** 514575.406, 3754013.886, 648.91, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0000842     VOLUME   514229.880 3754009.389 658.51
   LOCATION L0000843     VOLUME   514238.470 3754009.501 658.23
   LOCATION L0000844     VOLUME   514247.059 3754009.613 658.13
   LOCATION L0000845     VOLUME   514255.648 3754009.725 658.13
   LOCATION L0000846     VOLUME   514264.238 3754009.836 658.14
   LOCATION L0000847     VOLUME   514272.827 3754009.948 658.10
   LOCATION L0000848     VOLUME   514281.416 3754010.060 657.82
   LOCATION L0000849     VOLUME   514290.005 3754010.172 657.53
   LOCATION L0000850     VOLUME   514298.595 3754010.284 657.25
   LOCATION L0000851     VOLUME   514307.184 3754010.395 656.97
   LOCATION L0000852     VOLUME   514315.773 3754010.507 656.69
   LOCATION L0000853     VOLUME   514324.362 3754010.619 656.40
   LOCATION L0000854     VOLUME   514332.952 3754010.731 656.12
   LOCATION L0000855     VOLUME   514341.541 3754010.843 655.84
   LOCATION L0000856     VOLUME   514350.130 3754010.954 655.56
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   LOCATION L0000857     VOLUME   514358.720 3754011.066 655.27
   LOCATION L0000858     VOLUME   514367.309 3754011.178 654.99
   LOCATION L0000859     VOLUME   514375.898 3754011.290 654.71
   LOCATION L0000860     VOLUME   514384.487 3754011.401 654.42
   LOCATION L0000861     VOLUME   514393.077 3754011.513 654.14
   LOCATION L0000862     VOLUME   514401.666 3754011.625 653.86
   LOCATION L0000863     VOLUME   514410.255 3754011.737 653.58
   LOCATION L0000864     VOLUME   514418.844 3754011.849 653.29
   LOCATION L0000865     VOLUME   514427.434 3754011.960 653.05
   LOCATION L0000866     VOLUME   514436.023 3754012.072 652.83
   LOCATION L0000867     VOLUME   514444.612 3754012.184 652.61
   LOCATION L0000868     VOLUME   514453.202 3754012.296 652.43
   LOCATION L0000869     VOLUME   514461.791 3754012.408 652.37
   LOCATION L0000870     VOLUME   514470.380 3754012.519 652.31
   LOCATION L0000871     VOLUME   514478.969 3754012.631 652.25
   LOCATION L0000872     VOLUME   514487.559 3754012.743 651.88
   LOCATION L0000873     VOLUME   514496.148 3754012.855 651.38
   LOCATION L0000874     VOLUME   514504.737 3754012.967 650.88
   LOCATION L0000875     VOLUME   514513.326 3754013.078 650.48
   LOCATION L0000876     VOLUME   514521.916 3754013.190 650.41
   LOCATION L0000877     VOLUME   514530.505 3754013.302 650.35
   LOCATION L0000878     VOLUME   514539.094 3754013.414 650.28
   LOCATION L0000879     VOLUME   514547.684 3754013.525 650.06
   LOCATION L0000880     VOLUME   514556.273 3754013.637 649.77
   LOCATION L0000881     VOLUME   514564.862 3754013.749 649.49
   LOCATION L0000882     VOLUME   514573.451 3754013.861 649.21
** End of LINE VOLUME Source ID = SLINE11
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE12
** DESCRSRC West Loading Area idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00004707
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514044.090, 3753964.333, 662.52, 3.49, 4.00
** 514045.734, 3753847.004, 659.05, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0000883     VOLUME   514044.150 3753960.039 662.06
   LOCATION L0000884     VOLUME   514044.270 3753951.450 661.77
   LOCATION L0000885     VOLUME   514044.391 3753942.861 661.48
   LOCATION L0000886     VOLUME   514044.511 3753934.271 661.19
   LOCATION L0000887     VOLUME   514044.631 3753925.682 660.90
   LOCATION L0000888     VOLUME   514044.752 3753917.093 660.61
   LOCATION L0000889     VOLUME   514044.872 3753908.504 660.42
   LOCATION L0000890     VOLUME   514044.993 3753899.915 660.26
   LOCATION L0000891     VOLUME   514045.113 3753891.326 660.10
   LOCATION L0000892     VOLUME   514045.233 3753882.737 659.91
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   LOCATION L0000893     VOLUME   514045.354 3753874.147 659.65
   LOCATION L0000894     VOLUME   514045.474 3753865.558 659.38
   LOCATION L0000895     VOLUME   514045.595 3753856.969 659.10
   LOCATION L0000896     VOLUME   514045.715 3753848.380 658.93
** End of LINE VOLUME Source ID = SLINE12
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000001     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000002     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000003     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000004     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000005     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000006     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000007     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000008     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000009     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000010     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000011     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000012     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000013     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000014     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000015     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000016     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000017     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000018     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000019     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000020     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000021     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000022     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000023     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000024     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000025     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000026     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000027     0.000002462      3.49      4.00      3.25
   SRCPARAM L0000028     0.000002462      3.49      4.00      3.25
** ----------------------------------------------------------------
** LINE VOLUME Source ID = SLINE2
   SRCPARAM L0000057     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000058     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000059     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000060     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000061     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000062     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000063     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000064     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000065     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000066     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000067     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000068     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000069     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000070     0.00000005053      3.49      4.00      3.25
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   SRCPARAM L0000071     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000072     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000073     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000074     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000075     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000076     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000077     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000078     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000079     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000080     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000081     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000082     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000083     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000084     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000085     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000086     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000087     0.00000005053      3.49      4.00      3.25
   SRCPARAM L0000088     0.00000005053      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0000089     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000090     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000091     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000092     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000093     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000094     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000095     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000096     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000097     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000098     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000099     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000100     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000101     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000102     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000103     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000104     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000105     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000106     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000107     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000108     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000109     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000110     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000111     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000112     0.000002439      3.49      4.00      3.25
   SRCPARAM L0000113     0.000002439      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE4
   SRCPARAM L0000114     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000115     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000116     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000117     0.000002497      3.49      4.00      3.25
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   SRCPARAM L0000118     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000119     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000120     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000121     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000122     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000123     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000124     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000125     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000126     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000127     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000128     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000129     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000130     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000131     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000132     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000133     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000134     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000135     0.000002497      3.49      4.00      3.25
   SRCPARAM L0000136     0.000002497      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE5
   SRCPARAM L0000137     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000138     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000139     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000140     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000141     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000142     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000143     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000144     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000145     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000146     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000147     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000148     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000149     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000150     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000151     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000152     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000153     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000154     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000155     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000156     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000157     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000158     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000159     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000160     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000161     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000162     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000163     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000164     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000165     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000166     0.000001691      3.49      4.00      3.25
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SRCPARAM L0000167     0.000001691      3.49      4.00      3.25
SRCPARAM L0000168     0.000001691      3.49      4.00      3.25
SRCPARAM L0000169     0.000001691      3.49      4.00      3.25
SRCPARAM L0000170     0.000001691      3.49      4.00      3.25
SRCPARAM L0000171     0.000001691      3.49      4.00      3.25
SRCPARAM L0000172     0.000001691      3.49      4.00      3.25
SRCPARAM L0000173     0.000001691      3.49      4.00      3.25
SRCPARAM L0000174     0.000001691      3.49      4.00      3.25
SRCPARAM L0000175     0.000001691      3.49      4.00      3.25
SRCPARAM L0000176     0.000001691      3.49      4.00      3.25
SRCPARAM L0000177     0.000001691      3.49      4.00      3.25
SRCPARAM L0000178     0.000001691      3.49      4.00      3.25
SRCPARAM L0000179     0.000001691      3.49      4.00      3.25
SRCPARAM L0000180     0.000001691      3.49      4.00      3.25
SRCPARAM L0000181     0.000001691      3.49      4.00      3.25
SRCPARAM L0000182     0.000001691      3.49      4.00      3.25
SRCPARAM L0000183     0.000001691      3.49      4.00      3.25
SRCPARAM L0000184     0.000001691      3.49      4.00      3.25
SRCPARAM L0000185     0.000001691      3.49      4.00      3.25
SRCPARAM L0000186     0.000001691      3.49      4.00      3.25
SRCPARAM L0000187     0.000001691      3.49      4.00      3.25
SRCPARAM L0000188     0.000001691      3.49      4.00      3.25
SRCPARAM L0000189     0.000001691      3.49      4.00      3.25
SRCPARAM L0000190     0.000001691      3.49      4.00      3.25
SRCPARAM L0000191     0.000001691      3.49      4.00      3.25
SRCPARAM L0000192     0.000001691      3.49      4.00      3.25
SRCPARAM L0000193     0.000001691      3.49      4.00      3.25
SRCPARAM L0000194     0.000001691      3.49      4.00      3.25
SRCPARAM L0000195     0.000001691      3.49      4.00      3.25
SRCPARAM L0000196     0.000001691      3.49      4.00      3.25
SRCPARAM L0000197     0.000001691      3.49      4.00      3.25
SRCPARAM L0000198     0.000001691      3.49      4.00      3.25
SRCPARAM L0000199     0.000001691      3.49      4.00      3.25
SRCPARAM L0000200     0.000001691      3.49      4.00      3.25
SRCPARAM L0000201     0.000001691      3.49      4.00      3.25
SRCPARAM L0000202     0.000001691      3.49      4.00      3.25
SRCPARAM L0000203     0.000001691      3.49      4.00      3.25
SRCPARAM L0000204     0.000001691      3.49      4.00      3.25
SRCPARAM L0000205     0.000001691      3.49      4.00      3.25
SRCPARAM L0000206     0.000001691      3.49      4.00      3.25
SRCPARAM L0000207     0.000001691      3.49      4.00      3.25
SRCPARAM L0000208     0.000001691      3.49      4.00      3.25
SRCPARAM L0000209     0.000001691      3.49      4.00      3.25
SRCPARAM L0000210     0.000001691      3.49      4.00      3.25
SRCPARAM L0000211     0.000001691      3.49      4.00      3.25
SRCPARAM L0000212     0.000001691      3.49      4.00      3.25
SRCPARAM L0000213     0.000001691      3.49      4.00      3.25
SRCPARAM L0000214     0.000001691      3.49      4.00      3.25
SRCPARAM L0000215     0.000001691      3.49      4.00      3.25
SRCPARAM L0000216     0.000001691      3.49      4.00      3.25
SRCPARAM L0000217     0.000001691      3.49      4.00      3.25
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SRCPARAM L0000218     0.000001691      3.49      4.00      3.25
SRCPARAM L0000219     0.000001691      3.49      4.00      3.25
SRCPARAM L0000220     0.000001691      3.49      4.00      3.25
SRCPARAM L0000221     0.000001691      3.49      4.00      3.25
SRCPARAM L0000222     0.000001691      3.49      4.00      3.25
SRCPARAM L0000223     0.000001691      3.49      4.00      3.25
SRCPARAM L0000224     0.000001691      3.49      4.00      3.25
SRCPARAM L0000225     0.000001691      3.49      4.00      3.25
SRCPARAM L0000226     0.000001691      3.49      4.00      3.25
SRCPARAM L0000227     0.000001691      3.49      4.00      3.25
SRCPARAM L0000228     0.000001691      3.49      4.00      3.25
SRCPARAM L0000229     0.000001691      3.49      4.00      3.25
SRCPARAM L0000230     0.000001691      3.49      4.00      3.25
SRCPARAM L0000231     0.000001691      3.49      4.00      3.25
SRCPARAM L0000232     0.000001691      3.49      4.00      3.25
SRCPARAM L0000233     0.000001691      3.49      4.00      3.25
SRCPARAM L0000234     0.000001691      3.49      4.00      3.25
SRCPARAM L0000235     0.000001691      3.49      4.00      3.25
SRCPARAM L0000236     0.000001691      3.49      4.00      3.25
SRCPARAM L0000237     0.000001691      3.49      4.00      3.25
SRCPARAM L0000238     0.000001691      3.49      4.00      3.25
SRCPARAM L0000239     0.000001691      3.49      4.00      3.25
SRCPARAM L0000240     0.000001691      3.49      4.00      3.25
SRCPARAM L0000241     0.000001691      3.49      4.00      3.25
SRCPARAM L0000242     0.000001691      3.49      4.00      3.25
SRCPARAM L0000243     0.000001691      3.49      4.00      3.25
SRCPARAM L0000244     0.000001691      3.49      4.00      3.25
SRCPARAM L0000245     0.000001691      3.49      4.00      3.25
SRCPARAM L0000246     0.000001691      3.49      4.00      3.25
SRCPARAM L0000247     0.000001691      3.49      4.00      3.25
SRCPARAM L0000248     0.000001691      3.49      4.00      3.25
SRCPARAM L0000249     0.000001691      3.49      4.00      3.25
SRCPARAM L0000250     0.000001691      3.49      4.00      3.25
SRCPARAM L0000251     0.000001691      3.49      4.00      3.25
SRCPARAM L0000252     0.000001691      3.49      4.00      3.25
SRCPARAM L0000253     0.000001691      3.49      4.00      3.25
SRCPARAM L0000254     0.000001691      3.49      4.00      3.25
SRCPARAM L0000255     0.000001691      3.49      4.00      3.25
SRCPARAM L0000256     0.000001691      3.49      4.00      3.25
SRCPARAM L0000257     0.000001691      3.49      4.00      3.25
SRCPARAM L0000258     0.000001691      3.49      4.00      3.25
SRCPARAM L0000259     0.000001691      3.49      4.00      3.25
SRCPARAM L0000260     0.000001691      3.49      4.00      3.25
SRCPARAM L0000261     0.000001691      3.49      4.00      3.25
SRCPARAM L0000262     0.000001691      3.49      4.00      3.25
SRCPARAM L0000263     0.000001691      3.49      4.00      3.25
SRCPARAM L0000264     0.000001691      3.49      4.00      3.25
SRCPARAM L0000265     0.000001691      3.49      4.00      3.25
SRCPARAM L0000266     0.000001691      3.49      4.00      3.25
SRCPARAM L0000267     0.000001691      3.49      4.00      3.25
SRCPARAM L0000268     0.000001691      3.49      4.00      3.25
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   SRCPARAM L0000269     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000270     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000271     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000272     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000273     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000274     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000275     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000276     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000277     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000278     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000279     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000280     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000281     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000282     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000283     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000284     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000285     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000286     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000287     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000288     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000289     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000290     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000291     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000292     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000293     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000294     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000295     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000296     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000297     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000298     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000299     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000300     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000301     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000302     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000303     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000304     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000305     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000306     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000307     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000308     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000309     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000310     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000311     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000312     0.000001691      3.49      4.00      3.25
   SRCPARAM L0000313     0.000001691      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE6
   SRCPARAM L0000314     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000315     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000316     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000317     0.000003848      3.49      4.00      3.25
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SRCPARAM L0000318     0.000003848      3.49      4.00      3.25
SRCPARAM L0000319     0.000003848      3.49      4.00      3.25
SRCPARAM L0000320     0.000003848      3.49      4.00      3.25
SRCPARAM L0000321     0.000003848      3.49      4.00      3.25
SRCPARAM L0000322     0.000003848      3.49      4.00      3.25
SRCPARAM L0000323     0.000003848      3.49      4.00      3.25
SRCPARAM L0000324     0.000003848      3.49      4.00      3.25
SRCPARAM L0000325     0.000003848      3.49      4.00      3.25
SRCPARAM L0000326     0.000003848      3.49      4.00      3.25
SRCPARAM L0000327     0.000003848      3.49      4.00      3.25
SRCPARAM L0000328     0.000003848      3.49      4.00      3.25
SRCPARAM L0000329     0.000003848      3.49      4.00      3.25
SRCPARAM L0000330     0.000003848      3.49      4.00      3.25
SRCPARAM L0000331     0.000003848      3.49      4.00      3.25
SRCPARAM L0000332     0.000003848      3.49      4.00      3.25
SRCPARAM L0000333     0.000003848      3.49      4.00      3.25
SRCPARAM L0000334     0.000003848      3.49      4.00      3.25
SRCPARAM L0000335     0.000003848      3.49      4.00      3.25
SRCPARAM L0000336     0.000003848      3.49      4.00      3.25
SRCPARAM L0000337     0.000003848      3.49      4.00      3.25
SRCPARAM L0000338     0.000003848      3.49      4.00      3.25
SRCPARAM L0000339     0.000003848      3.49      4.00      3.25
SRCPARAM L0000340     0.000003848      3.49      4.00      3.25
SRCPARAM L0000341     0.000003848      3.49      4.00      3.25
SRCPARAM L0000342     0.000003848      3.49      4.00      3.25
SRCPARAM L0000343     0.000003848      3.49      4.00      3.25
SRCPARAM L0000344     0.000003848      3.49      4.00      3.25
SRCPARAM L0000345     0.000003848      3.49      4.00      3.25
SRCPARAM L0000346     0.000003848      3.49      4.00      3.25
SRCPARAM L0000347     0.000003848      3.49      4.00      3.25
SRCPARAM L0000348     0.000003848      3.49      4.00      3.25
SRCPARAM L0000349     0.000003848      3.49      4.00      3.25
SRCPARAM L0000350     0.000003848      3.49      4.00      3.25
SRCPARAM L0000351     0.000003848      3.49      4.00      3.25
SRCPARAM L0000352     0.000003848      3.49      4.00      3.25
SRCPARAM L0000353     0.000003848      3.49      4.00      3.25
SRCPARAM L0000354     0.000003848      3.49      4.00      3.25
SRCPARAM L0000355     0.000003848      3.49      4.00      3.25
SRCPARAM L0000356     0.000003848      3.49      4.00      3.25
SRCPARAM L0000357     0.000003848      3.49      4.00      3.25
SRCPARAM L0000358     0.000003848      3.49      4.00      3.25
SRCPARAM L0000359     0.000003848      3.49      4.00      3.25
SRCPARAM L0000360     0.000003848      3.49      4.00      3.25
SRCPARAM L0000361     0.000003848      3.49      4.00      3.25
SRCPARAM L0000362     0.000003848      3.49      4.00      3.25
SRCPARAM L0000363     0.000003848      3.49      4.00      3.25
SRCPARAM L0000364     0.000003848      3.49      4.00      3.25
SRCPARAM L0000365     0.000003848      3.49      4.00      3.25
SRCPARAM L0000366     0.000003848      3.49      4.00      3.25
SRCPARAM L0000367     0.000003848      3.49      4.00      3.25
SRCPARAM L0000368     0.000003848      3.49      4.00      3.25
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   SRCPARAM L0000369     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000370     0.000003848      3.49      4.00      3.25
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   SRCPARAM L0000372     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000373     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000374     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000375     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000376     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000377     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000378     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000379     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000380     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000381     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000382     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000383     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000384     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000385     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000386     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000387     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000388     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000389     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000390     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000391     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000392     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000393     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000394     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000395     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000396     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000397     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000398     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000399     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000400     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000401     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000402     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000403     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000404     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000405     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000406     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000407     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000408     0.000003848      3.49      4.00      3.25
   SRCPARAM L0000409     0.000003848      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE7
   SRCPARAM L0000599     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000600     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000601     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000602     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000603     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000604     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000605     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000606     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000607     0.000002084      3.49      4.00      3.25
SRCPARAM L0000608     0.000002084      3.49      4.00      3.25
SRCPARAM L0000609     0.000002084      3.49      4.00      3.25
SRCPARAM L0000610     0.000002084      3.49      4.00      3.25
SRCPARAM L0000611     0.000002084      3.49      4.00      3.25
SRCPARAM L0000612     0.000002084      3.49      4.00      3.25
SRCPARAM L0000613     0.000002084      3.49      4.00      3.25
SRCPARAM L0000614     0.000002084      3.49      4.00      3.25
SRCPARAM L0000615     0.000002084      3.49      4.00      3.25
SRCPARAM L0000616     0.000002084      3.49      4.00      3.25
SRCPARAM L0000617     0.000002084      3.49      4.00      3.25
SRCPARAM L0000618     0.000002084      3.49      4.00      3.25
SRCPARAM L0000619     0.000002084      3.49      4.00      3.25
SRCPARAM L0000620     0.000002084      3.49      4.00      3.25
SRCPARAM L0000621     0.000002084      3.49      4.00      3.25
SRCPARAM L0000622     0.000002084      3.49      4.00      3.25
SRCPARAM L0000623     0.000002084      3.49      4.00      3.25
SRCPARAM L0000624     0.000002084      3.49      4.00      3.25
SRCPARAM L0000625     0.000002084      3.49      4.00      3.25
SRCPARAM L0000626     0.000002084      3.49      4.00      3.25
SRCPARAM L0000627     0.000002084      3.49      4.00      3.25
SRCPARAM L0000628     0.000002084      3.49      4.00      3.25
SRCPARAM L0000629     0.000002084      3.49      4.00      3.25
SRCPARAM L0000630     0.000002084      3.49      4.00      3.25
SRCPARAM L0000631     0.000002084      3.49      4.00      3.25
SRCPARAM L0000632     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000634     0.000002084      3.49      4.00      3.25
SRCPARAM L0000635     0.000002084      3.49      4.00      3.25
SRCPARAM L0000636     0.000002084      3.49      4.00      3.25
SRCPARAM L0000637     0.000002084      3.49      4.00      3.25
SRCPARAM L0000638     0.000002084      3.49      4.00      3.25
SRCPARAM L0000639     0.000002084      3.49      4.00      3.25
SRCPARAM L0000640     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000642     0.000002084      3.49      4.00      3.25
SRCPARAM L0000643     0.000002084      3.49      4.00      3.25
SRCPARAM L0000644     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000647     0.000002084      3.49      4.00      3.25
SRCPARAM L0000648     0.000002084      3.49      4.00      3.25
SRCPARAM L0000649     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000654     0.000002084      3.49      4.00      3.25
SRCPARAM L0000655     0.000002084      3.49      4.00      3.25
SRCPARAM L0000656     0.000002084      3.49      4.00      3.25
SRCPARAM L0000657     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000658     0.000002084      3.49      4.00      3.25
SRCPARAM L0000659     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000662     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000665     0.000002084      3.49      4.00      3.25
SRCPARAM L0000666     0.000002084      3.49      4.00      3.25
SRCPARAM L0000667     0.000002084      3.49      4.00      3.25
SRCPARAM L0000668     0.000002084      3.49      4.00      3.25
SRCPARAM L0000669     0.000002084      3.49      4.00      3.25
SRCPARAM L0000670     0.000002084      3.49      4.00      3.25
SRCPARAM L0000671     0.000002084      3.49      4.00      3.25
SRCPARAM L0000672     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000674     0.000002084      3.49      4.00      3.25
SRCPARAM L0000675     0.000002084      3.49      4.00      3.25
SRCPARAM L0000676     0.000002084      3.49      4.00      3.25
SRCPARAM L0000677     0.000002084      3.49      4.00      3.25
SRCPARAM L0000678     0.000002084      3.49      4.00      3.25
SRCPARAM L0000679     0.000002084      3.49      4.00      3.25
SRCPARAM L0000680     0.000002084      3.49      4.00      3.25
SRCPARAM L0000681     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000684     0.000002084      3.49      4.00      3.25
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SRCPARAM L0000688     0.000002084      3.49      4.00      3.25
SRCPARAM L0000689     0.000002084      3.49      4.00      3.25
SRCPARAM L0000690     0.000002084      3.49      4.00      3.25
SRCPARAM L0000691     0.000002084      3.49      4.00      3.25
SRCPARAM L0000692     0.000002084      3.49      4.00      3.25
SRCPARAM L0000693     0.000002084      3.49      4.00      3.25
SRCPARAM L0000694     0.000002084      3.49      4.00      3.25
SRCPARAM L0000695     0.000002084      3.49      4.00      3.25
SRCPARAM L0000696     0.000002084      3.49      4.00      3.25
SRCPARAM L0000697     0.000002084      3.49      4.00      3.25
SRCPARAM L0000698     0.000002084      3.49      4.00      3.25
SRCPARAM L0000699     0.000002084      3.49      4.00      3.25
SRCPARAM L0000700     0.000002084      3.49      4.00      3.25
SRCPARAM L0000701     0.000002084      3.49      4.00      3.25
SRCPARAM L0000702     0.000002084      3.49      4.00      3.25
SRCPARAM L0000703     0.000002084      3.49      4.00      3.25
SRCPARAM L0000704     0.000002084      3.49      4.00      3.25
SRCPARAM L0000705     0.000002084      3.49      4.00      3.25
SRCPARAM L0000706     0.000002084      3.49      4.00      3.25
SRCPARAM L0000707     0.000002084      3.49      4.00      3.25
SRCPARAM L0000708     0.000002084      3.49      4.00      3.25
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   SRCPARAM L0000709     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000710     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000711     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000712     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000713     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000714     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000715     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000716     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000717     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000718     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000719     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000720     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000721     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000722     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000723     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000724     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000725     0.000002084      3.49      4.00      3.25
   SRCPARAM L0000726     0.000002084      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE8
   SRCPARAM L0000897     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000898     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000899     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000900     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000901     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000902     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000903     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000904     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000905     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000906     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000907     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000908     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000909     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000910     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000911     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000912     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000913     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000914     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000915     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000916     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000917     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000918     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000919     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000920     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000921     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000922     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000923     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000924     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000925     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000926     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000927     0.00000179      3.49      4.00      3.25
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   SRCPARAM L0000928     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000929     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000930     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000931     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000932     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000933     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000934     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000935     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000936     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000937     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000938     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000939     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000940     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000941     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000942     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000943     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000944     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000945     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000946     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000947     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000948     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000949     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000950     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000951     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000952     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000953     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000954     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000955     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000956     0.00000179      3.49      4.00      3.25
   SRCPARAM L0000957     0.00000179      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE9
   SRCPARAM L0000958     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000959     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000960     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000961     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000962     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000963     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000964     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000965     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000966     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000967     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000968     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000969     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000970     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000971     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000972     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000973     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000974     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000975     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000976     0.000002102      3.49      4.00      3.25
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   SRCPARAM L0000977     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000978     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000979     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000980     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000981     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000982     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000983     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000984     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000985     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000986     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000987     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000988     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000989     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000990     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000991     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000992     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000993     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000994     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000995     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000996     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000997     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000998     0.000002102      3.49      4.00      3.25
   SRCPARAM L0000999     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001000     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001001     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001002     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001003     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001004     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001005     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001006     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001007     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001008     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001009     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001010     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001011     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001012     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001013     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001014     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001015     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001016     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001017     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001018     0.000002102      3.49      4.00      3.25
   SRCPARAM L0001019     0.000002102      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE10
   SRCPARAM L0000789     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000790     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000791     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000792     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000793     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000794     0.000003391      3.49      4.00      3.25
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   SRCPARAM L0000795     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000796     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000797     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000798     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000799     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000800     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000801     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000802     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000803     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000804     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000805     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000806     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000807     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000808     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000809     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000810     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000811     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000812     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000813     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000814     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000815     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000816     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000817     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000818     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000819     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000820     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000821     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000822     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000823     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000824     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000825     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000826     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000827     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000828     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000829     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000830     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000831     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000832     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000833     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000834     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000835     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000836     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000837     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000838     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000839     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000840     0.000003391      3.49      4.00      3.25
   SRCPARAM L0000841     0.000003391      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE11
   SRCPARAM L0000842     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000843     0.00000401      3.49      4.00      3.25
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   SRCPARAM L0000844     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000845     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000846     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000847     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000848     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000849     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000850     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000851     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000852     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000853     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000854     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000855     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000856     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000857     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000858     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000859     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000860     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000861     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000862     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000863     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000864     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000865     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000866     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000867     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000868     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000869     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000870     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000871     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000872     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000873     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000874     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000875     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000876     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000877     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000878     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000879     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000880     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000881     0.00000401      3.49      4.00      3.25
   SRCPARAM L0000882     0.00000401      3.49      4.00      3.25
** ----------------------------------------------------------------
** LINE VOLUME Source ID = SLINE12
   SRCPARAM L0000883     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000884     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000885     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000886     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000887     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000888     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000889     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000890     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000891     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000892     0.000003362      3.49      4.00      3.25
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   SRCPARAM L0000893     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000894     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000895     0.000003362      3.49      4.00      3.25
   SRCPARAM L0000896     0.000003362      3.49      4.00      3.25
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Project AB1.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE PERIOD ALL "Project AB1.AD\PE00GALL.PLT" 31
   SUMMFILE "Project AB1.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)
```

```
   ******** FATAL ERROR MESSAGES ********
             ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W186    1765       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
ME W187    1765       MEOPEN: ADJ_U* Option for Low Winds used in AERMET

**********************************
*** SETUP Finishes Successfully ***
**********************************

*** AERMOD - VERSION 16216r ***   *** Banning Distribution Center                                  ***        03/19/18
*** AERMET - VERSION  16216 ***   *** Project Only DPM Concentration (2019) AB1                    ***        18:32:32
                                                                                                             PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for   740 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   2189641.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
       1. Stack-tip Downwash.
       2. Model Accounts for ELEVated Terrain Effects.
       3. Use Calms Processing Routine.
       4. Use Missing Data Processing Routine.
       5. No Exponential Decay.
       6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
       ADJ_U*   - Use ADJ_U* BETA option for SBL in AERMET
       TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  DPM

**Model Calculates PERIOD Averages Only
```

```
**This Run Includes:    740 Source(s);       1 Source Group(s); and     611 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:    740 VOLUME source(s)
                and:      0 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date:  16216

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   660.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.9 MB of RAM.

**Detailed Error/Message File:   Project AB1.err
**File for Summary of Results:   Project AB1.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000001	0	0.24620E-05	512206.0	3753721.8	696.9	3.49	4.00	3.25	YES	
L0000002	0	0.24620E-05	512205.8	3753713.2	696.9	3.49	4.00	3.25	YES	
L0000003	0	0.24620E-05	512205.7	3753704.6	696.8	3.49	4.00	3.25	YES	
L0000004	0	0.24620E-05	512205.5	3753696.0	696.5	3.49	4.00	3.25	YES	
L0000005	0	0.24620E-05	512205.3	3753687.4	696.3	3.49	4.00	3.25	YES	
L0000006	0	0.24620E-05	512205.1	3753678.8	696.0	3.49	4.00	3.25	YES	
L0000007	0	0.24620E-05	512204.9	3753670.2	695.7	3.49	4.00	3.25	YES	
L0000008	0	0.24620E-05	512204.8	3753661.6	695.5	3.49	4.00	3.25	YES	
L0000009	0	0.24620E-05	512204.6	3753653.0	695.2	3.49	4.00	3.25	YES	
L0000010	0	0.24620E-05	512204.4	3753644.5	695.0	3.49	4.00	3.25	YES	
L0000011	0	0.24620E-05	512204.2	3753635.9	694.7	3.49	4.00	3.25	YES	
L0000012	0	0.24620E-05	512204.0	3753627.3	694.4	3.49	4.00	3.25	YES	
L0000013	0	0.24620E-05	512203.8	3753618.7	694.1	3.49	4.00	3.25	YES	
L0000014	0	0.24620E-05	512203.7	3753610.1	693.8	3.49	4.00	3.25	YES	
L0000015	0	0.24620E-05	512203.5	3753601.5	693.5	3.49	4.00	3.25	YES	
L0000016	0	0.24620E-05	512203.3	3753592.9	693.2	3.49	4.00	3.25	YES	
L0000017	0	0.24620E-05	512203.1	3753584.3	693.0	3.49	4.00	3.25	YES	
L0000018	0	0.24620E-05	512202.9	3753575.8	693.0	3.49	4.00	3.25	YES	
L0000019	0	0.24620E-05	512202.8	3753567.2	693.0	3.49	4.00	3.25	YES	
L0000020	0	0.24620E-05	512202.6	3753558.6	693.0	3.49	4.00	3.25	YES	
L0000021	0	0.24620E-05	512202.4	3753550.0	692.8	3.49	4.00	3.25	YES	
L0000022	0	0.24620E-05	512202.2	3753541.4	692.5	3.49	4.00	3.25	YES	
L0000023	0	0.24620E-05	512202.0	3753532.8	692.2	3.49	4.00	3.25	YES	
L0000024	0	0.24620E-05	512201.8	3753524.2	691.9	3.49	4.00	3.25	YES	
L0000025	0	0.24620E-05	512201.7	3753515.6	691.7	3.49	4.00	3.25	YES	
L0000026	0	0.24620E-05	512201.5	3753507.0	691.4	3.49	4.00	3.25	YES	
L0000027	0	0.24620E-05	512201.3	3753498.5	691.1	3.49	4.00	3.25	YES	
L0000028	0	0.24620E-05	512201.1	3753489.9	691.0	3.49	4.00	3.25	YES	
L0000057	0	0.50530E-07	512190.9	3753483.3	691.2	3.49	4.00	3.25	YES	
L0000058	0	0.50530E-07	512182.4	3753483.3	691.4	3.49	4.00	3.25	YES	
L0000059	0	0.50530E-07	512173.8	3753483.3	691.5	3.49	4.00	3.25	YES	
L0000060	0	0.50530E-07	512165.2	3753483.3	691.7	3.49	4.00	3.25	YES	
L0000061	0	0.50530E-07	512156.6	3753483.3	691.8	3.49	4.00	3.25	YES	
L0000062	0	0.50530E-07	512148.0	3753483.3	691.9	3.49	4.00	3.25	YES	
L0000063	0	0.50530E-07	512139.4	3753483.3	692.0	3.49	4.00	3.25	YES	
L0000064	0	0.50530E-07	512130.8	3753483.3	692.2	3.49	4.00	3.25	YES	
L0000065	0	0.50530E-07	512122.2	3753483.3	692.4	3.49	4.00	3.25	YES	
L0000066	0	0.50530E-07	512113.6	3753483.3	692.5	3.49	4.00	3.25	YES	
L0000067	0	0.50530E-07	512105.0	3753483.3	692.8	3.49	4.00	3.25	YES	
L0000068	0	0.50530E-07	512096.5	3753483.3	693.1	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000069	0	0.50530E-07	512087.9	3753483.3	693.4	3.49	4.00	3.25	YES	
L0000070	0	0.50530E-07	512079.3	3753483.3	693.6	3.49	4.00	3.25	YES	
L0000071	0	0.50530E-07	512070.7	3753483.3	693.6	3.49	4.00	3.25	YES	
L0000072	0	0.50530E-07	512062.1	3753483.3	693.6	3.49	4.00	3.25	YES	
L0000073	0	0.50530E-07	512053.5	3753483.3	693.6	3.49	4.00	3.25	YES	
L0000074	0	0.50530E-07	512044.9	3753483.3	693.7	3.49	4.00	3.25	YES	
L0000075	0	0.50530E-07	512036.3	3753483.3	693.8	3.49	4.00	3.25	YES	
L0000076	0	0.50530E-07	512027.7	3753483.3	693.9	3.49	4.00	3.25	YES	
L0000077	0	0.50530E-07	512019.1	3753483.3	694.0	3.49	4.00	3.25	YES	
L0000078	0	0.50530E-07	512010.6	3753483.3	694.2	3.49	4.00	3.25	YES	
L0000079	0	0.50530E-07	512002.0	3753483.3	694.4	3.49	4.00	3.25	YES	
L0000080	0	0.50530E-07	511993.4	3753483.3	694.5	3.49	4.00	3.25	YES	
L0000081	0	0.50530E-07	511984.8	3753483.3	694.8	3.49	4.00	3.25	YES	
L0000082	0	0.50530E-07	511976.2	3753483.3	695.1	3.49	4.00	3.25	YES	
L0000083	0	0.50530E-07	511967.6	3753483.3	695.4	3.49	4.00	3.25	YES	
L0000084	0	0.50530E-07	511959.0	3753483.3	695.6	3.49	4.00	3.25	YES	
L0000085	0	0.50530E-07	511950.4	3753483.3	695.7	3.49	4.00	3.25	YES	
L0000086	0	0.50530E-07	511941.8	3753483.3	695.9	3.49	4.00	3.25	YES	
L0000087	0	0.50530E-07	511933.2	3753483.3	696.0	3.49	4.00	3.25	YES	
L0000088	0	0.50530E-07	511924.7	3753483.3	696.1	3.49	4.00	3.25	YES	
L0000089	0	0.24390E-05	512209.2	3753483.5	690.9	3.49	4.00	3.25	YES	
L0000090	0	0.24390E-05	512217.8	3753483.5	690.8	3.49	4.00	3.25	YES	
L0000091	0	0.24390E-05	512226.4	3753483.6	690.7	3.49	4.00	3.25	YES	
L0000092	0	0.24390E-05	512235.0	3753483.7	690.5	3.49	4.00	3.25	YES	
L0000093	0	0.24390E-05	512243.6	3753483.8	690.4	3.49	4.00	3.25	YES	
L0000094	0	0.24390E-05	512252.1	3753483.9	690.2	3.49	4.00	3.25	YES	
L0000095	0	0.24390E-05	512260.7	3753484.0	690.0	3.49	4.00	3.25	YES	
L0000096	0	0.24390E-05	512269.3	3753484.1	689.9	3.49	4.00	3.25	YES	
L0000097	0	0.24390E-05	512277.9	3753484.2	689.8	3.49	4.00	3.25	YES	
L0000098	0	0.24390E-05	512286.5	3753484.3	689.7	3.49	4.00	3.25	YES	
L0000099	0	0.24390E-05	512295.1	3753484.4	689.5	3.49	4.00	3.25	YES	
L0000100	0	0.24390E-05	512303.7	3753484.4	689.2	3.49	4.00	3.25	YES	
L0000101	0	0.24390E-05	512312.3	3753484.5	688.9	3.49	4.00	3.25	YES	
L0000102	0	0.24390E-05	512320.9	3753484.6	688.6	3.49	4.00	3.25	YES	
L0000103	0	0.24390E-05	512329.5	3753484.7	688.6	3.49	4.00	3.25	YES	
L0000104	0	0.24390E-05	512338.0	3753484.8	688.6	3.49	4.00	3.25	YES	
L0000105	0	0.24390E-05	512346.6	3753484.9	688.6	3.49	4.00	3.25	YES	
L0000106	0	0.24390E-05	512355.2	3753485.0	688.5	3.49	4.00	3.25	YES	
L0000107	0	0.24390E-05	512363.8	3753485.1	688.2	3.49	4.00	3.25	YES	
L0000108	0	0.24390E-05	512372.4	3753485.2	687.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000109	0	0.24390E-05	512381.0	3753485.2	687.7	3.49	4.00	3.25	YES	
L0000110	0	0.24390E-05	512389.6	3753485.3	687.6	3.49	4.00	3.25	YES	
L0000111	0	0.24390E-05	512398.2	3753485.4	687.7	3.49	4.00	3.25	YES	
L0000112	0	0.24390E-05	512406.8	3753485.5	687.7	3.49	4.00	3.25	YES	
L0000113	0	0.24390E-05	512415.4	3753485.6	687.5	3.49	4.00	3.25	YES	
L0000114	0	0.24970E-05	512415.4	3753497.6	687.9	3.49	4.00	3.25	YES	
L0000115	0	0.24970E-05	512415.5	3753506.2	687.9	3.49	4.00	3.25	YES	
L0000116	0	0.24970E-05	512415.6	3753514.8	687.9	3.49	4.00	3.25	YES	
L0000117	0	0.24970E-05	512415.6	3753523.3	688.0	3.49	4.00	3.25	YES	
L0000118	0	0.24970E-05	512415.7	3753531.9	688.4	3.49	4.00	3.25	YES	
L0000119	0	0.24970E-05	512415.7	3753540.5	688.9	3.49	4.00	3.25	YES	
L0000120	0	0.24970E-05	512415.8	3753549.1	689.4	3.49	4.00	3.25	YES	
L0000121	0	0.24970E-05	512415.9	3753557.7	689.9	3.49	4.00	3.25	YES	
L0000122	0	0.24970E-05	512415.9	3753566.3	689.9	3.49	4.00	3.25	YES	
L0000123	0	0.24970E-05	512417.0	3753574.6	689.9	3.49	4.00	3.25	YES	
L0000124	0	0.24970E-05	512421.1	3753582.1	690.0	3.49	4.00	3.25	YES	
L0000125	0	0.24970E-05	512425.3	3753589.7	690.1	3.49	4.00	3.25	YES	
L0000126	0	0.24970E-05	512429.5	3753597.2	690.4	3.49	4.00	3.25	YES	
L0000127	0	0.24970E-05	512433.6	3753604.7	690.6	3.49	4.00	3.25	YES	
L0000128	0	0.24970E-05	512437.8	3753612.2	690.9	3.49	4.00	3.25	YES	
L0000129	0	0.24970E-05	512443.9	3753618.0	691.1	3.49	4.00	3.25	YES	
L0000130	0	0.24970E-05	512450.9	3753623.0	691.2	3.49	4.00	3.25	YES	
L0000131	0	0.24970E-05	512457.8	3753628.1	691.4	3.49	4.00	3.25	YES	
L0000132	0	0.24970E-05	512464.8	3753633.1	691.6	3.49	4.00	3.25	YES	
L0000133	0	0.24970E-05	512471.7	3753638.1	691.7	3.49	4.00	3.25	YES	
L0000134	0	0.24970E-05	512478.7	3753643.2	691.7	3.49	4.00	3.25	YES	
L0000135	0	0.24970E-05	512486.5	3753646.6	691.5	3.49	4.00	3.25	YES	
L0000136	0	0.24970E-05	512494.6	3753649.5	691.5	3.49	4.00	3.25	YES	
L0000137	0	0.16910E-05	512506.7	3753650.9	691.3	3.49	4.00	3.25	YES	
L0000138	0	0.16910E-05	512515.2	3753651.8	691.3	3.49	4.00	3.25	YES	
L0000139	0	0.16910E-05	512523.7	3753652.7	691.3	3.49	4.00	3.25	YES	
L0000140	0	0.16910E-05	512532.3	3753653.6	691.2	3.49	4.00	3.25	YES	
L0000141	0	0.16910E-05	512540.8	3753654.6	691.0	3.49	4.00	3.25	YES	
L0000142	0	0.16910E-05	512549.4	3753655.5	690.7	3.49	4.00	3.25	YES	
L0000143	0	0.16910E-05	512557.9	3753656.4	690.5	3.49	4.00	3.25	YES	
L0000144	0	0.16910E-05	512566.4	3753657.3	690.2	3.49	4.00	3.25	YES	
L0000145	0	0.16910E-05	512575.0	3753658.2	690.0	3.49	4.00	3.25	YES	
L0000146	0	0.16910E-05	512583.5	3753659.1	689.7	3.49	4.00	3.25	YES	
L0000147	0	0.16910E-05	512592.1	3753660.1	689.5	3.49	4.00	3.25	YES	
L0000148	0	0.16910E-05	512600.6	3753661.0	689.5	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000149	0	0.16910E-05	512609.2	3753661.9	689.5	3.49	4.00	3.25	YES	
L0000150	0	0.16910E-05	512617.7	3753662.8	689.6	3.49	4.00	3.25	YES	
L0000151	0	0.16910E-05	512626.2	3753663.7	689.4	3.49	4.00	3.25	YES	
L0000152	0	0.16910E-05	512634.8	3753664.6	689.2	3.49	4.00	3.25	YES	
L0000153	0	0.16910E-05	512643.3	3753665.6	688.9	3.49	4.00	3.25	YES	
L0000154	0	0.16910E-05	512651.9	3753666.5	688.7	3.49	4.00	3.25	YES	
L0000155	0	0.16910E-05	512660.4	3753667.4	688.4	3.49	4.00	3.25	YES	
L0000156	0	0.16910E-05	512668.9	3753668.3	688.2	3.49	4.00	3.25	YES	
L0000157	0	0.16910E-05	512677.5	3753669.2	687.9	3.49	4.00	3.25	YES	
L0000158	0	0.16910E-05	512686.0	3753670.1	687.8	3.49	4.00	3.25	YES	
L0000159	0	0.16910E-05	512694.6	3753671.0	687.8	3.49	4.00	3.25	YES	
L0000160	0	0.16910E-05	512703.1	3753672.0	687.9	3.49	4.00	3.25	YES	
L0000161	0	0.16910E-05	512711.6	3753672.9	687.9	3.49	4.00	3.25	YES	
L0000162	0	0.16910E-05	512720.2	3753673.8	687.6	3.49	4.00	3.25	YES	
L0000163	0	0.16910E-05	512728.7	3753674.7	687.4	3.49	4.00	3.25	YES	
L0000164	0	0.16910E-05	512737.3	3753675.6	687.1	3.49	4.00	3.25	YES	
L0000165	0	0.16910E-05	512745.8	3753676.5	687.0	3.49	4.00	3.25	YES	
L0000166	0	0.16910E-05	512754.3	3753677.5	687.0	3.49	4.00	3.25	YES	
L0000167	0	0.16910E-05	512762.9	3753678.4	687.0	3.49	4.00	3.25	YES	
L0000168	0	0.16910E-05	512771.4	3753679.3	687.0	3.49	4.00	3.25	YES	
L0000169	0	0.16910E-05	512780.0	3753680.2	686.8	3.49	4.00	3.25	YES	
L0000170	0	0.16910E-05	512788.5	3753681.1	686.5	3.49	4.00	3.25	YES	
L0000171	0	0.16910E-05	512797.1	3753682.0	686.3	3.49	4.00	3.25	YES	
L0000172	0	0.16910E-05	512805.6	3753682.9	686.2	3.49	4.00	3.25	YES	
L0000173	0	0.16910E-05	512814.1	3753683.9	686.2	3.49	4.00	3.25	YES	
L0000174	0	0.16910E-05	512822.7	3753684.8	686.1	3.49	4.00	3.25	YES	
L0000175	0	0.16910E-05	512831.2	3753685.7	686.0	3.49	4.00	3.25	YES	
L0000176	0	0.16910E-05	512839.7	3753687.0	685.8	3.49	4.00	3.25	YES	
L0000177	0	0.16910E-05	512848.2	3753688.4	685.7	3.49	4.00	3.25	YES	
L0000178	0	0.16910E-05	512856.6	3753689.9	685.6	3.49	4.00	3.25	YES	
L0000179	0	0.16910E-05	512865.1	3753691.3	685.4	3.49	4.00	3.25	YES	
L0000180	0	0.16910E-05	512873.6	3753692.7	685.2	3.49	4.00	3.25	YES	
L0000181	0	0.16910E-05	512882.1	3753694.1	684.9	3.49	4.00	3.25	YES	
L0000182	0	0.16910E-05	512890.5	3753695.6	684.7	3.49	4.00	3.25	YES	
L0000183	0	0.16910E-05	512899.0	3753697.0	684.5	3.49	4.00	3.25	YES	
L0000184	0	0.16910E-05	512907.5	3753698.4	684.3	3.49	4.00	3.25	YES	
L0000185	0	0.16910E-05	512915.9	3753699.8	684.1	3.49	4.00	3.25	YES	
L0000186	0	0.16910E-05	512924.4	3753701.2	684.0	3.49	4.00	3.25	YES	
L0000187	0	0.16910E-05	512932.9	3753702.7	684.0	3.49	4.00	3.25	YES	
L0000188	0	0.16910E-05	512941.4	3753704.1	684.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000189	0	0.16910E-05	512949.8	3753705.5	684.0	3.49	4.00	3.25	YES	
L0000190	0	0.16910E-05	512958.3	3753706.9	683.8	3.49	4.00	3.25	YES	
L0000191	0	0.16910E-05	512966.8	3753708.3	683.5	3.49	4.00	3.25	YES	
L0000192	0	0.16910E-05	512975.2	3753709.8	683.2	3.49	4.00	3.25	YES	
L0000193	0	0.16910E-05	512983.7	3753711.2	682.9	3.49	4.00	3.25	YES	
L0000194	0	0.16910E-05	512992.2	3753712.6	682.6	3.49	4.00	3.25	YES	
L0000195	0	0.16910E-05	513000.7	3753714.0	682.4	3.49	4.00	3.25	YES	
L0000196	0	0.16910E-05	513009.1	3753715.5	682.1	3.49	4.00	3.25	YES	
L0000197	0	0.16910E-05	513017.6	3753716.9	681.9	3.49	4.00	3.25	YES	
L0000198	0	0.16910E-05	513026.1	3753718.3	681.7	3.49	4.00	3.25	YES	
L0000199	0	0.16910E-05	513034.5	3753719.7	681.6	3.49	4.00	3.25	YES	
L0000200	0	0.16910E-05	513043.0	3753721.1	681.5	3.49	4.00	3.25	YES	
L0000201	0	0.16910E-05	513051.5	3753722.6	681.4	3.49	4.00	3.25	YES	
L0000202	0	0.16910E-05	513060.0	3753724.0	681.2	3.49	4.00	3.25	YES	
L0000203	0	0.16910E-05	513068.4	3753725.4	681.1	3.49	4.00	3.25	YES	
L0000204	0	0.16910E-05	513076.9	3753727.0	680.9	3.49	4.00	3.25	YES	
L0000205	0	0.16910E-05	513085.3	3753728.6	680.9	3.49	4.00	3.25	YES	
L0000206	0	0.16910E-05	513093.7	3753730.3	680.9	3.49	4.00	3.25	YES	
L0000207	0	0.16910E-05	513102.2	3753731.9	680.9	3.49	4.00	3.25	YES	
L0000208	0	0.16910E-05	513110.6	3753733.6	680.6	3.49	4.00	3.25	YES	
L0000209	0	0.16910E-05	513119.0	3753735.2	680.4	3.49	4.00	3.25	YES	
L0000210	0	0.16910E-05	513127.5	3753736.9	680.2	3.49	4.00	3.25	YES	
L0000211	0	0.16910E-05	513135.9	3753738.5	680.2	3.49	4.00	3.25	YES	
L0000212	0	0.16910E-05	513144.3	3753740.2	680.2	3.49	4.00	3.25	YES	
L0000213	0	0.16910E-05	513152.7	3753741.8	680.3	3.49	4.00	3.25	YES	
L0000214	0	0.16910E-05	513161.2	3753743.5	680.3	3.49	4.00	3.25	YES	
L0000215	0	0.16910E-05	513169.6	3753745.1	680.0	3.49	4.00	3.25	YES	
L0000216	0	0.16910E-05	513178.0	3753746.8	679.8	3.49	4.00	3.25	YES	
L0000217	0	0.16910E-05	513186.5	3753748.5	679.6	3.49	4.00	3.25	YES	
L0000218	0	0.16910E-05	513194.9	3753750.1	679.4	3.49	4.00	3.25	YES	
L0000219	0	0.16910E-05	513203.3	3753751.8	679.1	3.49	4.00	3.25	YES	
L0000220	0	0.16910E-05	513211.6	3753754.2	678.9	3.49	4.00	3.25	YES	
L0000221	0	0.16910E-05	513219.8	3753756.6	678.8	3.49	4.00	3.25	YES	
L0000222	0	0.16910E-05	513228.1	3753758.9	678.6	3.49	4.00	3.25	YES	
L0000223	0	0.16910E-05	513236.3	3753761.3	678.4	3.49	4.00	3.25	YES	
L0000224	0	0.16910E-05	513244.6	3753763.7	678.2	3.49	4.00	3.25	YES	
L0000225	0	0.16910E-05	513252.8	3753766.1	678.0	3.49	4.00	3.25	YES	
L0000226	0	0.16910E-05	513261.1	3753768.5	678.1	3.49	4.00	3.25	YES	
L0000227	0	0.16910E-05	513269.3	3753770.9	678.1	3.49	4.00	3.25	YES	
L0000228	0	0.16910E-05	513277.6	3753773.3	678.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000229	0	0.16910E-05	513285.8	3753775.7	677.9	3.49	4.00	3.25	YES	
L0000230	0	0.16910E-05	513294.1	3753778.0	677.8	3.49	4.00	3.25	YES	
L0000231	0	0.16910E-05	513302.3	3753780.4	677.6	3.49	4.00	3.25	YES	
L0000232	0	0.16910E-05	513310.6	3753782.8	677.6	3.49	4.00	3.25	YES	
L0000233	0	0.16910E-05	513318.8	3753785.2	677.4	3.49	4.00	3.25	YES	
L0000234	0	0.16910E-05	513327.1	3753787.6	677.2	3.49	4.00	3.25	YES	
L0000235	0	0.16910E-05	513335.3	3753790.0	677.0	3.49	4.00	3.25	YES	
L0000236	0	0.16910E-05	513343.6	3753792.4	676.8	3.49	4.00	3.25	YES	
L0000237	0	0.16910E-05	513351.8	3753794.8	676.6	3.49	4.00	3.25	YES	
L0000238	0	0.16910E-05	513360.1	3753797.2	676.4	3.49	4.00	3.25	YES	
L0000239	0	0.16910E-05	513368.3	3753799.5	676.2	3.49	4.00	3.25	YES	
L0000240	0	0.16910E-05	513376.6	3753801.9	676.2	3.49	4.00	3.25	YES	
L0000241	0	0.16910E-05	513384.8	3753804.3	676.2	3.49	4.00	3.25	YES	
L0000242	0	0.16910E-05	513393.1	3753806.7	676.1	3.49	4.00	3.25	YES	
L0000243	0	0.16910E-05	513401.3	3753809.1	676.0	3.49	4.00	3.25	YES	
L0000244	0	0.16910E-05	513409.6	3753811.5	675.9	3.49	4.00	3.25	YES	
L0000245	0	0.16910E-05	513417.9	3753813.9	675.8	3.49	4.00	3.25	YES	
L0000246	0	0.16910E-05	513426.1	3753816.3	675.7	3.49	4.00	3.25	YES	
L0000247	0	0.16910E-05	513434.4	3753818.7	675.7	3.49	4.00	3.25	YES	
L0000248	0	0.16910E-05	513442.6	3753821.0	675.5	3.49	4.00	3.25	YES	
L0000249	0	0.16910E-05	513450.9	3753823.4	675.3	3.49	4.00	3.25	YES	
L0000250	0	0.16910E-05	513459.1	3753825.8	675.1	3.49	4.00	3.25	YES	
L0000251	0	0.16910E-05	513467.4	3753828.2	674.8	3.49	4.00	3.25	YES	
L0000252	0	0.16910E-05	513475.6	3753830.6	674.6	3.49	4.00	3.25	YES	
L0000253	0	0.16910E-05	513483.9	3753833.0	674.4	3.49	4.00	3.25	YES	
L0000254	0	0.16910E-05	513492.1	3753835.4	674.3	3.49	4.00	3.25	YES	
L0000255	0	0.16910E-05	513500.4	3753837.8	674.1	3.49	4.00	3.25	YES	
L0000256	0	0.16910E-05	513508.6	3753840.2	673.9	3.49	4.00	3.25	YES	
L0000257	0	0.16910E-05	513516.9	3753842.5	673.7	3.49	4.00	3.25	YES	
L0000258	0	0.16910E-05	513525.1	3753844.9	673.6	3.49	4.00	3.25	YES	
L0000259	0	0.16910E-05	513533.4	3753847.3	673.4	3.49	4.00	3.25	YES	
L0000260	0	0.16910E-05	513541.6	3753849.7	673.3	3.49	4.00	3.25	YES	
L0000261	0	0.16910E-05	513549.9	3753852.1	673.0	3.49	4.00	3.25	YES	
L0000262	0	0.16910E-05	513558.1	3753854.5	672.8	3.49	4.00	3.25	YES	
L0000263	0	0.16910E-05	513566.4	3753856.9	672.5	3.49	4.00	3.25	YES	
L0000264	0	0.16910E-05	513574.6	3753859.3	672.3	3.49	4.00	3.25	YES	
L0000265	0	0.16910E-05	513582.9	3753861.7	672.2	3.49	4.00	3.25	YES	
L0000266	0	0.16910E-05	513591.1	3753864.0	672.2	3.49	4.00	3.25	YES	
L0000267	0	0.16910E-05	513599.4	3753866.4	672.1	3.49	4.00	3.25	YES	
L0000268	0	0.16910E-05	513607.6	3753868.8	672.1	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000269	0	0.16910E-05	513615.9	3753871.2	671.9	3.49	4.00	3.25	YES	
L0000270	0	0.16910E-05	513624.1	3753873.6	671.8	3.49	4.00	3.25	YES	
L0000271	0	0.16910E-05	513632.4	3753876.0	671.8	3.49	4.00	3.25	YES	
L0000272	0	0.16910E-05	513640.6	3753878.4	671.8	3.49	4.00	3.25	YES	
L0000273	0	0.16910E-05	513648.9	3753880.8	671.6	3.49	4.00	3.25	YES	
L0000274	0	0.16910E-05	513657.1	3753883.2	671.4	3.49	4.00	3.25	YES	
L0000275	0	0.16910E-05	513665.4	3753885.5	671.2	3.49	4.00	3.25	YES	
L0000276	0	0.16910E-05	513673.6	3753887.9	671.0	3.49	4.00	3.25	YES	
L0000277	0	0.16910E-05	513681.9	3753890.3	670.8	3.49	4.00	3.25	YES	
L0000278	0	0.16910E-05	513690.1	3753892.7	670.6	3.49	4.00	3.25	YES	
L0000279	0	0.16910E-05	513698.4	3753895.1	670.4	3.49	4.00	3.25	YES	
L0000280	0	0.16910E-05	513706.6	3753897.5	670.3	3.49	4.00	3.25	YES	
L0000281	0	0.16910E-05	513714.9	3753899.9	670.3	3.49	4.00	3.25	YES	
L0000282	0	0.16910E-05	513723.1	3753902.3	670.1	3.49	4.00	3.25	YES	
L0000283	0	0.16910E-05	513731.4	3753904.6	670.0	3.49	4.00	3.25	YES	
L0000284	0	0.16910E-05	513739.6	3753907.0	669.9	3.49	4.00	3.25	YES	
L0000285	0	0.16910E-05	513747.9	3753909.4	669.9	3.49	4.00	3.25	YES	
L0000286	0	0.16910E-05	513756.1	3753911.8	669.9	3.49	4.00	3.25	YES	
L0000287	0	0.16910E-05	513764.4	3753914.2	669.8	3.49	4.00	3.25	YES	
L0000288	0	0.16910E-05	513772.7	3753916.6	669.6	3.49	4.00	3.25	YES	
L0000289	0	0.16910E-05	513780.9	3753919.0	669.4	3.49	4.00	3.25	YES	
L0000290	0	0.16910E-05	513789.2	3753921.4	669.2	3.49	4.00	3.25	YES	
L0000291	0	0.16910E-05	513797.4	3753923.8	669.0	3.49	4.00	3.25	YES	
L0000292	0	0.16910E-05	513805.7	3753926.1	668.7	3.49	4.00	3.25	YES	
L0000293	0	0.16910E-05	513813.9	3753928.5	668.4	3.49	4.00	3.25	YES	
L0000294	0	0.16910E-05	513822.2	3753930.9	668.0	3.49	4.00	3.25	YES	
L0000295	0	0.16910E-05	513830.4	3753933.3	667.9	3.49	4.00	3.25	YES	
L0000296	0	0.16910E-05	513838.7	3753935.7	667.8	3.49	4.00	3.25	YES	
L0000297	0	0.16910E-05	513846.9	3753938.1	667.8	3.49	4.00	3.25	YES	
L0000298	0	0.16910E-05	513855.2	3753940.5	667.7	3.49	4.00	3.25	YES	
L0000299	0	0.16910E-05	513863.4	3753942.9	667.5	3.49	4.00	3.25	YES	
L0000300	0	0.16910E-05	513871.7	3753945.3	667.3	3.49	4.00	3.25	YES	
L0000301	0	0.16910E-05	513879.9	3753947.6	667.0	3.49	4.00	3.25	YES	
L0000302	0	0.16910E-05	513888.2	3753950.0	666.8	3.49	4.00	3.25	YES	
L0000303	0	0.16910E-05	513896.4	3753952.4	666.5	3.49	4.00	3.25	YES	
L0000304	0	0.16910E-05	513904.7	3753954.8	666.2	3.49	4.00	3.25	YES	
L0000305	0	0.16910E-05	513912.9	3753957.2	666.0	3.49	4.00	3.25	YES	
L0000306	0	0.16910E-05	513921.2	3753959.6	665.8	3.49	4.00	3.25	YES	
L0000307	0	0.16910E-05	513929.4	3753962.0	665.7	3.49	4.00	3.25	YES	
L0000308	0	0.16910E-05	513937.7	3753964.4	665.7	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000309	0	0.16910E-05	513945.9	3753966.8	665.6	3.49	4.00	3.25	YES	
L0000310	0	0.16910E-05	513954.2	3753969.1	665.4	3.49	4.00	3.25	YES	
L0000311	0	0.16910E-05	513962.4	3753971.5	665.2	3.49	4.00	3.25	YES	
L0000312	0	0.16910E-05	513970.7	3753973.9	665.0	3.49	4.00	3.25	YES	
L0000313	0	0.16910E-05	513978.9	3753976.3	664.8	3.49	4.00	3.25	YES	
L0000314	0	0.38480E-05	513987.2	3753967.1	664.2	3.49	4.00	3.25	YES	
L0000315	0	0.38480E-05	513987.3	3753958.5	663.9	3.49	4.00	3.25	YES	
L0000316	0	0.38480E-05	513987.4	3753949.9	663.6	3.49	4.00	3.25	YES	
L0000317	0	0.38480E-05	513987.5	3753941.3	663.3	3.49	4.00	3.25	YES	
L0000318	0	0.38480E-05	513987.6	3753932.7	663.0	3.49	4.00	3.25	YES	
L0000319	0	0.38480E-05	513987.7	3753924.2	662.7	3.49	4.00	3.25	YES	
L0000320	0	0.38480E-05	513987.8	3753915.6	662.4	3.49	4.00	3.25	YES	
L0000321	0	0.38480E-05	513987.9	3753907.0	662.2	3.49	4.00	3.25	YES	
L0000322	0	0.38480E-05	513988.0	3753898.4	661.9	3.49	4.00	3.25	YES	
L0000323	0	0.38480E-05	513988.0	3753889.8	661.6	3.49	4.00	3.25	YES	
L0000324	0	0.38480E-05	513988.1	3753881.2	661.4	3.49	4.00	3.25	YES	
L0000325	0	0.38480E-05	513988.2	3753872.6	661.2	3.49	4.00	3.25	YES	
L0000326	0	0.38480E-05	513988.3	3753864.0	661.0	3.49	4.00	3.25	YES	
L0000327	0	0.38480E-05	513988.4	3753855.4	660.9	3.49	4.00	3.25	YES	
L0000328	0	0.38480E-05	513988.5	3753846.9	660.7	3.49	4.00	3.25	YES	
L0000329	0	0.38480E-05	513988.6	3753838.3	660.6	3.49	4.00	3.25	YES	
L0000330	0	0.38480E-05	513988.7	3753829.7	660.5	3.49	4.00	3.25	YES	
L0000331	0	0.38480E-05	513988.8	3753821.1	660.3	3.49	4.00	3.25	YES	
L0000332	0	0.38480E-05	513988.9	3753812.5	660.0	3.49	4.00	3.25	YES	
L0000333	0	0.38480E-05	513989.0	3753803.9	659.7	3.49	4.00	3.25	YES	
L0000334	0	0.38480E-05	513989.1	3753795.3	659.4	3.49	4.00	3.25	YES	
L0000335	0	0.38480E-05	513989.2	3753786.7	659.4	3.49	4.00	3.25	YES	
L0000336	0	0.38480E-05	513989.3	3753778.1	659.4	3.49	4.00	3.25	YES	
L0000337	0	0.38480E-05	513989.4	3753769.5	659.4	3.49	4.00	3.25	YES	
L0000338	0	0.38480E-05	513992.6	3753762.4	659.2	3.49	4.00	3.25	YES	
L0000339	0	0.38480E-05	513999.2	3753757.0	658.8	3.49	4.00	3.25	YES	
L0000340	0	0.38480E-05	514005.9	3753751.6	658.4	3.49	4.00	3.25	YES	
L0000341	0	0.38480E-05	514013.3	3753748.3	658.0	3.49	4.00	3.25	YES	
L0000342	0	0.38480E-05	514021.9	3753748.2	657.7	3.49	4.00	3.25	YES	
L0000343	0	0.38480E-05	514030.5	3753748.1	657.4	3.49	4.00	3.25	YES	
L0000344	0	0.38480E-05	514039.1	3753748.1	657.2	3.49	4.00	3.25	YES	
L0000345	0	0.38480E-05	514047.7	3753748.0	656.9	3.49	4.00	3.25	YES	
L0000346	0	0.38480E-05	514056.3	3753747.9	656.6	3.49	4.00	3.25	YES	
L0000347	0	0.38480E-05	514064.8	3753747.8	656.3	3.49	4.00	3.25	YES	
L0000348	0	0.38480E-05	514073.4	3753747.7	656.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000349	0	0.38480E-05	514082.0	3753747.7	655.7	3.49	4.00	3.25	YES	
L0000350	0	0.38480E-05	514090.6	3753747.6	655.4	3.49	4.00	3.25	YES	
L0000351	0	0.38480E-05	514099.2	3753747.5	655.1	3.49	4.00	3.25	YES	
L0000352	0	0.38480E-05	514107.8	3753747.4	654.8	3.49	4.00	3.25	YES	
L0000353	0	0.38480E-05	514116.4	3753747.4	654.6	3.49	4.00	3.25	YES	
L0000354	0	0.38480E-05	514125.0	3753747.3	654.3	3.49	4.00	3.25	YES	
L0000355	0	0.38480E-05	514133.6	3753747.2	654.2	3.49	4.00	3.25	YES	
L0000356	0	0.38480E-05	514142.1	3753747.1	654.1	3.49	4.00	3.25	YES	
L0000357	0	0.38480E-05	514150.7	3753747.0	654.0	3.49	4.00	3.25	YES	
L0000358	0	0.38480E-05	514159.3	3753747.0	653.6	3.49	4.00	3.25	YES	
L0000359	0	0.38480E-05	514167.9	3753746.9	653.1	3.49	4.00	3.25	YES	
L0000360	0	0.38480E-05	514176.5	3753746.8	652.6	3.49	4.00	3.25	YES	
L0000361	0	0.38480E-05	514185.1	3753746.7	652.3	3.49	4.00	3.25	YES	
L0000362	0	0.38480E-05	514193.7	3753746.7	652.2	3.49	4.00	3.25	YES	
L0000363	0	0.38480E-05	514202.3	3753746.6	652.1	3.49	4.00	3.25	YES	
L0000364	0	0.38480E-05	514210.9	3753746.5	652.0	3.49	4.00	3.25	YES	
L0000365	0	0.38480E-05	514219.5	3753746.4	651.6	3.49	4.00	3.25	YES	
L0000366	0	0.38480E-05	514228.0	3753746.3	651.1	3.49	4.00	3.25	YES	
L0000367	0	0.38480E-05	514236.6	3753746.3	650.6	3.49	4.00	3.25	YES	
L0000368	0	0.38480E-05	514245.2	3753746.2	650.2	3.49	4.00	3.25	YES	
L0000369	0	0.38480E-05	514253.8	3753746.1	649.9	3.49	4.00	3.25	YES	
L0000370	0	0.38480E-05	514262.4	3753746.0	649.6	3.49	4.00	3.25	YES	
L0000371	0	0.38480E-05	514271.0	3753746.0	649.4	3.49	4.00	3.25	YES	
L0000372	0	0.38480E-05	514279.6	3753745.9	649.1	3.49	4.00	3.25	YES	
L0000373	0	0.38480E-05	514288.2	3753745.8	648.8	3.49	4.00	3.25	YES	
L0000374	0	0.38480E-05	514296.8	3753745.7	648.5	3.49	4.00	3.25	YES	
L0000375	0	0.38480E-05	514305.4	3753745.6	648.2	3.49	4.00	3.25	YES	
L0000376	0	0.38480E-05	514313.9	3753745.6	647.9	3.49	4.00	3.25	YES	
L0000377	0	0.38480E-05	514322.5	3753745.5	647.6	3.49	4.00	3.25	YES	
L0000378	0	0.38480E-05	514331.1	3753745.4	647.3	3.49	4.00	3.25	YES	
L0000379	0	0.38480E-05	514339.7	3753745.3	647.0	3.49	4.00	3.25	YES	
L0000380	0	0.38480E-05	514348.3	3753745.3	646.8	3.49	4.00	3.25	YES	
L0000381	0	0.38480E-05	514356.9	3753745.2	646.5	3.49	4.00	3.25	YES	
L0000382	0	0.38480E-05	514365.5	3753745.1	646.2	3.49	4.00	3.25	YES	
L0000383	0	0.38480E-05	514374.1	3753745.0	645.9	3.49	4.00	3.25	YES	
L0000384	0	0.38480E-05	514382.7	3753744.9	645.6	3.49	4.00	3.25	YES	
L0000385	0	0.38480E-05	514391.2	3753744.9	645.3	3.49	4.00	3.25	YES	
L0000386	0	0.38480E-05	514399.8	3753744.8	645.3	3.49	4.00	3.25	YES	
L0000387	0	0.38480E-05	514408.4	3753744.7	645.3	3.49	4.00	3.25	YES	
L0000388	0	0.38480E-05	514417.0	3753744.6	645.3	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000389	0	0.38480E-05	514425.6	3753744.6	645.2	3.49	4.00	3.25	YES	
L0000390	0	0.38480E-05	514434.2	3753744.5	644.9	3.49	4.00	3.25	YES	
L0000391	0	0.38480E-05	514442.8	3753744.4	644.6	3.49	4.00	3.25	YES	
L0000392	0	0.38480E-05	514451.4	3753744.3	644.3	3.49	4.00	3.25	YES	
L0000393	0	0.38480E-05	514460.0	3753744.3	644.0	3.49	4.00	3.25	YES	
L0000394	0	0.38480E-05	514468.6	3753744.2	643.7	3.49	4.00	3.25	YES	
L0000395	0	0.38480E-05	514477.1	3753744.1	643.4	3.49	4.00	3.25	YES	
L0000396	0	0.38480E-05	514485.7	3753744.0	643.1	3.49	4.00	3.25	YES	
L0000397	0	0.38480E-05	514494.3	3753743.9	642.8	3.49	4.00	3.25	YES	
L0000398	0	0.38480E-05	514502.9	3753743.9	642.6	3.49	4.00	3.25	YES	
L0000399	0	0.38480E-05	514511.5	3753743.8	642.3	3.49	4.00	3.25	YES	
L0000400	0	0.38480E-05	514520.1	3753743.7	642.2	3.49	4.00	3.25	YES	
L0000401	0	0.38480E-05	514528.7	3753743.6	642.1	3.49	4.00	3.25	YES	
L0000402	0	0.38480E-05	514537.3	3753743.6	642.0	3.49	4.00	3.25	YES	
L0000403	0	0.38480E-05	514545.9	3753743.5	641.9	3.49	4.00	3.25	YES	
L0000404	0	0.38480E-05	514554.5	3753743.4	641.7	3.49	4.00	3.25	YES	
L0000405	0	0.38480E-05	514563.0	3753743.3	641.5	3.49	4.00	3.25	YES	
L0000406	0	0.38480E-05	514571.6	3753743.2	641.2	3.49	4.00	3.25	YES	
L0000407	0	0.38480E-05	514580.2	3753743.2	641.0	3.49	4.00	3.25	YES	
L0000408	0	0.38480E-05	514588.8	3753743.1	640.7	3.49	4.00	3.25	YES	
L0000409	0	0.38480E-05	514597.4	3753743.0	640.4	3.49	4.00	3.25	YES	
L0000599	0	0.20840E-05	514606.3	3753751.9	640.4	3.49	4.00	3.25	YES	
L0000600	0	0.20840E-05	514606.1	3753760.4	640.7	3.49	4.00	3.25	YES	
L0000601	0	0.20840E-05	514606.0	3753769.0	641.0	3.49	4.00	3.25	YES	
L0000602	0	0.20840E-05	514605.9	3753777.6	641.2	3.49	4.00	3.25	YES	
L0000603	0	0.20840E-05	514605.8	3753786.2	641.5	3.49	4.00	3.25	YES	
L0000604	0	0.20840E-05	514605.7	3753794.8	641.8	3.49	4.00	3.25	YES	
L0000605	0	0.20840E-05	514605.6	3753803.4	642.1	3.49	4.00	3.25	YES	
L0000606	0	0.20840E-05	514605.5	3753812.0	642.4	3.49	4.00	3.25	YES	
L0000607	0	0.20840E-05	514605.4	3753820.6	642.7	3.49	4.00	3.25	YES	
L0000608	0	0.20840E-05	514605.2	3753829.2	643.0	3.49	4.00	3.25	YES	
L0000609	0	0.20840E-05	514605.1	3753837.7	643.3	3.49	4.00	3.25	YES	
L0000610	0	0.20840E-05	514605.0	3753846.3	643.6	3.49	4.00	3.25	YES	
L0000611	0	0.20840E-05	514604.9	3753854.9	643.9	3.49	4.00	3.25	YES	
L0000612	0	0.20840E-05	514604.8	3753863.5	643.9	3.49	4.00	3.25	YES	
L0000613	0	0.20840E-05	514604.7	3753872.1	643.9	3.49	4.00	3.25	YES	
L0000614	0	0.20840E-05	514604.6	3753880.7	644.0	3.49	4.00	3.25	YES	
L0000615	0	0.20840E-05	514604.4	3753889.3	644.1	3.49	4.00	3.25	YES	
L0000616	0	0.20840E-05	514604.3	3753897.9	644.4	3.49	4.00	3.25	YES	
L0000617	0	0.20840E-05	514604.2	3753906.5	644.6	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000618	0	0.20840E-05	514604.1	3753915.0	644.9	3.49	4.00	3.25	YES	
L0000619	0	0.20840E-05	514604.0	3753923.6	645.2	3.49	4.00	3.25	YES	
L0000620	0	0.20840E-05	514603.9	3753932.2	645.5	3.49	4.00	3.25	YES	
L0000621	0	0.20840E-05	514603.8	3753940.8	645.8	3.49	4.00	3.25	YES	
L0000622	0	0.20840E-05	514603.7	3753949.4	646.0	3.49	4.00	3.25	YES	
L0000623	0	0.20840E-05	514603.5	3753958.0	646.3	3.49	4.00	3.25	YES	
L0000624	0	0.20840E-05	514603.4	3753966.6	646.6	3.49	4.00	3.25	YES	
L0000625	0	0.20840E-05	514603.3	3753975.2	646.9	3.49	4.00	3.25	YES	
L0000626	0	0.20840E-05	514603.2	3753983.8	647.2	3.49	4.00	3.25	YES	
L0000627	0	0.20840E-05	514603.1	3753992.3	647.5	3.49	4.00	3.25	YES	
L0000628	0	0.20840E-05	514603.0	3754000.9	647.8	3.49	4.00	3.25	YES	
L0000629	0	0.20840E-05	514602.9	3754009.5	648.1	3.49	4.00	3.25	YES	
L0000630	0	0.20840E-05	514602.7	3754018.1	648.4	3.49	4.00	3.25	YES	
L0000631	0	0.20840E-05	514602.6	3754026.7	648.7	3.49	4.00	3.25	YES	
L0000632	0	0.20840E-05	514602.4	3754035.1	648.9	3.49	4.00	3.25	YES	
L0000633	0	0.20840E-05	514593.8	3754035.0	649.2	3.49	4.00	3.25	YES	
L0000634	0	0.20840E-05	514585.2	3754034.9	649.5	3.49	4.00	3.25	YES	
L0000635	0	0.20840E-05	514576.6	3754034.7	649.8	3.49	4.00	3.25	YES	
L0000636	0	0.20840E-05	514568.0	3754034.6	650.1	3.49	4.00	3.25	YES	
L0000637	0	0.20840E-05	514559.4	3754034.5	650.4	3.49	4.00	3.25	YES	
L0000638	0	0.20840E-05	514550.8	3754034.3	650.6	3.49	4.00	3.25	YES	
L0000639	0	0.20840E-05	514542.2	3754034.2	650.9	3.49	4.00	3.25	YES	
L0000640	0	0.20840E-05	514533.7	3754034.1	651.2	3.49	4.00	3.25	YES	
L0000641	0	0.20840E-05	514525.1	3754033.9	651.5	3.49	4.00	3.25	YES	
L0000642	0	0.20840E-05	514516.5	3754033.8	651.7	3.49	4.00	3.25	YES	
L0000643	0	0.20840E-05	514507.9	3754033.7	652.0	3.49	4.00	3.25	YES	
L0000644	0	0.20840E-05	514499.3	3754033.5	652.3	3.49	4.00	3.25	YES	
L0000645	0	0.20840E-05	514490.7	3754033.4	652.6	3.49	4.00	3.25	YES	
L0000646	0	0.20840E-05	514482.1	3754033.3	652.9	3.49	4.00	3.25	YES	
L0000647	0	0.20840E-05	514473.5	3754033.1	653.2	3.49	4.00	3.25	YES	
L0000648	0	0.20840E-05	514464.9	3754033.0	653.4	3.49	4.00	3.25	YES	
L0000649	0	0.20840E-05	514456.4	3754032.9	653.7	3.49	4.00	3.25	YES	
L0000650	0	0.20840E-05	514447.8	3754032.8	653.8	3.49	4.00	3.25	YES	
L0000651	0	0.20840E-05	514439.2	3754032.6	653.8	3.49	4.00	3.25	YES	
L0000652	0	0.20840E-05	514430.6	3754032.5	653.9	3.49	4.00	3.25	YES	
L0000653	0	0.20840E-05	514422.0	3754032.4	653.9	3.49	4.00	3.25	YES	
L0000654	0	0.20840E-05	514413.4	3754032.2	654.1	3.49	4.00	3.25	YES	
L0000655	0	0.20840E-05	514404.8	3754032.1	654.4	3.49	4.00	3.25	YES	
L0000656	0	0.20840E-05	514396.2	3754032.0	654.7	3.49	4.00	3.25	YES	
L0000657	0	0.20840E-05	514387.6	3754031.8	655.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000658	0	0.20840E-05	514379.0	3754031.7	655.3	3.49	4.00	3.25	YES	
L0000659	0	0.20840E-05	514370.5	3754031.6	655.6	3.49	4.00	3.25	YES	
L0000660	0	0.20840E-05	514361.9	3754031.4	655.8	3.49	4.00	3.25	YES	
L0000661	0	0.20840E-05	514353.3	3754031.3	656.1	3.49	4.00	3.25	YES	
L0000662	0	0.20840E-05	514344.7	3754031.2	656.4	3.49	4.00	3.25	YES	
L0000663	0	0.20840E-05	514336.1	3754031.0	656.7	3.49	4.00	3.25	YES	
L0000664	0	0.20840E-05	514327.5	3754030.9	657.0	3.49	4.00	3.25	YES	
L0000665	0	0.20840E-05	514318.9	3754030.8	657.3	3.49	4.00	3.25	YES	
L0000666	0	0.20840E-05	514310.3	3754030.6	657.5	3.49	4.00	3.25	YES	
L0000667	0	0.20840E-05	514301.7	3754030.5	657.8	3.49	4.00	3.25	YES	
L0000668	0	0.20840E-05	514293.2	3754030.4	658.1	3.49	4.00	3.25	YES	
L0000669	0	0.20840E-05	514284.6	3754030.2	658.4	3.49	4.00	3.25	YES	
L0000670	0	0.20840E-05	514276.0	3754030.1	658.7	3.49	4.00	3.25	YES	
L0000671	0	0.20840E-05	514267.4	3754030.0	658.8	3.49	4.00	3.25	YES	
L0000672	0	0.20840E-05	514258.8	3754029.8	658.8	3.49	4.00	3.25	YES	
L0000673	0	0.20840E-05	514250.2	3754029.7	658.8	3.49	4.00	3.25	YES	
L0000674	0	0.20840E-05	514241.6	3754029.6	658.8	3.49	4.00	3.25	YES	
L0000675	0	0.20840E-05	514233.0	3754029.4	659.1	3.49	4.00	3.25	YES	
L0000676	0	0.20840E-05	514224.4	3754029.3	659.4	3.49	4.00	3.25	YES	
L0000677	0	0.20840E-05	514215.9	3754029.2	659.6	3.49	4.00	3.25	YES	
L0000678	0	0.20840E-05	514207.3	3754028.7	659.8	3.49	4.00	3.25	YES	
L0000679	0	0.20840E-05	514199.0	3754026.7	659.8	3.49	4.00	3.25	YES	
L0000680	0	0.20840E-05	514190.6	3754024.6	659.9	3.49	4.00	3.25	YES	
L0000681	0	0.20840E-05	514182.3	3754022.5	660.0	3.49	4.00	3.25	YES	
L0000682	0	0.20840E-05	514174.0	3754020.4	660.1	3.49	4.00	3.25	YES	
L0000683	0	0.20840E-05	514165.6	3754018.4	660.2	3.49	4.00	3.25	YES	
L0000684	0	0.20840E-05	514157.3	3754016.3	660.3	3.49	4.00	3.25	YES	
L0000685	0	0.20840E-05	514149.0	3754014.2	660.4	3.49	4.00	3.25	YES	
L0000686	0	0.20840E-05	514140.6	3754012.2	660.6	3.49	4.00	3.25	YES	
L0000687	0	0.20840E-05	514132.3	3754010.1	660.8	3.49	4.00	3.25	YES	
L0000688	0	0.20840E-05	514123.9	3754008.0	661.0	3.49	4.00	3.25	YES	
L0000689	0	0.20840E-05	514115.6	3754006.0	661.2	3.49	4.00	3.25	YES	
L0000690	0	0.20840E-05	514107.3	3754003.9	661.4	3.49	4.00	3.25	YES	
L0000691	0	0.20840E-05	514098.9	3754001.8	661.6	3.49	4.00	3.25	YES	
L0000692	0	0.20840E-05	514090.6	3753999.8	661.8	3.49	4.00	3.25	YES	
L0000693	0	0.20840E-05	514082.3	3753997.7	662.0	3.49	4.00	3.25	YES	
L0000694	0	0.20840E-05	514073.9	3753995.6	662.2	3.49	4.00	3.25	YES	
L0000695	0	0.20840E-05	514065.6	3753993.6	662.5	3.49	4.00	3.25	YES	
L0000696	0	0.20840E-05	514057.2	3753991.5	662.7	3.49	4.00	3.25	YES	
L0000697	0	0.20840E-05	514048.9	3753989.4	662.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000698	0	0.20840E-05	514040.6	3753987.4	663.1	3.49	4.00	3.25	YES	
L0000699	0	0.20840E-05	514032.2	3753985.3	663.3	3.49	4.00	3.25	YES	
L0000700	0	0.20840E-05	514023.9	3753983.2	663.5	3.49	4.00	3.25	YES	
L0000701	0	0.20840E-05	514015.6	3753981.2	663.7	3.49	4.00	3.25	YES	
L0000702	0	0.20840E-05	514012.9	3753974.6	663.6	3.49	4.00	3.25	YES	
L0000703	0	0.20840E-05	514012.8	3753966.0	663.3	3.49	4.00	3.25	YES	
L0000704	0	0.20840E-05	514012.8	3753957.4	663.0	3.49	4.00	3.25	YES	
L0000705	0	0.20840E-05	514012.7	3753948.8	662.7	3.49	4.00	3.25	YES	
L0000706	0	0.20840E-05	514012.7	3753940.2	662.4	3.49	4.00	3.25	YES	
L0000707	0	0.20840E-05	514012.6	3753931.7	662.2	3.49	4.00	3.25	YES	
L0000708	0	0.20840E-05	514012.5	3753923.1	661.9	3.49	4.00	3.25	YES	
L0000709	0	0.20840E-05	514012.5	3753914.5	661.6	3.49	4.00	3.25	YES	
L0000710	0	0.20840E-05	514012.4	3753905.9	661.3	3.49	4.00	3.25	YES	
L0000711	0	0.20840E-05	514012.4	3753897.3	661.0	3.49	4.00	3.25	YES	
L0000712	0	0.20840E-05	514012.3	3753888.7	660.7	3.49	4.00	3.25	YES	
L0000713	0	0.20840E-05	514012.2	3753880.1	660.5	3.49	4.00	3.25	YES	
L0000714	0	0.20840E-05	514012.2	3753871.5	660.3	3.49	4.00	3.25	YES	
L0000715	0	0.20840E-05	514012.1	3753862.9	660.2	3.49	4.00	3.25	YES	
L0000716	0	0.20840E-05	514012.0	3753854.3	660.0	3.49	4.00	3.25	YES	
L0000717	0	0.20840E-05	514012.0	3753845.8	659.9	3.49	4.00	3.25	YES	
L0000718	0	0.20840E-05	514011.9	3753837.2	659.8	3.49	4.00	3.25	YES	
L0000719	0	0.20840E-05	514011.9	3753828.6	659.7	3.49	4.00	3.25	YES	
L0000720	0	0.20840E-05	514011.8	3753820.0	659.5	3.49	4.00	3.25	YES	
L0000721	0	0.20840E-05	514011.7	3753811.4	659.2	3.49	4.00	3.25	YES	
L0000722	0	0.20840E-05	514011.7	3753802.8	658.9	3.49	4.00	3.25	YES	
L0000723	0	0.20840E-05	514011.6	3753794.2	658.7	3.49	4.00	3.25	YES	
L0000724	0	0.20840E-05	514011.6	3753785.6	658.7	3.49	4.00	3.25	YES	
L0000725	0	0.20840E-05	514011.5	3753777.0	658.7	3.49	4.00	3.25	YES	
L0000726	0	0.20840E-05	514011.4	3753768.4	658.7	3.49	4.00	3.25	YES	
L0000897	0	0.17900E-05	514095.8	3753764.3	655.8	3.49	4.00	3.25	YES	
L0000898	0	0.17900E-05	514095.7	3753772.9	655.9	3.49	4.00	3.25	YES	
L0000899	0	0.17900E-05	514095.5	3753781.5	655.9	3.49	4.00	3.25	YES	
L0000900	0	0.17900E-05	514095.4	3753790.1	656.0	3.49	4.00	3.25	YES	
L0000901	0	0.17900E-05	514095.2	3753798.7	656.1	3.49	4.00	3.25	YES	
L0000902	0	0.17900E-05	514098.4	3753804.0	656.2	3.49	4.00	3.25	YES	
L0000903	0	0.17900E-05	514107.0	3753803.9	656.1	3.49	4.00	3.25	YES	
L0000904	0	0.17900E-05	514115.5	3753803.7	656.0	3.49	4.00	3.25	YES	
L0000905	0	0.17900E-05	514124.1	3753803.6	655.9	3.49	4.00	3.25	YES	
L0000906	0	0.17900E-05	514132.7	3753803.5	655.7	3.49	4.00	3.25	YES	
L0000907	0	0.17900E-05	514141.3	3753803.3	655.5	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000908	0	0.17900E-05	514149.9	3753803.2	655.3	3.49	4.00	3.25	YES	
L0000909	0	0.17900E-05	514158.5	3753803.1	655.0	3.49	4.00	3.25	YES	
L0000910	0	0.17900E-05	514167.1	3753802.9	654.7	3.49	4.00	3.25	YES	
L0000911	0	0.17900E-05	514175.7	3753802.8	654.4	3.49	4.00	3.25	YES	
L0000912	0	0.17900E-05	514184.2	3753802.7	654.1	3.49	4.00	3.25	YES	
L0000913	0	0.17900E-05	514192.8	3753802.5	653.8	3.49	4.00	3.25	YES	
L0000914	0	0.17900E-05	514201.4	3753802.4	653.6	3.49	4.00	3.25	YES	
L0000915	0	0.17900E-05	514210.0	3753802.3	653.3	3.49	4.00	3.25	YES	
L0000916	0	0.17900E-05	514218.6	3753802.1	653.0	3.49	4.00	3.25	YES	
L0000917	0	0.17900E-05	514227.2	3753802.0	652.7	3.49	4.00	3.25	YES	
L0000918	0	0.17900E-05	514235.8	3753801.9	652.4	3.49	4.00	3.25	YES	
L0000919	0	0.17900E-05	514244.4	3753801.7	652.1	3.49	4.00	3.25	YES	
L0000920	0	0.17900E-05	514253.0	3753801.6	651.8	3.49	4.00	3.25	YES	
L0000921	0	0.17900E-05	514261.6	3753801.5	651.5	3.49	4.00	3.25	YES	
L0000922	0	0.17900E-05	514270.1	3753801.3	651.2	3.49	4.00	3.25	YES	
L0000923	0	0.17900E-05	514278.7	3753801.2	650.9	3.49	4.00	3.25	YES	
L0000924	0	0.17900E-05	514287.3	3753801.1	650.6	3.49	4.00	3.25	YES	
L0000925	0	0.17900E-05	514295.9	3753800.9	650.4	3.49	4.00	3.25	YES	
L0000926	0	0.17900E-05	514304.5	3753800.8	650.1	3.49	4.00	3.25	YES	
L0000927	0	0.17900E-05	514313.1	3753800.7	649.8	3.49	4.00	3.25	YES	
L0000928	0	0.17900E-05	514321.7	3753800.5	649.5	3.49	4.00	3.25	YES	
L0000929	0	0.17900E-05	514330.3	3753800.4	649.2	3.49	4.00	3.25	YES	
L0000930	0	0.17900E-05	514338.9	3753800.3	648.9	3.49	4.00	3.25	YES	
L0000931	0	0.17900E-05	514347.4	3753800.2	648.6	3.49	4.00	3.25	YES	
L0000932	0	0.17900E-05	514356.0	3753800.0	648.3	3.49	4.00	3.25	YES	
L0000933	0	0.17900E-05	514364.6	3753799.9	648.0	3.49	4.00	3.25	YES	
L0000934	0	0.17900E-05	514373.2	3753799.8	647.8	3.49	4.00	3.25	YES	
L0000935	0	0.17900E-05	514381.8	3753799.6	647.5	3.49	4.00	3.25	YES	
L0000936	0	0.17900E-05	514390.4	3753799.5	647.2	3.49	4.00	3.25	YES	
L0000937	0	0.17900E-05	514399.0	3753799.4	646.8	3.49	4.00	3.25	YES	
L0000938	0	0.17900E-05	514407.6	3753799.2	646.5	3.49	4.00	3.25	YES	
L0000939	0	0.17900E-05	514416.2	3753799.1	646.2	3.49	4.00	3.25	YES	
L0000940	0	0.17900E-05	514424.7	3753799.0	645.9	3.49	4.00	3.25	YES	
L0000941	0	0.17900E-05	514433.3	3753798.8	645.6	3.49	4.00	3.25	YES	
L0000942	0	0.17900E-05	514441.9	3753798.7	645.4	3.49	4.00	3.25	YES	
L0000943	0	0.17900E-05	514450.5	3753798.6	645.1	3.49	4.00	3.25	YES	
L0000944	0	0.17900E-05	514459.1	3753798.4	645.1	3.49	4.00	3.25	YES	
L0000945	0	0.17900E-05	514467.7	3753798.3	645.0	3.49	4.00	3.25	YES	
L0000946	0	0.17900E-05	514476.3	3753798.2	645.0	3.49	4.00	3.25	YES	
L0000947	0	0.17900E-05	514484.9	3753798.0	644.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000948	0	0.17900E-05	514493.5	3753797.9	644.6	3.49	4.00	3.25	YES	
L0000949	0	0.17900E-05	514502.0	3753797.8	644.4	3.49	4.00	3.25	YES	
L0000950	0	0.17900E-05	514510.6	3753797.6	644.1	3.49	4.00	3.25	YES	
L0000951	0	0.17900E-05	514519.2	3753797.5	643.8	3.49	4.00	3.25	YES	
L0000952	0	0.17900E-05	514527.8	3753797.4	643.5	3.49	4.00	3.25	YES	
L0000953	0	0.17900E-05	514536.4	3753797.2	643.2	3.49	4.00	3.25	YES	
L0000954	0	0.17900E-05	514538.2	3753790.5	642.9	3.49	4.00	3.25	YES	
L0000955	0	0.17900E-05	514538.0	3753781.9	642.7	3.49	4.00	3.25	YES	
L0000956	0	0.17900E-05	514537.8	3753773.3	642.4	3.49	4.00	3.25	YES	
L0000957	0	0.17900E-05	514537.7	3753764.7	642.1	3.49	4.00	3.25	YES	
L0000958	0	0.21020E-05	514589.9	3754131.5	651.6	3.49	4.00	3.25	YES	
L0000959	0	0.21020E-05	514582.4	3754127.4	651.7	3.49	4.00	3.25	YES	
L0000960	0	0.21020E-05	514574.8	3754123.3	651.9	3.49	4.00	3.25	YES	
L0000961	0	0.21020E-05	514567.3	3754119.1	652.2	3.49	4.00	3.25	YES	
L0000962	0	0.21020E-05	514559.8	3754115.0	652.6	3.49	4.00	3.25	YES	
L0000963	0	0.21020E-05	514552.3	3754110.9	653.0	3.49	4.00	3.25	YES	
L0000964	0	0.21020E-05	514544.7	3754106.7	653.2	3.49	4.00	3.25	YES	
L0000965	0	0.21020E-05	514537.2	3754102.6	653.4	3.49	4.00	3.25	YES	
L0000966	0	0.21020E-05	514529.7	3754098.5	653.5	3.49	4.00	3.25	YES	
L0000967	0	0.21020E-05	514522.1	3754094.3	653.6	3.49	4.00	3.25	YES	
L0000968	0	0.21020E-05	514514.7	3754090.1	653.7	3.49	4.00	3.25	YES	
L0000969	0	0.21020E-05	514513.3	3754081.7	653.5	3.49	4.00	3.25	YES	
L0000970	0	0.21020E-05	514505.9	3754078.8	653.6	3.49	4.00	3.25	YES	
L0000971	0	0.21020E-05	514497.6	3754076.9	653.8	3.49	4.00	3.25	YES	
L0000972	0	0.21020E-05	514489.2	3754075.0	654.0	3.49	4.00	3.25	YES	
L0000973	0	0.21020E-05	514480.8	3754073.1	654.3	3.49	4.00	3.25	YES	
L0000974	0	0.21020E-05	514472.4	3754071.2	654.5	3.49	4.00	3.25	YES	
L0000975	0	0.21020E-05	514464.1	3754069.3	654.7	3.49	4.00	3.25	YES	
L0000976	0	0.21020E-05	514455.7	3754067.4	654.9	3.49	4.00	3.25	YES	
L0000977	0	0.21020E-05	514447.3	3754065.5	655.1	3.49	4.00	3.25	YES	
L0000978	0	0.21020E-05	514438.9	3754063.6	655.3	3.49	4.00	3.25	YES	
L0000979	0	0.21020E-05	514430.6	3754061.7	655.5	3.49	4.00	3.25	YES	
L0000980	0	0.21020E-05	514422.2	3754059.7	655.6	3.49	4.00	3.25	YES	
L0000981	0	0.21020E-05	514413.7	3754058.4	655.6	3.49	4.00	3.25	YES	
L0000982	0	0.21020E-05	514405.1	3754058.3	655.6	3.49	4.00	3.25	YES	
L0000983	0	0.21020E-05	514396.6	3754058.1	655.7	3.49	4.00	3.25	YES	
L0000984	0	0.21020E-05	514388.0	3754057.9	655.9	3.49	4.00	3.25	YES	
L0000985	0	0.21020E-05	514379.4	3754057.8	656.1	3.49	4.00	3.25	YES	
L0000986	0	0.21020E-05	514370.8	3754057.6	656.4	3.49	4.00	3.25	YES	
L0000987	0	0.21020E-05	514362.2	3754057.4	656.7	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000988	0	0.21020E-05	514353.6	3754057.2	657.0	3.49	4.00	3.25	YES	
L0000989	0	0.21020E-05	514345.0	3754057.1	657.3	3.49	4.00	3.25	YES	
L0000990	0	0.21020E-05	514336.4	3754056.9	657.5	3.49	4.00	3.25	YES	
L0000991	0	0.21020E-05	514327.8	3754056.7	657.8	3.49	4.00	3.25	YES	
L0000992	0	0.21020E-05	514319.3	3754056.6	658.1	3.49	4.00	3.25	YES	
L0000993	0	0.21020E-05	514310.7	3754056.4	658.4	3.49	4.00	3.25	YES	
L0000994	0	0.21020E-05	514306.2	3754056.9	658.5	3.49	4.00	3.25	YES	
L0000995	0	0.21020E-05	514314.5	3754059.3	658.3	3.49	4.00	3.25	YES	
L0000996	0	0.21020E-05	514322.7	3754061.7	658.2	3.49	4.00	3.25	YES	
L0000997	0	0.21020E-05	514331.0	3754064.0	658.0	3.49	4.00	3.25	YES	
L0000998	0	0.21020E-05	514339.2	3754066.4	657.8	3.49	4.00	3.25	YES	
L0000999	0	0.21020E-05	514347.5	3754068.8	657.6	3.49	4.00	3.25	YES	
L0001000	0	0.21020E-05	514355.7	3754071.2	657.4	3.49	4.00	3.25	YES	
L0001001	0	0.21020E-05	514364.0	3754073.6	657.2	3.49	4.00	3.25	YES	
L0001002	0	0.21020E-05	514372.2	3754076.0	657.0	3.49	4.00	3.25	YES	
L0001003	0	0.21020E-05	514380.5	3754078.4	656.8	3.49	4.00	3.25	YES	
L0001004	0	0.21020E-05	514388.7	3754080.8	656.6	3.49	4.00	3.25	YES	
L0001005	0	0.21020E-05	514397.0	3754083.2	656.6	3.49	4.00	3.25	YES	
L0001006	0	0.21020E-05	514405.2	3754085.6	656.7	3.49	4.00	3.25	YES	
L0001007	0	0.21020E-05	514413.5	3754088.0	656.7	3.49	4.00	3.25	YES	
L0001008	0	0.21020E-05	514421.7	3754090.4	656.8	3.49	4.00	3.25	YES	
L0001009	0	0.21020E-05	514430.0	3754092.7	656.6	3.49	4.00	3.25	YES	
L0001010	0	0.21020E-05	514438.2	3754095.1	656.4	3.49	4.00	3.25	YES	
L0001011	0	0.21020E-05	514446.5	3754097.5	656.3	3.49	4.00	3.25	YES	
L0001012	0	0.21020E-05	514454.7	3754099.9	656.2	3.49	4.00	3.25	YES	
L0001013	0	0.21020E-05	514463.0	3754102.3	656.1	3.49	4.00	3.25	YES	
L0001014	0	0.21020E-05	514471.2	3754104.7	655.9	3.49	4.00	3.25	YES	
L0001015	0	0.21020E-05	514479.5	3754107.1	655.8	3.49	4.00	3.25	YES	
L0001016	0	0.21020E-05	514487.7	3754109.5	655.6	3.49	4.00	3.25	YES	
L0001017	0	0.21020E-05	514495.2	3754109.1	655.2	3.49	4.00	3.25	YES	
L0001018	0	0.21020E-05	514500.9	3754102.6	654.7	3.49	4.00	3.25	YES	
L0001019	0	0.21020E-05	514506.6	3754096.2	654.2	3.49	4.00	3.25	YES	
L0000789	0	0.33910E-05	514094.0	3753830.9	657.1	3.49	4.00	3.25	YES	
L0000790	0	0.33910E-05	514102.6	3753830.8	656.8	3.49	4.00	3.25	YES	
L0000791	0	0.33910E-05	514111.2	3753830.7	656.5	3.49	4.00	3.25	YES	
L0000792	0	0.33910E-05	514119.8	3753830.6	656.2	3.49	4.00	3.25	YES	
L0000793	0	0.33910E-05	514128.4	3753830.4	656.1	3.49	4.00	3.25	YES	
L0000794	0	0.33910E-05	514137.0	3753830.3	656.1	3.49	4.00	3.25	YES	
L0000795	0	0.33910E-05	514145.6	3753830.2	656.0	3.49	4.00	3.25	YES	
L0000796	0	0.33910E-05	514154.2	3753830.0	655.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000797	0	0.33910E-05	514162.8	3753829.9	655.6	3.49	4.00	3.25	YES	
L0000798	0	0.33910E-05	514171.4	3753829.8	655.3	3.49	4.00	3.25	YES	
L0000799	0	0.33910E-05	514179.9	3753829.7	655.0	3.49	4.00	3.25	YES	
L0000800	0	0.33910E-05	514188.5	3753829.5	654.8	3.49	4.00	3.25	YES	
L0000801	0	0.33910E-05	514197.1	3753829.4	654.5	3.49	4.00	3.25	YES	
L0000802	0	0.33910E-05	514205.7	3753829.3	654.2	3.49	4.00	3.25	YES	
L0000803	0	0.33910E-05	514214.3	3753829.1	653.9	3.49	4.00	3.25	YES	
L0000804	0	0.33910E-05	514222.9	3753829.0	653.7	3.49	4.00	3.25	YES	
L0000805	0	0.33910E-05	514231.5	3753828.9	653.4	3.49	4.00	3.25	YES	
L0000806	0	0.33910E-05	514240.1	3753828.8	653.1	3.49	4.00	3.25	YES	
L0000807	0	0.33910E-05	514248.7	3753828.6	652.9	3.49	4.00	3.25	YES	
L0000808	0	0.33910E-05	514257.2	3753828.5	652.6	3.49	4.00	3.25	YES	
L0000809	0	0.33910E-05	514265.8	3753828.4	652.3	3.49	4.00	3.25	YES	
L0000810	0	0.33910E-05	514274.4	3753828.2	652.0	3.49	4.00	3.25	YES	
L0000811	0	0.33910E-05	514283.0	3753828.1	651.7	3.49	4.00	3.25	YES	
L0000812	0	0.33910E-05	514291.6	3753828.0	651.4	3.49	4.00	3.25	YES	
L0000813	0	0.33910E-05	514300.2	3753827.9	651.1	3.49	4.00	3.25	YES	
L0000814	0	0.33910E-05	514308.8	3753827.7	650.8	3.49	4.00	3.25	YES	
L0000815	0	0.33910E-05	514317.4	3753827.6	650.5	3.49	4.00	3.25	YES	
L0000816	0	0.33910E-05	514326.0	3753827.5	650.2	3.49	4.00	3.25	YES	
L0000817	0	0.33910E-05	514334.5	3753827.3	649.9	3.49	4.00	3.25	YES	
L0000818	0	0.33910E-05	514343.1	3753827.2	649.7	3.49	4.00	3.25	YES	
L0000819	0	0.33910E-05	514351.7	3753827.1	649.4	3.49	4.00	3.25	YES	
L0000820	0	0.33910E-05	514360.3	3753826.9	649.1	3.49	4.00	3.25	YES	
L0000821	0	0.33910E-05	514368.9	3753826.8	648.8	3.49	4.00	3.25	YES	
L0000822	0	0.33910E-05	514377.5	3753826.7	648.5	3.49	4.00	3.25	YES	
L0000823	0	0.33910E-05	514386.1	3753826.6	648.2	3.49	4.00	3.25	YES	
L0000824	0	0.33910E-05	514394.7	3753826.4	647.8	3.49	4.00	3.25	YES	
L0000825	0	0.33910E-05	514403.3	3753826.3	647.2	3.49	4.00	3.25	YES	
L0000826	0	0.33910E-05	514411.8	3753826.2	646.7	3.49	4.00	3.25	YES	
L0000827	0	0.33910E-05	514420.4	3753826.0	646.1	3.49	4.00	3.25	YES	
L0000828	0	0.33910E-05	514429.0	3753825.9	646.0	3.49	4.00	3.25	YES	
L0000829	0	0.33910E-05	514437.6	3753825.8	646.0	3.49	4.00	3.25	YES	
L0000830	0	0.33910E-05	514446.2	3753825.7	646.0	3.49	4.00	3.25	YES	
L0000831	0	0.33910E-05	514454.8	3753825.5	645.9	3.49	4.00	3.25	YES	
L0000832	0	0.33910E-05	514463.4	3753825.4	645.6	3.49	4.00	3.25	YES	
L0000833	0	0.33910E-05	514472.0	3753825.3	645.3	3.49	4.00	3.25	YES	
L0000834	0	0.33910E-05	514480.6	3753825.1	645.0	3.49	4.00	3.25	YES	
L0000835	0	0.33910E-05	514489.1	3753825.0	645.0	3.49	4.00	3.25	YES	
L0000836	0	0.33910E-05	514497.7	3753824.9	645.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000837	0	0.33910E-05	514506.3	3753824.8	645.0	3.49	4.00	3.25	YES	
L0000838	0	0.33910E-05	514514.9	3753824.6	644.8	3.49	4.00	3.25	YES	
L0000839	0	0.33910E-05	514523.5	3753824.5	644.6	3.49	4.00	3.25	YES	
L0000840	0	0.33910E-05	514532.1	3753824.4	644.3	3.49	4.00	3.25	YES	
L0000841	0	0.33910E-05	514540.7	3753824.2	644.0	3.49	4.00	3.25	YES	
L0000842	0	0.40100E-05	514229.9	3754009.4	658.5	3.49	4.00	3.25	YES	
L0000843	0	0.40100E-05	514238.5	3754009.5	658.2	3.49	4.00	3.25	YES	
L0000844	0	0.40100E-05	514247.1	3754009.6	658.1	3.49	4.00	3.25	YES	
L0000845	0	0.40100E-05	514255.6	3754009.7	658.1	3.49	4.00	3.25	YES	
L0000846	0	0.40100E-05	514264.2	3754009.8	658.1	3.49	4.00	3.25	YES	
L0000847	0	0.40100E-05	514272.8	3754009.9	658.1	3.49	4.00	3.25	YES	
L0000848	0	0.40100E-05	514281.4	3754010.1	657.8	3.49	4.00	3.25	YES	
L0000849	0	0.40100E-05	514290.0	3754010.2	657.5	3.49	4.00	3.25	YES	
L0000850	0	0.40100E-05	514298.6	3754010.3	657.2	3.49	4.00	3.25	YES	
L0000851	0	0.40100E-05	514307.2	3754010.4	657.0	3.49	4.00	3.25	YES	
L0000852	0	0.40100E-05	514315.8	3754010.5	656.7	3.49	4.00	3.25	YES	
L0000853	0	0.40100E-05	514324.4	3754010.6	656.4	3.49	4.00	3.25	YES	
L0000854	0	0.40100E-05	514333.0	3754010.7	656.1	3.49	4.00	3.25	YES	
L0000855	0	0.40100E-05	514341.5	3754010.8	655.8	3.49	4.00	3.25	YES	
L0000856	0	0.40100E-05	514350.1	3754011.0	655.6	3.49	4.00	3.25	YES	
L0000857	0	0.40100E-05	514358.7	3754011.1	655.3	3.49	4.00	3.25	YES	
L0000858	0	0.40100E-05	514367.3	3754011.2	655.0	3.49	4.00	3.25	YES	
L0000859	0	0.40100E-05	514375.9	3754011.3	654.7	3.49	4.00	3.25	YES	
L0000860	0	0.40100E-05	514384.5	3754011.4	654.4	3.49	4.00	3.25	YES	
L0000861	0	0.40100E-05	514393.1	3754011.5	654.1	3.49	4.00	3.25	YES	
L0000862	0	0.40100E-05	514401.7	3754011.6	653.9	3.49	4.00	3.25	YES	
L0000863	0	0.40100E-05	514410.3	3754011.7	653.6	3.49	4.00	3.25	YES	
L0000864	0	0.40100E-05	514418.8	3754011.8	653.3	3.49	4.00	3.25	YES	
L0000865	0	0.40100E-05	514427.4	3754012.0	653.0	3.49	4.00	3.25	YES	
L0000866	0	0.40100E-05	514436.0	3754012.1	652.8	3.49	4.00	3.25	YES	
L0000867	0	0.40100E-05	514444.6	3754012.2	652.6	3.49	4.00	3.25	YES	
L0000868	0	0.40100E-05	514453.2	3754012.3	652.4	3.49	4.00	3.25	YES	
L0000869	0	0.40100E-05	514461.8	3754012.4	652.4	3.49	4.00	3.25	YES	
L0000870	0	0.40100E-05	514470.4	3754012.5	652.3	3.49	4.00	3.25	YES	
L0000871	0	0.40100E-05	514479.0	3754012.6	652.2	3.49	4.00	3.25	YES	
L0000872	0	0.40100E-05	514487.6	3754012.7	651.9	3.49	4.00	3.25	YES	
L0000873	0	0.40100E-05	514496.1	3754012.9	651.4	3.49	4.00	3.25	YES	
L0000874	0	0.40100E-05	514504.7	3754013.0	650.9	3.49	4.00	3.25	YES	
L0000875	0	0.40100E-05	514513.3	3754013.1	650.5	3.49	4.00	3.25	YES	
L0000876	0	0.40100E-05	514521.9	3754013.2	650.4	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000877	0	0.40100E-05	514530.5	3754013.3	650.3	3.49	4.00	3.25	YES	
L0000878	0	0.40100E-05	514539.1	3754013.4	650.3	3.49	4.00	3.25	YES	
L0000879	0	0.40100E-05	514547.7	3754013.5	650.1	3.49	4.00	3.25	YES	
L0000880	0	0.40100E-05	514556.3	3754013.6	649.8	3.49	4.00	3.25	YES	
L0000881	0	0.40100E-05	514564.9	3754013.7	649.5	3.49	4.00	3.25	YES	
L0000882	0	0.40100E-05	514573.5	3754013.9	649.2	3.49	4.00	3.25	YES	
L0000883	0	0.33620E-05	514044.1	3753960.0	662.1	3.49	4.00	3.25	YES	
L0000884	0	0.33620E-05	514044.3	3753951.4	661.8	3.49	4.00	3.25	YES	
L0000885	0	0.33620E-05	514044.4	3753942.9	661.5	3.49	4.00	3.25	YES	
L0000886	0	0.33620E-05	514044.5	3753934.3	661.2	3.49	4.00	3.25	YES	
L0000887	0	0.33620E-05	514044.6	3753925.7	660.9	3.49	4.00	3.25	YES	
L0000888	0	0.33620E-05	514044.8	3753917.1	660.6	3.49	4.00	3.25	YES	
L0000889	0	0.33620E-05	514044.9	3753908.5	660.4	3.49	4.00	3.25	YES	
L0000890	0	0.33620E-05	514045.0	3753899.9	660.3	3.49	4.00	3.25	YES	
L0000891	0	0.33620E-05	514045.1	3753891.3	660.1	3.49	4.00	3.25	YES	
L0000892	0	0.33620E-05	514045.2	3753882.7	659.9	3.49	4.00	3.25	YES	
L0000893	0	0.33620E-05	514045.4	3753874.1	659.6	3.49	4.00	3.25	YES	
L0000894	0	0.33620E-05	514045.5	3753865.6	659.4	3.49	4.00	3.25	YES	
L0000895	0	0.33620E-05	514045.6	3753857.0	659.1	3.49	4.00	3.25	YES	
L0000896	0	0.33620E-05	514045.7	3753848.4	658.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 ,
	L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 ,
	L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 ,
	L0000025 , L0000026 , L0000027 , L0000028 , L0000057 , L0000058 , L0000059 , L0000060 ,
	L0000061 , L0000062 , L0000063 , L0000064 , L0000065 , L0000066 , L0000067 , L0000068 ,
	L0000069 , L0000070 , L0000071 , L0000072 , L0000073 , L0000074 , L0000075 , L0000076 ,
	L0000077 , L0000078 , L0000079 , L0000080 , L0000081 , L0000082 , L0000083 , L0000084 ,
	L0000085 , L0000086 , L0000087 , L0000088 , L0000089 , L0000090 , L0000091 , L0000092 ,
	L0000093 , L0000094 , L0000095 , L0000096 , L0000097 , L0000098 , L0000099 , L0000100 ,
	L0000101 , L0000102 , L0000103 , L0000104 , L0000105 , L0000106 , L0000107 , L0000108 ,
	L0000109 , L0000110 , L0000111 , L0000112 , L0000113 , L0000114 , L0000115 , L0000116 ,
	L0000117 , L0000118 , L0000119 , L0000120 , L0000121 , L0000122 , L0000123 , L0000124 ,
	L0000125 , L0000126 , L0000127 , L0000128 , L0000129 , L0000130 , L0000131 , L0000132 ,
	L0000133 , L0000134 , L0000135 , L0000136 , L0000137 , L0000138 , L0000139 , L0000140 ,
	L0000141 , L0000142 , L0000143 , L0000144 , L0000145 , L0000146 , L0000147 , L0000148 ,
	L0000149 , L0000150 , L0000151 , L0000152 , L0000153 , L0000154 , L0000155 , L0000156 ,
	L0000157 , L0000158 , L0000159 , L0000160 , L0000161 , L0000162 , L0000163 , L0000164 ,
	L0000165 , L0000166 , L0000167 , L0000168 , L0000169 , L0000170 , L0000171 , L0000172 ,
	L0000173 , L0000174 , L0000175 , L0000176 , L0000177 , L0000178 , L0000179 , L0000180 ,
	L0000181 , L0000182 , L0000183 , L0000184 , L0000185 , L0000186 , L0000187 , L0000188 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0000189 , L0000190 , L0000191 , L0000192 , L0000193 , L0000194 , L0000195 , L0000196 ,
	L0000197 , L0000198 , L0000199 , L0000200 , L0000201 , L0000202 , L0000203 , L0000204 ,
	L0000205 , L0000206 , L0000207 , L0000208 , L0000209 , L0000210 , L0000211 , L0000212 ,
	L0000213 , L0000214 , L0000215 , L0000216 , L0000217 , L0000218 , L0000219 , L0000220 ,
	L0000221 , L0000222 , L0000223 , L0000224 , L0000225 , L0000226 , L0000227 , L0000228 ,
	L0000229 , L0000230 , L0000231 , L0000232 , L0000233 , L0000234 , L0000235 , L0000236 ,
	L0000237 , L0000238 , L0000239 , L0000240 , L0000241 , L0000242 , L0000243 , L0000244 ,
	L0000245 , L0000246 , L0000247 , L0000248 , L0000249 , L0000250 , L0000251 , L0000252 ,
	L0000253 , L0000254 , L0000255 , L0000256 , L0000257 , L0000258 , L0000259 , L0000260 ,
	L0000261 , L0000262 , L0000263 , L0000264 , L0000265 , L0000266 , L0000267 , L0000268 ,
	L0000269 , L0000270 , L0000271 , L0000272 , L0000273 , L0000274 , L0000275 , L0000276 ,
	L0000277 , L0000278 , L0000279 , L0000280 , L0000281 , L0000282 , L0000283 , L0000284 ,
	L0000285 , L0000286 , L0000287 , L0000288 , L0000289 , L0000290 , L0000291 , L0000292 ,
	L0000293 , L0000294 , L0000295 , L0000296 , L0000297 , L0000298 , L0000299 , L0000300 ,
	L0000301 , L0000302 , L0000303 , L0000304 , L0000305 , L0000306 , L0000307 , L0000308 ,
	L0000309 , L0000310 , L0000311 , L0000312 , L0000313 , L0000314 , L0000315 , L0000316 ,
	L0000317 , L0000318 , L0000319 , L0000320 , L0000321 , L0000322 , L0000323 , L0000324 ,
	L0000325 , L0000326 , L0000327 , L0000328 , L0000329 , L0000330 , L0000331 , L0000332 ,
	L0000333 , L0000334 , L0000335 , L0000336 , L0000337 , L0000338 , L0000339 , L0000340 ,
	L0000341 , L0000342 , L0000343 , L0000344 , L0000345 , L0000346 , L0000347 , L0000348 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0000349 , L0000350 , L0000351 , L0000352 , L0000353 , L0000354 , L0000355 , L0000356 ,
	L0000357 , L0000358 , L0000359 , L0000360 , L0000361 , L0000362 , L0000363 , L0000364 ,
	L0000365 , L0000366 , L0000367 , L0000368 , L0000369 , L0000370 , L0000371 , L0000372 ,
	L0000373 , L0000374 , L0000375 , L0000376 , L0000377 , L0000378 , L0000379 , L0000380 ,
	L0000381 , L0000382 , L0000383 , L0000384 , L0000385 , L0000386 , L0000387 , L0000388 ,
	L0000389 , L0000390 , L0000391 , L0000392 , L0000393 , L0000394 , L0000395 , L0000396 ,
	L0000397 , L0000398 , L0000399 , L0000400 , L0000401 , L0000402 , L0000403 , L0000404 ,
	L0000405 , L0000406 , L0000407 , L0000408 , L0000409 , L0000599 , L0000600 , L0000601 ,
	L0000602 , L0000603 , L0000604 , L0000605 , L0000606 , L0000607 , L0000608 , L0000609 ,
	L0000610 , L0000611 , L0000612 , L0000613 , L0000614 , L0000615 , L0000616 , L0000617 ,
	L0000618 , L0000619 , L0000620 , L0000621 , L0000622 , L0000623 , L0000624 , L0000625 ,
	L0000626 , L0000627 , L0000628 , L0000629 , L0000630 , L0000631 , L0000632 , L0000633 ,
	L0000634 , L0000635 , L0000636 , L0000637 , L0000638 , L0000639 , L0000640 , L0000641 ,
	L0000642 , L0000643 , L0000644 , L0000645 , L0000646 , L0000647 , L0000648 , L0000649 ,
	L0000650 , L0000651 , L0000652 , L0000653 , L0000654 , L0000655 , L0000656 , L0000657 ,
	L0000658 , L0000659 , L0000660 , L0000661 , L0000662 , L0000663 , L0000664 , L0000665 ,
	L0000666 , L0000667 , L0000668 , L0000669 , L0000670 , L0000671 , L0000672 , L0000673 ,
	L0000674 , L0000675 , L0000676 , L0000677 , L0000678 , L0000679 , L0000680 , L0000681 ,
	L0000682 , L0000683 , L0000684 , L0000685 , L0000686 , L0000687 , L0000688 , L0000689 ,
	L0000690 , L0000691 , L0000692 , L0000693 , L0000694 , L0000695 , L0000696 , L0000697 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0000698 , L0000699 , L0000700 , L0000701 , L0000702 , L0000703 , L0000704 , L0000705 ,
	L0000706 , L0000707 , L0000708 , L0000709 , L0000710 , L0000711 , L0000712 , L0000713 ,
	L0000714 , L0000715 , L0000716 , L0000717 , L0000718 , L0000719 , L0000720 , L0000721 ,
	L0000722 , L0000723 , L0000724 , L0000725 , L0000726 , L0000897 , L0000898 , L0000899 ,
	L0000900 , L0000901 , L0000902 , L0000903 , L0000904 , L0000905 , L0000906 , L0000907 ,
	L0000908 , L0000909 , L0000910 , L0000911 , L0000912 , L0000913 , L0000914 , L0000915 ,
	L0000916 , L0000917 , L0000918 , L0000919 , L0000920 , L0000921 , L0000922 , L0000923 ,
	L0000924 , L0000925 , L0000926 , L0000927 , L0000928 , L0000929 , L0000930 , L0000931 ,
	L0000932 , L0000933 , L0000934 , L0000935 , L0000936 , L0000937 , L0000938 , L0000939 ,
	L0000940 , L0000941 , L0000942 , L0000943 , L0000944 , L0000945 , L0000946 , L0000947 ,
	L0000948 , L0000949 , L0000950 , L0000951 , L0000952 , L0000953 , L0000954 , L0000955 ,
	L0000956 , L0000957 , L0000958 , L0000959 , L0000960 , L0000961 , L0000962 , L0000963 ,
	L0000964 , L0000965 , L0000966 , L0000967 , L0000968 , L0000969 , L0000970 , L0000971 ,
	L0000972 , L0000973 , L0000974 , L0000975 , L0000976 , L0000977 , L0000978 , L0000979 ,
	L0000980 , L0000981 , L0000982 , L0000983 , L0000984 , L0000985 , L0000986 , L0000987 ,
	L0000988 , L0000989 , L0000990 , L0000991 , L0000992 , L0000993 , L0000994 , L0000995 ,
	L0000996 , L0000997 , L0000998 , L0000999 , L0001000 , L0001001 , L0001002 , L0001003 ,
	L0001004 , L0001005 , L0001006 , L0001007 , L0001008 , L0001009 , L0001010 , L0001011 ,
	L0001012 , L0001013 , L0001014 , L0001015 , L0001016 , L0001017 , L0001018 , L0001019 ,
	L0000789 , L0000790 , L0000791 , L0000792 , L0000793 , L0000794 , L0000795 , L0000796 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0000797 , L0000798 , L0000799 , L0000800 , L0000801 , L0000802 , L0000803 , L0000804 ,
	L0000805 , L0000806 , L0000807 , L0000808 , L0000809 , L0000810 , L0000811 , L0000812 ,
	L0000813 , L0000814 , L0000815 , L0000816 , L0000817 , L0000818 , L0000819 , L0000820 ,
	L0000821 , L0000822 , L0000823 , L0000824 , L0000825 , L0000826 , L0000827 , L0000828 ,
	L0000829 , L0000830 , L0000831 , L0000832 , L0000833 , L0000834 , L0000835 , L0000836 ,
	L0000837 , L0000838 , L0000839 , L0000840 , L0000841 , L0000842 , L0000843 , L0000844 ,
	L0000845 , L0000846 , L0000847 , L0000848 , L0000849 , L0000850 , L0000851 , L0000852 ,
	L0000853 , L0000854 , L0000855 , L0000856 , L0000857 , L0000858 , L0000859 , L0000860 ,
	L0000861 , L0000862 , L0000863 , L0000864 , L0000865 , L0000866 , L0000867 , L0000868 ,
	L0000869 , L0000870 , L0000871 , L0000872 , L0000873 , L0000874 , L0000875 , L0000876 ,
	L0000877 , L0000878 , L0000879 , L0000880 , L0000881 , L0000882 , L0000883 , L0000884 ,
	L0000885 , L0000886 , L0000887 , L0000888 , L0000889 , L0000890 , L0000891 , L0000892 ,
	L0000893 , L0000894 , L0000895 , L0000896 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	2189641.	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 ,
		L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 ,
		L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 ,
		L0000025 , L0000026 , L0000027 , L0000028 , L0000057 , L0000058 , L0000059 , L0000060 ,
		L0000061 , L0000062 , L0000063 , L0000064 , L0000065 , L0000066 , L0000067 , L0000068 ,
		L0000069 , L0000070 , L0000071 , L0000072 , L0000073 , L0000074 , L0000075 , L0000076 ,
		L0000077 , L0000078 , L0000079 , L0000080 , L0000081 , L0000082 , L0000083 , L0000084 ,
		L0000085 , L0000086 , L0000087 , L0000088 , L0000089 , L0000090 , L0000091 , L0000092 ,
		L0000093 , L0000094 , L0000095 , L0000096 , L0000097 , L0000098 , L0000099 , L0000100 ,
		L0000101 , L0000102 , L0000103 , L0000104 , L0000105 , L0000106 , L0000107 , L0000108 ,
		L0000109 , L0000110 , L0000111 , L0000112 , L0000113 , L0000114 , L0000115 , L0000116 ,
		L0000117 , L0000118 , L0000119 , L0000120 , L0000121 , L0000122 , L0000123 , L0000124 ,
		L0000125 , L0000126 , L0000127 , L0000128 , L0000129 , L0000130 , L0000131 , L0000132 ,
		L0000133 , L0000134 , L0000135 , L0000136 , L0000137 , L0000138 , L0000139 , L0000140 ,
		L0000141 , L0000142 , L0000143 , L0000144 , L0000145 , L0000146 , L0000147 , L0000148 ,
		L0000149 , L0000150 , L0000151 , L0000152 , L0000153 , L0000154 , L0000155 , L0000156 ,
		L0000157 , L0000158 , L0000159 , L0000160 , L0000161 , L0000162 , L0000163 , L0000164 ,
		L0000165 , L0000166 , L0000167 , L0000168 , L0000169 , L0000170 , L0000171 , L0000172 ,
		L0000173 , L0000174 , L0000175 , L0000176 , L0000177 , L0000178 , L0000179 , L0000180 ,
		L0000181 , L0000182 , L0000183 , L0000184 , L0000185 , L0000186 , L0000187 , L0000188 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0000189 , L0000190 , L0000191 , L0000192 , L0000193 , L0000194 , L0000195 , L0000196 ,
		L0000197 , L0000198 , L0000199 , L0000200 , L0000201 , L0000202 , L0000203 , L0000204 ,
		L0000205 , L0000206 , L0000207 , L0000208 , L0000209 , L0000210 , L0000211 , L0000212 ,
		L0000213 , L0000214 , L0000215 , L0000216 , L0000217 , L0000218 , L0000219 , L0000220 ,
		L0000221 , L0000222 , L0000223 , L0000224 , L0000225 , L0000226 , L0000227 , L0000228 ,
		L0000229 , L0000230 , L0000231 , L0000232 , L0000233 , L0000234 , L0000235 , L0000236 ,
		L0000237 , L0000238 , L0000239 , L0000240 , L0000241 , L0000242 , L0000243 , L0000244 ,
		L0000245 , L0000246 , L0000247 , L0000248 , L0000249 , L0000250 , L0000251 , L0000252 ,
		L0000253 , L0000254 , L0000255 , L0000256 , L0000257 , L0000258 , L0000259 , L0000260 ,
		L0000261 , L0000262 , L0000263 , L0000264 , L0000265 , L0000266 , L0000267 , L0000268 ,
		L0000269 , L0000270 , L0000271 , L0000272 , L0000273 , L0000274 , L0000275 , L0000276 ,
		L0000277 , L0000278 , L0000279 , L0000280 , L0000281 , L0000282 , L0000283 , L0000284 ,
		L0000285 , L0000286 , L0000287 , L0000288 , L0000289 , L0000290 , L0000291 , L0000292 ,
		L0000293 , L0000294 , L0000295 , L0000296 , L0000297 , L0000298 , L0000299 , L0000300 ,
		L0000301 , L0000302 , L0000303 , L0000304 , L0000305 , L0000306 , L0000307 , L0000308 ,
		L0000309 , L0000310 , L0000311 , L0000312 , L0000313 , L0000314 , L0000315 , L0000316 ,
		L0000317 , L0000318 , L0000319 , L0000320 , L0000321 , L0000322 , L0000323 , L0000324 ,
		L0000325 , L0000326 , L0000327 , L0000328 , L0000329 , L0000330 , L0000331 , L0000332 ,
		L0000333 , L0000334 , L0000335 , L0000336 , L0000337 , L0000338 , L0000339 , L0000340 ,
		L0000341 , L0000342 , L0000343 , L0000344 , L0000345 , L0000346 , L0000347 , L0000348 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0000349 , L0000350 , L0000351 , L0000352 , L0000353 , L0000354 , L0000355 , L0000356 ,
		L0000357 , L0000358 , L0000359 , L0000360 , L0000361 , L0000362 , L0000363 , L0000364 ,
		L0000365 , L0000366 , L0000367 , L0000368 , L0000369 , L0000370 , L0000371 , L0000372 ,
		L0000373 , L0000374 , L0000375 , L0000376 , L0000377 , L0000378 , L0000379 , L0000380 ,
		L0000381 , L0000382 , L0000383 , L0000384 , L0000385 , L0000386 , L0000387 , L0000388 ,
		L0000389 , L0000390 , L0000391 , L0000392 , L0000393 , L0000394 , L0000395 , L0000396 ,
		L0000397 , L0000398 , L0000399 , L0000400 , L0000401 , L0000402 , L0000403 , L0000404 ,
		L0000405 , L0000406 , L0000407 , L0000408 , L0000409 , L0000599 , L0000600 , L0000601 ,
		L0000602 , L0000603 , L0000604 , L0000605 , L0000606 , L0000607 , L0000608 , L0000609 ,
		L0000610 , L0000611 , L0000612 , L0000613 , L0000614 , L0000615 , L0000616 , L0000617 ,
		L0000618 , L0000619 , L0000620 , L0000621 , L0000622 , L0000623 , L0000624 , L0000625 ,
		L0000626 , L0000627 , L0000628 , L0000629 , L0000630 , L0000631 , L0000632 , L0000633 ,
		L0000634 , L0000635 , L0000636 , L0000637 , L0000638 , L0000639 , L0000640 , L0000641 ,
		L0000642 , L0000643 , L0000644 , L0000645 , L0000646 , L0000647 , L0000648 , L0000649 ,
		L0000650 , L0000651 , L0000652 , L0000653 , L0000654 , L0000655 , L0000656 , L0000657 ,
		L0000658 , L0000659 , L0000660 , L0000661 , L0000662 , L0000663 , L0000664 , L0000665 ,
		L0000666 , L0000667 , L0000668 , L0000669 , L0000670 , L0000671 , L0000672 , L0000673 ,
		L0000674 , L0000675 , L0000676 , L0000677 , L0000678 , L0000679 , L0000680 , L0000681 ,
		L0000682 , L0000683 , L0000684 , L0000685 , L0000686 , L0000687 , L0000688 , L0000689 ,
		L0000690 , L0000691 , L0000692 , L0000693 , L0000694 , L0000695 , L0000696 , L0000697 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0000698 , L0000699 , L0000700 , L0000701 , L0000702 , L0000703 , L0000704 , L0000705 ,
		L0000706 , L0000707 , L0000708 , L0000709 , L0000710 , L0000711 , L0000712 , L0000713 ,
		L0000714 , L0000715 , L0000716 , L0000717 , L0000718 , L0000719 , L0000720 , L0000721 ,
		L0000722 , L0000723 , L0000724 , L0000725 , L0000726 , L0000897 , L0000898 , L0000899 ,
		L0000900 , L0000901 , L0000902 , L0000903 , L0000904 , L0000905 , L0000906 , L0000907 ,
		L0000908 , L0000909 , L0000910 , L0000911 , L0000912 , L0000913 , L0000914 , L0000915 ,
		L0000916 , L0000917 , L0000918 , L0000919 , L0000920 , L0000921 , L0000922 , L0000923 ,
		L0000924 , L0000925 , L0000926 , L0000927 , L0000928 , L0000929 , L0000930 , L0000931 ,
		L0000932 , L0000933 , L0000934 , L0000935 , L0000936 , L0000937 , L0000938 , L0000939 ,
		L0000940 , L0000941 , L0000942 , L0000943 , L0000944 , L0000945 , L0000946 , L0000947 ,
		L0000948 , L0000949 , L0000950 , L0000951 , L0000952 , L0000953 , L0000954 , L0000955 ,
		L0000956 , L0000957 , L0000958 , L0000959 , L0000960 , L0000961 , L0000962 , L0000963 ,
		L0000964 , L0000965 , L0000966 , L0000967 , L0000968 , L0000969 , L0000970 , L0000971 ,
		L0000972 , L0000973 , L0000974 , L0000975 , L0000976 , L0000977 , L0000978 , L0000979 ,
		L0000980 , L0000981 , L0000982 , L0000983 , L0000984 , L0000985 , L0000986 , L0000987 ,
		L0000988 , L0000989 , L0000990 , L0000991 , L0000992 , L0000993 , L0000994 , L0000995 ,
		L0000996 , L0000997 , L0000998 , L0000999 , L0001000 , L0001001 , L0001002 , L0001003 ,
		L0001004 , L0001005 , L0001006 , L0001007 , L0001008 , L0001009 , L0001010 , L0001011 ,
		L0001012 , L0001013 , L0001014 , L0001015 , L0001016 , L0001017 , L0001018 , L0001019 ,
		L0000789 , L0000790 , L0000791 , L0000792 , L0000793 , L0000794 , L0000795 , L0000796 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0000797 , L0000798 , L0000799 , L0000800 , L0000801 , L0000802 , L0000803 , L0000804 ,
		L0000805 , L0000806 , L0000807 , L0000808 , L0000809 , L0000810 , L0000811 , L0000812 ,
		L0000813 , L0000814 , L0000815 , L0000816 , L0000817 , L0000818 , L0000819 , L0000820 ,
		L0000821 , L0000822 , L0000823 , L0000824 , L0000825 , L0000826 , L0000827 , L0000828 ,
		L0000829 , L0000830 , L0000831 , L0000832 , L0000833 , L0000834 , L0000835 , L0000836 ,
		L0000837 , L0000838 , L0000839 , L0000840 , L0000841 , L0000842 , L0000843 , L0000844 ,
		L0000845 , L0000846 , L0000847 , L0000848 , L0000849 , L0000850 , L0000851 , L0000852 ,
		L0000853 , L0000854 , L0000855 , L0000856 , L0000857 , L0000858 , L0000859 , L0000860 ,
		L0000861 , L0000862 , L0000863 , L0000864 , L0000865 , L0000866 , L0000867 , L0000868 ,
		L0000869 , L0000870 , L0000871 , L0000872 , L0000873 , L0000874 , L0000875 , L0000876 ,
		L0000877 , L0000878 , L0000879 , L0000880 , L0000881 , L0000882 , L0000883 , L0000884 ,
		L0000885 , L0000886 , L0000887 , L0000888 , L0000889 , L0000890 , L0000891 , L0000892 ,
		L0000893 , L0000894 , L0000895 , L0000896 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

511856.5, 511956.5, 512056.5, 512156.5, 512256.5, 512356.5, 512456.5, 512556.5, 512656.5, 512756.5,
512856.5, 512956.5, 513056.5, 513156.5, 513256.5, 513356.5, 513456.5, 513556.5, 513656.5, 513756.5,
513856.5, 513956.5, 514056.5, 514156.5, 514256.5, 514356.5, 514456.5, 514556.5, 514656.5, 514756.5,

*** Y-COORDINATES OF GRID ***
(METERS)

3752637.2, 3752737.2, 3752837.2, 3752937.2, 3753037.2, 3753137.2, 3753237.2, 3753337.2, 3753437.2, 3753537.2,
3753637.2, 3753737.2, 3753837.2, 3753937.2, 3754037.2, 3754137.2, 3754237.2, 3754337.2, 3754437.2, 3754537.2,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	727.60	725.90	724.60	722.70	720.90	719.60	717.70	715.90	713.60
3754437.16	723.90	722.40	721.20	719.40	717.60	716.20	713.90	712.40	710.20
3754337.16	720.00	719.00	717.90	716.00	714.20	712.90	711.00	709.00	706.90
3754237.16	716.90	715.80	714.60	713.20	711.70	709.70	708.20	706.10	704.00
3754137.16	714.40	713.40	711.40	710.20	708.40	707.20	705.40	703.50	701.30
3754037.16	712.00	710.00	708.90	707.50	706.00	704.00	702.60	700.20	698.90
3753937.16	709.20	706.90	705.70	704.40	702.90	701.60	699.90	697.80	695.70
3753837.16	706.40	704.60	703.20	701.40	699.60	698.40	697.40	695.50	693.20
3753737.16	704.50	702.20	700.00	698.60	696.20	696.00	695.00	693.20	690.90
3753637.16	702.20	699.80	697.60	695.20	694.10	692.70	691.70	689.90	687.60
3753537.16	699.20	696.60	695.20	692.90	691.50	689.90	688.20	686.40	684.40
3753437.16	696.60	694.20	692.80	690.60	689.00	686.90	685.00	683.20	681.80
3753337.16	694.20	692.10	690.60	688.40	686.70	684.60	682.40	680.70	678.70
3753237.16	691.70	690.10	687.90	685.90	684.10	682.30	680.20	678.10	676.20
3753137.16	689.50	688.00	685.80	683.50	682.00	679.90	678.00	676.00	673.80
3753037.16	687.20	684.90	683.00	681.20	679.80	677.60	675.90	674.00	671.80
3752937.16	684.90	682.60	681.20	679.20	677.50	675.30	673.70	672.10	670.30
3752837.16	683.00	681.20	679.00	677.00	675.20	673.00	671.50	670.00	668.00
3752737.16	681.20	679.10	677.00	675.20	673.10	671.00	669.40	667.80	666.60
3752637.16	679.20	677.10	675.20	673.20	671.20	669.20	667.70	666.10	664.30

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	711.20	709.90	707.80	704.90	701.90	698.60	696.20	693.90	690.60
3754437.16	707.40	706.90	706.20	702.70	699.50	695.80	692.90	690.60	688.20
3754337.16	704.60	703.20	701.90	699.60	697.20	693.90	690.60	687.20	685.00
3754237.16	702.20	700.70	698.60	696.70	694.70	691.10	687.20	684.90	682.60
3754137.16	699.70	698.10	695.90	693.90	690.90	688.20	683.90	681.50	679.30
3754037.16	697.00	695.20	692.90	690.60	688.20	685.80	682.60	679.20	676.90
3753937.16	694.40	692.10	689.70	687.20	684.90	682.60	680.20	677.80	674.60
3753837.16	691.40	689.40	686.40	684.70	682.10	680.20	677.70	675.20	672.80
3753737.16	688.60	686.20	683.90	681.50	680.10	677.80	675.50	673.00	670.80
3753637.16	685.90	684.10	682.00	679.20	676.90	675.60	673.20	670.20	668.00
3753537.16	682.90	681.50	679.20	676.40	674.50	672.40	670.90	669.60	666.20
3753437.16	679.60	678.00	675.90	673.60	672.00	669.90	668.50	666.20	663.90
3753337.16	676.70	674.90	672.60	670.40	668.90	667.60	665.90	663.80	661.60
3753237.16	674.20	672.40	669.90	668.20	667.10	665.30	663.70	661.50	659.90
3753137.16	671.50	670.00	668.00	666.50	665.00	663.00	661.50	659.20	657.00
3753037.16	669.50	668.00	666.60	664.90	662.90	660.70	659.20	657.10	655.00
3752937.16	668.20	666.50	664.30	662.70	660.60	658.40	656.90	654.60	652.90
3752837.16	666.50	664.20	662.80	660.60	659.00	656.80	654.60	652.20	650.80
3752737.16	664.40	662.80	660.60	658.70	656.90	654.60	652.20	650.10	648.00
3752637.16	662.70	660.60	658.80	656.70	654.50	652.20	649.90	647.60	645.90

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	687.50	684.90	681.60	678.50	675.90	672.60	670.20	667.80	664.80
3754437.16	685.70	682.60	679.20	676.50	673.60	670.30	667.70	665.50	662.80
3754337.16	683.50	680.20	676.90	674.50	672.00	668.90	666.00	663.20	660.00
3754237.16	680.20	677.80	674.60	672.20	669.20	666.60	663.90	661.20	657.80
3754137.16	676.90	674.60	671.90	669.70	666.60	664.20	661.70	659.50	658.20
3754037.16	674.60	671.20	669.80	666.60	664.00	660.90	659.00	656.20	653.90
3753937.16	672.40	670.10	667.60	664.20	660.90	657.70	655.90	652.90	649.60
3753837.16	669.90	667.60	664.80	661.70	658.20	655.80	652.90	649.60	646.20
3753737.16	668.00	665.20	662.80	659.60	656.20	653.70	649.60	646.20	643.90
3753637.16	665.90	663.10	660.60	658.20	654.90	651.60	648.20	644.90	641.60
3753537.16	662.90	660.60	659.20	655.90	652.60	649.80	646.70	643.20	639.20
3753437.16	660.50	658.00	655.90	652.60	649.20	647.80	644.60	640.40	636.90
3753337.16	659.90	656.30	653.60	649.40	646.10	644.60	641.20	637.90	634.70
3753237.16	657.70	654.60	651.20	647.90	645.20	641.90	637.90	635.10	632.80
3753137.16	654.60	652.20	648.90	645.60	643.20	639.90	635.10	633.00	630.80
3753037.16	652.50	649.90	646.80	644.50	642.20	639.80	636.50	634.20	630.80
3752937.16	650.90	648.20	645.80	643.50	641.10	638.90	636.70	634.50	631.80
3752837.16	649.00	643.40	642.10	641.60	639.20	638.00	636.50	634.20	631.80
3752737.16	646.70	641.30	641.00	640.50	636.90	635.70	635.70	634.20	631.80
3752637.16	642.70	639.10	639.00	638.50	635.20	634.00	634.00	634.00	631.80

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 514556.45	514656.45	514756.45
3754537.16	662.20	659.20	656.60
3754437.16	659.90	656.70	653.70
3754337.16	658.00	654.40	650.90
3754237.16	655.20	652.10	648.80
3754137.16	653.20	649.60	646.30
3754037.16	650.60	647.20	644.00
3753937.16	647.20	644.10	642.00
3753837.16	643.90	641.60	639.40
3753737.16	641.50	639.20	636.90
3753637.16	638.70	636.10	633.70
3753537.16	635.70	633.50	631.30
3753437.16	633.50	631.20	628.90
3753337.16	633.20	628.90	626.00
3753237.16	629.90	626.60	623.20
3753137.16	627.00	623.20	621.00
3753037.16	626.40	621.20	620.00
3752937.16	627.30	623.80	641.50
3752837.16	629.00	628.80	657.20
3752737.16	630.00	630.30	664.40
3752637.16	630.00	636.80	662.10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00	1588.00
3754437.16	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00
3754337.16	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00
3754237.16	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1588.00
3754137.16	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00
3754037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00
3753937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00
3753837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00
3753737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1551.00
3753637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	1588.00	1590.00	1590.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754437.16	1588.00	1588.00	1590.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754337.16	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754237.16	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00
3754137.16	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00
3754037.16	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1719.00	1719.00
3753937.16	1586.00	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1719.00
3753837.16	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1719.00
3753737.16	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1590.00	1719.00
3753637.16	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1590.00
3753537.16	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00
3753437.16	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00
3753337.16	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1586.00	1586.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1381.00	1382.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1382.00	1382.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1382.00	1382.00	1382.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1   ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)		
	514556.45	514656.45	514756.45
3754537.16	1719.00	1719.00	1719.00
3754437.16	1719.00	1719.00	1719.00
3754337.16	1719.00	1719.00	1719.00
3754237.16	1719.00	1719.00	1719.00
3754137.16	1719.00	1719.00	1719.00
3754037.16	1719.00	1719.00	1719.00
3753937.16	1719.00	1719.00	1719.00
3753837.16	1719.00	1719.00	1719.00
3753737.16	1719.00	1719.00	1719.00
3753637.16	1719.00	1719.00	1719.00
3753537.16	1719.00	1719.00	1719.00
3753437.16	1588.00	1719.00	1719.00
3753337.16	1588.00	1719.00	1719.00
3753237.16	1588.00	1719.00	1719.00
3753137.16	1586.00	1588.00	1719.00
3753037.16	1586.00	1586.00	1588.00
3752937.16	1551.00	1586.00	1550.00
3752837.16	1382.00	1550.00	1382.00
3752737.16	1382.00	1382.00	1382.00
3752637.16	1382.00	1382.00	1382.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(512174.7,	3753646.0,	695.0,	1331.0,	0.0);	(512192.0,	3753577.1,	693.2,	1331.0,	0.0);
(512191.5,	3753561.7,	693.1,	1331.0,	0.0);	(512212.9,	3753560.2,	692.7,	1331.0,	0.0);
(512190.8,	3753493.9,	691.3,	1331.0,	0.0);	(512214.5,	3753494.9,	691.0,	1331.0,	0.0);
(512209.8,	3753472.5,	690.8,	1331.0,	0.0);	(512399.0,	3753474.9,	687.3,	1331.0,	0.0);
(512216.6,	3753638.8,	694.8,	1331.0,	0.0);	(512374.8,	3753474.1,	687.5,	1331.0,	0.0);
(513208.8,	3753268.6,	666.7,	1331.0,	0.0);					

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0000131	512456.5	3753637.2	0.61
L0000132	512456.5	3753637.2	0.66
L0000213	513156.5	3753737.2	-2.63
L0000214	513156.5	3753737.2	-0.70
L0000297	513856.5	3753937.2	0.98
L0000298	513856.5	3753937.2	-5.04
L0000299	513856.5	3753937.2	0.41
L0000369	514256.5	3753737.2	0.73
L0000381	514356.5	3753737.2	-0.57
L0000392	514456.5	3753737.2	0.18
L0000393	514456.5	3753737.2	-0.68
L0000404	514556.5	3753737.2	-2.05
L0000405	514556.5	3753737.2	0.42
L0000637	514556.5	3754037.2	-4.60
L0000638	514556.5	3754037.2	-2.31
L0000648	514456.5	3754037.2	0.85
L0000649	514456.5	3754037.2	-4.32
L0000660	514356.5	3754037.2	-0.71
L0000661	514356.5	3754037.2	-1.93
L0000672	514256.5	3754037.2	-0.91
L0000796	514156.5	3753837.2	-1.13
L0000808	514256.5	3753837.2	0.10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.SFC Met Version: 16216
Profile file: ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 3171 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN
Year: 2011 Year: 2011

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	85.	9.1	273.1	5.5
11	01	01	1	21	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	82.	9.1	273.1	5.5
11	01	01	1	22	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	64.	9.1	272.5	5.5
11	01	01	1	23	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	61.	9.1	272.5	5.5
11	01	01	1	24	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	76.	9.1	272.5	5.5

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
11	01	01	01	5.5	0	-999.	-99.00	274.3	99.0	-99.00	-99.00
11	01	01	01	9.1	1	108.	5.40	-999.0	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	0.00018	0.00019	0.00020	0.00021	0.00022	0.00023	0.00025	0.00026	0.00027
3754437.16	0.00020	0.00021	0.00023	0.00024	0.00026	0.00027	0.00029	0.00031	0.00033
3754337.16	0.00023	0.00024	0.00026	0.00028	0.00030	0.00032	0.00035	0.00037	0.00041
3754237.16	0.00025	0.00027	0.00029	0.00032	0.00034	0.00038	0.00041	0.00045	0.00050
3754137.16	0.00029	0.00031	0.00034	0.00037	0.00041	0.00044	0.00049	0.00054	0.00062
3754037.16	0.00034	0.00037	0.00041	0.00045	0.00050	0.00056	0.00062	0.00073	0.00082
3753937.16	0.00041	0.00047	0.00053	0.00060	0.00068	0.00077	0.00091	0.00106	0.00123
3753837.16	0.00054	0.00063	0.00074	0.00096	0.00117	0.00139	0.00158	0.00182	0.00214
3753737.16	0.00070	0.00092	0.00136	0.00267	0.00469	0.00344	0.00346	0.00413	0.00520
3753637.16	0.00083	0.00120	0.00201	0.00536	0.00944	0.00653	0.01268	0.01379	0.01015
3753537.16	0.00088	0.00135	0.00237	0.00637	0.01120	0.01056	0.01451	0.00687	0.00473
3753437.16	0.00081	0.00119	0.00185	0.00334	0.00538	0.00645	0.00511	0.00372	0.00294
3753337.16	0.00073	0.00095	0.00125	0.00161	0.00186	0.00189	0.00180	0.00174	0.00169
3753237.16	0.00064	0.00077	0.00092	0.00105	0.00112	0.00113	0.00111	0.00110	0.00112
3753137.16	0.00057	0.00065	0.00073	0.00079	0.00082	0.00084	0.00084	0.00085	0.00086
3753037.16	0.00050	0.00055	0.00060	0.00064	0.00066	0.00068	0.00069	0.00071	0.00072
3752937.16	0.00045	0.00049	0.00052	0.00054	0.00057	0.00058	0.00060	0.00062	0.00063
3752837.16	0.00041	0.00044	0.00046	0.00048	0.00050	0.00052	0.00053	0.00055	0.00056
3752737.16	0.00037	0.00040	0.00041	0.00043	0.00045	0.00046	0.00048	0.00049	0.00051
3752637.16	0.00035	0.00036	0.00038	0.00039	0.00041	0.00042	0.00044	0.00045	0.00047

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	0.00029	0.00030	0.00031	0.00033	0.00035	0.00038	0.00040	0.00043	0.00046
3754437.16	0.00036	0.00038	0.00039	0.00043	0.00047	0.00052	0.00057	0.00060	0.00064
3754337.16	0.00045	0.00048	0.00052	0.00057	0.00063	0.00071	0.00078	0.00085	0.00092
3754237.16	0.00055	0.00061	0.00068	0.00076	0.00085	0.00097	0.00109	0.00120	0.00131
3754137.16	0.00069	0.00078	0.00090	0.00102	0.00117	0.00132	0.00155	0.00175	0.00197
3754037.16	0.00093	0.00107	0.00123	0.00141	0.00159	0.00182	0.00213	0.00254	0.00301
3753937.16	0.00140	0.00161	0.00183	0.00208	0.00239	0.00277	0.00330	0.00405	0.00531
3753837.16	0.00247	0.00279	0.00321	0.00368	0.00436	0.00544	0.00775	0.01520	0.01512
3753737.16	0.00611	0.00727	0.00949	0.01471	0.01716	0.01067	0.00721	0.00575	0.00511
3753637.16	0.00820	0.00682	0.00573	0.00490	0.00431	0.00391	0.00360	0.00343	0.00342
3753537.16	0.00384	0.00335	0.00303	0.00280	0.00265	0.00255	0.00251	0.00253	0.00263
3753437.16	0.00250	0.00225	0.00209	0.00200	0.00195	0.00193	0.00196	0.00202	0.00214
3753337.16	0.00163	0.00158	0.00154	0.00152	0.00153	0.00155	0.00160	0.00168	0.00178
3753237.16	0.00114	0.00116	0.00118	0.00121	0.00124	0.00128	0.00134	0.00141	0.00149
3753137.16	0.00089	0.00092	0.00095	0.00099	0.00103	0.00108	0.00113	0.00119	0.00125
3753037.16	0.00074	0.00077	0.00080	0.00084	0.00088	0.00093	0.00097	0.00102	0.00106
3752937.16	0.00065	0.00067	0.00070	0.00073	0.00077	0.00080	0.00084	0.00088	0.00091
3752837.16	0.00058	0.00060	0.00063	0.00065	0.00068	0.00071	0.00074	0.00076	0.00078
3752737.16	0.00053	0.00054	0.00056	0.00059	0.00061	0.00063	0.00065	0.00067	0.00068
3752637.16	0.00048	0.00050	0.00051	0.00053	0.00055	0.00056	0.00058	0.00059	0.00060

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	0.00050	0.00054	0.00059	0.00065	0.00072	0.00081	0.00090	0.00099	0.00112
3754437.16	0.00069	0.00075	0.00083	0.00091	0.00100	0.00114	0.00128	0.00144	0.00164
3754337.16	0.00098	0.00109	0.00122	0.00134	0.00148	0.00167	0.00196	0.00230	0.00275
3754237.16	0.00145	0.00161	0.00189	0.00216	0.00250	0.00293	0.00352	0.00435	0.00529
3754137.16	0.00223	0.00256	0.00305	0.00372	0.00482	0.00620	0.00846	0.01158	0.01603
3754037.16	0.00365	0.00459	0.00579	0.00834	0.01233	0.02078	0.03878	0.05263	0.05647
3753937.16	0.00739	0.01215	0.01860	0.02375	0.04269	0.02124	0.01951	0.01997	0.02015
3753837.16	0.00953	0.00842	0.00996	0.02093	0.03417	0.04804	0.04961	0.05065	0.04785
3753737.16	0.00498	0.00548	0.00717	0.01335	0.03371	0.04083	0.03987	0.04219	0.03984
3753637.16	0.00360	0.00408	0.00497	0.00627	0.00743	0.00824	0.00887	0.00914	0.00885
3753537.16	0.00285	0.00318	0.00362	0.00408	0.00444	0.00465	0.00472	0.00464	0.00435
3753437.16	0.00232	0.00253	0.00275	0.00295	0.00308	0.00314	0.00310	0.00293	0.00273
3753337.16	0.00190	0.00203	0.00215	0.00223	0.00227	0.00228	0.00220	0.00208	0.00194
3753237.16	0.00157	0.00165	0.00172	0.00175	0.00176	0.00173	0.00166	0.00157	0.00148
3753137.16	0.00131	0.00136	0.00139	0.00140	0.00140	0.00136	0.00130	0.00124	0.00118
3753037.16	0.00110	0.00113	0.00115	0.00115	0.00114	0.00111	0.00107	0.00103	0.00097
3752937.16	0.00093	0.00095	0.00096	0.00095	0.00094	0.00092	0.00089	0.00086	0.00082
3752837.16	0.00080	0.00080	0.00080	0.00080	0.00079	0.00077	0.00076	0.00073	0.00070
3752737.16	0.00069	0.00069	0.00069	0.00069	0.00067	0.00066	0.00065	0.00063	0.00061
3752637.16	0.00060	0.00059	0.00059	0.00059	0.00058	0.00057	0.00056	0.00055	0.00053

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 514556.45	514656.45	514756.45
3754537.16	0.00123	0.00137	0.00147
3754437.16	0.00185	0.00203	0.00215
3754337.16	0.00298	0.00325	0.00338
3754237.16	0.00587	0.00611	0.00592
3754137.16	0.02037	0.01452	0.01018
3754037.16	0.04798	0.02415	0.01366
3753937.16	0.02060	0.02023	0.01372
3753837.16	0.03656	0.02275	0.01363
3753737.16	0.03928	0.01916	0.01072
3753637.16	0.00792	0.00669	0.00572
3753537.16	0.00394	0.00358	0.00328
3753437.16	0.00251	0.00232	0.00216
3753337.16	0.00182	0.00167	0.00156
3753237.16	0.00138	0.00129	0.00121
3753137.16	0.00110	0.00103	0.00097
3753037.16	0.00091	0.00085	0.00081
3752937.16	0.00078	0.00074	0.00078
3752837.16	0.00067	0.00065	0.00060
3752737.16	0.00059	0.00057	0.00043
3752637.16	0.00052	0.00052	0.00041

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
512174.67	3753645.97	0.00719	512192.02	3753577.11	0.01234
512191.45	3753561.66	0.01240	512212.91	3753560.22	0.01776
512190.75	3753493.90	0.01327	512214.50	3753494.92	0.02039
512209.80	3753472.53	0.01132	512398.95	3753474.90	0.01933
512216.60	3753638.82	0.01621	512374.77	3753474.15	0.01930
513208.75	3753268.60	0.00134			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.05647 AT (514456.45, 3754037.16, 653.90, 1719.00, 0.00)	GC	UCART1
	2ND HIGHEST VALUE IS	0.05263 AT (514356.45, 3754037.16, 656.20, 1719.00, 0.00)	GC	UCART1
	3RD HIGHEST VALUE IS	0.05065 AT (514356.45, 3753837.16, 649.60, 1590.00, 0.00)	GC	UCART1
	4TH HIGHEST VALUE IS	0.04961 AT (514256.45, 3753837.16, 652.90, 1588.00, 0.00)	GC	UCART1
	5TH HIGHEST VALUE IS	0.04804 AT (514156.45, 3753837.16, 655.80, 1588.00, 0.00)	GC	UCART1
	6TH HIGHEST VALUE IS	0.04798 AT (514556.45, 3754037.16, 650.60, 1719.00, 0.00)	GC	UCART1
	7TH HIGHEST VALUE IS	0.04785 AT (514456.45, 3753837.16, 646.20, 1719.00, 0.00)	GC	UCART1
	8TH HIGHEST VALUE IS	0.04269 AT (514056.45, 3753937.16, 660.90, 1588.00, 0.00)	GC	UCART1
	9TH HIGHEST VALUE IS	0.04219 AT (514356.45, 3753737.16, 646.20, 1590.00, 0.00)	GC	UCART1
	10TH HIGHEST VALUE IS	0.04083 AT (514156.45, 3753737.16, 653.70, 1588.00, 0.00)	GC	UCART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of   0 Fatal Error Message(s)
A Total of   2 Warning Message(s)
A Total of   1311 Informational Message(s)

A Total of   43824 Hours Were Processed

A Total of   64 Calm Hours Identified

A Total of   1247 Missing Hours Identified (2.85 Percent)

   ******** FATAL ERROR MESSAGES ********
             *** NONE ***

   ********   WARNING MESSAGES   ********
ME W186   1765   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used   0.50
ME W187   1765   MEOPEN: ADJ_U* Option for Low Winds used in AERMET

   ****
   *** AERMOD Finishes Successfully ***
   ****

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**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.5.0
** Lakes Environmental Software Inc.
** Date: 3/19/2018
** File: C:\Users\eliza\Desktop\Banning\Project AB2\Project AB2.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE Banning Distribution Center
   TITLETWO Project Only DPM Concentration (2019) AB2
   MODELOPT DFAULT CONC
   AVERTIME PERIOD
   URBANOPT 2189641 Riverside_County
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "Project AB2.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC Hargrave St b/n I-10 EB ramps and Lincoln Ave
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00005696
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512206.123, 3753726.046, 697.06, 3.49, 4.00
** 512200.964, 3753482.939, 691.08, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0001020     VOLUME   512206.032 3753721.752 696.93
```

```
   LOCATION L0001021     VOLUME   512205.849 3753713.164 696.89
   LOCATION L0001022     VOLUME   512205.667 3753704.576 696.83
   LOCATION L0001023     VOLUME   512205.485 3753695.988 696.54
   LOCATION L0001024     VOLUME   512205.303 3753687.400 696.26
   LOCATION L0001025     VOLUME   512205.120 3753678.812 695.98
   LOCATION L0001026     VOLUME   512204.938 3753670.224 695.73
   LOCATION L0001027     VOLUME   512204.756 3753661.636 695.47
   LOCATION L0001028     VOLUME   512204.574 3753653.048 695.22
   LOCATION L0001029     VOLUME   512204.391 3753644.459 694.96
   LOCATION L0001030     VOLUME   512204.209 3753635.871 694.67
   LOCATION L0001031     VOLUME   512204.027 3753627.283 694.39
   LOCATION L0001032     VOLUME   512203.845 3753618.695 694.10
   LOCATION L0001033     VOLUME   512203.662 3753610.107 693.81
   LOCATION L0001034     VOLUME   512203.480 3753601.519 693.53
   LOCATION L0001035     VOLUME   512203.298 3753592.931 693.24
   LOCATION L0001036     VOLUME   512203.116 3753584.343 693.00
   LOCATION L0001037     VOLUME   512202.933 3753575.755 692.98
   LOCATION L0001038     VOLUME   512202.751 3753567.167 692.98
   LOCATION L0001039     VOLUME   512202.569 3753558.579 692.97
   LOCATION L0001040     VOLUME   512202.387 3753549.991 692.79
   LOCATION L0001041     VOLUME   512202.205 3753541.403 692.51
   LOCATION L0001042     VOLUME   512202.022 3753532.815 692.23
   LOCATION L0001043     VOLUME   512201.840 3753524.227 691.95
   LOCATION L0001044     VOLUME   512201.658 3753515.638 691.66
   LOCATION L0001045     VOLUME   512201.476 3753507.050 691.38
   LOCATION L0001046     VOLUME   512201.293 3753498.462 691.10
   LOCATION L0001047     VOLUME   512201.111 3753489.874 691.01
** End of LINE VOLUME Source ID = SLINE1
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC Lincoln Ave west of Hargrave St
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 1.331E-06
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512195.236, 3753483.334, 691.13, 3.49, 4.00
** 511920.568, 3753483.331, 696.21, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0001048     VOLUME   512190.941 3753483.334 691.21
   LOCATION L0001049     VOLUME   512182.351 3753483.334 691.38
   LOCATION L0001050     VOLUME   512173.761 3753483.334 691.54
   LOCATION L0001051     VOLUME   512165.171 3753483.334 691.68
   LOCATION L0001052     VOLUME   512156.581 3753483.334 691.79
   LOCATION L0001053     VOLUME   512147.991 3753483.334 691.91
   LOCATION L0001054     VOLUME   512139.401 3753483.333 692.04
   LOCATION L0001055     VOLUME   512130.811 3753483.333 692.21
   LOCATION L0001056     VOLUME   512122.221 3753483.333 692.38
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   LOCATION L0001057     VOLUME   512113.631 3753483.333 692.55
   LOCATION L0001058     VOLUME   512105.041 3753483.333 692.80
   LOCATION L0001059     VOLUME   512096.451 3753483.333 693.09
   LOCATION L0001060     VOLUME   512087.861 3753483.333 693.38
   LOCATION L0001061     VOLUME   512079.271 3753483.333 693.59
   LOCATION L0001062     VOLUME   512070.681 3753483.333 693.59
   LOCATION L0001063     VOLUME   512062.091 3753483.333 693.59
   LOCATION L0001064     VOLUME   512053.501 3753483.332 693.59
   LOCATION L0001065     VOLUME   512044.911 3753483.332 693.68
   LOCATION L0001066     VOLUME   512036.321 3753483.332 693.80
   LOCATION L0001067     VOLUME   512027.731 3753483.332 693.92
   LOCATION L0001068     VOLUME   512019.141 3753483.332 694.05
   LOCATION L0001069     VOLUME   512010.551 3753483.332 694.22
   LOCATION L0001070     VOLUME   512001.961 3753483.332 694.38
   LOCATION L0001071     VOLUME   511993.371 3753483.332 694.55
   LOCATION L0001072     VOLUME   511984.781 3753483.332 694.81
   LOCATION L0001073     VOLUME   511976.191 3753483.332 695.10
   LOCATION L0001074     VOLUME   511967.601 3753483.332 695.39
   LOCATION L0001075     VOLUME   511959.011 3753483.331 695.62
   LOCATION L0001076     VOLUME   511950.421 3753483.331 695.74
   LOCATION L0001077     VOLUME   511941.831 3753483.331 695.86
   LOCATION L0001078     VOLUME   511933.241 3753483.331 695.98
   LOCATION L0001079     VOLUME   511924.651 3753483.331 696.14
** End of LINE VOLUME Source ID = SLINE2
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC Lincoln Ave b/n Hargrave St and John St
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00005036
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512204.907, 3753483.413, 691.07, 3.49, 4.00
** 512415.418, 3753485.606, 687.70, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0001080     VOLUME   512209.202 3753483.458 690.90
   LOCATION L0001081     VOLUME   512217.791 3753483.547 690.78
   LOCATION L0001082     VOLUME   512226.381 3753483.637 690.67
   LOCATION L0001083     VOLUME   512234.971 3753483.726 690.53
   LOCATION L0001084     VOLUME   512243.560 3753483.816 690.36
   LOCATION L0001085     VOLUME   512252.150 3753483.905 690.19
   LOCATION L0001086     VOLUME   512260.739 3753483.995 690.02
   LOCATION L0001087     VOLUME   512269.329 3753484.084 689.90
   LOCATION L0001088     VOLUME   512277.918 3753484.174 689.79
   LOCATION L0001089     VOLUME   512286.508 3753484.263 689.68
   LOCATION L0001090     VOLUME   512295.097 3753484.353 689.50
   LOCATION L0001091     VOLUME   512303.687 3753484.442 689.22
   LOCATION L0001092     VOLUME   512312.276 3753484.532 688.94
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   LOCATION L0001093     VOLUME   512320.866 3753484.621 688.65
   LOCATION L0001094     VOLUME   512329.455 3753484.711 688.63
   LOCATION L0001095     VOLUME   512338.045 3753484.800 688.64
   LOCATION L0001096     VOLUME   512346.634 3753484.889 688.64
   LOCATION L0001097     VOLUME   512355.224 3753484.979 688.52
   LOCATION L0001098     VOLUME   512363.814 3753485.068 688.24
   LOCATION L0001099     VOLUME   512372.403 3753485.158 687.95
   LOCATION L0001100     VOLUME   512380.993 3753485.247 687.67
   LOCATION L0001101     VOLUME   512389.582 3753485.337 687.65
   LOCATION L0001102     VOLUME   512398.172 3753485.426 687.66
   LOCATION L0001103     VOLUME   512406.761 3753485.516 687.66
   LOCATION L0001104     VOLUME   512415.351 3753485.605 687.54
** End of LINE VOLUME Source ID = SLINE3
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC John St Northbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00004744
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 512415.418, 3753493.281, 687.93, 3.49, 4.00
** 512415.966, 3753572.771, 690.07, 3.49, 4.00
** 512438.991, 3753614.434, 690.99, 3.49, 4.00
** 512480.654, 3753644.585, 691.75, 3.49, 4.00
** 512499.293, 3753651.164, 691.01, 3.49, 4.00
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   LOCATION L0001105     VOLUME   512415.448 3753497.576 687.88
   LOCATION L0001106     VOLUME   512415.507 3753506.166 687.91
   LOCATION L0001107     VOLUME   512415.566 3753514.755 687.95
   LOCATION L0001108     VOLUME   512415.625 3753523.345 687.99
   LOCATION L0001109     VOLUME   512415.685 3753531.935 688.39
   LOCATION L0001110     VOLUME   512415.744 3753540.525 688.92
   LOCATION L0001111     VOLUME   512415.803 3753549.115 689.45
   LOCATION L0001112     VOLUME   512415.862 3753557.704 689.87
   LOCATION L0001113     VOLUME   512415.921 3753566.294 689.91
   LOCATION L0001114     VOLUME   512416.988 3753574.620 689.93
   LOCATION L0001115     VOLUME   512421.143 3753582.139 689.96
   LOCATION L0001116     VOLUME   512425.298 3753589.657 690.13
   LOCATION L0001117     VOLUME   512429.453 3753597.175 690.38
   LOCATION L0001118     VOLUME   512433.608 3753604.694 690.63
   LOCATION L0001119     VOLUME   512437.763 3753612.212 690.88
   LOCATION L0001120     VOLUME   512443.893 3753617.982 691.08
   LOCATION L0001121     VOLUME   512450.852 3753623.018 691.24
   LOCATION L0001122     VOLUME   512457.811 3753628.054 691.41
   LOCATION L0001123     VOLUME   512464.769 3753633.090 691.58
   LOCATION L0001124     VOLUME   512471.728 3753638.126 691.74
   LOCATION L0001125     VOLUME   512478.687 3753643.162 691.68
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   LOCATION L0001126     VOLUME   512486.465 3753646.636 691.55
   LOCATION L0001127     VOLUME   512494.565 3753649.495 691.46
** End of LINE VOLUME Source ID = SLINE4
** ----------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE5
** DESCRSRC John Street Eastbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.000258
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 512502.387, 3753650.444, 691.00, 3.49, 4.00
** 512832.772, 3753685.859, 685.86, 3.49, 4.00
** 513071.595, 3753725.931, 681.06, 3.49, 4.00
** 513203.169, 3753751.730, 679.50, 3.49, 4.00
** 513980.318, 3753976.710, 664.82, 3.49, 4.00
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   LOCATION L0001128     VOLUME   512506.658 3753650.902 691.32
   LOCATION L0001129     VOLUME   512515.199 3753651.818 691.31
   LOCATION L0001130     VOLUME   512523.740 3753652.733 691.30
   LOCATION L0001131     VOLUME   512532.281 3753653.649 691.24
   LOCATION L0001132     VOLUME   512540.822 3753654.564 690.99
   LOCATION L0001133     VOLUME   512549.363 3753655.480 690.73
   LOCATION L0001134     VOLUME   512557.904 3753656.395 690.48
   LOCATION L0001135     VOLUME   512566.445 3753657.311 690.22
   LOCATION L0001136     VOLUME   512574.986 3753658.226 689.97
   LOCATION L0001137     VOLUME   512583.528 3753659.142 689.72
   LOCATION L0001138     VOLUME   512592.069 3753660.057 689.48
   LOCATION L0001139     VOLUME   512600.610 3753660.973 689.51
   LOCATION L0001140     VOLUME   512609.151 3753661.889 689.54
   LOCATION L0001141     VOLUME   512617.692 3753662.804 689.57
   LOCATION L0001142     VOLUME   512626.233 3753663.720 689.44
   LOCATION L0001143     VOLUME   512634.774 3753664.635 689.19
   LOCATION L0001144     VOLUME   512643.315 3753665.551 688.94
   LOCATION L0001145     VOLUME   512651.856 3753666.466 688.68
   LOCATION L0001146     VOLUME   512660.397 3753667.382 688.43
   LOCATION L0001147     VOLUME   512668.938 3753668.297 688.17
   LOCATION L0001148     VOLUME   512677.479 3753669.213 687.92
   LOCATION L0001149     VOLUME   512686.020 3753670.128 687.81
   LOCATION L0001150     VOLUME   512694.561 3753671.044 687.84
   LOCATION L0001151     VOLUME   512703.102 3753671.960 687.87
   LOCATION L0001152     VOLUME   512711.644 3753672.875 687.90
   LOCATION L0001153     VOLUME   512720.185 3753673.791 687.65
   LOCATION L0001154     VOLUME   512728.726 3753674.706 687.39
   LOCATION L0001155     VOLUME   512737.267 3753675.622 687.14
   LOCATION L0001156     VOLUME   512745.808 3753676.537 687.02
   LOCATION L0001157     VOLUME   512754.349 3753677.453 687.03
   LOCATION L0001158     VOLUME   512762.890 3753678.368 687.03
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LOCATION L0001159     VOLUME   512771.431 3753679.284 687.00
LOCATION L0001160     VOLUME   512779.972 3753680.199 686.76
LOCATION L0001161     VOLUME   512788.513 3753681.115 686.54
LOCATION L0001162     VOLUME   512797.054 3753682.031 686.33
LOCATION L0001163     VOLUME   512805.595 3753682.946 686.21
LOCATION L0001164     VOLUME   512814.136 3753683.862 686.16
LOCATION L0001165     VOLUME   512822.677 3753684.777 686.09
LOCATION L0001166     VOLUME   512831.219 3753685.693 686.00
LOCATION L0001167     VOLUME   512839.703 3753687.022 685.83
LOCATION L0001168     VOLUME   512848.174 3753688.444 685.68
LOCATION L0001169     VOLUME   512856.646 3753689.865 685.56
LOCATION L0001170     VOLUME   512865.117 3753691.286 685.40
LOCATION L0001171     VOLUME   512873.589 3753692.708 685.17
LOCATION L0001172     VOLUME   512882.061 3753694.129 684.93
LOCATION L0001173     VOLUME   512890.532 3753695.551 684.70
LOCATION L0001174     VOLUME   512899.004 3753696.972 684.53
LOCATION L0001175     VOLUME   512907.475 3753698.394 684.35
LOCATION L0001176     VOLUME   512915.947 3753699.815 684.15
LOCATION L0001177     VOLUME   512924.419 3753701.237 683.99
LOCATION L0001178     VOLUME   512932.890 3753702.658 683.96
LOCATION L0001179     VOLUME   512941.362 3753704.079 683.96
LOCATION L0001180     VOLUME   512949.833 3753705.501 683.99
LOCATION L0001181     VOLUME   512958.305 3753706.922 683.77
LOCATION L0001182     VOLUME   512966.776 3753708.344 683.49
LOCATION L0001183     VOLUME   512975.248 3753709.765 683.21
LOCATION L0001184     VOLUME   512983.720 3753711.187 682.93
LOCATION L0001185     VOLUME   512992.191 3753712.608 682.65
LOCATION L0001186     VOLUME   513000.663 3753714.030 682.36
LOCATION L0001187     VOLUME   513009.134 3753715.451 682.08
LOCATION L0001188     VOLUME   513017.606 3753716.872 681.87
LOCATION L0001189     VOLUME   513026.077 3753718.294 681.72
LOCATION L0001190     VOLUME   513034.549 3753719.715 681.59
LOCATION L0001191     VOLUME   513043.021 3753721.137 681.49
LOCATION L0001192     VOLUME   513051.492 3753722.558 681.38
LOCATION L0001193     VOLUME   513059.964 3753723.980 681.24
LOCATION L0001194     VOLUME   513068.435 3753725.401 681.07
LOCATION L0001195     VOLUME   513076.880 3753726.968 680.95
LOCATION L0001196     VOLUME   513085.310 3753728.620 680.89
LOCATION L0001197     VOLUME   513093.739 3753730.273 680.87
LOCATION L0001198     VOLUME   513102.169 3753731.926 680.86
LOCATION L0001199     VOLUME   513110.598 3753733.579 680.65
LOCATION L0001200     VOLUME   513119.028 3753735.232 680.41
LOCATION L0001201     VOLUME   513127.457 3753736.885 680.21
LOCATION L0001202     VOLUME   513135.887 3753738.537 680.18
LOCATION L0001203     VOLUME   513144.316 3753740.190 680.24
LOCATION L0001204     VOLUME   513152.746 3753741.843 680.26
LOCATION L0001205     VOLUME   513161.175 3753743.496 680.26
LOCATION L0001206     VOLUME   513169.605 3753745.149 680.05
LOCATION L0001207     VOLUME   513178.034 3753746.802 679.82
LOCATION L0001208     VOLUME   513186.464 3753748.455 679.59
LOCATION L0001209     VOLUME   513194.893 3753750.107 679.37
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LOCATION L0001210     VOLUME   513203.320 3753751.774 679.14
LOCATION L0001211     VOLUME   513211.571 3753754.162 678.95
LOCATION L0001212     VOLUME   513219.822 3753756.551 678.75
LOCATION L0001213     VOLUME   513228.073 3753758.940 678.61
LOCATION L0001214     VOLUME   513236.324 3753761.328 678.43
LOCATION L0001215     VOLUME   513244.576 3753763.717 678.22
LOCATION L0001216     VOLUME   513252.827 3753766.106 678.01
LOCATION L0001217     VOLUME   513261.078 3753768.494 678.06
LOCATION L0001218     VOLUME   513269.329 3753770.883 678.07
LOCATION L0001219     VOLUME   513277.580 3753773.272 678.03
LOCATION L0001220     VOLUME   513285.832 3753775.660 677.90
LOCATION L0001221     VOLUME   513294.083 3753778.049 677.75
LOCATION L0001222     VOLUME   513302.334 3753780.438 677.65
LOCATION L0001223     VOLUME   513310.585 3753782.826 677.58
LOCATION L0001224     VOLUME   513318.836 3753785.215 677.41
LOCATION L0001225     VOLUME   513327.088 3753787.604 677.21
LOCATION L0001226     VOLUME   513335.339 3753789.993 677.02
LOCATION L0001227     VOLUME   513343.590 3753792.381 676.83
LOCATION L0001228     VOLUME   513351.841 3753794.770 676.64
LOCATION L0001229     VOLUME   513360.092 3753797.159 676.43
LOCATION L0001230     VOLUME   513368.344 3753799.547 676.23
LOCATION L0001231     VOLUME   513376.595 3753801.936 676.17
LOCATION L0001232     VOLUME   513384.846 3753804.325 676.16
LOCATION L0001233     VOLUME   513393.097 3753806.713 676.10
LOCATION L0001234     VOLUME   513401.348 3753809.102 676.00
LOCATION L0001235     VOLUME   513409.600 3753811.491 675.87
LOCATION L0001236     VOLUME   513417.851 3753813.879 675.79
LOCATION L0001237     VOLUME   513426.102 3753816.268 675.74
LOCATION L0001238     VOLUME   513434.353 3753818.657 675.67
LOCATION L0001239     VOLUME   513442.604 3753821.045 675.48
LOCATION L0001240     VOLUME   513450.856 3753823.434 675.28
LOCATION L0001241     VOLUME   513459.107 3753825.823 675.08
LOCATION L0001242     VOLUME   513467.358 3753828.211 674.82
LOCATION L0001243     VOLUME   513475.609 3753830.600 674.61
LOCATION L0001244     VOLUME   513483.860 3753832.989 674.44
LOCATION L0001245     VOLUME   513492.112 3753835.377 674.30
LOCATION L0001246     VOLUME   513500.363 3753837.766 674.11
LOCATION L0001247     VOLUME   513508.614 3753840.155 673.91
LOCATION L0001248     VOLUME   513516.865 3753842.543 673.72
LOCATION L0001249     VOLUME   513525.116 3753844.932 673.56
LOCATION L0001250     VOLUME   513533.368 3753847.321 673.44
LOCATION L0001251     VOLUME   513541.619 3753849.709 673.26
LOCATION L0001252     VOLUME   513549.870 3753852.098 673.05
LOCATION L0001253     VOLUME   513558.121 3753854.487 672.78
LOCATION L0001254     VOLUME   513566.372 3753856.876 672.54
LOCATION L0001255     VOLUME   513574.624 3753859.264 672.35
LOCATION L0001256     VOLUME   513582.875 3753861.653 672.19
LOCATION L0001257     VOLUME   513591.126 3753864.042 672.19
LOCATION L0001258     VOLUME   513599.377 3753866.430 672.14
LOCATION L0001259     VOLUME   513607.628 3753868.819 672.06
LOCATION L0001260     VOLUME   513615.880 3753871.208 671.93
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   LOCATION L0001261     VOLUME   513624.131 3753873.596 671.83
   LOCATION L0001262     VOLUME   513632.382 3753875.985 671.77
   LOCATION L0001263     VOLUME   513640.633 3753878.374 671.76
   LOCATION L0001264     VOLUME   513648.884 3753880.762 671.59
   LOCATION L0001265     VOLUME   513657.136 3753883.151 671.39
   LOCATION L0001266     VOLUME   513665.387 3753885.540 671.20
   LOCATION L0001267     VOLUME   513673.638 3753887.928 671.00
   LOCATION L0001268     VOLUME   513681.889 3753890.317 670.81
   LOCATION L0001269     VOLUME   513690.140 3753892.706 670.61
   LOCATION L0001270     VOLUME   513698.392 3753895.094 670.42
   LOCATION L0001271     VOLUME   513706.643 3753897.483 670.33
   LOCATION L0001272     VOLUME   513714.894 3753899.872 670.26
   LOCATION L0001273     VOLUME   513723.145 3753902.260 670.15
   LOCATION L0001274     VOLUME   513731.396 3753904.649 670.00
   LOCATION L0001275     VOLUME   513739.648 3753907.038 669.92
   LOCATION L0001276     VOLUME   513747.899 3753909.426 669.89
   LOCATION L0001277     VOLUME   513756.150 3753911.815 669.89
   LOCATION L0001278     VOLUME   513764.401 3753914.204 669.85
   LOCATION L0001279     VOLUME   513772.652 3753916.592 669.64
   LOCATION L0001280     VOLUME   513780.904 3753918.981 669.42
   LOCATION L0001281     VOLUME   513789.155 3753921.370 669.25
   LOCATION L0001282     VOLUME   513797.406 3753923.759 669.02
   LOCATION L0001283     VOLUME   513805.657 3753926.147 668.71
   LOCATION L0001284     VOLUME   513813.908 3753928.536 668.36
   LOCATION L0001285     VOLUME   513822.160 3753930.925 667.99
   LOCATION L0001286     VOLUME   513830.411 3753933.313 667.88
   LOCATION L0001287     VOLUME   513838.662 3753935.702 667.81
   LOCATION L0001288     VOLUME   513846.913 3753938.091 667.79
   LOCATION L0001289     VOLUME   513855.164 3753940.479 667.70
   LOCATION L0001290     VOLUME   513863.416 3753942.868 667.51
   LOCATION L0001291     VOLUME   513871.667 3753945.257 667.31
   LOCATION L0001292     VOLUME   513879.918 3753947.645 667.05
   LOCATION L0001293     VOLUME   513888.169 3753950.034 666.78
   LOCATION L0001294     VOLUME   513896.420 3753952.423 666.50
   LOCATION L0001295     VOLUME   513904.672 3753954.811 666.23
   LOCATION L0001296     VOLUME   513912.923 3753957.200 665.97
   LOCATION L0001297     VOLUME   513921.174 3753959.589 665.83
   LOCATION L0001298     VOLUME   513929.425 3753961.977 665.73
   LOCATION L0001299     VOLUME   513937.676 3753964.366 665.67
   LOCATION L0001300     VOLUME   513945.928 3753966.755 665.56
   LOCATION L0001301     VOLUME   513954.179 3753969.143 665.36
   LOCATION L0001302     VOLUME   513962.430 3753971.532 665.16
   LOCATION L0001303     VOLUME   513970.681 3753973.921 664.97
   LOCATION L0001304     VOLUME   513978.932 3753976.309 664.77
** End of LINE VOLUME Source ID = SLINE5
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE6
** DESCRSRC On-site Truck Travel SB and EB
** PREFIX
** Length of Side = 8.59
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** Configuration = Adjacent
** Emission Rate = 0.0002956
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 513987.147, 3753971.399, 664.44, 3.49, 4.00
** 513989.423, 3753765.009, 659.31, 3.49, 4.00
** 514009.910, 3753748.316, 657.84, 3.49, 4.00
** 514597.970, 3753743.004, 640.06, 3.49, 4.00
** ------------------------------------------------------------------
   LOCATION L0001305     VOLUME   513987.194 3753967.104 664.19
   LOCATION L0001306     VOLUME   513987.289 3753958.515 663.90
   LOCATION L0001307     VOLUME   513987.384 3753949.925 663.61
   LOCATION L0001308     VOLUME   513987.478 3753941.336 663.32
   LOCATION L0001309     VOLUME   513987.573 3753932.746 663.03
   LOCATION L0001310     VOLUME   513987.668 3753924.157 662.74
   LOCATION L0001311     VOLUME   513987.763 3753915.567 662.45
   LOCATION L0001312     VOLUME   513987.857 3753906.978 662.17
   LOCATION L0001313     VOLUME   513987.952 3753898.388 661.88
   LOCATION L0001314     VOLUME   513988.047 3753889.799 661.59
   LOCATION L0001315     VOLUME   513988.142 3753881.209 661.36
   LOCATION L0001316     VOLUME   513988.236 3753872.620 661.20
   LOCATION L0001317     VOLUME   513988.331 3753864.030 661.04
   LOCATION L0001318     VOLUME   513988.426 3753855.441 660.87
   LOCATION L0001319     VOLUME   513988.521 3753846.852 660.74
   LOCATION L0001320     VOLUME   513988.615 3753838.262 660.61
   LOCATION L0001321     VOLUME   513988.710 3753829.673 660.48
   LOCATION L0001322     VOLUME   513988.805 3753821.083 660.27
   LOCATION L0001323     VOLUME   513988.899 3753812.494 659.98
   LOCATION L0001324     VOLUME   513988.994 3753803.904 659.69
   LOCATION L0001325     VOLUME   513989.089 3753795.315 659.41
   LOCATION L0001326     VOLUME   513989.184 3753786.725 659.41
   LOCATION L0001327     VOLUME   513989.278 3753778.136 659.41
   LOCATION L0001328     VOLUME   513989.373 3753769.546 659.41
   LOCATION L0001329     VOLUME   513992.565 3753762.449 659.19
   LOCATION L0001330     VOLUME   513999.224 3753757.023 658.79
   LOCATION L0001331     VOLUME   514005.883 3753751.597 658.39
   LOCATION L0001332     VOLUME   514013.305 3753748.285 658.03
   LOCATION L0001333     VOLUME   514021.895 3753748.207 657.74
   LOCATION L0001334     VOLUME   514030.485 3753748.130 657.45
   LOCATION L0001335     VOLUME   514039.074 3753748.052 657.16
   LOCATION L0001336     VOLUME   514047.664 3753747.975 656.87
   LOCATION L0001337     VOLUME   514056.254 3753747.897 656.58
   LOCATION L0001338     VOLUME   514064.843 3753747.819 656.29
   LOCATION L0001339     VOLUME   514073.433 3753747.742 656.00
   LOCATION L0001340     VOLUME   514082.023 3753747.664 655.72
   LOCATION L0001341     VOLUME   514090.612 3753747.587 655.43
   LOCATION L0001342     VOLUME   514099.202 3753747.509 655.14
   LOCATION L0001343     VOLUME   514107.792 3753747.431 654.85
   LOCATION L0001344     VOLUME   514116.381 3753747.354 654.56
   LOCATION L0001345     VOLUME   514124.971 3753747.276 654.34
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LOCATION L0001346     VOLUME   514133.561 3753747.199 654.23
LOCATION L0001347     VOLUME   514142.150 3753747.121 654.12
LOCATION L0001348     VOLUME   514150.740 3753747.044 654.01
LOCATION L0001349     VOLUME   514159.330 3753746.966 653.58
LOCATION L0001350     VOLUME   514167.919 3753746.888 653.11
LOCATION L0001351     VOLUME   514176.509 3753746.811 652.64
LOCATION L0001352     VOLUME   514185.098 3753746.733 652.32
LOCATION L0001353     VOLUME   514193.688 3753746.656 652.22
LOCATION L0001354     VOLUME   514202.278 3753746.578 652.11
LOCATION L0001355     VOLUME   514210.867 3753746.500 652.01
LOCATION L0001356     VOLUME   514219.457 3753746.423 651.57
LOCATION L0001357     VOLUME   514228.047 3753746.345 651.09
LOCATION L0001358     VOLUME   514236.636 3753746.268 650.62
LOCATION L0001359     VOLUME   514245.226 3753746.190 650.23
LOCATION L0001360     VOLUME   514253.816 3753746.113 649.94
LOCATION L0001361     VOLUME   514262.405 3753746.035 649.65
LOCATION L0001362     VOLUME   514270.995 3753745.957 649.36
LOCATION L0001363     VOLUME   514279.585 3753745.880 649.07
LOCATION L0001364     VOLUME   514288.174 3753745.802 648.78
LOCATION L0001365     VOLUME   514296.764 3753745.725 648.49
LOCATION L0001366     VOLUME   514305.354 3753745.647 648.20
LOCATION L0001367     VOLUME   514313.943 3753745.569 647.92
LOCATION L0001368     VOLUME   514322.533 3753745.492 647.63
LOCATION L0001369     VOLUME   514331.123 3753745.414 647.34
LOCATION L0001370     VOLUME   514339.712 3753745.337 647.05
LOCATION L0001371     VOLUME   514348.302 3753745.259 646.76
LOCATION L0001372     VOLUME   514356.891 3753745.182 646.47
LOCATION L0001373     VOLUME   514365.481 3753745.104 646.18
LOCATION L0001374     VOLUME   514374.071 3753745.026 645.89
LOCATION L0001375     VOLUME   514382.660 3753744.949 645.60
LOCATION L0001376     VOLUME   514391.250 3753744.871 645.32
LOCATION L0001377     VOLUME   514399.840 3753744.794 645.30
LOCATION L0001378     VOLUME   514408.429 3753744.716 645.30
LOCATION L0001379     VOLUME   514417.019 3753744.638 645.30
LOCATION L0001380     VOLUME   514425.609 3753744.561 645.16
LOCATION L0001381     VOLUME   514434.198 3753744.483 644.87
LOCATION L0001382     VOLUME   514442.788 3753744.406 644.58
LOCATION L0001383     VOLUME   514451.378 3753744.328 644.29
LOCATION L0001384     VOLUME   514459.967 3753744.251 644.00
LOCATION L0001385     VOLUME   514468.557 3753744.173 643.72
LOCATION L0001386     VOLUME   514477.147 3753744.095 643.43
LOCATION L0001387     VOLUME   514485.736 3753744.018 643.14
LOCATION L0001388     VOLUME   514494.326 3753743.940 642.85
LOCATION L0001389     VOLUME   514502.916 3753743.863 642.56
LOCATION L0001390     VOLUME   514511.505 3753743.785 642.27
LOCATION L0001391     VOLUME   514520.095 3753743.707 642.19
LOCATION L0001392     VOLUME   514528.684 3753743.630 642.11
LOCATION L0001393     VOLUME   514537.274 3753743.552 642.04
LOCATION L0001394     VOLUME   514545.864 3753743.475 641.89
LOCATION L0001395     VOLUME   514554.453 3753743.397 641.68
LOCATION L0001396     VOLUME   514563.043 3753743.320 641.47
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   LOCATION L0001397     VOLUME   514571.633 3753743.242 641.25
   LOCATION L0001398     VOLUME   514580.222 3753743.164 640.96
   LOCATION L0001399     VOLUME   514588.812 3753743.087 640.67
   LOCATION L0001400     VOLUME   514597.402 3753743.009 640.38
** End of LINE VOLUME Source ID = SLINE6
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE7
** DESCRSRC On-site Truck Travel NB, WB, and SB
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0002135
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 514606.317, 3753747.557, 640.08, 3.49, 4.00
** 514602.523, 3754035.137, 649.00, 3.49, 4.00
** 514208.713, 3754029.067, 659.89, 3.49, 4.00
** 514012.946, 3753980.504, 663.69, 3.49, 4.00
** 514011.428, 3753767.285, 658.77, 3.49, 4.00
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   LOCATION L0001401     VOLUME   514606.260 3753751.851 640.45
   LOCATION L0001402     VOLUME   514606.147 3753760.441 640.70
   LOCATION L0001403     VOLUME   514606.034 3753769.030 640.96
   LOCATION L0001404     VOLUME   514605.921 3753777.619 641.25
   LOCATION L0001405     VOLUME   514605.807 3753786.208 641.54
   LOCATION L0001406     VOLUME   514605.694 3753794.798 641.83
   LOCATION L0001407     VOLUME   514605.581 3753803.387 642.12
   LOCATION L0001408     VOLUME   514605.467 3753811.976 642.41
   LOCATION L0001409     VOLUME   514605.354 3753820.565 642.70
   LOCATION L0001410     VOLUME   514605.241 3753829.155 642.99
   LOCATION L0001411     VOLUME   514605.127 3753837.744 643.28
   LOCATION L0001412     VOLUME   514605.014 3753846.333 643.57
   LOCATION L0001413     VOLUME   514604.901 3753854.922 643.86
   LOCATION L0001414     VOLUME   514604.787 3753863.512 643.92
   LOCATION L0001415     VOLUME   514604.674 3753872.101 643.95
   LOCATION L0001416     VOLUME   514604.561 3753880.690 643.98
   LOCATION L0001417     VOLUME   514604.447 3753889.279 644.11
   LOCATION L0001418     VOLUME   514604.334 3753897.869 644.37
   LOCATION L0001419     VOLUME   514604.221 3753906.458 644.63
   LOCATION L0001420     VOLUME   514604.107 3753915.047 644.89
   LOCATION L0001421     VOLUME   514603.994 3753923.636 645.18
   LOCATION L0001422     VOLUME   514603.881 3753932.226 645.47
   LOCATION L0001423     VOLUME   514603.768 3753940.815 645.76
   LOCATION L0001424     VOLUME   514603.654 3753949.404 646.05
   LOCATION L0001425     VOLUME   514603.541 3753957.993 646.34
   LOCATION L0001426     VOLUME   514603.428 3753966.583 646.63
   LOCATION L0001427     VOLUME   514603.314 3753975.172 646.92
   LOCATION L0001428     VOLUME   514603.201 3753983.761 647.21
   LOCATION L0001429     VOLUME   514603.088 3753992.350 647.50
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LOCATION L0001430     VOLUME   514602.974 3754000.940 647.79
LOCATION L0001431     VOLUME   514602.861 3754009.529 648.08
LOCATION L0001432     VOLUME   514602.748 3754018.118 648.37
LOCATION L0001433     VOLUME   514602.634 3754026.707 648.66
LOCATION L0001434     VOLUME   514602.364 3754035.135 648.95
LOCATION L0001435     VOLUME   514593.775 3754035.002 649.24
LOCATION L0001436     VOLUME   514585.186 3754034.870 649.52
LOCATION L0001437     VOLUME   514576.597 3754034.737 649.80
LOCATION L0001438     VOLUME   514568.008 3754034.605 650.08
LOCATION L0001439     VOLUME   514559.419 3754034.473 650.36
LOCATION L0001440     VOLUME   514550.830 3754034.340 650.64
LOCATION L0001441     VOLUME   514542.241 3754034.208 650.93
LOCATION L0001442     VOLUME   514533.652 3754034.075 651.19
LOCATION L0001443     VOLUME   514525.063 3754033.943 651.46
LOCATION L0001444     VOLUME   514516.474 3754033.811 651.72
LOCATION L0001445     VOLUME   514507.885 3754033.678 651.99
LOCATION L0001446     VOLUME   514499.296 3754033.546 652.29
LOCATION L0001447     VOLUME   514490.707 3754033.414 652.59
LOCATION L0001448     VOLUME   514482.118 3754033.281 652.90
LOCATION L0001449     VOLUME   514473.529 3754033.149 653.16
LOCATION L0001450     VOLUME   514464.940 3754033.016 653.41
LOCATION L0001451     VOLUME   514456.351 3754032.884 653.67
LOCATION L0001452     VOLUME   514447.762 3754032.752 653.82
LOCATION L0001453     VOLUME   514439.173 3754032.619 653.84
LOCATION L0001454     VOLUME   514430.584 3754032.487 653.86
LOCATION L0001455     VOLUME   514421.995 3754032.354 653.89
LOCATION L0001456     VOLUME   514413.406 3754032.222 654.15
LOCATION L0001457     VOLUME   514404.817 3754032.090 654.44
LOCATION L0001458     VOLUME   514396.228 3754031.957 654.72
LOCATION L0001459     VOLUME   514387.639 3754031.825 655.00
LOCATION L0001460     VOLUME   514379.050 3754031.692 655.28
LOCATION L0001461     VOLUME   514370.461 3754031.560 655.56
LOCATION L0001462     VOLUME   514361.872 3754031.428 655.85
LOCATION L0001463     VOLUME   514353.283 3754031.295 656.13
LOCATION L0001464     VOLUME   514344.694 3754031.163 656.41
LOCATION L0001465     VOLUME   514336.105 3754031.030 656.69
LOCATION L0001466     VOLUME   514327.516 3754030.898 656.97
LOCATION L0001467     VOLUME   514318.927 3754030.766 657.26
LOCATION L0001468     VOLUME   514310.338 3754030.633 657.54
LOCATION L0001469     VOLUME   514301.749 3754030.501 657.82
LOCATION L0001470     VOLUME   514293.160 3754030.368 658.10
LOCATION L0001471     VOLUME   514284.571 3754030.236 658.38
LOCATION L0001472     VOLUME   514275.982 3754030.104 658.66
LOCATION L0001473     VOLUME   514267.393 3754029.971 658.81
LOCATION L0001474     VOLUME   514258.804 3754029.839 658.80
LOCATION L0001475     VOLUME   514250.215 3754029.707 658.80
LOCATION L0001476     VOLUME   514241.626 3754029.574 658.80
LOCATION L0001477     VOLUME   514233.037 3754029.442 659.07
LOCATION L0001478     VOLUME   514224.448 3754029.309 659.36
LOCATION L0001479     VOLUME   514215.859 3754029.177 659.64
LOCATION L0001480     VOLUME   514207.313 3754028.720 659.80
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   LOCATION L0001481     VOLUME   514198.975 3754026.651 659.82
   LOCATION L0001482     VOLUME   514190.638 3754024.583 659.89
   LOCATION L0001483     VOLUME   514182.301 3754022.515 659.99
   LOCATION L0001484     VOLUME   514173.964 3754020.447 660.12
   LOCATION L0001485     VOLUME   514165.626 3754018.379 660.22
   LOCATION L0001486     VOLUME   514157.289 3754016.311 660.29
   LOCATION L0001487     VOLUME   514148.952 3754014.242 660.37
   LOCATION L0001488     VOLUME   514140.614 3754012.174 660.58
   LOCATION L0001489     VOLUME   514132.277 3754010.106 660.79
   LOCATION L0001490     VOLUME   514123.940 3754008.038 661.00
   LOCATION L0001491     VOLUME   514115.602 3754005.970 661.21
   LOCATION L0001492     VOLUME   514107.265 3754003.901 661.42
   LOCATION L0001493     VOLUME   514098.928 3754001.833 661.62
   LOCATION L0001494     VOLUME   514090.590 3753999.765 661.83
   LOCATION L0001495     VOLUME   514082.253 3753997.697 662.04
   LOCATION L0001496     VOLUME   514073.916 3753995.629 662.25
   LOCATION L0001497     VOLUME   514065.578 3753993.561 662.46
   LOCATION L0001498     VOLUME   514057.241 3753991.492 662.67
   LOCATION L0001499     VOLUME   514048.904 3753989.424 662.88
   LOCATION L0001500     VOLUME   514040.567 3753987.356 663.09
   LOCATION L0001501     VOLUME   514032.229 3753985.288 663.30
   LOCATION L0001502     VOLUME   514023.892 3753983.220 663.51
   LOCATION L0001503     VOLUME   514015.555 3753981.152 663.71
   LOCATION L0001504     VOLUME   514012.904 3753974.603 663.58
   LOCATION L0001505     VOLUME   514012.842 3753966.013 663.30
   LOCATION L0001506     VOLUME   514012.781 3753957.423 663.02
   LOCATION L0001507     VOLUME   514012.720 3753948.833 662.73
   LOCATION L0001508     VOLUME   514012.659 3753940.244 662.45
   LOCATION L0001509     VOLUME   514012.598 3753931.654 662.16
   LOCATION L0001510     VOLUME   514012.537 3753923.064 661.88
   LOCATION L0001511     VOLUME   514012.476 3753914.474 661.59
   LOCATION L0001512     VOLUME   514012.414 3753905.884 661.31
   LOCATION L0001513     VOLUME   514012.353 3753897.295 661.03
   LOCATION L0001514     VOLUME   514012.292 3753888.705 660.74
   LOCATION L0001515     VOLUME   514012.231 3753880.115 660.52
   LOCATION L0001516     VOLUME   514012.170 3753871.525 660.34
   LOCATION L0001517     VOLUME   514012.109 3753862.935 660.16
   LOCATION L0001518     VOLUME   514012.048 3753854.346 659.98
   LOCATION L0001519     VOLUME   514011.987 3753845.756 659.88
   LOCATION L0001520     VOLUME   514011.925 3753837.166 659.79
   LOCATION L0001521     VOLUME   514011.864 3753828.576 659.69
   LOCATION L0001522     VOLUME   514011.803 3753819.987 659.47
   LOCATION L0001523     VOLUME   514011.742 3753811.397 659.18
   LOCATION L0001524     VOLUME   514011.681 3753802.807 658.90
   LOCATION L0001525     VOLUME   514011.620 3753794.217 658.66
   LOCATION L0001526     VOLUME   514011.559 3753785.627 658.67
   LOCATION L0001527     VOLUME   514011.497 3753777.038 658.67
   LOCATION L0001528     VOLUME   514011.436 3753768.448 658.67
** End of LINE VOLUME Source ID = SLINE7
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** Line Source Represented by Adjacent Volume Sources
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** LINE VOLUME Source ID = SLINE8
** DESCRSRC Truck Travel for Southern Loading Area
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00008739
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 514095.893, 3753760.030, 655.88, 3.49, 4.00
** 514095.134, 3753804.041, 656.11, 3.49, 4.00
** 514538.280, 3753797.211, 642.99, 3.49, 4.00
** 514537.522, 3753756.235, 642.09, 3.49, 4.00
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   LOCATION L0001529     VOLUME   514095.818 3753764.324 655.81
   LOCATION L0001530     VOLUME   514095.670 3753772.913 655.90
   LOCATION L0001531     VOLUME   514095.522 3753781.501 655.94
   LOCATION L0001532     VOLUME   514095.374 3753790.090 655.98
   LOCATION L0001533     VOLUME   514095.226 3753798.679 656.09
   LOCATION L0001534     VOLUME   514098.361 3753803.991 656.21
   LOCATION L0001535     VOLUME   514106.950 3753803.859 656.13
   LOCATION L0001536     VOLUME   514115.539 3753803.726 656.05
   LOCATION L0001537     VOLUME   514124.128 3753803.594 655.94
   LOCATION L0001538     VOLUME   514132.717 3753803.462 655.72
   LOCATION L0001539     VOLUME   514141.306 3753803.329 655.51
   LOCATION L0001540     VOLUME   514149.895 3753803.197 655.29
   LOCATION L0001541     VOLUME   514158.483 3753803.064 655.01
   LOCATION L0001542     VOLUME   514167.072 3753802.932 654.72
   LOCATION L0001543     VOLUME   514175.661 3753802.800 654.43
   LOCATION L0001544     VOLUME   514184.250 3753802.667 654.14
   LOCATION L0001545     VOLUME   514192.839 3753802.535 653.85
   LOCATION L0001546     VOLUME   514201.428 3753802.403 653.56
   LOCATION L0001547     VOLUME   514210.017 3753802.270 653.27
   LOCATION L0001548     VOLUME   514218.606 3753802.138 652.98
   LOCATION L0001549     VOLUME   514227.195 3753802.006 652.69
   LOCATION L0001550     VOLUME   514235.784 3753801.873 652.40
   LOCATION L0001551     VOLUME   514244.373 3753801.741 652.11
   LOCATION L0001552     VOLUME   514252.962 3753801.608 651.82
   LOCATION L0001553     VOLUME   514261.551 3753801.476 651.53
   LOCATION L0001554     VOLUME   514270.140 3753801.344 651.23
   LOCATION L0001555     VOLUME   514278.729 3753801.211 650.94
   LOCATION L0001556     VOLUME   514287.318 3753801.079 650.65
   LOCATION L0001557     VOLUME   514295.907 3753800.947 650.36
   LOCATION L0001558     VOLUME   514304.496 3753800.814 650.07
   LOCATION L0001559     VOLUME   514313.085 3753800.682 649.78
   LOCATION L0001560     VOLUME   514321.674 3753800.550 649.49
   LOCATION L0001561     VOLUME   514330.263 3753800.417 649.20
   LOCATION L0001562     VOLUME   514338.852 3753800.285 648.91
   LOCATION L0001563     VOLUME   514347.441 3753800.152 648.62
   LOCATION L0001564     VOLUME   514356.030 3753800.020 648.33
   LOCATION L0001565     VOLUME   514364.619 3753799.888 648.04
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   LOCATION L0001566     VOLUME   514373.208 3753799.755 647.75
   LOCATION L0001567     VOLUME   514381.797 3753799.623 647.46
   LOCATION L0001568     VOLUME   514390.386 3753799.491 647.16
   LOCATION L0001569     VOLUME   514398.975 3753799.358 646.84
   LOCATION L0001570     VOLUME   514407.564 3753799.226 646.52
   LOCATION L0001571     VOLUME   514416.153 3753799.093 646.20
   LOCATION L0001572     VOLUME   514424.742 3753798.961 645.90
   LOCATION L0001573     VOLUME   514433.331 3753798.829 645.65
   LOCATION L0001574     VOLUME   514441.920 3753798.696 645.39
   LOCATION L0001575     VOLUME   514450.509 3753798.564 645.13
   LOCATION L0001576     VOLUME   514459.098 3753798.432 645.07
   LOCATION L0001577     VOLUME   514467.687 3753798.299 645.04
   LOCATION L0001578     VOLUME   514476.276 3753798.167 645.01
   LOCATION L0001579     VOLUME   514484.865 3753798.035 644.90
   LOCATION L0001580     VOLUME   514493.454 3753797.902 644.63
   LOCATION L0001581     VOLUME   514502.043 3753797.770 644.36
   LOCATION L0001582     VOLUME   514510.632 3753797.637 644.09
   LOCATION L0001583     VOLUME   514519.221 3753797.505 643.80
   LOCATION L0001584     VOLUME   514527.810 3753797.373 643.51
   LOCATION L0001585     VOLUME   514536.399 3753797.240 643.22
   LOCATION L0001586     VOLUME   514538.156 3753790.505 642.94
   LOCATION L0001587     VOLUME   514537.997 3753781.916 642.66
   LOCATION L0001588     VOLUME   514537.838 3753773.328 642.38
   LOCATION L0001589     VOLUME   514537.679 3753764.739 642.12
** End of LINE VOLUME Source ID = SLINE8
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE9
** DESCRSRC Truck Travel Northern Loading Area
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001043
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 7
** 514593.675, 3754133.588, 651.03, 3.49, 4.00
** 514514.728, 3754090.277, 653.91, 3.49, 4.00
** 514513.083, 3754080.409, 653.55, 3.49, 4.00
** 514416.592, 3754058.479, 655.75, 3.49, 4.00
** 514304.201, 3754056.286, 658.81, 3.49, 4.00
** 514493.346, 3754111.110, 655.89, 3.49, 4.00
** 514511.438, 3754090.825, 653.96, 3.49, 4.00
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   LOCATION L0001590     VOLUME   514589.909 3754131.523 651.58
   LOCATION L0001591     VOLUME   514582.378 3754127.391 651.69
   LOCATION L0001592     VOLUME   514574.847 3754123.259 651.88
   LOCATION L0001593     VOLUME   514567.316 3754119.128 652.25
   LOCATION L0001594     VOLUME   514559.785 3754114.996 652.64
   LOCATION L0001595     VOLUME   514552.254 3754110.864 652.97
   LOCATION L0001596     VOLUME   514544.723 3754106.733 653.22
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LOCATION L0001597     VOLUME   514537.192 3754102.601 653.37
LOCATION L0001598     VOLUME   514529.660 3754098.469 653.49
LOCATION L0001599     VOLUME   514522.129 3754094.338 653.60
LOCATION L0001600     VOLUME   514514.703 3754090.132 653.71
LOCATION L0001601     VOLUME   514513.291 3754081.658 653.47
LOCATION L0001602     VOLUME   514505.942 3754078.786 653.62
LOCATION L0001603     VOLUME   514497.566 3754076.882 653.84
LOCATION L0001604     VOLUME   514489.189 3754074.978 654.05
LOCATION L0001605     VOLUME   514480.813 3754073.075 654.27
LOCATION L0001606     VOLUME   514472.436 3754071.171 654.49
LOCATION L0001607     VOLUME   514464.060 3754069.267 654.70
LOCATION L0001608     VOLUME   514455.684 3754067.363 654.92
LOCATION L0001609     VOLUME   514447.307 3754065.460 655.13
LOCATION L0001610     VOLUME   514438.931 3754063.556 655.32
LOCATION L0001611     VOLUME   514430.554 3754061.652 655.47
LOCATION L0001612     VOLUME   514422.178 3754059.748 655.59
LOCATION L0001613     VOLUME   514413.731 3754058.423 655.58
LOCATION L0001614     VOLUME   514405.143 3754058.255 655.64
LOCATION L0001615     VOLUME   514396.554 3754058.088 655.70
LOCATION L0001616     VOLUME   514387.966 3754057.920 655.86
LOCATION L0001617     VOLUME   514379.378 3754057.753 656.14
LOCATION L0001618     VOLUME   514370.789 3754057.585 656.42
LOCATION L0001619     VOLUME   514362.201 3754057.418 656.70
LOCATION L0001620     VOLUME   514353.613 3754057.250 656.98
LOCATION L0001621     VOLUME   514345.024 3754057.082 657.26
LOCATION L0001622     VOLUME   514336.436 3754056.915 657.54
LOCATION L0001623     VOLUME   514327.847 3754056.747 657.82
LOCATION L0001624     VOLUME   514319.259 3754056.580 658.10
LOCATION L0001625     VOLUME   514310.671 3754056.412 658.39
LOCATION L0001626     VOLUME   514306.237 3754056.876 658.55
LOCATION L0001627     VOLUME   514314.487 3754059.267 658.35
LOCATION L0001628     VOLUME   514322.738 3754061.659 658.16
LOCATION L0001629     VOLUME   514330.988 3754064.050 657.96
LOCATION L0001630     VOLUME   514339.239 3754066.442 657.77
LOCATION L0001631     VOLUME   514347.489 3754068.833 657.57
LOCATION L0001632     VOLUME   514355.739 3754071.224 657.38
LOCATION L0001633     VOLUME   514363.990 3754073.616 657.18
LOCATION L0001634     VOLUME   514372.240 3754076.007 656.99
LOCATION L0001635     VOLUME   514380.491 3754078.399 656.79
LOCATION L0001636     VOLUME   514388.741 3754080.790 656.60
LOCATION L0001637     VOLUME   514396.991 3754083.182 656.58
LOCATION L0001638     VOLUME   514405.242 3754085.573 656.66
LOCATION L0001639     VOLUME   514413.492 3754087.964 656.74
LOCATION L0001640     VOLUME   514421.743 3754090.356 656.81
LOCATION L0001641     VOLUME   514429.993 3754092.747 656.62
LOCATION L0001642     VOLUME   514438.243 3754095.139 656.42
LOCATION L0001643     VOLUME   514446.494 3754097.530 656.28
LOCATION L0001644     VOLUME   514454.744 3754099.921 656.17
LOCATION L0001645     VOLUME   514462.995 3754102.313 656.06
LOCATION L0001646     VOLUME   514471.245 3754104.704 655.94
LOCATION L0001647     VOLUME   514479.495 3754107.096 655.83
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   LOCATION L0001648     VOLUME   514487.746 3754109.487 655.62
   LOCATION L0001649     VOLUME   514495.183 3754109.051 655.23
   LOCATION L0001650     VOLUME   514500.900 3754102.640 654.67
   LOCATION L0001651     VOLUME   514506.618 3754096.230 654.18
** End of LINE VOLUME Source ID = SLINE9
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE10
** DESCRSRC South Loading Area Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001649
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514089.755, 3753831.008, 656.98, 3.49, 4.00
** 514545.053, 3753824.179, 643.96, 3.49, 4.00
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   LOCATION L0001652     VOLUME   514094.050 3753830.944 657.09
   LOCATION L0001653     VOLUME   514102.639 3753830.815 656.80
   LOCATION L0001654     VOLUME   514111.228 3753830.686 656.51
   LOCATION L0001655     VOLUME   514119.817 3753830.557 656.22
   LOCATION L0001656     VOLUME   514128.406 3753830.428 656.12
   LOCATION L0001657     VOLUME   514136.995 3753830.300 656.07
   LOCATION L0001658     VOLUME   514145.584 3753830.171 656.03
   LOCATION L0001659     VOLUME   514154.173 3753830.042 655.91
   LOCATION L0001660     VOLUME   514162.762 3753829.913 655.63
   LOCATION L0001661     VOLUME   514171.351 3753829.784 655.34
   LOCATION L0001662     VOLUME   514179.940 3753829.655 655.05
   LOCATION L0001663     VOLUME   514188.529 3753829.527 654.77
   LOCATION L0001664     VOLUME   514197.118 3753829.398 654.48
   LOCATION L0001665     VOLUME   514205.707 3753829.269 654.19
   LOCATION L0001666     VOLUME   514214.296 3753829.140 653.92
   LOCATION L0001667     VOLUME   514222.885 3753829.011 653.66
   LOCATION L0001668     VOLUME   514231.474 3753828.882 653.41
   LOCATION L0001669     VOLUME   514240.063 3753828.754 653.15
   LOCATION L0001670     VOLUME   514248.652 3753828.625 652.86
   LOCATION L0001671     VOLUME   514257.241 3753828.496 652.57
   LOCATION L0001672     VOLUME   514265.830 3753828.367 652.28
   LOCATION L0001673     VOLUME   514274.419 3753828.238 651.99
   LOCATION L0001674     VOLUME   514283.008 3753828.109 651.70
   LOCATION L0001675     VOLUME   514291.598 3753827.981 651.41
   LOCATION L0001676     VOLUME   514300.187 3753827.852 651.12
   LOCATION L0001677     VOLUME   514308.776 3753827.723 650.83
   LOCATION L0001678     VOLUME   514317.365 3753827.594 650.54
   LOCATION L0001679     VOLUME   514325.954 3753827.465 650.24
   LOCATION L0001680     VOLUME   514334.543 3753827.336 649.95
   LOCATION L0001681     VOLUME   514343.132 3753827.208 649.66
   LOCATION L0001682     VOLUME   514351.721 3753827.079 649.37
   LOCATION L0001683     VOLUME   514360.310 3753826.950 649.08
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   LOCATION L0001684     VOLUME   514368.899 3753826.821 648.79
   LOCATION L0001685     VOLUME   514377.488 3753826.692 648.50
   LOCATION L0001686     VOLUME   514386.077 3753826.563 648.21
   LOCATION L0001687     VOLUME   514394.666 3753826.435 647.82
   LOCATION L0001688     VOLUME   514403.255 3753826.306 647.25
   LOCATION L0001689     VOLUME   514411.844 3753826.177 646.67
   LOCATION L0001690     VOLUME   514420.433 3753826.048 646.10
   LOCATION L0001691     VOLUME   514429.022 3753825.919 646.01
   LOCATION L0001692     VOLUME   514437.611 3753825.790 646.00
   LOCATION L0001693     VOLUME   514446.200 3753825.662 646.00
   LOCATION L0001694     VOLUME   514454.789 3753825.533 645.89
   LOCATION L0001695     VOLUME   514463.378 3753825.404 645.60
   LOCATION L0001696     VOLUME   514471.967 3753825.275 645.31
   LOCATION L0001697     VOLUME   514480.556 3753825.146 645.03
   LOCATION L0001698     VOLUME   514489.145 3753825.017 644.99
   LOCATION L0001699     VOLUME   514497.734 3753824.889 644.99
   LOCATION L0001700     VOLUME   514506.323 3753824.760 644.97
   LOCATION L0001701     VOLUME   514514.912 3753824.631 644.85
   LOCATION L0001702     VOLUME   514523.501 3753824.502 644.56
   LOCATION L0001703     VOLUME   514532.090 3753824.373 644.27
   LOCATION L0001704     VOLUME   514540.679 3753824.244 643.98
** End of LINE VOLUME Source ID = SLINE10
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE11
** DESCRSRC North Loading Area Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001509
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514225.586, 3754009.333, 658.54, 3.49, 4.00
** 514575.406, 3754013.886, 648.91, 3.49, 4.00
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   LOCATION L0001705     VOLUME   514229.880 3754009.389 658.51
   LOCATION L0001706     VOLUME   514238.470 3754009.501 658.23
   LOCATION L0001707     VOLUME   514247.059 3754009.613 658.13
   LOCATION L0001708     VOLUME   514255.648 3754009.725 658.13
   LOCATION L0001709     VOLUME   514264.238 3754009.836 658.14
   LOCATION L0001710     VOLUME   514272.827 3754009.948 658.10
   LOCATION L0001711     VOLUME   514281.416 3754010.060 657.82
   LOCATION L0001712     VOLUME   514290.005 3754010.172 657.53
   LOCATION L0001713     VOLUME   514298.595 3754010.284 657.25
   LOCATION L0001714     VOLUME   514307.184 3754010.395 656.97
   LOCATION L0001715     VOLUME   514315.773 3754010.507 656.69
   LOCATION L0001716     VOLUME   514324.362 3754010.619 656.40
   LOCATION L0001717     VOLUME   514332.952 3754010.731 656.12
   LOCATION L0001718     VOLUME   514341.541 3754010.843 655.84
   LOCATION L0001719     VOLUME   514350.130 3754010.954 655.56
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   LOCATION L0001720     VOLUME   514358.720 3754011.066 655.27
   LOCATION L0001721     VOLUME   514367.309 3754011.178 654.99
   LOCATION L0001722     VOLUME   514375.898 3754011.290 654.71
   LOCATION L0001723     VOLUME   514384.487 3754011.401 654.42
   LOCATION L0001724     VOLUME   514393.077 3754011.513 654.14
   LOCATION L0001725     VOLUME   514401.666 3754011.625 653.86
   LOCATION L0001726     VOLUME   514410.255 3754011.737 653.58
   LOCATION L0001727     VOLUME   514418.844 3754011.849 653.29
   LOCATION L0001728     VOLUME   514427.434 3754011.960 653.05
   LOCATION L0001729     VOLUME   514436.023 3754012.072 652.83
   LOCATION L0001730     VOLUME   514444.612 3754012.184 652.61
   LOCATION L0001731     VOLUME   514453.202 3754012.296 652.43
   LOCATION L0001732     VOLUME   514461.791 3754012.408 652.37
   LOCATION L0001733     VOLUME   514470.380 3754012.519 652.31
   LOCATION L0001734     VOLUME   514478.969 3754012.631 652.25
   LOCATION L0001735     VOLUME   514487.559 3754012.743 651.88
   LOCATION L0001736     VOLUME   514496.148 3754012.855 651.38
   LOCATION L0001737     VOLUME   514504.737 3754012.967 650.88
   LOCATION L0001738     VOLUME   514513.326 3754013.078 650.48
   LOCATION L0001739     VOLUME   514521.916 3754013.190 650.41
   LOCATION L0001740     VOLUME   514530.505 3754013.302 650.35
   LOCATION L0001741     VOLUME   514539.094 3754013.414 650.28
   LOCATION L0001742     VOLUME   514547.684 3754013.525 650.06
   LOCATION L0001743     VOLUME   514556.273 3754013.637 649.77
   LOCATION L0001744     VOLUME   514564.862 3754013.749 649.49
   LOCATION L0001745     VOLUME   514573.451 3754013.861 649.21
** End of LINE VOLUME Source ID = SLINE11
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE12
** DESCRSRC West Loading Area idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0000432
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514044.090, 3753964.333, 662.52, 3.49, 4.00
** 514045.734, 3753847.004, 659.05, 3.49, 4.00
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   LOCATION L0001746     VOLUME   514044.150 3753960.039 662.06
   LOCATION L0001747     VOLUME   514044.270 3753951.450 661.77
   LOCATION L0001748     VOLUME   514044.391 3753942.861 661.48
   LOCATION L0001749     VOLUME   514044.511 3753934.271 661.19
   LOCATION L0001750     VOLUME   514044.631 3753925.682 660.90
   LOCATION L0001751     VOLUME   514044.752 3753917.093 660.61
   LOCATION L0001752     VOLUME   514044.872 3753908.504 660.42
   LOCATION L0001753     VOLUME   514044.993 3753899.915 660.26
   LOCATION L0001754     VOLUME   514045.113 3753891.326 660.10
   LOCATION L0001755     VOLUME   514045.233 3753882.737 659.91
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   LOCATION L0001756     VOLUME   514045.354 3753874.147 659.65
   LOCATION L0001757     VOLUME   514045.474 3753865.558 659.38
   LOCATION L0001758     VOLUME   514045.595 3753856.969 659.10
   LOCATION L0001759     VOLUME   514045.715 3753848.380 658.93
** End of LINE VOLUME Source ID = SLINE12
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0001020     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001021     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001022     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001023     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001024     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001025     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001026     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001027     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001028     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001029     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001030     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001031     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001032     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001033     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001034     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001035     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001036     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001037     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001038     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001039     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001040     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001041     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001042     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001043     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001044     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001045     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001046     0.000002034      3.49      4.00      3.25
   SRCPARAM L0001047     0.000002034      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE2
   SRCPARAM L0001048     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001049     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001050     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001051     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001052     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001053     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001054     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001055     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001056     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001057     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001058     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001059     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001060     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001061     0.00000004159      3.49      4.00      3.25
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   SRCPARAM L0001062     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001063     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001064     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001065     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001066     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001067     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001068     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001069     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001070     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001071     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001072     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001073     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001074     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001075     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001076     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001077     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001078     0.00000004159      3.49      4.00      3.25
   SRCPARAM L0001079     0.00000004159      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0001080     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001081     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001082     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001083     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001084     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001085     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001086     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001087     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001088     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001089     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001090     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001091     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001092     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001093     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001094     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001095     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001096     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001097     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001098     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001099     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001100     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001101     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001102     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001103     0.000002014      3.49      4.00      3.25
   SRCPARAM L0001104     0.000002014      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE4
   SRCPARAM L0001105     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001106     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001107     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001108     0.000002063      3.49      4.00      3.25
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   SRCPARAM L0001109     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001110     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001111     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001112     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001113     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001114     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001115     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001116     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001117     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001118     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001119     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001120     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001121     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001122     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001123     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001124     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001125     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001126     0.000002063      3.49      4.00      3.25
   SRCPARAM L0001127     0.000002063      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE5
   SRCPARAM L0001128     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001129     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001130     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001131     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001132     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001133     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001134     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001135     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001136     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001137     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001138     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001139     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001140     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001141     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001142     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001143     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001144     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001145     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001146     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001147     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001148     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001149     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001150     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001151     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001152     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001153     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001154     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001155     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001156     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001157     0.000001458      3.49      4.00      3.25
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SRCPARAM L0001158     0.000001458      3.49      4.00      3.25
SRCPARAM L0001159     0.000001458      3.49      4.00      3.25
SRCPARAM L0001160     0.000001458      3.49      4.00      3.25
SRCPARAM L0001161     0.000001458      3.49      4.00      3.25
SRCPARAM L0001162     0.000001458      3.49      4.00      3.25
SRCPARAM L0001163     0.000001458      3.49      4.00      3.25
SRCPARAM L0001164     0.000001458      3.49      4.00      3.25
SRCPARAM L0001165     0.000001458      3.49      4.00      3.25
SRCPARAM L0001166     0.000001458      3.49      4.00      3.25
SRCPARAM L0001167     0.000001458      3.49      4.00      3.25
SRCPARAM L0001168     0.000001458      3.49      4.00      3.25
SRCPARAM L0001169     0.000001458      3.49      4.00      3.25
SRCPARAM L0001170     0.000001458      3.49      4.00      3.25
SRCPARAM L0001171     0.000001458      3.49      4.00      3.25
SRCPARAM L0001172     0.000001458      3.49      4.00      3.25
SRCPARAM L0001173     0.000001458      3.49      4.00      3.25
SRCPARAM L0001174     0.000001458      3.49      4.00      3.25
SRCPARAM L0001175     0.000001458      3.49      4.00      3.25
SRCPARAM L0001176     0.000001458      3.49      4.00      3.25
SRCPARAM L0001177     0.000001458      3.49      4.00      3.25
SRCPARAM L0001178     0.000001458      3.49      4.00      3.25
SRCPARAM L0001179     0.000001458      3.49      4.00      3.25
SRCPARAM L0001180     0.000001458      3.49      4.00      3.25
SRCPARAM L0001181     0.000001458      3.49      4.00      3.25
SRCPARAM L0001182     0.000001458      3.49      4.00      3.25
SRCPARAM L0001183     0.000001458      3.49      4.00      3.25
SRCPARAM L0001184     0.000001458      3.49      4.00      3.25
SRCPARAM L0001185     0.000001458      3.49      4.00      3.25
SRCPARAM L0001186     0.000001458      3.49      4.00      3.25
SRCPARAM L0001187     0.000001458      3.49      4.00      3.25
SRCPARAM L0001188     0.000001458      3.49      4.00      3.25
SRCPARAM L0001189     0.000001458      3.49      4.00      3.25
SRCPARAM L0001190     0.000001458      3.49      4.00      3.25
SRCPARAM L0001191     0.000001458      3.49      4.00      3.25
SRCPARAM L0001192     0.000001458      3.49      4.00      3.25
SRCPARAM L0001193     0.000001458      3.49      4.00      3.25
SRCPARAM L0001194     0.000001458      3.49      4.00      3.25
SRCPARAM L0001195     0.000001458      3.49      4.00      3.25
SRCPARAM L0001196     0.000001458      3.49      4.00      3.25
SRCPARAM L0001197     0.000001458      3.49      4.00      3.25
SRCPARAM L0001198     0.000001458      3.49      4.00      3.25
SRCPARAM L0001199     0.000001458      3.49      4.00      3.25
SRCPARAM L0001200     0.000001458      3.49      4.00      3.25
SRCPARAM L0001201     0.000001458      3.49      4.00      3.25
SRCPARAM L0001202     0.000001458      3.49      4.00      3.25
SRCPARAM L0001203     0.000001458      3.49      4.00      3.25
SRCPARAM L0001204     0.000001458      3.49      4.00      3.25
SRCPARAM L0001205     0.000001458      3.49      4.00      3.25
SRCPARAM L0001206     0.000001458      3.49      4.00      3.25
SRCPARAM L0001207     0.000001458      3.49      4.00      3.25
SRCPARAM L0001208     0.000001458      3.49      4.00      3.25
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SRCPARAM L0001209     0.000001458      3.49      4.00      3.25
SRCPARAM L0001210     0.000001458      3.49      4.00      3.25
SRCPARAM L0001211     0.000001458      3.49      4.00      3.25
SRCPARAM L0001212     0.000001458      3.49      4.00      3.25
SRCPARAM L0001213     0.000001458      3.49      4.00      3.25
SRCPARAM L0001214     0.000001458      3.49      4.00      3.25
SRCPARAM L0001215     0.000001458      3.49      4.00      3.25
SRCPARAM L0001216     0.000001458      3.49      4.00      3.25
SRCPARAM L0001217     0.000001458      3.49      4.00      3.25
SRCPARAM L0001218     0.000001458      3.49      4.00      3.25
SRCPARAM L0001219     0.000001458      3.49      4.00      3.25
SRCPARAM L0001220     0.000001458      3.49      4.00      3.25
SRCPARAM L0001221     0.000001458      3.49      4.00      3.25
SRCPARAM L0001222     0.000001458      3.49      4.00      3.25
SRCPARAM L0001223     0.000001458      3.49      4.00      3.25
SRCPARAM L0001224     0.000001458      3.49      4.00      3.25
SRCPARAM L0001225     0.000001458      3.49      4.00      3.25
SRCPARAM L0001226     0.000001458      3.49      4.00      3.25
SRCPARAM L0001227     0.000001458      3.49      4.00      3.25
SRCPARAM L0001228     0.000001458      3.49      4.00      3.25
SRCPARAM L0001229     0.000001458      3.49      4.00      3.25
SRCPARAM L0001230     0.000001458      3.49      4.00      3.25
SRCPARAM L0001231     0.000001458      3.49      4.00      3.25
SRCPARAM L0001232     0.000001458      3.49      4.00      3.25
SRCPARAM L0001233     0.000001458      3.49      4.00      3.25
SRCPARAM L0001234     0.000001458      3.49      4.00      3.25
SRCPARAM L0001235     0.000001458      3.49      4.00      3.25
SRCPARAM L0001236     0.000001458      3.49      4.00      3.25
SRCPARAM L0001237     0.000001458      3.49      4.00      3.25
SRCPARAM L0001238     0.000001458      3.49      4.00      3.25
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SRCPARAM L0001240     0.000001458      3.49      4.00      3.25
SRCPARAM L0001241     0.000001458      3.49      4.00      3.25
SRCPARAM L0001242     0.000001458      3.49      4.00      3.25
SRCPARAM L0001243     0.000001458      3.49      4.00      3.25
SRCPARAM L0001244     0.000001458      3.49      4.00      3.25
SRCPARAM L0001245     0.000001458      3.49      4.00      3.25
SRCPARAM L0001246     0.000001458      3.49      4.00      3.25
SRCPARAM L0001247     0.000001458      3.49      4.00      3.25
SRCPARAM L0001248     0.000001458      3.49      4.00      3.25
SRCPARAM L0001249     0.000001458      3.49      4.00      3.25
SRCPARAM L0001250     0.000001458      3.49      4.00      3.25
SRCPARAM L0001251     0.000001458      3.49      4.00      3.25
SRCPARAM L0001252     0.000001458      3.49      4.00      3.25
SRCPARAM L0001253     0.000001458      3.49      4.00      3.25
SRCPARAM L0001254     0.000001458      3.49      4.00      3.25
SRCPARAM L0001255     0.000001458      3.49      4.00      3.25
SRCPARAM L0001256     0.000001458      3.49      4.00      3.25
SRCPARAM L0001257     0.000001458      3.49      4.00      3.25
SRCPARAM L0001258     0.000001458      3.49      4.00      3.25
SRCPARAM L0001259     0.000001458      3.49      4.00      3.25
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   SRCPARAM L0001260     0.000001458      3.49      4.00      3.25
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   SRCPARAM L0001263     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001264     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001265     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001266     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001267     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001268     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001269     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001270     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001271     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001272     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001273     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001274     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001275     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001276     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001277     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001278     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001279     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001280     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001281     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001282     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001283     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001284     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001285     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001286     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001287     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001288     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001289     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001290     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001291     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001292     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001293     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001294     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001295     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001296     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001297     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001298     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001299     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001300     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001301     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001302     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001303     0.000001458      3.49      4.00      3.25
   SRCPARAM L0001304     0.000001458      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE6
   SRCPARAM L0001305     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001306     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001307     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001308     0.000003079      3.49      4.00      3.25
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SRCPARAM L0001309     0.000003079      3.49      4.00      3.25
SRCPARAM L0001310     0.000003079      3.49      4.00      3.25
SRCPARAM L0001311     0.000003079      3.49      4.00      3.25
SRCPARAM L0001312     0.000003079      3.49      4.00      3.25
SRCPARAM L0001313     0.000003079      3.49      4.00      3.25
SRCPARAM L0001314     0.000003079      3.49      4.00      3.25
SRCPARAM L0001315     0.000003079      3.49      4.00      3.25
SRCPARAM L0001316     0.000003079      3.49      4.00      3.25
SRCPARAM L0001317     0.000003079      3.49      4.00      3.25
SRCPARAM L0001318     0.000003079      3.49      4.00      3.25
SRCPARAM L0001319     0.000003079      3.49      4.00      3.25
SRCPARAM L0001320     0.000003079      3.49      4.00      3.25
SRCPARAM L0001321     0.000003079      3.49      4.00      3.25
SRCPARAM L0001322     0.000003079      3.49      4.00      3.25
SRCPARAM L0001323     0.000003079      3.49      4.00      3.25
SRCPARAM L0001324     0.000003079      3.49      4.00      3.25
SRCPARAM L0001325     0.000003079      3.49      4.00      3.25
SRCPARAM L0001326     0.000003079      3.49      4.00      3.25
SRCPARAM L0001327     0.000003079      3.49      4.00      3.25
SRCPARAM L0001328     0.000003079      3.49      4.00      3.25
SRCPARAM L0001329     0.000003079      3.49      4.00      3.25
SRCPARAM L0001330     0.000003079      3.49      4.00      3.25
SRCPARAM L0001331     0.000003079      3.49      4.00      3.25
SRCPARAM L0001332     0.000003079      3.49      4.00      3.25
SRCPARAM L0001333     0.000003079      3.49      4.00      3.25
SRCPARAM L0001334     0.000003079      3.49      4.00      3.25
SRCPARAM L0001335     0.000003079      3.49      4.00      3.25
SRCPARAM L0001336     0.000003079      3.49      4.00      3.25
SRCPARAM L0001337     0.000003079      3.49      4.00      3.25
SRCPARAM L0001338     0.000003079      3.49      4.00      3.25
SRCPARAM L0001339     0.000003079      3.49      4.00      3.25
SRCPARAM L0001340     0.000003079      3.49      4.00      3.25
SRCPARAM L0001341     0.000003079      3.49      4.00      3.25
SRCPARAM L0001342     0.000003079      3.49      4.00      3.25
SRCPARAM L0001343     0.000003079      3.49      4.00      3.25
SRCPARAM L0001344     0.000003079      3.49      4.00      3.25
SRCPARAM L0001345     0.000003079      3.49      4.00      3.25
SRCPARAM L0001346     0.000003079      3.49      4.00      3.25
SRCPARAM L0001347     0.000003079      3.49      4.00      3.25
SRCPARAM L0001348     0.000003079      3.49      4.00      3.25
SRCPARAM L0001349     0.000003079      3.49      4.00      3.25
SRCPARAM L0001350     0.000003079      3.49      4.00      3.25
SRCPARAM L0001351     0.000003079      3.49      4.00      3.25
SRCPARAM L0001352     0.000003079      3.49      4.00      3.25
SRCPARAM L0001353     0.000003079      3.49      4.00      3.25
SRCPARAM L0001354     0.000003079      3.49      4.00      3.25
SRCPARAM L0001355     0.000003079      3.49      4.00      3.25
SRCPARAM L0001356     0.000003079      3.49      4.00      3.25
SRCPARAM L0001357     0.000003079      3.49      4.00      3.25
SRCPARAM L0001358     0.000003079      3.49      4.00      3.25
SRCPARAM L0001359     0.000003079      3.49      4.00      3.25
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   SRCPARAM L0001360     0.000003079      3.49      4.00      3.25
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   SRCPARAM L0001363     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001364     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001365     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001366     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001367     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001368     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001369     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001370     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001371     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001372     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001373     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001374     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001375     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001376     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001377     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001378     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001379     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001380     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001381     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001382     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001383     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001384     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001385     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001386     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001387     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001388     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001389     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001390     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001391     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001392     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001393     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001394     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001395     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001396     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001397     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001398     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001399     0.000003079      3.49      4.00      3.25
   SRCPARAM L0001400     0.000003079      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE7
   SRCPARAM L0001401     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001402     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001403     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001404     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001405     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001406     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001407     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001408     0.000001668      3.49      4.00      3.25
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SRCPARAM L0001409     0.000001668      3.49      4.00      3.25
SRCPARAM L0001410     0.000001668      3.49      4.00      3.25
SRCPARAM L0001411     0.000001668      3.49      4.00      3.25
SRCPARAM L0001412     0.000001668      3.49      4.00      3.25
SRCPARAM L0001413     0.000001668      3.49      4.00      3.25
SRCPARAM L0001414     0.000001668      3.49      4.00      3.25
SRCPARAM L0001415     0.000001668      3.49      4.00      3.25
SRCPARAM L0001416     0.000001668      3.49      4.00      3.25
SRCPARAM L0001417     0.000001668      3.49      4.00      3.25
SRCPARAM L0001418     0.000001668      3.49      4.00      3.25
SRCPARAM L0001419     0.000001668      3.49      4.00      3.25
SRCPARAM L0001420     0.000001668      3.49      4.00      3.25
SRCPARAM L0001421     0.000001668      3.49      4.00      3.25
SRCPARAM L0001422     0.000001668      3.49      4.00      3.25
SRCPARAM L0001423     0.000001668      3.49      4.00      3.25
SRCPARAM L0001424     0.000001668      3.49      4.00      3.25
SRCPARAM L0001425     0.000001668      3.49      4.00      3.25
SRCPARAM L0001426     0.000001668      3.49      4.00      3.25
SRCPARAM L0001427     0.000001668      3.49      4.00      3.25
SRCPARAM L0001428     0.000001668      3.49      4.00      3.25
SRCPARAM L0001429     0.000001668      3.49      4.00      3.25
SRCPARAM L0001430     0.000001668      3.49      4.00      3.25
SRCPARAM L0001431     0.000001668      3.49      4.00      3.25
SRCPARAM L0001432     0.000001668      3.49      4.00      3.25
SRCPARAM L0001433     0.000001668      3.49      4.00      3.25
SRCPARAM L0001434     0.000001668      3.49      4.00      3.25
SRCPARAM L0001435     0.000001668      3.49      4.00      3.25
SRCPARAM L0001436     0.000001668      3.49      4.00      3.25
SRCPARAM L0001437     0.000001668      3.49      4.00      3.25
SRCPARAM L0001438     0.000001668      3.49      4.00      3.25
SRCPARAM L0001439     0.000001668      3.49      4.00      3.25
SRCPARAM L0001440     0.000001668      3.49      4.00      3.25
SRCPARAM L0001441     0.000001668      3.49      4.00      3.25
SRCPARAM L0001442     0.000001668      3.49      4.00      3.25
SRCPARAM L0001443     0.000001668      3.49      4.00      3.25
SRCPARAM L0001444     0.000001668      3.49      4.00      3.25
SRCPARAM L0001445     0.000001668      3.49      4.00      3.25
SRCPARAM L0001446     0.000001668      3.49      4.00      3.25
SRCPARAM L0001447     0.000001668      3.49      4.00      3.25
SRCPARAM L0001448     0.000001668      3.49      4.00      3.25
SRCPARAM L0001449     0.000001668      3.49      4.00      3.25
SRCPARAM L0001450     0.000001668      3.49      4.00      3.25
SRCPARAM L0001451     0.000001668      3.49      4.00      3.25
SRCPARAM L0001452     0.000001668      3.49      4.00      3.25
SRCPARAM L0001453     0.000001668      3.49      4.00      3.25
SRCPARAM L0001454     0.000001668      3.49      4.00      3.25
SRCPARAM L0001455     0.000001668      3.49      4.00      3.25
SRCPARAM L0001456     0.000001668      3.49      4.00      3.25
SRCPARAM L0001457     0.000001668      3.49      4.00      3.25
SRCPARAM L0001458     0.000001668      3.49      4.00      3.25
SRCPARAM L0001459     0.000001668      3.49      4.00      3.25
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SRCPARAM L0001460     0.000001668      3.49      4.00      3.25
SRCPARAM L0001461     0.000001668      3.49      4.00      3.25
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SRCPARAM L0001463     0.000001668      3.49      4.00      3.25
SRCPARAM L0001464     0.000001668      3.49      4.00      3.25
SRCPARAM L0001465     0.000001668      3.49      4.00      3.25
SRCPARAM L0001466     0.000001668      3.49      4.00      3.25
SRCPARAM L0001467     0.000001668      3.49      4.00      3.25
SRCPARAM L0001468     0.000001668      3.49      4.00      3.25
SRCPARAM L0001469     0.000001668      3.49      4.00      3.25
SRCPARAM L0001470     0.000001668      3.49      4.00      3.25
SRCPARAM L0001471     0.000001668      3.49      4.00      3.25
SRCPARAM L0001472     0.000001668      3.49      4.00      3.25
SRCPARAM L0001473     0.000001668      3.49      4.00      3.25
SRCPARAM L0001474     0.000001668      3.49      4.00      3.25
SRCPARAM L0001475     0.000001668      3.49      4.00      3.25
SRCPARAM L0001476     0.000001668      3.49      4.00      3.25
SRCPARAM L0001477     0.000001668      3.49      4.00      3.25
SRCPARAM L0001478     0.000001668      3.49      4.00      3.25
SRCPARAM L0001479     0.000001668      3.49      4.00      3.25
SRCPARAM L0001480     0.000001668      3.49      4.00      3.25
SRCPARAM L0001481     0.000001668      3.49      4.00      3.25
SRCPARAM L0001482     0.000001668      3.49      4.00      3.25
SRCPARAM L0001483     0.000001668      3.49      4.00      3.25
SRCPARAM L0001484     0.000001668      3.49      4.00      3.25
SRCPARAM L0001485     0.000001668      3.49      4.00      3.25
SRCPARAM L0001486     0.000001668      3.49      4.00      3.25
SRCPARAM L0001487     0.000001668      3.49      4.00      3.25
SRCPARAM L0001488     0.000001668      3.49      4.00      3.25
SRCPARAM L0001489     0.000001668      3.49      4.00      3.25
SRCPARAM L0001490     0.000001668      3.49      4.00      3.25
SRCPARAM L0001491     0.000001668      3.49      4.00      3.25
SRCPARAM L0001492     0.000001668      3.49      4.00      3.25
SRCPARAM L0001493     0.000001668      3.49      4.00      3.25
SRCPARAM L0001494     0.000001668      3.49      4.00      3.25
SRCPARAM L0001495     0.000001668      3.49      4.00      3.25
SRCPARAM L0001496     0.000001668      3.49      4.00      3.25
SRCPARAM L0001497     0.000001668      3.49      4.00      3.25
SRCPARAM L0001498     0.000001668      3.49      4.00      3.25
SRCPARAM L0001499     0.000001668      3.49      4.00      3.25
SRCPARAM L0001500     0.000001668      3.49      4.00      3.25
SRCPARAM L0001501     0.000001668      3.49      4.00      3.25
SRCPARAM L0001502     0.000001668      3.49      4.00      3.25
SRCPARAM L0001503     0.000001668      3.49      4.00      3.25
SRCPARAM L0001504     0.000001668      3.49      4.00      3.25
SRCPARAM L0001505     0.000001668      3.49      4.00      3.25
SRCPARAM L0001506     0.000001668      3.49      4.00      3.25
SRCPARAM L0001507     0.000001668      3.49      4.00      3.25
SRCPARAM L0001508     0.000001668      3.49      4.00      3.25
SRCPARAM L0001509     0.000001668      3.49      4.00      3.25
SRCPARAM L0001510     0.000001668      3.49      4.00      3.25
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   SRCPARAM L0001511     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001512     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001513     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001514     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001515     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001516     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001517     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001518     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001519     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001520     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001521     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001522     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001523     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001524     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001525     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001526     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001527     0.000001668      3.49      4.00      3.25
   SRCPARAM L0001528     0.000001668      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE8
   SRCPARAM L0001529     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001530     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001531     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001532     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001533     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001534     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001535     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001536     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001537     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001538     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001539     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001540     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001541     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001542     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001543     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001544     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001545     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001546     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001547     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001548     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001549     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001550     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001551     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001552     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001553     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001554     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001555     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001556     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001557     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001558     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001559     0.000001433      3.49      4.00      3.25
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   SRCPARAM L0001560     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001561     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001562     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001563     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001564     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001565     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001566     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001567     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001568     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001569     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001570     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001571     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001572     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001573     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001574     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001575     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001576     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001577     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001578     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001579     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001580     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001581     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001582     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001583     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001584     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001585     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001586     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001587     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001588     0.000001433      3.49      4.00      3.25
   SRCPARAM L0001589     0.000001433      3.49      4.00      3.25
** ------------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE9
   SRCPARAM L0001590     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001591     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001592     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001593     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001594     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001595     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001596     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001597     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001598     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001599     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001600     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001601     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001602     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001603     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001604     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001605     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001606     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001607     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001608     0.000001682      3.49      4.00      3.25
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   SRCPARAM L0001609     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001610     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001611     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001612     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001613     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001614     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001615     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001616     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001617     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001618     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001619     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001620     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001621     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001622     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001623     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001624     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001625     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001626     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001627     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001628     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001629     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001630     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001631     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001632     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001633     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001634     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001635     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001636     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001637     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001638     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001639     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001640     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001641     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001642     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001643     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001644     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001645     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001646     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001647     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001648     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001649     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001650     0.000001682      3.49      4.00      3.25
   SRCPARAM L0001651     0.000001682      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE10
   SRCPARAM L0001652     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001653     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001654     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001655     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001656     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001657     0.000003111      3.49      4.00      3.25
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   SRCPARAM L0001658     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001659     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001660     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001661     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001662     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001663     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001664     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001665     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001666     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001667     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001668     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001669     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001670     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001671     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001672     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001673     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001674     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001675     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001676     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001677     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001678     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001679     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001680     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001681     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001682     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001683     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001684     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001685     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001686     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001687     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001688     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001689     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001690     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001691     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001692     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001693     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001694     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001695     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001696     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001697     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001698     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001699     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001700     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001701     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001702     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001703     0.000003111      3.49      4.00      3.25
   SRCPARAM L0001704     0.000003111      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE11
   SRCPARAM L0001705     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001706     0.00000368      3.49      4.00      3.25
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   SRCPARAM L0001707     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001708     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001709     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001710     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001711     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001712     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001713     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001714     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001715     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001716     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001717     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001718     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001719     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001720     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001721     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001722     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001723     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001724     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001725     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001726     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001727     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001728     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001729     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001730     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001731     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001732     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001733     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001734     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001735     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001736     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001737     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001738     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001739     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001740     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001741     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001742     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001743     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001744     0.00000368      3.49      4.00      3.25
   SRCPARAM L0001745     0.00000368      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE12
   SRCPARAM L0001746     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001747     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001748     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001749     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001750     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001751     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001752     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001753     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001754     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001755     0.000003086      3.49      4.00      3.25
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   SRCPARAM L0001756     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001757     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001758     0.000003086      3.49      4.00      3.25
   SRCPARAM L0001759     0.000003086      3.49      4.00      3.25
** ---------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Project AB2.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE PERIOD ALL "PROJECT AB2.AD\PE00GALL.PLT" 31
   SUMMFILE "Project AB2.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)
```

```
   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W186    1765       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
ME W187    1765       MEOPEN: ADJ_U* Option for Low Winds used in AERMET

*********************************
*** SETUP Finishes Successfully ***
*********************************
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                        ***   MODEL SETUP OPTIONS SUMMARY   ***
- -

**Model Is Setup For Calculation of Average CONCentration Values.

  -- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION. DRYDPLT = F
**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses URBAN Dispersion Algorithm for the SBL for   740 Source(s),
  for Total of   1 Urban Area(s):
  Urban Population =   2189641.0 ; Urban Roughness Length = 1.000 m

**Model Uses Regulatory DEFAULT Options:
       1. Stack-tip Downwash.
       2. Model Accounts for ELEVated Terrain Effects.
       3. Use Calms Processing Routine.
       4. Use Missing Data Processing Routine.
       5. No Exponential Decay.
       6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
       ADJ_U*   - Use ADJ_U* BETA option for SBL in AERMET
       TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: DPM

**Model Calculates PERIOD Averages Only

**This Run Includes: 740 Source(s);   1 Source Group(s); and   611 Receptor(s)

               with: 0 POINT(s), including
                          0 POINTCAP(s) and   0 POINTHOR(s)
                and: 740 VOLUME source(s)
                and: 0 AREA type source(s)
                and: 0 LINE source(s)
                and: 0 OPENPIT source(s)
                and: 0 BUOYANT LINE source(s) with   0 line(s)

**Model Set To Continue RUNning After the Setup Testing.

```
**The AERMET Input Meteorological Data Version Date:  16216

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   660.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.9 MB of RAM.

**Detailed Error/Message File:   Project AB2.err
**File for Summary of Results:   Project AB2.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001020	0	0.20340E-05	512206.0	3753721.8	696.9	3.49	4.00	3.25	YES	
L0001021	0	0.20340E-05	512205.8	3753713.2	696.9	3.49	4.00	3.25	YES	
L0001022	0	0.20340E-05	512205.7	3753704.6	696.8	3.49	4.00	3.25	YES	
L0001023	0	0.20340E-05	512205.5	3753696.0	696.5	3.49	4.00	3.25	YES	
L0001024	0	0.20340E-05	512205.3	3753687.4	696.3	3.49	4.00	3.25	YES	
L0001025	0	0.20340E-05	512205.1	3753678.8	696.0	3.49	4.00	3.25	YES	
L0001026	0	0.20340E-05	512204.9	3753670.2	695.7	3.49	4.00	3.25	YES	
L0001027	0	0.20340E-05	512204.8	3753661.6	695.5	3.49	4.00	3.25	YES	
L0001028	0	0.20340E-05	512204.6	3753653.0	695.2	3.49	4.00	3.25	YES	
L0001029	0	0.20340E-05	512204.4	3753644.5	695.0	3.49	4.00	3.25	YES	
L0001030	0	0.20340E-05	512204.2	3753635.9	694.7	3.49	4.00	3.25	YES	
L0001031	0	0.20340E-05	512204.0	3753627.3	694.4	3.49	4.00	3.25	YES	
L0001032	0	0.20340E-05	512203.8	3753618.7	694.1	3.49	4.00	3.25	YES	
L0001033	0	0.20340E-05	512203.7	3753610.1	693.8	3.49	4.00	3.25	YES	
L0001034	0	0.20340E-05	512203.5	3753601.5	693.5	3.49	4.00	3.25	YES	
L0001035	0	0.20340E-05	512203.3	3753592.9	693.2	3.49	4.00	3.25	YES	
L0001036	0	0.20340E-05	512203.1	3753584.3	693.0	3.49	4.00	3.25	YES	
L0001037	0	0.20340E-05	512202.9	3753575.8	693.0	3.49	4.00	3.25	YES	
L0001038	0	0.20340E-05	512202.8	3753567.2	693.0	3.49	4.00	3.25	YES	
L0001039	0	0.20340E-05	512202.6	3753558.6	693.0	3.49	4.00	3.25	YES	
L0001040	0	0.20340E-05	512202.4	3753550.0	692.8	3.49	4.00	3.25	YES	
L0001041	0	0.20340E-05	512202.2	3753541.4	692.5	3.49	4.00	3.25	YES	
L0001042	0	0.20340E-05	512202.0	3753532.8	692.2	3.49	4.00	3.25	YES	
L0001043	0	0.20340E-05	512201.8	3753524.2	691.9	3.49	4.00	3.25	YES	
L0001044	0	0.20340E-05	512201.7	3753515.6	691.7	3.49	4.00	3.25	YES	
L0001045	0	0.20340E-05	512201.5	3753507.0	691.4	3.49	4.00	3.25	YES	
L0001046	0	0.20340E-05	512201.3	3753498.5	691.1	3.49	4.00	3.25	YES	
L0001047	0	0.20340E-05	512201.1	3753489.9	691.0	3.49	4.00	3.25	YES	
L0001048	0	0.41590E-07	512190.9	3753483.3	691.2	3.49	4.00	3.25	YES	
L0001049	0	0.41590E-07	512182.4	3753483.3	691.4	3.49	4.00	3.25	YES	
L0001050	0	0.41590E-07	512173.8	3753483.3	691.5	3.49	4.00	3.25	YES	
L0001051	0	0.41590E-07	512165.2	3753483.3	691.7	3.49	4.00	3.25	YES	
L0001052	0	0.41590E-07	512156.6	3753483.3	691.8	3.49	4.00	3.25	YES	
L0001053	0	0.41590E-07	512148.0	3753483.3	691.9	3.49	4.00	3.25	YES	
L0001054	0	0.41590E-07	512139.4	3753483.3	692.0	3.49	4.00	3.25	YES	
L0001055	0	0.41590E-07	512130.8	3753483.3	692.2	3.49	4.00	3.25	YES	
L0001056	0	0.41590E-07	512122.2	3753483.3	692.4	3.49	4.00	3.25	YES	
L0001057	0	0.41590E-07	512113.6	3753483.3	692.5	3.49	4.00	3.25	YES	
L0001058	0	0.41590E-07	512105.0	3753483.3	692.8	3.49	4.00	3.25	YES	
L0001059	0	0.41590E-07	512096.5	3753483.3	693.1	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001060	0	0.41590E-07	512087.9	3753483.3	693.4	3.49	4.00	3.25	YES	
L0001061	0	0.41590E-07	512079.3	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001062	0	0.41590E-07	512070.7	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001063	0	0.41590E-07	512062.1	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001064	0	0.41590E-07	512053.5	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001065	0	0.41590E-07	512044.9	3753483.3	693.7	3.49	4.00	3.25	YES	
L0001066	0	0.41590E-07	512036.3	3753483.3	693.8	3.49	4.00	3.25	YES	
L0001067	0	0.41590E-07	512027.7	3753483.3	693.9	3.49	4.00	3.25	YES	
L0001068	0	0.41590E-07	512019.1	3753483.3	694.0	3.49	4.00	3.25	YES	
L0001069	0	0.41590E-07	512010.6	3753483.3	694.2	3.49	4.00	3.25	YES	
L0001070	0	0.41590E-07	512002.0	3753483.3	694.4	3.49	4.00	3.25	YES	
L0001071	0	0.41590E-07	511993.4	3753483.3	694.5	3.49	4.00	3.25	YES	
L0001072	0	0.41590E-07	511984.8	3753483.3	694.8	3.49	4.00	3.25	YES	
L0001073	0	0.41590E-07	511976.2	3753483.3	695.1	3.49	4.00	3.25	YES	
L0001074	0	0.41590E-07	511967.6	3753483.3	695.4	3.49	4.00	3.25	YES	
L0001075	0	0.41590E-07	511959.0	3753483.3	695.6	3.49	4.00	3.25	YES	
L0001076	0	0.41590E-07	511950.4	3753483.3	695.7	3.49	4.00	3.25	YES	
L0001077	0	0.41590E-07	511941.8	3753483.3	695.9	3.49	4.00	3.25	YES	
L0001078	0	0.41590E-07	511933.2	3753483.3	696.0	3.49	4.00	3.25	YES	
L0001079	0	0.41590E-07	511924.7	3753483.3	696.1	3.49	4.00	3.25	YES	
L0001080	0	0.20140E-05	512209.2	3753483.5	690.9	3.49	4.00	3.25	YES	
L0001081	0	0.20140E-05	512217.8	3753483.5	690.8	3.49	4.00	3.25	YES	
L0001082	0	0.20140E-05	512226.4	3753483.6	690.7	3.49	4.00	3.25	YES	
L0001083	0	0.20140E-05	512235.0	3753483.7	690.5	3.49	4.00	3.25	YES	
L0001084	0	0.20140E-05	512243.6	3753483.8	690.4	3.49	4.00	3.25	YES	
L0001085	0	0.20140E-05	512252.1	3753483.9	690.2	3.49	4.00	3.25	YES	
L0001086	0	0.20140E-05	512260.7	3753484.0	690.0	3.49	4.00	3.25	YES	
L0001087	0	0.20140E-05	512269.3	3753484.1	689.9	3.49	4.00	3.25	YES	
L0001088	0	0.20140E-05	512277.9	3753484.2	689.8	3.49	4.00	3.25	YES	
L0001089	0	0.20140E-05	512286.5	3753484.3	689.7	3.49	4.00	3.25	YES	
L0001090	0	0.20140E-05	512295.1	3753484.4	689.5	3.49	4.00	3.25	YES	
L0001091	0	0.20140E-05	512303.7	3753484.4	689.2	3.49	4.00	3.25	YES	
L0001092	0	0.20140E-05	512312.3	3753484.5	688.9	3.49	4.00	3.25	YES	
L0001093	0	0.20140E-05	512320.9	3753484.6	688.6	3.49	4.00	3.25	YES	
L0001094	0	0.20140E-05	512329.5	3753484.7	688.6	3.49	4.00	3.25	YES	
L0001095	0	0.20140E-05	512338.0	3753484.8	688.6	3.49	4.00	3.25	YES	
L0001096	0	0.20140E-05	512346.6	3753484.9	688.6	3.49	4.00	3.25	YES	
L0001097	0	0.20140E-05	512355.2	3753485.0	688.5	3.49	4.00	3.25	YES	
L0001098	0	0.20140E-05	512363.8	3753485.1	688.2	3.49	4.00	3.25	YES	
L0001099	0	0.20140E-05	512372.4	3753485.2	687.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001100	0	0.20140E-05	512381.0	3753485.2	687.7	3.49	4.00	3.25	YES	
L0001101	0	0.20140E-05	512389.6	3753485.3	687.6	3.49	4.00	3.25	YES	
L0001102	0	0.20140E-05	512398.2	3753485.4	687.7	3.49	4.00	3.25	YES	
L0001103	0	0.20140E-05	512406.8	3753485.5	687.7	3.49	4.00	3.25	YES	
L0001104	0	0.20140E-05	512415.4	3753485.6	687.5	3.49	4.00	3.25	YES	
L0001105	0	0.20630E-05	512415.4	3753497.6	687.9	3.49	4.00	3.25	YES	
L0001106	0	0.20630E-05	512415.5	3753506.2	687.9	3.49	4.00	3.25	YES	
L0001107	0	0.20630E-05	512415.6	3753514.8	687.9	3.49	4.00	3.25	YES	
L0001108	0	0.20630E-05	512415.6	3753523.3	688.0	3.49	4.00	3.25	YES	
L0001109	0	0.20630E-05	512415.7	3753531.9	688.4	3.49	4.00	3.25	YES	
L0001110	0	0.20630E-05	512415.7	3753540.5	688.9	3.49	4.00	3.25	YES	
L0001111	0	0.20630E-05	512415.8	3753549.1	689.4	3.49	4.00	3.25	YES	
L0001112	0	0.20630E-05	512415.9	3753557.7	689.9	3.49	4.00	3.25	YES	
L0001113	0	0.20630E-05	512415.9	3753566.3	689.9	3.49	4.00	3.25	YES	
L0001114	0	0.20630E-05	512417.0	3753574.6	689.9	3.49	4.00	3.25	YES	
L0001115	0	0.20630E-05	512421.1	3753582.1	690.0	3.49	4.00	3.25	YES	
L0001116	0	0.20630E-05	512425.3	3753589.7	690.1	3.49	4.00	3.25	YES	
L0001117	0	0.20630E-05	512429.5	3753597.2	690.4	3.49	4.00	3.25	YES	
L0001118	0	0.20630E-05	512433.6	3753604.7	690.6	3.49	4.00	3.25	YES	
L0001119	0	0.20630E-05	512437.8	3753612.2	690.9	3.49	4.00	3.25	YES	
L0001120	0	0.20630E-05	512443.9	3753618.0	691.1	3.49	4.00	3.25	YES	
L0001121	0	0.20630E-05	512450.9	3753623.0	691.2	3.49	4.00	3.25	YES	
L0001122	0	0.20630E-05	512457.8	3753628.1	691.4	3.49	4.00	3.25	YES	
L0001123	0	0.20630E-05	512464.8	3753633.1	691.6	3.49	4.00	3.25	YES	
L0001124	0	0.20630E-05	512471.7	3753638.1	691.7	3.49	4.00	3.25	YES	
L0001125	0	0.20630E-05	512478.7	3753643.2	691.7	3.49	4.00	3.25	YES	
L0001126	0	0.20630E-05	512486.5	3753646.6	691.5	3.49	4.00	3.25	YES	
L0001127	0	0.20630E-05	512494.6	3753649.5	691.5	3.49	4.00	3.25	YES	
L0001128	0	0.14580E-05	512506.7	3753650.9	691.3	3.49	4.00	3.25	YES	
L0001129	0	0.14580E-05	512515.2	3753651.8	691.3	3.49	4.00	3.25	YES	
L0001130	0	0.14580E-05	512523.7	3753652.7	691.3	3.49	4.00	3.25	YES	
L0001131	0	0.14580E-05	512532.3	3753653.6	691.2	3.49	4.00	3.25	YES	
L0001132	0	0.14580E-05	512540.8	3753654.6	691.0	3.49	4.00	3.25	YES	
L0001133	0	0.14580E-05	512549.4	3753655.5	690.7	3.49	4.00	3.25	YES	
L0001134	0	0.14580E-05	512557.9	3753656.4	690.5	3.49	4.00	3.25	YES	
L0001135	0	0.14580E-05	512566.4	3753657.3	690.2	3.49	4.00	3.25	YES	
L0001136	0	0.14580E-05	512575.0	3753658.2	690.0	3.49	4.00	3.25	YES	
L0001137	0	0.14580E-05	512583.5	3753659.1	689.7	3.49	4.00	3.25	YES	
L0001138	0	0.14580E-05	512592.1	3753660.1	689.5	3.49	4.00	3.25	YES	
L0001139	0	0.14580E-05	512600.6	3753661.0	689.5	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001140	0	0.14580E-05	512609.2	3753661.9	689.5	3.49	4.00	3.25	YES	
L0001141	0	0.14580E-05	512617.7	3753662.8	689.6	3.49	4.00	3.25	YES	
L0001142	0	0.14580E-05	512626.2	3753663.7	689.4	3.49	4.00	3.25	YES	
L0001143	0	0.14580E-05	512634.8	3753664.6	689.2	3.49	4.00	3.25	YES	
L0001144	0	0.14580E-05	512643.3	3753665.6	688.9	3.49	4.00	3.25	YES	
L0001145	0	0.14580E-05	512651.9	3753666.5	688.7	3.49	4.00	3.25	YES	
L0001146	0	0.14580E-05	512660.4	3753667.4	688.4	3.49	4.00	3.25	YES	
L0001147	0	0.14580E-05	512668.9	3753668.3	688.2	3.49	4.00	3.25	YES	
L0001148	0	0.14580E-05	512677.5	3753669.2	687.9	3.49	4.00	3.25	YES	
L0001149	0	0.14580E-05	512686.0	3753670.1	687.8	3.49	4.00	3.25	YES	
L0001150	0	0.14580E-05	512694.6	3753671.0	687.8	3.49	4.00	3.25	YES	
L0001151	0	0.14580E-05	512703.1	3753672.0	687.9	3.49	4.00	3.25	YES	
L0001152	0	0.14580E-05	512711.6	3753672.9	687.9	3.49	4.00	3.25	YES	
L0001153	0	0.14580E-05	512720.2	3753673.8	687.6	3.49	4.00	3.25	YES	
L0001154	0	0.14580E-05	512728.7	3753674.7	687.4	3.49	4.00	3.25	YES	
L0001155	0	0.14580E-05	512737.3	3753675.6	687.1	3.49	4.00	3.25	YES	
L0001156	0	0.14580E-05	512745.8	3753676.5	687.0	3.49	4.00	3.25	YES	
L0001157	0	0.14580E-05	512754.3	3753677.5	687.0	3.49	4.00	3.25	YES	
L0001158	0	0.14580E-05	512762.9	3753678.4	687.0	3.49	4.00	3.25	YES	
L0001159	0	0.14580E-05	512771.4	3753679.3	687.0	3.49	4.00	3.25	YES	
L0001160	0	0.14580E-05	512780.0	3753680.2	686.8	3.49	4.00	3.25	YES	
L0001161	0	0.14580E-05	512788.5	3753681.1	686.5	3.49	4.00	3.25	YES	
L0001162	0	0.14580E-05	512797.1	3753682.0	686.3	3.49	4.00	3.25	YES	
L0001163	0	0.14580E-05	512805.6	3753682.9	686.2	3.49	4.00	3.25	YES	
L0001164	0	0.14580E-05	512814.1	3753683.9	686.2	3.49	4.00	3.25	YES	
L0001165	0	0.14580E-05	512822.7	3753684.8	686.1	3.49	4.00	3.25	YES	
L0001166	0	0.14580E-05	512831.2	3753685.7	686.0	3.49	4.00	3.25	YES	
L0001167	0	0.14580E-05	512839.7	3753687.0	685.8	3.49	4.00	3.25	YES	
L0001168	0	0.14580E-05	512848.2	3753688.4	685.7	3.49	4.00	3.25	YES	
L0001169	0	0.14580E-05	512856.6	3753689.9	685.6	3.49	4.00	3.25	YES	
L0001170	0	0.14580E-05	512865.1	3753691.3	685.4	3.49	4.00	3.25	YES	
L0001171	0	0.14580E-05	512873.6	3753692.7	685.2	3.49	4.00	3.25	YES	
L0001172	0	0.14580E-05	512882.1	3753694.1	684.9	3.49	4.00	3.25	YES	
L0001173	0	0.14580E-05	512890.5	3753695.6	684.7	3.49	4.00	3.25	YES	
L0001174	0	0.14580E-05	512899.0	3753697.0	684.5	3.49	4.00	3.25	YES	
L0001175	0	0.14580E-05	512907.5	3753698.4	684.3	3.49	4.00	3.25	YES	
L0001176	0	0.14580E-05	512915.9	3753699.8	684.1	3.49	4.00	3.25	YES	
L0001177	0	0.14580E-05	512924.4	3753701.2	684.0	3.49	4.00	3.25	YES	
L0001178	0	0.14580E-05	512932.9	3753702.7	684.0	3.49	4.00	3.25	YES	
L0001179	0	0.14580E-05	512941.4	3753704.1	684.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001180	0	0.14580E-05	512949.8	3753705.5	684.0	3.49	4.00	3.25	YES	
L0001181	0	0.14580E-05	512958.3	3753706.9	683.8	3.49	4.00	3.25	YES	
L0001182	0	0.14580E-05	512966.8	3753708.3	683.5	3.49	4.00	3.25	YES	
L0001183	0	0.14580E-05	512975.2	3753709.8	683.2	3.49	4.00	3.25	YES	
L0001184	0	0.14580E-05	512983.7	3753711.2	682.9	3.49	4.00	3.25	YES	
L0001185	0	0.14580E-05	512992.2	3753712.6	682.6	3.49	4.00	3.25	YES	
L0001186	0	0.14580E-05	513000.7	3753714.0	682.4	3.49	4.00	3.25	YES	
L0001187	0	0.14580E-05	513009.1	3753715.5	682.1	3.49	4.00	3.25	YES	
L0001188	0	0.14580E-05	513017.6	3753716.9	681.9	3.49	4.00	3.25	YES	
L0001189	0	0.14580E-05	513026.1	3753718.3	681.7	3.49	4.00	3.25	YES	
L0001190	0	0.14580E-05	513034.5	3753719.7	681.6	3.49	4.00	3.25	YES	
L0001191	0	0.14580E-05	513043.0	3753721.1	681.5	3.49	4.00	3.25	YES	
L0001192	0	0.14580E-05	513051.5	3753722.6	681.4	3.49	4.00	3.25	YES	
L0001193	0	0.14580E-05	513060.0	3753724.0	681.2	3.49	4.00	3.25	YES	
L0001194	0	0.14580E-05	513068.4	3753725.4	681.1	3.49	4.00	3.25	YES	
L0001195	0	0.14580E-05	513076.9	3753727.0	680.9	3.49	4.00	3.25	YES	
L0001196	0	0.14580E-05	513085.3	3753728.6	680.9	3.49	4.00	3.25	YES	
L0001197	0	0.14580E-05	513093.7	3753730.3	680.9	3.49	4.00	3.25	YES	
L0001198	0	0.14580E-05	513102.2	3753731.9	680.9	3.49	4.00	3.25	YES	
L0001199	0	0.14580E-05	513110.6	3753733.6	680.6	3.49	4.00	3.25	YES	
L0001200	0	0.14580E-05	513119.0	3753735.2	680.4	3.49	4.00	3.25	YES	
L0001201	0	0.14580E-05	513127.5	3753736.9	680.2	3.49	4.00	3.25	YES	
L0001202	0	0.14580E-05	513135.9	3753738.5	680.2	3.49	4.00	3.25	YES	
L0001203	0	0.14580E-05	513144.3	3753740.2	680.2	3.49	4.00	3.25	YES	
L0001204	0	0.14580E-05	513152.7	3753741.8	680.3	3.49	4.00	3.25	YES	
L0001205	0	0.14580E-05	513161.2	3753743.5	680.3	3.49	4.00	3.25	YES	
L0001206	0	0.14580E-05	513169.6	3753745.1	680.0	3.49	4.00	3.25	YES	
L0001207	0	0.14580E-05	513178.0	3753746.8	679.8	3.49	4.00	3.25	YES	
L0001208	0	0.14580E-05	513186.5	3753748.5	679.6	3.49	4.00	3.25	YES	
L0001209	0	0.14580E-05	513194.9	3753750.1	679.4	3.49	4.00	3.25	YES	
L0001210	0	0.14580E-05	513203.3	3753751.8	679.1	3.49	4.00	3.25	YES	
L0001211	0	0.14580E-05	513211.6	3753754.2	678.9	3.49	4.00	3.25	YES	
L0001212	0	0.14580E-05	513219.8	3753756.6	678.8	3.49	4.00	3.25	YES	
L0001213	0	0.14580E-05	513228.1	3753758.9	678.6	3.49	4.00	3.25	YES	
L0001214	0	0.14580E-05	513236.3	3753761.3	678.4	3.49	4.00	3.25	YES	
L0001215	0	0.14580E-05	513244.6	3753763.7	678.2	3.49	4.00	3.25	YES	
L0001216	0	0.14580E-05	513252.8	3753766.1	678.0	3.49	4.00	3.25	YES	
L0001217	0	0.14580E-05	513261.1	3753768.5	678.1	3.49	4.00	3.25	YES	
L0001218	0	0.14580E-05	513269.3	3753770.9	678.1	3.49	4.00	3.25	YES	
L0001219	0	0.14580E-05	513277.6	3753773.3	678.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001220	0	0.14580E-05	513285.8	3753775.7	677.9	3.49	4.00	3.25	YES	
L0001221	0	0.14580E-05	513294.1	3753778.0	677.8	3.49	4.00	3.25	YES	
L0001222	0	0.14580E-05	513302.3	3753780.4	677.6	3.49	4.00	3.25	YES	
L0001223	0	0.14580E-05	513310.6	3753782.8	677.6	3.49	4.00	3.25	YES	
L0001224	0	0.14580E-05	513318.8	3753785.2	677.4	3.49	4.00	3.25	YES	
L0001225	0	0.14580E-05	513327.1	3753787.6	677.2	3.49	4.00	3.25	YES	
L0001226	0	0.14580E-05	513335.3	3753790.0	677.0	3.49	4.00	3.25	YES	
L0001227	0	0.14580E-05	513343.6	3753792.4	676.8	3.49	4.00	3.25	YES	
L0001228	0	0.14580E-05	513351.8	3753794.8	676.6	3.49	4.00	3.25	YES	
L0001229	0	0.14580E-05	513360.1	3753797.2	676.4	3.49	4.00	3.25	YES	
L0001230	0	0.14580E-05	513368.3	3753799.5	676.2	3.49	4.00	3.25	YES	
L0001231	0	0.14580E-05	513376.6	3753801.9	676.2	3.49	4.00	3.25	YES	
L0001232	0	0.14580E-05	513384.8	3753804.3	676.2	3.49	4.00	3.25	YES	
L0001233	0	0.14580E-05	513393.1	3753806.7	676.1	3.49	4.00	3.25	YES	
L0001234	0	0.14580E-05	513401.3	3753809.1	676.0	3.49	4.00	3.25	YES	
L0001235	0	0.14580E-05	513409.6	3753811.5	675.9	3.49	4.00	3.25	YES	
L0001236	0	0.14580E-05	513417.9	3753813.9	675.8	3.49	4.00	3.25	YES	
L0001237	0	0.14580E-05	513426.1	3753816.3	675.7	3.49	4.00	3.25	YES	
L0001238	0	0.14580E-05	513434.4	3753818.7	675.7	3.49	4.00	3.25	YES	
L0001239	0	0.14580E-05	513442.6	3753821.0	675.5	3.49	4.00	3.25	YES	
L0001240	0	0.14580E-05	513450.9	3753823.4	675.3	3.49	4.00	3.25	YES	
L0001241	0	0.14580E-05	513459.1	3753825.8	675.1	3.49	4.00	3.25	YES	
L0001242	0	0.14580E-05	513467.4	3753828.2	674.8	3.49	4.00	3.25	YES	
L0001243	0	0.14580E-05	513475.6	3753830.6	674.6	3.49	4.00	3.25	YES	
L0001244	0	0.14580E-05	513483.9	3753833.0	674.4	3.49	4.00	3.25	YES	
L0001245	0	0.14580E-05	513492.1	3753835.4	674.3	3.49	4.00	3.25	YES	
L0001246	0	0.14580E-05	513500.4	3753837.8	674.1	3.49	4.00	3.25	YES	
L0001247	0	0.14580E-05	513508.6	3753840.2	673.9	3.49	4.00	3.25	YES	
L0001248	0	0.14580E-05	513516.9	3753842.5	673.7	3.49	4.00	3.25	YES	
L0001249	0	0.14580E-05	513525.1	3753844.9	673.6	3.49	4.00	3.25	YES	
L0001250	0	0.14580E-05	513533.4	3753847.3	673.4	3.49	4.00	3.25	YES	
L0001251	0	0.14580E-05	513541.6	3753849.7	673.3	3.49	4.00	3.25	YES	
L0001252	0	0.14580E-05	513549.9	3753852.1	673.0	3.49	4.00	3.25	YES	
L0001253	0	0.14580E-05	513558.1	3753854.5	672.8	3.49	4.00	3.25	YES	
L0001254	0	0.14580E-05	513566.4	3753856.9	672.5	3.49	4.00	3.25	YES	
L0001255	0	0.14580E-05	513574.6	3753859.3	672.3	3.49	4.00	3.25	YES	
L0001256	0	0.14580E-05	513582.9	3753861.7	672.2	3.49	4.00	3.25	YES	
L0001257	0	0.14580E-05	513591.1	3753864.0	672.2	3.49	4.00	3.25	YES	
L0001258	0	0.14580E-05	513599.4	3753866.4	672.1	3.49	4.00	3.25	YES	
L0001259	0	0.14580E-05	513607.6	3753868.8	672.1	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001260	0	0.14580E-05	513615.9	3753871.2	671.9	3.49	4.00	3.25	YES	
L0001261	0	0.14580E-05	513624.1	3753873.6	671.8	3.49	4.00	3.25	YES	
L0001262	0	0.14580E-05	513632.4	3753876.0	671.8	3.49	4.00	3.25	YES	
L0001263	0	0.14580E-05	513640.6	3753878.4	671.8	3.49	4.00	3.25	YES	
L0001264	0	0.14580E-05	513648.9	3753880.8	671.6	3.49	4.00	3.25	YES	
L0001265	0	0.14580E-05	513657.1	3753883.2	671.4	3.49	4.00	3.25	YES	
L0001266	0	0.14580E-05	513665.4	3753885.5	671.2	3.49	4.00	3.25	YES	
L0001267	0	0.14580E-05	513673.6	3753887.9	671.0	3.49	4.00	3.25	YES	
L0001268	0	0.14580E-05	513681.9	3753890.3	670.8	3.49	4.00	3.25	YES	
L0001269	0	0.14580E-05	513690.1	3753892.7	670.6	3.49	4.00	3.25	YES	
L0001270	0	0.14580E-05	513698.4	3753895.1	670.4	3.49	4.00	3.25	YES	
L0001271	0	0.14580E-05	513706.6	3753897.5	670.3	3.49	4.00	3.25	YES	
L0001272	0	0.14580E-05	513714.9	3753899.9	670.3	3.49	4.00	3.25	YES	
L0001273	0	0.14580E-05	513723.1	3753902.3	670.1	3.49	4.00	3.25	YES	
L0001274	0	0.14580E-05	513731.4	3753904.6	670.0	3.49	4.00	3.25	YES	
L0001275	0	0.14580E-05	513739.6	3753907.0	669.9	3.49	4.00	3.25	YES	
L0001276	0	0.14580E-05	513747.9	3753909.4	669.9	3.49	4.00	3.25	YES	
L0001277	0	0.14580E-05	513756.1	3753911.8	669.9	3.49	4.00	3.25	YES	
L0001278	0	0.14580E-05	513764.4	3753914.2	669.8	3.49	4.00	3.25	YES	
L0001279	0	0.14580E-05	513772.7	3753916.6	669.6	3.49	4.00	3.25	YES	
L0001280	0	0.14580E-05	513780.9	3753919.0	669.4	3.49	4.00	3.25	YES	
L0001281	0	0.14580E-05	513789.2	3753921.4	669.2	3.49	4.00	3.25	YES	
L0001282	0	0.14580E-05	513797.4	3753923.8	669.0	3.49	4.00	3.25	YES	
L0001283	0	0.14580E-05	513805.7	3753926.1	668.7	3.49	4.00	3.25	YES	
L0001284	0	0.14580E-05	513813.9	3753928.5	668.4	3.49	4.00	3.25	YES	
L0001285	0	0.14580E-05	513822.2	3753930.9	668.0	3.49	4.00	3.25	YES	
L0001286	0	0.14580E-05	513830.4	3753933.3	667.9	3.49	4.00	3.25	YES	
L0001287	0	0.14580E-05	513838.7	3753935.7	667.8	3.49	4.00	3.25	YES	
L0001288	0	0.14580E-05	513846.9	3753938.1	667.8	3.49	4.00	3.25	YES	
L0001289	0	0.14580E-05	513855.2	3753940.5	667.7	3.49	4.00	3.25	YES	
L0001290	0	0.14580E-05	513863.4	3753942.9	667.5	3.49	4.00	3.25	YES	
L0001291	0	0.14580E-05	513871.7	3753945.3	667.3	3.49	4.00	3.25	YES	
L0001292	0	0.14580E-05	513879.9	3753947.6	667.0	3.49	4.00	3.25	YES	
L0001293	0	0.14580E-05	513888.2	3753950.0	666.8	3.49	4.00	3.25	YES	
L0001294	0	0.14580E-05	513896.4	3753952.4	666.5	3.49	4.00	3.25	YES	
L0001295	0	0.14580E-05	513904.7	3753954.8	666.2	3.49	4.00	3.25	YES	
L0001296	0	0.14580E-05	513912.9	3753957.2	666.0	3.49	4.00	3.25	YES	
L0001297	0	0.14580E-05	513921.2	3753959.6	665.8	3.49	4.00	3.25	YES	
L0001298	0	0.14580E-05	513929.4	3753962.0	665.7	3.49	4.00	3.25	YES	
L0001299	0	0.14580E-05	513937.7	3753964.4	665.7	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001300	0	0.14580E-05	513945.9	3753966.8	665.6	3.49	4.00	3.25	YES	
L0001301	0	0.14580E-05	513954.2	3753969.1	665.4	3.49	4.00	3.25	YES	
L0001302	0	0.14580E-05	513962.4	3753971.5	665.2	3.49	4.00	3.25	YES	
L0001303	0	0.14580E-05	513970.7	3753973.9	665.0	3.49	4.00	3.25	YES	
L0001304	0	0.14580E-05	513978.9	3753976.3	664.8	3.49	4.00	3.25	YES	
L0001305	0	0.30790E-05	513987.2	3753967.1	664.2	3.49	4.00	3.25	YES	
L0001306	0	0.30790E-05	513987.3	3753958.5	663.9	3.49	4.00	3.25	YES	
L0001307	0	0.30790E-05	513987.4	3753949.9	663.6	3.49	4.00	3.25	YES	
L0001308	0	0.30790E-05	513987.5	3753941.3	663.3	3.49	4.00	3.25	YES	
L0001309	0	0.30790E-05	513987.6	3753932.7	663.0	3.49	4.00	3.25	YES	
L0001310	0	0.30790E-05	513987.7	3753924.2	662.7	3.49	4.00	3.25	YES	
L0001311	0	0.30790E-05	513987.8	3753915.6	662.4	3.49	4.00	3.25	YES	
L0001312	0	0.30790E-05	513987.9	3753907.0	662.2	3.49	4.00	3.25	YES	
L0001313	0	0.30790E-05	513988.0	3753898.4	661.9	3.49	4.00	3.25	YES	
L0001314	0	0.30790E-05	513988.0	3753889.8	661.6	3.49	4.00	3.25	YES	
L0001315	0	0.30790E-05	513988.1	3753881.2	661.4	3.49	4.00	3.25	YES	
L0001316	0	0.30790E-05	513988.2	3753872.6	661.2	3.49	4.00	3.25	YES	
L0001317	0	0.30790E-05	513988.3	3753864.0	661.0	3.49	4.00	3.25	YES	
L0001318	0	0.30790E-05	513988.4	3753855.4	660.9	3.49	4.00	3.25	YES	
L0001319	0	0.30790E-05	513988.5	3753846.9	660.7	3.49	4.00	3.25	YES	
L0001320	0	0.30790E-05	513988.6	3753838.3	660.6	3.49	4.00	3.25	YES	
L0001321	0	0.30790E-05	513988.7	3753829.7	660.5	3.49	4.00	3.25	YES	
L0001322	0	0.30790E-05	513988.8	3753821.1	660.3	3.49	4.00	3.25	YES	
L0001323	0	0.30790E-05	513988.9	3753812.5	660.0	3.49	4.00	3.25	YES	
L0001324	0	0.30790E-05	513989.0	3753803.9	659.7	3.49	4.00	3.25	YES	
L0001325	0	0.30790E-05	513989.1	3753795.3	659.4	3.49	4.00	3.25	YES	
L0001326	0	0.30790E-05	513989.2	3753786.7	659.4	3.49	4.00	3.25	YES	
L0001327	0	0.30790E-05	513989.3	3753778.1	659.4	3.49	4.00	3.25	YES	
L0001328	0	0.30790E-05	513989.4	3753769.5	659.4	3.49	4.00	3.25	YES	
L0001329	0	0.30790E-05	513992.6	3753762.4	659.2	3.49	4.00	3.25	YES	
L0001330	0	0.30790E-05	513999.2	3753757.0	658.8	3.49	4.00	3.25	YES	
L0001331	0	0.30790E-05	514005.9	3753751.6	658.4	3.49	4.00	3.25	YES	
L0001332	0	0.30790E-05	514013.3	3753748.3	658.0	3.49	4.00	3.25	YES	
L0001333	0	0.30790E-05	514021.9	3753748.2	657.7	3.49	4.00	3.25	YES	
L0001334	0	0.30790E-05	514030.5	3753748.1	657.4	3.49	4.00	3.25	YES	
L0001335	0	0.30790E-05	514039.1	3753748.1	657.2	3.49	4.00	3.25	YES	
L0001336	0	0.30790E-05	514047.7	3753748.0	656.9	3.49	4.00	3.25	YES	
L0001337	0	0.30790E-05	514056.3	3753747.9	656.6	3.49	4.00	3.25	YES	
L0001338	0	0.30790E-05	514064.8	3753747.8	656.3	3.49	4.00	3.25	YES	
L0001339	0	0.30790E-05	514073.4	3753747.7	656.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001340	0	0.30790E-05	514082.0	3753747.7	655.7	3.49	4.00	3.25	YES	
L0001341	0	0.30790E-05	514090.6	3753747.6	655.4	3.49	4.00	3.25	YES	
L0001342	0	0.30790E-05	514099.2	3753747.5	655.1	3.49	4.00	3.25	YES	
L0001343	0	0.30790E-05	514107.8	3753747.4	654.8	3.49	4.00	3.25	YES	
L0001344	0	0.30790E-05	514116.4	3753747.4	654.6	3.49	4.00	3.25	YES	
L0001345	0	0.30790E-05	514125.0	3753747.3	654.3	3.49	4.00	3.25	YES	
L0001346	0	0.30790E-05	514133.6	3753747.2	654.2	3.49	4.00	3.25	YES	
L0001347	0	0.30790E-05	514142.1	3753747.1	654.1	3.49	4.00	3.25	YES	
L0001348	0	0.30790E-05	514150.7	3753747.0	654.0	3.49	4.00	3.25	YES	
L0001349	0	0.30790E-05	514159.3	3753747.0	653.6	3.49	4.00	3.25	YES	
L0001350	0	0.30790E-05	514167.9	3753746.9	653.1	3.49	4.00	3.25	YES	
L0001351	0	0.30790E-05	514176.5	3753746.8	652.6	3.49	4.00	3.25	YES	
L0001352	0	0.30790E-05	514185.1	3753746.7	652.3	3.49	4.00	3.25	YES	
L0001353	0	0.30790E-05	514193.7	3753746.7	652.2	3.49	4.00	3.25	YES	
L0001354	0	0.30790E-05	514202.3	3753746.6	652.1	3.49	4.00	3.25	YES	
L0001355	0	0.30790E-05	514210.9	3753746.5	652.0	3.49	4.00	3.25	YES	
L0001356	0	0.30790E-05	514219.5	3753746.4	651.6	3.49	4.00	3.25	YES	
L0001357	0	0.30790E-05	514228.0	3753746.3	651.1	3.49	4.00	3.25	YES	
L0001358	0	0.30790E-05	514236.6	3753746.3	650.6	3.49	4.00	3.25	YES	
L0001359	0	0.30790E-05	514245.2	3753746.2	650.2	3.49	4.00	3.25	YES	
L0001360	0	0.30790E-05	514253.8	3753746.1	649.9	3.49	4.00	3.25	YES	
L0001361	0	0.30790E-05	514262.4	3753746.0	649.6	3.49	4.00	3.25	YES	
L0001362	0	0.30790E-05	514271.0	3753746.0	649.4	3.49	4.00	3.25	YES	
L0001363	0	0.30790E-05	514279.6	3753745.9	649.1	3.49	4.00	3.25	YES	
L0001364	0	0.30790E-05	514288.2	3753745.8	648.8	3.49	4.00	3.25	YES	
L0001365	0	0.30790E-05	514296.8	3753745.7	648.5	3.49	4.00	3.25	YES	
L0001366	0	0.30790E-05	514305.4	3753745.6	648.2	3.49	4.00	3.25	YES	
L0001367	0	0.30790E-05	514313.9	3753745.6	647.9	3.49	4.00	3.25	YES	
L0001368	0	0.30790E-05	514322.5	3753745.5	647.6	3.49	4.00	3.25	YES	
L0001369	0	0.30790E-05	514331.1	3753745.4	647.3	3.49	4.00	3.25	YES	
L0001370	0	0.30790E-05	514339.7	3753745.3	647.0	3.49	4.00	3.25	YES	
L0001371	0	0.30790E-05	514348.3	3753745.3	646.8	3.49	4.00	3.25	YES	
L0001372	0	0.30790E-05	514356.9	3753745.2	646.5	3.49	4.00	3.25	YES	
L0001373	0	0.30790E-05	514365.5	3753745.1	646.2	3.49	4.00	3.25	YES	
L0001374	0	0.30790E-05	514374.1	3753745.0	645.9	3.49	4.00	3.25	YES	
L0001375	0	0.30790E-05	514382.7	3753744.9	645.6	3.49	4.00	3.25	YES	
L0001376	0	0.30790E-05	514391.2	3753744.9	645.3	3.49	4.00	3.25	YES	
L0001377	0	0.30790E-05	514399.8	3753744.8	645.3	3.49	4.00	3.25	YES	
L0001378	0	0.30790E-05	514408.4	3753744.7	645.3	3.49	4.00	3.25	YES	
L0001379	0	0.30790E-05	514417.0	3753744.6	645.3	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001380	0	0.30790E-05	514425.6	3753744.6	645.2	3.49	4.00	3.25	YES	
L0001381	0	0.30790E-05	514434.2	3753744.5	644.9	3.49	4.00	3.25	YES	
L0001382	0	0.30790E-05	514442.8	3753744.4	644.6	3.49	4.00	3.25	YES	
L0001383	0	0.30790E-05	514451.4	3753744.3	644.3	3.49	4.00	3.25	YES	
L0001384	0	0.30790E-05	514460.0	3753744.3	644.0	3.49	4.00	3.25	YES	
L0001385	0	0.30790E-05	514468.6	3753744.2	643.7	3.49	4.00	3.25	YES	
L0001386	0	0.30790E-05	514477.1	3753744.1	643.4	3.49	4.00	3.25	YES	
L0001387	0	0.30790E-05	514485.7	3753744.0	643.1	3.49	4.00	3.25	YES	
L0001388	0	0.30790E-05	514494.3	3753743.9	642.8	3.49	4.00	3.25	YES	
L0001389	0	0.30790E-05	514502.9	3753743.9	642.6	3.49	4.00	3.25	YES	
L0001390	0	0.30790E-05	514511.5	3753743.8	642.3	3.49	4.00	3.25	YES	
L0001391	0	0.30790E-05	514520.1	3753743.7	642.2	3.49	4.00	3.25	YES	
L0001392	0	0.30790E-05	514528.7	3753743.6	642.1	3.49	4.00	3.25	YES	
L0001393	0	0.30790E-05	514537.3	3753743.6	642.0	3.49	4.00	3.25	YES	
L0001394	0	0.30790E-05	514545.9	3753743.5	641.9	3.49	4.00	3.25	YES	
L0001395	0	0.30790E-05	514554.5	3753743.4	641.7	3.49	4.00	3.25	YES	
L0001396	0	0.30790E-05	514563.0	3753743.3	641.5	3.49	4.00	3.25	YES	
L0001397	0	0.30790E-05	514571.6	3753743.2	641.2	3.49	4.00	3.25	YES	
L0001398	0	0.30790E-05	514580.2	3753743.2	641.0	3.49	4.00	3.25	YES	
L0001399	0	0.30790E-05	514588.8	3753743.1	640.7	3.49	4.00	3.25	YES	
L0001400	0	0.30790E-05	514597.4	3753743.0	640.4	3.49	4.00	3.25	YES	
L0001401	0	0.16680E-05	514606.3	3753751.9	640.4	3.49	4.00	3.25	YES	
L0001402	0	0.16680E-05	514606.1	3753760.4	640.7	3.49	4.00	3.25	YES	
L0001403	0	0.16680E-05	514606.0	3753769.0	641.0	3.49	4.00	3.25	YES	
L0001404	0	0.16680E-05	514605.9	3753777.6	641.2	3.49	4.00	3.25	YES	
L0001405	0	0.16680E-05	514605.8	3753786.2	641.5	3.49	4.00	3.25	YES	
L0001406	0	0.16680E-05	514605.7	3753794.8	641.8	3.49	4.00	3.25	YES	
L0001407	0	0.16680E-05	514605.6	3753803.4	642.1	3.49	4.00	3.25	YES	
L0001408	0	0.16680E-05	514605.5	3753812.0	642.4	3.49	4.00	3.25	YES	
L0001409	0	0.16680E-05	514605.4	3753820.6	642.7	3.49	4.00	3.25	YES	
L0001410	0	0.16680E-05	514605.2	3753829.2	643.0	3.49	4.00	3.25	YES	
L0001411	0	0.16680E-05	514605.1	3753837.7	643.3	3.49	4.00	3.25	YES	
L0001412	0	0.16680E-05	514605.0	3753846.3	643.6	3.49	4.00	3.25	YES	
L0001413	0	0.16680E-05	514604.9	3753854.9	643.9	3.49	4.00	3.25	YES	
L0001414	0	0.16680E-05	514604.8	3753863.5	643.9	3.49	4.00	3.25	YES	
L0001415	0	0.16680E-05	514604.7	3753872.1	643.9	3.49	4.00	3.25	YES	
L0001416	0	0.16680E-05	514604.6	3753880.7	644.0	3.49	4.00	3.25	YES	
L0001417	0	0.16680E-05	514604.4	3753889.3	644.1	3.49	4.00	3.25	YES	
L0001418	0	0.16680E-05	514604.3	3753897.9	644.4	3.49	4.00	3.25	YES	
L0001419	0	0.16680E-05	514604.2	3753906.5	644.6	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001420	0	0.16680E-05	514604.1	3753915.0	644.9	3.49	4.00	3.25	YES	
L0001421	0	0.16680E-05	514604.0	3753923.6	645.2	3.49	4.00	3.25	YES	
L0001422	0	0.16680E-05	514603.9	3753932.2	645.5	3.49	4.00	3.25	YES	
L0001423	0	0.16680E-05	514603.8	3753940.8	645.8	3.49	4.00	3.25	YES	
L0001424	0	0.16680E-05	514603.7	3753949.4	646.0	3.49	4.00	3.25	YES	
L0001425	0	0.16680E-05	514603.5	3753958.0	646.3	3.49	4.00	3.25	YES	
L0001426	0	0.16680E-05	514603.4	3753966.6	646.6	3.49	4.00	3.25	YES	
L0001427	0	0.16680E-05	514603.3	3753975.2	646.9	3.49	4.00	3.25	YES	
L0001428	0	0.16680E-05	514603.2	3753983.8	647.2	3.49	4.00	3.25	YES	
L0001429	0	0.16680E-05	514603.1	3753992.3	647.5	3.49	4.00	3.25	YES	
L0001430	0	0.16680E-05	514603.0	3754000.9	647.8	3.49	4.00	3.25	YES	
L0001431	0	0.16680E-05	514602.9	3754009.5	648.1	3.49	4.00	3.25	YES	
L0001432	0	0.16680E-05	514602.7	3754018.1	648.4	3.49	4.00	3.25	YES	
L0001433	0	0.16680E-05	514602.6	3754026.7	648.7	3.49	4.00	3.25	YES	
L0001434	0	0.16680E-05	514602.4	3754035.1	648.9	3.49	4.00	3.25	YES	
L0001435	0	0.16680E-05	514593.8	3754035.0	649.2	3.49	4.00	3.25	YES	
L0001436	0	0.16680E-05	514585.2	3754034.9	649.5	3.49	4.00	3.25	YES	
L0001437	0	0.16680E-05	514576.6	3754034.7	649.8	3.49	4.00	3.25	YES	
L0001438	0	0.16680E-05	514568.0	3754034.6	650.1	3.49	4.00	3.25	YES	
L0001439	0	0.16680E-05	514559.4	3754034.5	650.4	3.49	4.00	3.25	YES	
L0001440	0	0.16680E-05	514550.8	3754034.3	650.6	3.49	4.00	3.25	YES	
L0001441	0	0.16680E-05	514542.2	3754034.2	650.9	3.49	4.00	3.25	YES	
L0001442	0	0.16680E-05	514533.7	3754034.1	651.2	3.49	4.00	3.25	YES	
L0001443	0	0.16680E-05	514525.1	3754033.9	651.5	3.49	4.00	3.25	YES	
L0001444	0	0.16680E-05	514516.5	3754033.8	651.7	3.49	4.00	3.25	YES	
L0001445	0	0.16680E-05	514507.9	3754033.7	652.0	3.49	4.00	3.25	YES	
L0001446	0	0.16680E-05	514499.3	3754033.5	652.3	3.49	4.00	3.25	YES	
L0001447	0	0.16680E-05	514490.7	3754033.4	652.6	3.49	4.00	3.25	YES	
L0001448	0	0.16680E-05	514482.1	3754033.3	652.9	3.49	4.00	3.25	YES	
L0001449	0	0.16680E-05	514473.5	3754033.1	653.2	3.49	4.00	3.25	YES	
L0001450	0	0.16680E-05	514464.9	3754033.0	653.4	3.49	4.00	3.25	YES	
L0001451	0	0.16680E-05	514456.4	3754032.9	653.7	3.49	4.00	3.25	YES	
L0001452	0	0.16680E-05	514447.8	3754032.8	653.8	3.49	4.00	3.25	YES	
L0001453	0	0.16680E-05	514439.2	3754032.6	653.8	3.49	4.00	3.25	YES	
L0001454	0	0.16680E-05	514430.6	3754032.5	653.9	3.49	4.00	3.25	YES	
L0001455	0	0.16680E-05	514422.0	3754032.4	653.9	3.49	4.00	3.25	YES	
L0001456	0	0.16680E-05	514413.4	3754032.2	654.1	3.49	4.00	3.25	YES	
L0001457	0	0.16680E-05	514404.8	3754032.1	654.4	3.49	4.00	3.25	YES	
L0001458	0	0.16680E-05	514396.2	3754032.0	654.7	3.49	4.00	3.25	YES	
L0001459	0	0.16680E-05	514387.6	3754031.8	655.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001460	0	0.16680E-05	514379.0	3754031.7	655.3	3.49	4.00	3.25	YES	
L0001461	0	0.16680E-05	514370.5	3754031.6	655.6	3.49	4.00	3.25	YES	
L0001462	0	0.16680E-05	514361.9	3754031.4	655.8	3.49	4.00	3.25	YES	
L0001463	0	0.16680E-05	514353.3	3754031.3	656.1	3.49	4.00	3.25	YES	
L0001464	0	0.16680E-05	514344.7	3754031.2	656.4	3.49	4.00	3.25	YES	
L0001465	0	0.16680E-05	514336.1	3754031.0	656.7	3.49	4.00	3.25	YES	
L0001466	0	0.16680E-05	514327.5	3754030.9	657.0	3.49	4.00	3.25	YES	
L0001467	0	0.16680E-05	514318.9	3754030.8	657.3	3.49	4.00	3.25	YES	
L0001468	0	0.16680E-05	514310.3	3754030.6	657.5	3.49	4.00	3.25	YES	
L0001469	0	0.16680E-05	514301.7	3754030.5	657.8	3.49	4.00	3.25	YES	
L0001470	0	0.16680E-05	514293.2	3754030.4	658.1	3.49	4.00	3.25	YES	
L0001471	0	0.16680E-05	514284.6	3754030.2	658.4	3.49	4.00	3.25	YES	
L0001472	0	0.16680E-05	514276.0	3754030.1	658.7	3.49	4.00	3.25	YES	
L0001473	0	0.16680E-05	514267.4	3754030.0	658.8	3.49	4.00	3.25	YES	
L0001474	0	0.16680E-05	514258.8	3754029.8	658.8	3.49	4.00	3.25	YES	
L0001475	0	0.16680E-05	514250.2	3754029.7	658.8	3.49	4.00	3.25	YES	
L0001476	0	0.16680E-05	514241.6	3754029.6	658.8	3.49	4.00	3.25	YES	
L0001477	0	0.16680E-05	514233.0	3754029.4	659.1	3.49	4.00	3.25	YES	
L0001478	0	0.16680E-05	514224.4	3754029.3	659.4	3.49	4.00	3.25	YES	
L0001479	0	0.16680E-05	514215.9	3754029.2	659.6	3.49	4.00	3.25	YES	
L0001480	0	0.16680E-05	514207.3	3754028.7	659.8	3.49	4.00	3.25	YES	
L0001481	0	0.16680E-05	514199.0	3754026.7	659.8	3.49	4.00	3.25	YES	
L0001482	0	0.16680E-05	514190.6	3754024.6	659.9	3.49	4.00	3.25	YES	
L0001483	0	0.16680E-05	514182.3	3754022.5	660.0	3.49	4.00	3.25	YES	
L0001484	0	0.16680E-05	514174.0	3754020.4	660.1	3.49	4.00	3.25	YES	
L0001485	0	0.16680E-05	514165.6	3754018.4	660.2	3.49	4.00	3.25	YES	
L0001486	0	0.16680E-05	514157.3	3754016.3	660.3	3.49	4.00	3.25	YES	
L0001487	0	0.16680E-05	514149.0	3754014.2	660.4	3.49	4.00	3.25	YES	
L0001488	0	0.16680E-05	514140.6	3754012.2	660.6	3.49	4.00	3.25	YES	
L0001489	0	0.16680E-05	514132.3	3754010.1	660.8	3.49	4.00	3.25	YES	
L0001490	0	0.16680E-05	514123.9	3754008.0	661.0	3.49	4.00	3.25	YES	
L0001491	0	0.16680E-05	514115.6	3754006.0	661.2	3.49	4.00	3.25	YES	
L0001492	0	0.16680E-05	514107.3	3754003.9	661.4	3.49	4.00	3.25	YES	
L0001493	0	0.16680E-05	514098.9	3754001.8	661.6	3.49	4.00	3.25	YES	
L0001494	0	0.16680E-05	514090.6	3753999.8	661.8	3.49	4.00	3.25	YES	
L0001495	0	0.16680E-05	514082.3	3753997.7	662.0	3.49	4.00	3.25	YES	
L0001496	0	0.16680E-05	514073.9	3753995.6	662.2	3.49	4.00	3.25	YES	
L0001497	0	0.16680E-05	514065.6	3753993.6	662.5	3.49	4.00	3.25	YES	
L0001498	0	0.16680E-05	514057.2	3753991.5	662.7	3.49	4.00	3.25	YES	
L0001499	0	0.16680E-05	514048.9	3753989.4	662.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001500	0	0.16680E-05	514040.6	3753987.4	663.1	3.49	4.00	3.25	YES	
L0001501	0	0.16680E-05	514032.2	3753985.3	663.3	3.49	4.00	3.25	YES	
L0001502	0	0.16680E-05	514023.9	3753983.2	663.5	3.49	4.00	3.25	YES	
L0001503	0	0.16680E-05	514015.6	3753981.2	663.7	3.49	4.00	3.25	YES	
L0001504	0	0.16680E-05	514012.9	3753974.6	663.6	3.49	4.00	3.25	YES	
L0001505	0	0.16680E-05	514012.8	3753966.0	663.3	3.49	4.00	3.25	YES	
L0001506	0	0.16680E-05	514012.8	3753957.4	663.0	3.49	4.00	3.25	YES	
L0001507	0	0.16680E-05	514012.7	3753948.8	662.7	3.49	4.00	3.25	YES	
L0001508	0	0.16680E-05	514012.7	3753940.2	662.4	3.49	4.00	3.25	YES	
L0001509	0	0.16680E-05	514012.6	3753931.7	662.2	3.49	4.00	3.25	YES	
L0001510	0	0.16680E-05	514012.5	3753923.1	661.9	3.49	4.00	3.25	YES	
L0001511	0	0.16680E-05	514012.5	3753914.5	661.6	3.49	4.00	3.25	YES	
L0001512	0	0.16680E-05	514012.4	3753905.9	661.3	3.49	4.00	3.25	YES	
L0001513	0	0.16680E-05	514012.4	3753897.3	661.0	3.49	4.00	3.25	YES	
L0001514	0	0.16680E-05	514012.3	3753888.7	660.7	3.49	4.00	3.25	YES	
L0001515	0	0.16680E-05	514012.2	3753880.1	660.5	3.49	4.00	3.25	YES	
L0001516	0	0.16680E-05	514012.2	3753871.5	660.3	3.49	4.00	3.25	YES	
L0001517	0	0.16680E-05	514012.1	3753862.9	660.2	3.49	4.00	3.25	YES	
L0001518	0	0.16680E-05	514012.0	3753854.3	660.0	3.49	4.00	3.25	YES	
L0001519	0	0.16680E-05	514012.0	3753845.8	659.9	3.49	4.00	3.25	YES	
L0001520	0	0.16680E-05	514011.9	3753837.2	659.8	3.49	4.00	3.25	YES	
L0001521	0	0.16680E-05	514011.9	3753828.6	659.7	3.49	4.00	3.25	YES	
L0001522	0	0.16680E-05	514011.8	3753820.0	659.5	3.49	4.00	3.25	YES	
L0001523	0	0.16680E-05	514011.7	3753811.4	659.2	3.49	4.00	3.25	YES	
L0001524	0	0.16680E-05	514011.7	3753802.8	658.9	3.49	4.00	3.25	YES	
L0001525	0	0.16680E-05	514011.6	3753794.2	658.7	3.49	4.00	3.25	YES	
L0001526	0	0.16680E-05	514011.6	3753785.6	658.7	3.49	4.00	3.25	YES	
L0001527	0	0.16680E-05	514011.5	3753777.0	658.7	3.49	4.00	3.25	YES	
L0001528	0	0.16680E-05	514011.4	3753768.4	658.7	3.49	4.00	3.25	YES	
L0001529	0	0.14330E-05	514095.8	3753764.3	655.8	3.49	4.00	3.25	YES	
L0001530	0	0.14330E-05	514095.7	3753772.9	655.9	3.49	4.00	3.25	YES	
L0001531	0	0.14330E-05	514095.5	3753781.5	655.9	3.49	4.00	3.25	YES	
L0001532	0	0.14330E-05	514095.4	3753790.1	656.0	3.49	4.00	3.25	YES	
L0001533	0	0.14330E-05	514095.2	3753798.7	656.1	3.49	4.00	3.25	YES	
L0001534	0	0.14330E-05	514098.4	3753804.0	656.2	3.49	4.00	3.25	YES	
L0001535	0	0.14330E-05	514107.0	3753803.9	656.1	3.49	4.00	3.25	YES	
L0001536	0	0.14330E-05	514115.5	3753803.7	656.0	3.49	4.00	3.25	YES	
L0001537	0	0.14330E-05	514124.1	3753803.6	655.9	3.49	4.00	3.25	YES	
L0001538	0	0.14330E-05	514132.7	3753803.5	655.7	3.49	4.00	3.25	YES	
L0001539	0	0.14330E-05	514141.3	3753803.3	655.5	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001540	0	0.14330E-05	514149.9	3753803.2	655.3	3.49	4.00	3.25	YES	
L0001541	0	0.14330E-05	514158.5	3753803.1	655.0	3.49	4.00	3.25	YES	
L0001542	0	0.14330E-05	514167.1	3753802.9	654.7	3.49	4.00	3.25	YES	
L0001543	0	0.14330E-05	514175.7	3753802.8	654.4	3.49	4.00	3.25	YES	
L0001544	0	0.14330E-05	514184.2	3753802.7	654.1	3.49	4.00	3.25	YES	
L0001545	0	0.14330E-05	514192.8	3753802.5	653.8	3.49	4.00	3.25	YES	
L0001546	0	0.14330E-05	514201.4	3753802.4	653.6	3.49	4.00	3.25	YES	
L0001547	0	0.14330E-05	514210.0	3753802.3	653.3	3.49	4.00	3.25	YES	
L0001548	0	0.14330E-05	514218.6	3753802.1	653.0	3.49	4.00	3.25	YES	
L0001549	0	0.14330E-05	514227.2	3753802.0	652.7	3.49	4.00	3.25	YES	
L0001550	0	0.14330E-05	514235.8	3753801.9	652.4	3.49	4.00	3.25	YES	
L0001551	0	0.14330E-05	514244.4	3753801.7	652.1	3.49	4.00	3.25	YES	
L0001552	0	0.14330E-05	514253.0	3753801.6	651.8	3.49	4.00	3.25	YES	
L0001553	0	0.14330E-05	514261.6	3753801.5	651.5	3.49	4.00	3.25	YES	
L0001554	0	0.14330E-05	514270.1	3753801.3	651.2	3.49	4.00	3.25	YES	
L0001555	0	0.14330E-05	514278.7	3753801.2	650.9	3.49	4.00	3.25	YES	
L0001556	0	0.14330E-05	514287.3	3753801.1	650.6	3.49	4.00	3.25	YES	
L0001557	0	0.14330E-05	514295.9	3753800.9	650.4	3.49	4.00	3.25	YES	
L0001558	0	0.14330E-05	514304.5	3753800.8	650.1	3.49	4.00	3.25	YES	
L0001559	0	0.14330E-05	514313.1	3753800.7	649.8	3.49	4.00	3.25	YES	
L0001560	0	0.14330E-05	514321.7	3753800.5	649.5	3.49	4.00	3.25	YES	
L0001561	0	0.14330E-05	514330.3	3753800.4	649.2	3.49	4.00	3.25	YES	
L0001562	0	0.14330E-05	514338.9	3753800.3	648.9	3.49	4.00	3.25	YES	
L0001563	0	0.14330E-05	514347.4	3753800.2	648.6	3.49	4.00	3.25	YES	
L0001564	0	0.14330E-05	514356.0	3753800.0	648.3	3.49	4.00	3.25	YES	
L0001565	0	0.14330E-05	514364.6	3753799.9	648.0	3.49	4.00	3.25	YES	
L0001566	0	0.14330E-05	514373.2	3753799.8	647.8	3.49	4.00	3.25	YES	
L0001567	0	0.14330E-05	514381.8	3753799.6	647.5	3.49	4.00	3.25	YES	
L0001568	0	0.14330E-05	514390.4	3753799.5	647.2	3.49	4.00	3.25	YES	
L0001569	0	0.14330E-05	514399.0	3753799.4	646.8	3.49	4.00	3.25	YES	
L0001570	0	0.14330E-05	514407.6	3753799.2	646.5	3.49	4.00	3.25	YES	
L0001571	0	0.14330E-05	514416.2	3753799.1	646.2	3.49	4.00	3.25	YES	
L0001572	0	0.14330E-05	514424.7	3753799.0	645.9	3.49	4.00	3.25	YES	
L0001573	0	0.14330E-05	514433.3	3753798.8	645.6	3.49	4.00	3.25	YES	
L0001574	0	0.14330E-05	514441.9	3753798.7	645.4	3.49	4.00	3.25	YES	
L0001575	0	0.14330E-05	514450.5	3753798.6	645.1	3.49	4.00	3.25	YES	
L0001576	0	0.14330E-05	514459.1	3753798.4	645.1	3.49	4.00	3.25	YES	
L0001577	0	0.14330E-05	514467.7	3753798.3	645.0	3.49	4.00	3.25	YES	
L0001578	0	0.14330E-05	514476.3	3753798.2	645.0	3.49	4.00	3.25	YES	
L0001579	0	0.14330E-05	514484.9	3753798.0	644.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001580	0	0.14330E-05	514493.5	3753797.9	644.6	3.49	4.00	3.25	YES	
L0001581	0	0.14330E-05	514502.0	3753797.8	644.4	3.49	4.00	3.25	YES	
L0001582	0	0.14330E-05	514510.6	3753797.6	644.1	3.49	4.00	3.25	YES	
L0001583	0	0.14330E-05	514519.2	3753797.5	643.8	3.49	4.00	3.25	YES	
L0001584	0	0.14330E-05	514527.8	3753797.4	643.5	3.49	4.00	3.25	YES	
L0001585	0	0.14330E-05	514536.4	3753797.2	643.2	3.49	4.00	3.25	YES	
L0001586	0	0.14330E-05	514538.2	3753790.5	642.9	3.49	4.00	3.25	YES	
L0001587	0	0.14330E-05	514538.0	3753781.9	642.7	3.49	4.00	3.25	YES	
L0001588	0	0.14330E-05	514537.8	3753773.3	642.4	3.49	4.00	3.25	YES	
L0001589	0	0.14330E-05	514537.7	3753764.7	642.1	3.49	4.00	3.25	YES	
L0001590	0	0.16820E-05	514589.9	3754131.5	651.6	3.49	4.00	3.25	YES	
L0001591	0	0.16820E-05	514582.4	3754127.4	651.7	3.49	4.00	3.25	YES	
L0001592	0	0.16820E-05	514574.8	3754123.3	651.9	3.49	4.00	3.25	YES	
L0001593	0	0.16820E-05	514567.3	3754119.1	652.2	3.49	4.00	3.25	YES	
L0001594	0	0.16820E-05	514559.8	3754115.0	652.6	3.49	4.00	3.25	YES	
L0001595	0	0.16820E-05	514552.3	3754110.9	653.0	3.49	4.00	3.25	YES	
L0001596	0	0.16820E-05	514544.7	3754106.7	653.2	3.49	4.00	3.25	YES	
L0001597	0	0.16820E-05	514537.2	3754102.6	653.4	3.49	4.00	3.25	YES	
L0001598	0	0.16820E-05	514529.7	3754098.5	653.5	3.49	4.00	3.25	YES	
L0001599	0	0.16820E-05	514522.1	3754094.3	653.6	3.49	4.00	3.25	YES	
L0001600	0	0.16820E-05	514514.7	3754090.1	653.7	3.49	4.00	3.25	YES	
L0001601	0	0.16820E-05	514513.3	3754081.7	653.5	3.49	4.00	3.25	YES	
L0001602	0	0.16820E-05	514505.9	3754078.8	653.6	3.49	4.00	3.25	YES	
L0001603	0	0.16820E-05	514497.6	3754076.9	653.8	3.49	4.00	3.25	YES	
L0001604	0	0.16820E-05	514489.2	3754075.0	654.0	3.49	4.00	3.25	YES	
L0001605	0	0.16820E-05	514480.8	3754073.1	654.3	3.49	4.00	3.25	YES	
L0001606	0	0.16820E-05	514472.4	3754071.2	654.5	3.49	4.00	3.25	YES	
L0001607	0	0.16820E-05	514464.1	3754069.3	654.7	3.49	4.00	3.25	YES	
L0001608	0	0.16820E-05	514455.7	3754067.4	654.9	3.49	4.00	3.25	YES	
L0001609	0	0.16820E-05	514447.3	3754065.5	655.1	3.49	4.00	3.25	YES	
L0001610	0	0.16820E-05	514438.9	3754063.6	655.3	3.49	4.00	3.25	YES	
L0001611	0	0.16820E-05	514430.6	3754061.7	655.5	3.49	4.00	3.25	YES	
L0001612	0	0.16820E-05	514422.2	3754059.7	655.6	3.49	4.00	3.25	YES	
L0001613	0	0.16820E-05	514413.7	3754058.4	655.6	3.49	4.00	3.25	YES	
L0001614	0	0.16820E-05	514405.1	3754058.3	655.6	3.49	4.00	3.25	YES	
L0001615	0	0.16820E-05	514396.6	3754058.1	655.7	3.49	4.00	3.25	YES	
L0001616	0	0.16820E-05	514388.0	3754057.9	655.9	3.49	4.00	3.25	YES	
L0001617	0	0.16820E-05	514379.4	3754057.8	656.1	3.49	4.00	3.25	YES	
L0001618	0	0.16820E-05	514370.8	3754057.6	656.4	3.49	4.00	3.25	YES	
L0001619	0	0.16820E-05	514362.2	3754057.4	656.7	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001620	0	0.16820E-05	514353.6	3754057.2	657.0	3.49	4.00	3.25	YES	
L0001621	0	0.16820E-05	514345.0	3754057.1	657.3	3.49	4.00	3.25	YES	
L0001622	0	0.16820E-05	514336.4	3754056.9	657.5	3.49	4.00	3.25	YES	
L0001623	0	0.16820E-05	514327.8	3754056.7	657.8	3.49	4.00	3.25	YES	
L0001624	0	0.16820E-05	514319.3	3754056.6	658.1	3.49	4.00	3.25	YES	
L0001625	0	0.16820E-05	514310.7	3754056.4	658.4	3.49	4.00	3.25	YES	
L0001626	0	0.16820E-05	514306.2	3754056.9	658.5	3.49	4.00	3.25	YES	
L0001627	0	0.16820E-05	514314.5	3754059.3	658.3	3.49	4.00	3.25	YES	
L0001628	0	0.16820E-05	514322.7	3754061.7	658.2	3.49	4.00	3.25	YES	
L0001629	0	0.16820E-05	514331.0	3754064.0	658.0	3.49	4.00	3.25	YES	
L0001630	0	0.16820E-05	514339.2	3754066.4	657.8	3.49	4.00	3.25	YES	
L0001631	0	0.16820E-05	514347.5	3754068.8	657.6	3.49	4.00	3.25	YES	
L0001632	0	0.16820E-05	514355.7	3754071.2	657.4	3.49	4.00	3.25	YES	
L0001633	0	0.16820E-05	514364.0	3754073.6	657.2	3.49	4.00	3.25	YES	
L0001634	0	0.16820E-05	514372.2	3754076.0	657.0	3.49	4.00	3.25	YES	
L0001635	0	0.16820E-05	514380.5	3754078.4	656.8	3.49	4.00	3.25	YES	
L0001636	0	0.16820E-05	514388.7	3754080.8	656.6	3.49	4.00	3.25	YES	
L0001637	0	0.16820E-05	514397.0	3754083.2	656.6	3.49	4.00	3.25	YES	
L0001638	0	0.16820E-05	514405.2	3754085.6	656.7	3.49	4.00	3.25	YES	
L0001639	0	0.16820E-05	514413.5	3754088.0	656.7	3.49	4.00	3.25	YES	
L0001640	0	0.16820E-05	514421.7	3754090.4	656.8	3.49	4.00	3.25	YES	
L0001641	0	0.16820E-05	514430.0	3754092.7	656.6	3.49	4.00	3.25	YES	
L0001642	0	0.16820E-05	514438.2	3754095.1	656.4	3.49	4.00	3.25	YES	
L0001643	0	0.16820E-05	514446.5	3754097.5	656.3	3.49	4.00	3.25	YES	
L0001644	0	0.16820E-05	514454.7	3754099.9	656.2	3.49	4.00	3.25	YES	
L0001645	0	0.16820E-05	514463.0	3754102.3	656.1	3.49	4.00	3.25	YES	
L0001646	0	0.16820E-05	514471.2	3754104.7	655.9	3.49	4.00	3.25	YES	
L0001647	0	0.16820E-05	514479.5	3754107.1	655.8	3.49	4.00	3.25	YES	
L0001648	0	0.16820E-05	514487.7	3754109.5	655.6	3.49	4.00	3.25	YES	
L0001649	0	0.16820E-05	514495.2	3754109.1	655.2	3.49	4.00	3.25	YES	
L0001650	0	0.16820E-05	514500.9	3754102.6	654.7	3.49	4.00	3.25	YES	
L0001651	0	0.16820E-05	514506.6	3754096.2	654.2	3.49	4.00	3.25	YES	
L0001652	0	0.31110E-05	514094.0	3753830.9	657.1	3.49	4.00	3.25	YES	
L0001653	0	0.31110E-05	514102.6	3753830.8	656.8	3.49	4.00	3.25	YES	
L0001654	0	0.31110E-05	514111.2	3753830.7	656.5	3.49	4.00	3.25	YES	
L0001655	0	0.31110E-05	514119.8	3753830.6	656.2	3.49	4.00	3.25	YES	
L0001656	0	0.31110E-05	514128.4	3753830.4	656.1	3.49	4.00	3.25	YES	
L0001657	0	0.31110E-05	514137.0	3753830.3	656.1	3.49	4.00	3.25	YES	
L0001658	0	0.31110E-05	514145.6	3753830.2	656.0	3.49	4.00	3.25	YES	
L0001659	0	0.31110E-05	514154.2	3753830.0	655.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001660	0	0.31110E-05	514162.8	3753829.9	655.6	3.49	4.00	3.25	YES	
L0001661	0	0.31110E-05	514171.4	3753829.8	655.3	3.49	4.00	3.25	YES	
L0001662	0	0.31110E-05	514179.9	3753829.7	655.0	3.49	4.00	3.25	YES	
L0001663	0	0.31110E-05	514188.5	3753829.5	654.8	3.49	4.00	3.25	YES	
L0001664	0	0.31110E-05	514197.1	3753829.4	654.5	3.49	4.00	3.25	YES	
L0001665	0	0.31110E-05	514205.7	3753829.3	654.2	3.49	4.00	3.25	YES	
L0001666	0	0.31110E-05	514214.3	3753829.1	653.9	3.49	4.00	3.25	YES	
L0001667	0	0.31110E-05	514222.9	3753829.0	653.7	3.49	4.00	3.25	YES	
L0001668	0	0.31110E-05	514231.5	3753828.9	653.4	3.49	4.00	3.25	YES	
L0001669	0	0.31110E-05	514240.1	3753828.8	653.1	3.49	4.00	3.25	YES	
L0001670	0	0.31110E-05	514248.7	3753828.6	652.9	3.49	4.00	3.25	YES	
L0001671	0	0.31110E-05	514257.2	3753828.5	652.6	3.49	4.00	3.25	YES	
L0001672	0	0.31110E-05	514265.8	3753828.4	652.3	3.49	4.00	3.25	YES	
L0001673	0	0.31110E-05	514274.4	3753828.2	652.0	3.49	4.00	3.25	YES	
L0001674	0	0.31110E-05	514283.0	3753828.1	651.7	3.49	4.00	3.25	YES	
L0001675	0	0.31110E-05	514291.6	3753828.0	651.4	3.49	4.00	3.25	YES	
L0001676	0	0.31110E-05	514300.2	3753827.9	651.1	3.49	4.00	3.25	YES	
L0001677	0	0.31110E-05	514308.8	3753827.7	650.8	3.49	4.00	3.25	YES	
L0001678	0	0.31110E-05	514317.4	3753827.6	650.5	3.49	4.00	3.25	YES	
L0001679	0	0.31110E-05	514326.0	3753827.5	650.2	3.49	4.00	3.25	YES	
L0001680	0	0.31110E-05	514334.5	3753827.3	649.9	3.49	4.00	3.25	YES	
L0001681	0	0.31110E-05	514343.1	3753827.2	649.7	3.49	4.00	3.25	YES	
L0001682	0	0.31110E-05	514351.7	3753827.1	649.4	3.49	4.00	3.25	YES	
L0001683	0	0.31110E-05	514360.3	3753826.9	649.1	3.49	4.00	3.25	YES	
L0001684	0	0.31110E-05	514368.9	3753826.8	648.8	3.49	4.00	3.25	YES	
L0001685	0	0.31110E-05	514377.5	3753826.7	648.5	3.49	4.00	3.25	YES	
L0001686	0	0.31110E-05	514386.1	3753826.6	648.2	3.49	4.00	3.25	YES	
L0001687	0	0.31110E-05	514394.7	3753826.4	647.8	3.49	4.00	3.25	YES	
L0001688	0	0.31110E-05	514403.3	3753826.3	647.2	3.49	4.00	3.25	YES	
L0001689	0	0.31110E-05	514411.8	3753826.2	646.7	3.49	4.00	3.25	YES	
L0001690	0	0.31110E-05	514420.4	3753826.0	646.1	3.49	4.00	3.25	YES	
L0001691	0	0.31110E-05	514429.0	3753825.9	646.0	3.49	4.00	3.25	YES	
L0001692	0	0.31110E-05	514437.6	3753825.8	646.0	3.49	4.00	3.25	YES	
L0001693	0	0.31110E-05	514446.2	3753825.7	646.0	3.49	4.00	3.25	YES	
L0001694	0	0.31110E-05	514454.8	3753825.5	645.9	3.49	4.00	3.25	YES	
L0001695	0	0.31110E-05	514463.4	3753825.4	645.6	3.49	4.00	3.25	YES	
L0001696	0	0.31110E-05	514472.0	3753825.3	645.3	3.49	4.00	3.25	YES	
L0001697	0	0.31110E-05	514480.6	3753825.1	645.0	3.49	4.00	3.25	YES	
L0001698	0	0.31110E-05	514489.1	3753825.0	645.0	3.49	4.00	3.25	YES	
L0001699	0	0.31110E-05	514497.7	3753824.9	645.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001700	0	0.31110E-05	514506.3	3753824.8	645.0	3.49	4.00	3.25	YES	
L0001701	0	0.31110E-05	514514.9	3753824.6	644.8	3.49	4.00	3.25	YES	
L0001702	0	0.31110E-05	514523.5	3753824.5	644.6	3.49	4.00	3.25	YES	
L0001703	0	0.31110E-05	514532.1	3753824.4	644.3	3.49	4.00	3.25	YES	
L0001704	0	0.31110E-05	514540.7	3753824.2	644.0	3.49	4.00	3.25	YES	
L0001705	0	0.36800E-05	514229.9	3754009.4	658.5	3.49	4.00	3.25	YES	
L0001706	0	0.36800E-05	514238.5	3754009.5	658.2	3.49	4.00	3.25	YES	
L0001707	0	0.36800E-05	514247.1	3754009.6	658.1	3.49	4.00	3.25	YES	
L0001708	0	0.36800E-05	514255.6	3754009.7	658.1	3.49	4.00	3.25	YES	
L0001709	0	0.36800E-05	514264.2	3754009.8	658.1	3.49	4.00	3.25	YES	
L0001710	0	0.36800E-05	514272.8	3754009.9	658.1	3.49	4.00	3.25	YES	
L0001711	0	0.36800E-05	514281.4	3754010.1	657.8	3.49	4.00	3.25	YES	
L0001712	0	0.36800E-05	514290.0	3754010.2	657.5	3.49	4.00	3.25	YES	
L0001713	0	0.36800E-05	514298.6	3754010.3	657.2	3.49	4.00	3.25	YES	
L0001714	0	0.36800E-05	514307.2	3754010.4	657.0	3.49	4.00	3.25	YES	
L0001715	0	0.36800E-05	514315.8	3754010.5	656.7	3.49	4.00	3.25	YES	
L0001716	0	0.36800E-05	514324.4	3754010.6	656.4	3.49	4.00	3.25	YES	
L0001717	0	0.36800E-05	514333.0	3754010.7	656.1	3.49	4.00	3.25	YES	
L0001718	0	0.36800E-05	514341.5	3754010.8	655.8	3.49	4.00	3.25	YES	
L0001719	0	0.36800E-05	514350.1	3754011.0	655.6	3.49	4.00	3.25	YES	
L0001720	0	0.36800E-05	514358.7	3754011.1	655.3	3.49	4.00	3.25	YES	
L0001721	0	0.36800E-05	514367.3	3754011.2	655.0	3.49	4.00	3.25	YES	
L0001722	0	0.36800E-05	514375.9	3754011.3	654.7	3.49	4.00	3.25	YES	
L0001723	0	0.36800E-05	514384.5	3754011.4	654.4	3.49	4.00	3.25	YES	
L0001724	0	0.36800E-05	514393.1	3754011.5	654.1	3.49	4.00	3.25	YES	
L0001725	0	0.36800E-05	514401.7	3754011.6	653.9	3.49	4.00	3.25	YES	
L0001726	0	0.36800E-05	514410.3	3754011.7	653.6	3.49	4.00	3.25	YES	
L0001727	0	0.36800E-05	514418.8	3754011.8	653.3	3.49	4.00	3.25	YES	
L0001728	0	0.36800E-05	514427.4	3754012.0	653.0	3.49	4.00	3.25	YES	
L0001729	0	0.36800E-05	514436.0	3754012.1	652.8	3.49	4.00	3.25	YES	
L0001730	0	0.36800E-05	514444.6	3754012.2	652.6	3.49	4.00	3.25	YES	
L0001731	0	0.36800E-05	514453.2	3754012.3	652.4	3.49	4.00	3.25	YES	
L0001732	0	0.36800E-05	514461.8	3754012.4	652.4	3.49	4.00	3.25	YES	
L0001733	0	0.36800E-05	514470.4	3754012.5	652.3	3.49	4.00	3.25	YES	
L0001734	0	0.36800E-05	514479.0	3754012.6	652.2	3.49	4.00	3.25	YES	
L0001735	0	0.36800E-05	514487.6	3754012.7	651.9	3.49	4.00	3.25	YES	
L0001736	0	0.36800E-05	514496.1	3754012.9	651.4	3.49	4.00	3.25	YES	
L0001737	0	0.36800E-05	514504.7	3754013.0	650.9	3.49	4.00	3.25	YES	
L0001738	0	0.36800E-05	514513.3	3754013.1	650.5	3.49	4.00	3.25	YES	
L0001739	0	0.36800E-05	514521.9	3754013.2	650.4	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001740	0	0.36800E-05	514530.5	3754013.3	650.3	3.49	4.00	3.25	YES	
L0001741	0	0.36800E-05	514539.1	3754013.4	650.3	3.49	4.00	3.25	YES	
L0001742	0	0.36800E-05	514547.7	3754013.5	650.1	3.49	4.00	3.25	YES	
L0001743	0	0.36800E-05	514556.3	3754013.6	649.8	3.49	4.00	3.25	YES	
L0001744	0	0.36800E-05	514564.9	3754013.7	649.5	3.49	4.00	3.25	YES	
L0001745	0	0.36800E-05	514573.5	3754013.9	649.2	3.49	4.00	3.25	YES	
L0001746	0	0.30860E-05	514044.1	3753960.0	662.1	3.49	4.00	3.25	YES	
L0001747	0	0.30860E-05	514044.3	3753951.4	661.8	3.49	4.00	3.25	YES	
L0001748	0	0.30860E-05	514044.4	3753942.9	661.5	3.49	4.00	3.25	YES	
L0001749	0	0.30860E-05	514044.5	3753934.3	661.2	3.49	4.00	3.25	YES	
L0001750	0	0.30860E-05	514044.6	3753925.7	660.9	3.49	4.00	3.25	YES	
L0001751	0	0.30860E-05	514044.8	3753917.1	660.6	3.49	4.00	3.25	YES	
L0001752	0	0.30860E-05	514044.9	3753908.5	660.4	3.49	4.00	3.25	YES	
L0001753	0	0.30860E-05	514045.0	3753899.9	660.3	3.49	4.00	3.25	YES	
L0001754	0	0.30860E-05	514045.1	3753891.3	660.1	3.49	4.00	3.25	YES	
L0001755	0	0.30860E-05	514045.2	3753882.7	659.9	3.49	4.00	3.25	YES	
L0001756	0	0.30860E-05	514045.4	3753874.1	659.6	3.49	4.00	3.25	YES	
L0001757	0	0.30860E-05	514045.5	3753865.6	659.4	3.49	4.00	3.25	YES	
L0001758	0	0.30860E-05	514045.6	3753857.0	659.1	3.49	4.00	3.25	YES	
L0001759	0	0.30860E-05	514045.7	3753848.4	658.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	L0001020 , L0001021 , L0001022 , L0001023 , L0001024 , L0001025 , L0001026 , L0001027 ,
	L0001028 , L0001029 , L0001030 , L0001031 , L0001032 , L0001033 , L0001034 , L0001035 ,
	L0001036 , L0001037 , L0001038 , L0001039 , L0001040 , L0001041 , L0001042 , L0001043 ,
	L0001044 , L0001045 , L0001046 , L0001047 , L0001048 , L0001049 , L0001050 , L0001051 ,
	L0001052 , L0001053 , L0001054 , L0001055 , L0001056 , L0001057 , L0001058 , L0001059 ,
	L0001060 , L0001061 , L0001062 , L0001063 , L0001064 , L0001065 , L0001066 , L0001067 ,
	L0001068 , L0001069 , L0001070 , L0001071 , L0001072 , L0001073 , L0001074 , L0001075 ,
	L0001076 , L0001077 , L0001078 , L0001079 , L0001080 , L0001081 , L0001082 , L0001083 ,
	L0001084 , L0001085 , L0001086 , L0001087 , L0001088 , L0001089 , L0001090 , L0001091 ,
	L0001092 , L0001093 , L0001094 , L0001095 , L0001096 , L0001097 , L0001098 , L0001099 ,
	L0001100 , L0001101 , L0001102 , L0001103 , L0001104 , L0001105 , L0001106 , L0001107 ,
	L0001108 , L0001109 , L0001110 , L0001111 , L0001112 , L0001113 , L0001114 , L0001115 ,
	L0001116 , L0001117 , L0001118 , L0001119 , L0001120 , L0001121 , L0001122 , L0001123 ,
	L0001124 , L0001125 , L0001126 , L0001127 , L0001128 , L0001129 , L0001130 , L0001131 ,
	L0001132 , L0001133 , L0001134 , L0001135 , L0001136 , L0001137 , L0001138 , L0001139 ,
	L0001140 , L0001141 , L0001142 , L0001143 , L0001144 , L0001145 , L0001146 , L0001147 ,
	L0001148 , L0001149 , L0001150 , L0001151 , L0001152 , L0001153 , L0001154 , L0001155 ,
	L0001156 , L0001157 , L0001158 , L0001159 , L0001160 , L0001161 , L0001162 , L0001163 ,
	L0001164 , L0001165 , L0001166 , L0001167 , L0001168 , L0001169 , L0001170 , L0001171 ,
	L0001172 , L0001173 , L0001174 , L0001175 , L0001176 , L0001177 , L0001178 , L0001179 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0001180 , L0001181 , L0001182 , L0001183 , L0001184 , L0001185 , L0001186 , L0001187 ,
	L0001188 , L0001189 , L0001190 , L0001191 , L0001192 , L0001193 , L0001194 , L0001195 ,
	L0001196 , L0001197 , L0001198 , L0001199 , L0001200 , L0001201 , L0001202 , L0001203 ,
	L0001204 , L0001205 , L0001206 , L0001207 , L0001208 , L0001209 , L0001210 , L0001211 ,
	L0001212 , L0001213 , L0001214 , L0001215 , L0001216 , L0001217 , L0001218 , L0001219 ,
	L0001220 , L0001221 , L0001222 , L0001223 , L0001224 , L0001225 , L0001226 , L0001227 ,
	L0001228 , L0001229 , L0001230 , L0001231 , L0001232 , L0001233 , L0001234 , L0001235 ,
	L0001236 , L0001237 , L0001238 , L0001239 , L0001240 , L0001241 , L0001242 , L0001243 ,
	L0001244 , L0001245 , L0001246 , L0001247 , L0001248 , L0001249 , L0001250 , L0001251 ,
	L0001252 , L0001253 , L0001254 , L0001255 , L0001256 , L0001257 , L0001258 , L0001259 ,
	L0001260 , L0001261 , L0001262 , L0001263 , L0001264 , L0001265 , L0001266 , L0001267 ,
	L0001268 , L0001269 , L0001270 , L0001271 , L0001272 , L0001273 , L0001274 , L0001275 ,
	L0001276 , L0001277 , L0001278 , L0001279 , L0001280 , L0001281 , L0001282 , L0001283 ,
	L0001284 , L0001285 , L0001286 , L0001287 , L0001288 , L0001289 , L0001290 , L0001291 ,
	L0001292 , L0001293 , L0001294 , L0001295 , L0001296 , L0001297 , L0001298 , L0001299 ,
	L0001300 , L0001301 , L0001302 , L0001303 , L0001304 , L0001305 , L0001306 , L0001307 ,
	L0001308 , L0001309 , L0001310 , L0001311 , L0001312 , L0001313 , L0001314 , L0001315 ,
	L0001316 , L0001317 , L0001318 , L0001319 , L0001320 , L0001321 , L0001322 , L0001323 ,
	L0001324 , L0001325 , L0001326 , L0001327 , L0001328 , L0001329 , L0001330 , L0001331 ,
	L0001332 , L0001333 , L0001334 , L0001335 , L0001336 , L0001337 , L0001338 , L0001339 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0001340 , L0001341 , L0001342 , L0001343 , L0001344 , L0001345 , L0001346 , L0001347 ,
	L0001348 , L0001349 , L0001350 , L0001351 , L0001352 , L0001353 , L0001354 , L0001355 ,
	L0001356 , L0001357 , L0001358 , L0001359 , L0001360 , L0001361 , L0001362 , L0001363 ,
	L0001364 , L0001365 , L0001366 , L0001367 , L0001368 , L0001369 , L0001370 , L0001371 ,
	L0001372 , L0001373 , L0001374 , L0001375 , L0001376 , L0001377 , L0001378 , L0001379 ,
	L0001380 , L0001381 , L0001382 , L0001383 , L0001384 , L0001385 , L0001386 , L0001387 ,
	L0001388 , L0001389 , L0001390 , L0001391 , L0001392 , L0001393 , L0001394 , L0001395 ,
	L0001396 , L0001397 , L0001398 , L0001399 , L0001400 , L0001401 , L0001402 , L0001403 ,
	L0001404 , L0001405 , L0001406 , L0001407 , L0001408 , L0001409 , L0001410 , L0001411 ,
	L0001412 , L0001413 , L0001414 , L0001415 , L0001416 , L0001417 , L0001418 , L0001419 ,
	L0001420 , L0001421 , L0001422 , L0001423 , L0001424 , L0001425 , L0001426 , L0001427 ,
	L0001428 , L0001429 , L0001430 , L0001431 , L0001432 , L0001433 , L0001434 , L0001435 ,
	L0001436 , L0001437 , L0001438 , L0001439 , L0001440 , L0001441 , L0001442 , L0001443 ,
	L0001444 , L0001445 , L0001446 , L0001447 , L0001448 , L0001449 , L0001450 , L0001451 ,
	L0001452 , L0001453 , L0001454 , L0001455 , L0001456 , L0001457 , L0001458 , L0001459 ,
	L0001460 , L0001461 , L0001462 , L0001463 , L0001464 , L0001465 , L0001466 , L0001467 ,
	L0001468 , L0001469 , L0001470 , L0001471 , L0001472 , L0001473 , L0001474 , L0001475 ,
	L0001476 , L0001477 , L0001478 , L0001479 , L0001480 , L0001481 , L0001482 , L0001483 ,
	L0001484 , L0001485 , L0001486 , L0001487 , L0001488 , L0001489 , L0001490 , L0001491 ,
	L0001492 , L0001493 , L0001494 , L0001495 , L0001496 , L0001497 , L0001498 , L0001499 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0001500 , L0001501 , L0001502 , L0001503 , L0001504 , L0001505 , L0001506 , L0001507 ,
	L0001508 , L0001509 , L0001510 , L0001511 , L0001512 , L0001513 , L0001514 , L0001515 ,
	L0001516 , L0001517 , L0001518 , L0001519 , L0001520 , L0001521 , L0001522 , L0001523 ,
	L0001524 , L0001525 , L0001526 , L0001527 , L0001528 , L0001529 , L0001530 , L0001531 ,
	L0001532 , L0001533 , L0001534 , L0001535 , L0001536 , L0001537 , L0001538 , L0001539 ,
	L0001540 , L0001541 , L0001542 , L0001543 , L0001544 , L0001545 , L0001546 , L0001547 ,
	L0001548 , L0001549 , L0001550 , L0001551 , L0001552 , L0001553 , L0001554 , L0001555 ,
	L0001556 , L0001557 , L0001558 , L0001559 , L0001560 , L0001561 , L0001562 , L0001563 ,
	L0001564 , L0001565 , L0001566 , L0001567 , L0001568 , L0001569 , L0001570 , L0001571 ,
	L0001572 , L0001573 , L0001574 , L0001575 , L0001576 , L0001577 , L0001578 , L0001579 ,
	L0001580 , L0001581 , L0001582 , L0001583 , L0001584 , L0001585 , L0001586 , L0001587 ,
	L0001588 , L0001589 , L0001590 , L0001591 , L0001592 , L0001593 , L0001594 , L0001595 ,
	L0001596 , L0001597 , L0001598 , L0001599 , L0001600 , L0001601 , L0001602 , L0001603 ,
	L0001604 , L0001605 , L0001606 , L0001607 , L0001608 , L0001609 , L0001610 , L0001611 ,
	L0001612 , L0001613 , L0001614 , L0001615 , L0001616 , L0001617 , L0001618 , L0001619 ,
	L0001620 , L0001621 , L0001622 , L0001623 , L0001624 , L0001625 , L0001626 , L0001627 ,
	L0001628 , L0001629 , L0001630 , L0001631 , L0001632 , L0001633 , L0001634 , L0001635 ,
	L0001636 , L0001637 , L0001638 , L0001639 , L0001640 , L0001641 , L0001642 , L0001643 ,
	L0001644 , L0001645 , L0001646 , L0001647 , L0001648 , L0001649 , L0001650 , L0001651 ,
	L0001652 , L0001653 , L0001654 , L0001655 , L0001656 , L0001657 , L0001658 , L0001659 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0001660 , L0001661 , L0001662 , L0001663 , L0001664 , L0001665 , L0001666 , L0001667 ,
	L0001668 , L0001669 , L0001670 , L0001671 , L0001672 , L0001673 , L0001674 , L0001675 ,
	L0001676 , L0001677 , L0001678 , L0001679 , L0001680 , L0001681 , L0001682 , L0001683 ,
	L0001684 , L0001685 , L0001686 , L0001687 , L0001688 , L0001689 , L0001690 , L0001691 ,
	L0001692 , L0001693 , L0001694 , L0001695 , L0001696 , L0001697 , L0001698 , L0001699 ,
	L0001700 , L0001701 , L0001702 , L0001703 , L0001704 , L0001705 , L0001706 , L0001707 ,
	L0001708 , L0001709 , L0001710 , L0001711 , L0001712 , L0001713 , L0001714 , L0001715 ,
	L0001716 , L0001717 , L0001718 , L0001719 , L0001720 , L0001721 , L0001722 , L0001723 ,
	L0001724 , L0001725 , L0001726 , L0001727 , L0001728 , L0001729 , L0001730 , L0001731 ,
	L0001732 , L0001733 , L0001734 , L0001735 , L0001736 , L0001737 , L0001738 , L0001739 ,
	L0001740 , L0001741 , L0001742 , L0001743 , L0001744 , L0001745 , L0001746 , L0001747 ,
	L0001748 , L0001749 , L0001750 , L0001751 , L0001752 , L0001753 , L0001754 , L0001755 ,
	L0001756 , L0001757 , L0001758 , L0001759 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	2189641.	L0001020 , L0001021 , L0001022 , L0001023 , L0001024 , L0001025 , L0001026 , L0001027 ,
		L0001028 , L0001029 , L0001030 , L0001031 , L0001032 , L0001033 , L0001034 , L0001035 ,
		L0001036 , L0001037 , L0001038 , L0001039 , L0001040 , L0001041 , L0001042 , L0001043 ,
		L0001044 , L0001045 , L0001046 , L0001047 , L0001048 , L0001049 , L0001050 , L0001051 ,
		L0001052 , L0001053 , L0001054 , L0001055 , L0001056 , L0001057 , L0001058 , L0001059 ,
		L0001060 , L0001061 , L0001062 , L0001063 , L0001064 , L0001065 , L0001066 , L0001067 ,
		L0001068 , L0001069 , L0001070 , L0001071 , L0001072 , L0001073 , L0001074 , L0001075 ,
		L0001076 , L0001077 , L0001078 , L0001079 , L0001080 , L0001081 , L0001082 , L0001083 ,
		L0001084 , L0001085 , L0001086 , L0001087 , L0001088 , L0001089 , L0001090 , L0001091 ,
		L0001092 , L0001093 , L0001094 , L0001095 , L0001096 , L0001097 , L0001098 , L0001099 ,
		L0001100 , L0001101 , L0001102 , L0001103 , L0001104 , L0001105 , L0001106 , L0001107 ,
		L0001108 , L0001109 , L0001110 , L0001111 , L0001112 , L0001113 , L0001114 , L0001115 ,
		L0001116 , L0001117 , L0001118 , L0001119 , L0001120 , L0001121 , L0001122 , L0001123 ,
		L0001124 , L0001125 , L0001126 , L0001127 , L0001128 , L0001129 , L0001130 , L0001131 ,
		L0001132 , L0001133 , L0001134 , L0001135 , L0001136 , L0001137 , L0001138 , L0001139 ,
		L0001140 , L0001141 , L0001142 , L0001143 , L0001144 , L0001145 , L0001146 , L0001147 ,
		L0001148 , L0001149 , L0001150 , L0001151 , L0001152 , L0001153 , L0001154 , L0001155 ,
		L0001156 , L0001157 , L0001158 , L0001159 , L0001160 , L0001161 , L0001162 , L0001163 ,
		L0001164 , L0001165 , L0001166 , L0001167 , L0001168 , L0001169 , L0001170 , L0001171 ,
		L0001172 , L0001173 , L0001174 , L0001175 , L0001176 , L0001177 , L0001178 , L0001179 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0001180 , L0001181 , L0001182 , L0001183 , L0001184 , L0001185 , L0001186 , L0001187 ,
		L0001188 , L0001189 , L0001190 , L0001191 , L0001192 , L0001193 , L0001194 , L0001195 ,
		L0001196 , L0001197 , L0001198 , L0001199 , L0001200 , L0001201 , L0001202 , L0001203 ,
		L0001204 , L0001205 , L0001206 , L0001207 , L0001208 , L0001209 , L0001210 , L0001211 ,
		L0001212 , L0001213 , L0001214 , L0001215 , L0001216 , L0001217 , L0001218 , L0001219 ,
		L0001220 , L0001221 , L0001222 , L0001223 , L0001224 , L0001225 , L0001226 , L0001227 ,
		L0001228 , L0001229 , L0001230 , L0001231 , L0001232 , L0001233 , L0001234 , L0001235 ,
		L0001236 , L0001237 , L0001238 , L0001239 , L0001240 , L0001241 , L0001242 , L0001243 ,
		L0001244 , L0001245 , L0001246 , L0001247 , L0001248 , L0001249 , L0001250 , L0001251 ,
		L0001252 , L0001253 , L0001254 , L0001255 , L0001256 , L0001257 , L0001258 , L0001259 ,
		L0001260 , L0001261 , L0001262 , L0001263 , L0001264 , L0001265 , L0001266 , L0001267 ,
		L0001268 , L0001269 , L0001270 , L0001271 , L0001272 , L0001273 , L0001274 , L0001275 ,
		L0001276 , L0001277 , L0001278 , L0001279 , L0001280 , L0001281 , L0001282 , L0001283 ,
		L0001284 , L0001285 , L0001286 , L0001287 , L0001288 , L0001289 , L0001290 , L0001291 ,
		L0001292 , L0001293 , L0001294 , L0001295 , L0001296 , L0001297 , L0001298 , L0001299 ,
		L0001300 , L0001301 , L0001302 , L0001303 , L0001304 , L0001305 , L0001306 , L0001307 ,
		L0001308 , L0001309 , L0001310 , L0001311 , L0001312 , L0001313 , L0001314 , L0001315 ,
		L0001316 , L0001317 , L0001318 , L0001319 , L0001320 , L0001321 , L0001322 , L0001323 ,
		L0001324 , L0001325 , L0001326 , L0001327 , L0001328 , L0001329 , L0001330 , L0001331 ,
		L0001332 , L0001333 , L0001334 , L0001335 , L0001336 , L0001337 , L0001338 , L0001339 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0001340 , L0001341 , L0001342 , L0001343 , L0001344 , L0001345 , L0001346 , L0001347 ,
		L0001348 , L0001349 , L0001350 , L0001351 , L0001352 , L0001353 , L0001354 , L0001355 ,
		L0001356 , L0001357 , L0001358 , L0001359 , L0001360 , L0001361 , L0001362 , L0001363 ,
		L0001364 , L0001365 , L0001366 , L0001367 , L0001368 , L0001369 , L0001370 , L0001371 ,
		L0001372 , L0001373 , L0001374 , L0001375 , L0001376 , L0001377 , L0001378 , L0001379 ,
		L0001380 , L0001381 , L0001382 , L0001383 , L0001384 , L0001385 , L0001386 , L0001387 ,
		L0001388 , L0001389 , L0001390 , L0001391 , L0001392 , L0001393 , L0001394 , L0001395 ,
		L0001396 , L0001397 , L0001398 , L0001399 , L0001400 , L0001401 , L0001402 , L0001403 ,
		L0001404 , L0001405 , L0001406 , L0001407 , L0001408 , L0001409 , L0001410 , L0001411 ,
		L0001412 , L0001413 , L0001414 , L0001415 , L0001416 , L0001417 , L0001418 , L0001419 ,
		L0001420 , L0001421 , L0001422 , L0001423 , L0001424 , L0001425 , L0001426 , L0001427 ,
		L0001428 , L0001429 , L0001430 , L0001431 , L0001432 , L0001433 , L0001434 , L0001435 ,
		L0001436 , L0001437 , L0001438 , L0001439 , L0001440 , L0001441 , L0001442 , L0001443 ,
		L0001444 , L0001445 , L0001446 , L0001447 , L0001448 , L0001449 , L0001450 , L0001451 ,
		L0001452 , L0001453 , L0001454 , L0001455 , L0001456 , L0001457 , L0001458 , L0001459 ,
		L0001460 , L0001461 , L0001462 , L0001463 , L0001464 , L0001465 , L0001466 , L0001467 ,
		L0001468 , L0001469 , L0001470 , L0001471 , L0001472 , L0001473 , L0001474 , L0001475 ,
		L0001476 , L0001477 , L0001478 , L0001479 , L0001480 , L0001481 , L0001482 , L0001483 ,
		L0001484 , L0001485 , L0001486 , L0001487 , L0001488 , L0001489 , L0001490 , L0001491 ,
		L0001492 , L0001493 , L0001494 , L0001495 , L0001496 , L0001497 , L0001498 , L0001499 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0001500 , L0001501 , L0001502 , L0001503 , L0001504 , L0001505 , L0001506 , L0001507 ,
		L0001508 , L0001509 , L0001510 , L0001511 , L0001512 , L0001513 , L0001514 , L0001515 ,
		L0001516 , L0001517 , L0001518 , L0001519 , L0001520 , L0001521 , L0001522 , L0001523 ,
		L0001524 , L0001525 , L0001526 , L0001527 , L0001528 , L0001529 , L0001530 , L0001531 ,
		L0001532 , L0001533 , L0001534 , L0001535 , L0001536 , L0001537 , L0001538 , L0001539 ,
		L0001540 , L0001541 , L0001542 , L0001543 , L0001544 , L0001545 , L0001546 , L0001547 ,
		L0001548 , L0001549 , L0001550 , L0001551 , L0001552 , L0001553 , L0001554 , L0001555 ,
		L0001556 , L0001557 , L0001558 , L0001559 , L0001560 , L0001561 , L0001562 , L0001563 ,
		L0001564 , L0001565 , L0001566 , L0001567 , L0001568 , L0001569 , L0001570 , L0001571 ,
		L0001572 , L0001573 , L0001574 , L0001575 , L0001576 , L0001577 , L0001578 , L0001579 ,
		L0001580 , L0001581 , L0001582 , L0001583 , L0001584 , L0001585 , L0001586 , L0001587 ,
		L0001588 , L0001589 , L0001590 , L0001591 , L0001592 , L0001593 , L0001594 , L0001595 ,
		L0001596 , L0001597 , L0001598 , L0001599 , L0001600 , L0001601 , L0001602 , L0001603 ,
		L0001604 , L0001605 , L0001606 , L0001607 , L0001608 , L0001609 , L0001610 , L0001611 ,
		L0001612 , L0001613 , L0001614 , L0001615 , L0001616 , L0001617 , L0001618 , L0001619 ,
		L0001620 , L0001621 , L0001622 , L0001623 , L0001624 , L0001625 , L0001626 , L0001627 ,
		L0001628 , L0001629 , L0001630 , L0001631 , L0001632 , L0001633 , L0001634 , L0001635 ,
		L0001636 , L0001637 , L0001638 , L0001639 , L0001640 , L0001641 , L0001642 , L0001643 ,
		L0001644 , L0001645 , L0001646 , L0001647 , L0001648 , L0001649 , L0001650 , L0001651 ,
		L0001652 , L0001653 , L0001654 , L0001655 , L0001656 , L0001657 , L0001658 , L0001659 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0001660 , L0001661 , L0001662 , L0001663 , L0001664 , L0001665 , L0001666 , L0001667 ,
		L0001668 , L0001669 , L0001670 , L0001671 , L0001672 , L0001673 , L0001674 , L0001675 ,
		L0001676 , L0001677 , L0001678 , L0001679 , L0001680 , L0001681 , L0001682 , L0001683 ,
		L0001684 , L0001685 , L0001686 , L0001687 , L0001688 , L0001689 , L0001690 , L0001691 ,
		L0001692 , L0001693 , L0001694 , L0001695 , L0001696 , L0001697 , L0001698 , L0001699 ,
		L0001700 , L0001701 , L0001702 , L0001703 , L0001704 , L0001705 , L0001706 , L0001707 ,
		L0001708 , L0001709 , L0001710 , L0001711 , L0001712 , L0001713 , L0001714 , L0001715 ,
		L0001716 , L0001717 , L0001718 , L0001719 , L0001720 , L0001721 , L0001722 , L0001723 ,
		L0001724 , L0001725 , L0001726 , L0001727 , L0001728 , L0001729 , L0001730 , L0001731 ,
		L0001732 , L0001733 , L0001734 , L0001735 , L0001736 , L0001737 , L0001738 , L0001739 ,
		L0001740 , L0001741 , L0001742 , L0001743 , L0001744 , L0001745 , L0001746 , L0001747 ,
		L0001748 , L0001749 , L0001750 , L0001751 , L0001752 , L0001753 , L0001754 , L0001755 ,
		L0001756 , L0001757 , L0001758 , L0001759 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

511856.5, 511956.5, 512056.5, 512156.5, 512256.5, 512356.5, 512456.5, 512556.5, 512656.5, 512756.5,
512856.5, 512956.5, 513056.5, 513156.5, 513256.5, 513356.5, 513456.5, 513556.5, 513656.5, 513756.5,
513856.5, 513956.5, 514056.5, 514156.5, 514256.5, 514356.5, 514456.5, 514556.5, 514656.5, 514756.5,

*** Y-COORDINATES OF GRID ***
(METERS)

3752637.2, 3752737.2, 3752837.2, 3752937.2, 3753037.2, 3753137.2, 3753237.2, 3753337.2, 3753437.2, 3753537.2,
3753637.2, 3753737.2, 3753837.2, 3753937.2, 3754037.2, 3754137.2, 3754237.2, 3754337.2, 3754437.2, 3754537.2,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	727.60	725.90	724.60	722.70	720.90	719.60	717.70	715.90	713.60
3754437.16	723.90	722.40	721.20	719.40	717.60	716.20	713.90	712.40	710.20
3754337.16	720.00	719.00	717.90	716.00	714.20	712.90	711.00	709.00	706.90
3754237.16	716.90	715.80	714.60	713.20	711.70	709.70	708.20	706.10	704.00
3754137.16	714.40	713.40	711.40	710.20	708.40	707.20	705.40	703.50	701.30
3754037.16	712.00	710.00	708.90	707.50	706.00	704.00	702.60	700.20	698.90
3753937.16	709.20	706.90	705.70	704.40	702.90	701.60	699.90	697.80	695.70
3753837.16	706.40	704.60	703.20	701.40	699.60	698.40	697.40	695.50	693.20
3753737.16	704.50	702.20	700.00	698.60	696.20	696.00	695.00	693.20	690.90
3753637.16	702.20	699.80	697.60	695.20	694.10	692.70	691.70	689.90	687.60
3753537.16	699.20	696.60	695.20	692.90	691.50	689.90	688.20	686.40	684.40
3753437.16	696.60	694.20	692.80	690.60	689.00	686.90	685.00	683.20	681.80
3753337.16	694.20	692.10	690.60	688.40	686.70	684.60	682.40	680.70	678.70
3753237.16	691.70	690.10	687.90	685.90	684.10	682.30	680.20	678.10	676.20
3753137.16	689.50	688.00	685.80	683.50	682.00	679.90	678.00	676.00	673.80
3753037.16	687.20	684.90	683.00	681.20	679.80	677.60	675.90	674.00	671.80
3752937.16	684.90	682.60	681.20	679.20	677.50	675.30	673.70	672.10	670.30
3752837.16	683.00	681.20	679.00	677.00	675.20	673.00	671.50	670.00	668.00
3752737.16	681.20	679.10	677.00	675.20	673.10	671.00	669.40	667.80	666.60
3752637.16	679.20	677.10	675.20	673.20	671.20	669.20	667.70	666.10	664.30

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	711.20	709.90	707.80	704.90	701.90	698.60	696.20	693.90	690.60
3754437.16	707.40	706.90	706.20	702.70	699.50	695.80	692.90	690.60	688.20
3754337.16	704.60	703.20	701.90	699.60	697.20	693.90	690.60	687.20	685.00
3754237.16	702.20	700.70	698.60	696.70	694.70	691.10	687.20	684.90	682.60
3754137.16	699.70	698.10	695.90	693.90	690.90	688.20	683.90	681.50	679.30
3754037.16	697.00	695.20	692.90	690.60	688.20	685.80	682.60	679.20	676.90
3753937.16	694.40	692.10	689.70	687.20	684.90	682.60	680.20	677.80	674.60
3753837.16	691.40	689.40	686.40	684.70	682.10	680.20	677.70	675.20	672.80
3753737.16	688.60	686.20	683.90	681.50	680.10	677.80	675.50	673.00	670.80
3753637.16	685.90	684.10	682.00	679.20	676.90	675.60	673.20	670.20	668.00
3753537.16	682.90	681.50	679.20	676.40	674.50	672.40	670.90	669.60	666.20
3753437.16	679.60	678.00	675.90	673.60	672.00	669.90	668.50	666.20	663.90
3753337.16	676.70	674.90	672.60	670.40	668.90	667.60	665.90	663.80	661.60
3753237.16	674.20	672.40	669.90	668.20	667.10	665.30	663.70	661.50	659.90
3753137.16	671.50	670.00	668.00	666.50	665.00	663.00	661.50	659.20	657.00
3753037.16	669.50	668.00	666.60	664.90	662.90	660.70	659.20	657.10	655.00
3752937.16	668.20	666.50	664.30	662.70	660.60	658.40	656.90	654.60	652.90
3752837.16	666.50	664.20	662.80	660.60	659.00	656.80	654.60	652.20	650.80
3752737.16	664.40	662.80	660.60	658.70	656.90	654.60	652.20	650.10	648.00
3752637.16	662.70	660.60	658.80	656.70	654.50	652.20	649.90	647.60	645.90

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	687.50	684.90	681.60	678.50	675.90	672.60	670.20	667.80	664.80
3754437.16	685.70	682.60	679.20	676.50	673.60	670.30	667.70	665.50	662.80
3754337.16	683.50	680.20	676.90	674.50	672.00	668.90	666.00	663.20	660.00
3754237.16	680.20	677.80	674.60	672.20	669.20	666.60	663.90	661.20	657.80
3754137.16	676.90	674.60	671.90	669.70	666.60	664.20	661.70	659.50	658.20
3754037.16	674.60	671.20	669.80	666.60	664.00	660.90	659.00	656.20	653.90
3753937.16	672.40	670.10	667.60	664.20	660.90	657.70	655.90	652.90	649.60
3753837.16	669.90	667.60	664.80	661.70	658.20	655.80	652.90	649.60	646.20
3753737.16	668.00	665.20	662.80	659.60	656.20	653.70	649.60	646.20	643.90
3753637.16	665.90	663.10	660.60	658.20	654.90	651.60	648.20	644.90	641.60
3753537.16	662.90	660.60	659.20	655.90	652.60	649.80	646.70	643.20	639.20
3753437.16	660.50	658.00	655.90	652.60	649.20	647.80	644.60	640.40	636.90
3753337.16	659.90	656.30	653.60	649.40	646.10	644.60	641.20	637.90	634.70
3753237.16	657.70	654.60	651.20	647.90	645.20	641.90	637.90	635.10	632.80
3753137.16	654.60	652.20	648.90	645.60	643.20	639.90	635.10	633.00	630.80
3753037.16	652.50	649.90	646.80	644.50	642.20	639.80	636.50	634.20	630.80
3752937.16	650.90	648.20	645.80	643.50	641.10	638.90	636.70	634.50	631.80
3752837.16	649.00	643.40	642.10	641.60	639.20	638.00	636.50	634.20	631.80
3752737.16	646.70	641.30	641.00	640.50	636.90	635.70	635.70	634.20	631.80
3752637.16	642.70	639.10	639.00	638.50	635.20	634.00	634.00	634.00	631.80

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 514556.45	514656.45	514756.45
3754537.16	662.20	659.20	656.60
3754437.16	659.90	656.70	653.70
3754337.16	658.00	654.40	650.90
3754237.16	655.20	652.10	648.80
3754137.16	653.20	649.60	646.30
3754037.16	650.60	647.20	644.00
3753937.16	647.20	644.10	642.00
3753837.16	643.90	641.60	639.40
3753737.16	641.50	639.20	636.90
3753637.16	638.70	636.10	633.70
3753537.16	635.70	633.50	631.30
3753437.16	633.50	631.20	628.90
3753337.16	633.20	628.90	626.00
3753237.16	629.90	626.60	623.20
3753137.16	627.00	623.20	621.00
3753037.16	626.40	621.20	620.00
3752937.16	627.30	623.80	641.50
3752837.16	629.00	628.80	657.20
3752737.16	630.00	630.30	664.40
3752637.16	630.00	636.80	662.10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00	1588.00
3754437.16	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00
3754337.16	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00
3754237.16	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1588.00
3754137.16	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00
3754037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00
3753937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00
3753837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00
3753737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1551.00
3753637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	1588.00	1590.00	1590.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754437.16	1588.00	1588.00	1590.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754337.16	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754237.16	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00
3754137.16	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00
3754037.16	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1719.00	1719.00
3753937.16	1586.00	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1719.00
3753837.16	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1719.00
3753737.16	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1590.00	1719.00
3753637.16	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1590.00
3753537.16	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00
3753437.16	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00
3753337.16	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1586.00	1586.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1381.00	1382.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1382.00	1382.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1382.00	1382.00	1382.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1   ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)		
	514556.45	514656.45	514756.45
3754537.16	1719.00	1719.00	1719.00
3754437.16	1719.00	1719.00	1719.00
3754337.16	1719.00	1719.00	1719.00
3754237.16	1719.00	1719.00	1719.00
3754137.16	1719.00	1719.00	1719.00
3754037.16	1719.00	1719.00	1719.00
3753937.16	1719.00	1719.00	1719.00
3753837.16	1719.00	1719.00	1719.00
3753737.16	1719.00	1719.00	1719.00
3753637.16	1719.00	1719.00	1719.00
3753537.16	1719.00	1719.00	1719.00
3753437.16	1588.00	1719.00	1719.00
3753337.16	1588.00	1719.00	1719.00
3753237.16	1588.00	1719.00	1719.00
3753137.16	1586.00	1588.00	1719.00
3753037.16	1586.00	1586.00	1588.00
3752937.16	1551.00	1586.00	1550.00
3752837.16	1382.00	1550.00	1382.00
3752737.16	1382.00	1382.00	1382.00
3752637.16	1382.00	1382.00	1382.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(	512174.7,	3753646.0,	695.0,	1331.0,	0.0);	(	512192.0,	3753577.1,	693.2,	1331.0,	0.0);
(	512191.5,	3753561.7,	693.1,	1331.0,	0.0);	(	512212.9,	3753560.2,	692.7,	1331.0,	0.0);
(	512190.8,	3753493.9,	691.3,	1331.0,	0.0);	(	512214.5,	3753494.9,	691.0,	1331.0,	0.0);
(	512209.8,	3753472.5,	690.8,	1331.0,	0.0);	(	512399.0,	3753474.9,	687.3,	1331.0,	0.0);
(	512216.6,	3753638.8,	694.8,	1331.0,	0.0);	(	512374.8,	3753474.1,	687.5,	1331.0,	0.0);
(	513208.8,	3753268.6,	666.7,	1331.0,	0.0);						

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0001122	512456.5	3753637.2	0.61
L0001123	512456.5	3753637.2	0.66
L0001204	513156.5	3753737.2	-2.63
L0001205	513156.5	3753737.2	-0.70
L0001288	513856.5	3753937.2	0.98
L0001289	513856.5	3753937.2	-5.04
L0001290	513856.5	3753937.2	0.41
L0001360	514256.5	3753737.2	0.73
L0001372	514356.5	3753737.2	-0.57
L0001383	514456.5	3753737.2	0.18
L0001384	514456.5	3753737.2	-0.68
L0001395	514556.5	3753737.2	-2.05
L0001396	514556.5	3753737.2	0.42
L0001439	514556.5	3754037.2	-4.60
L0001440	514556.5	3754037.2	-2.31
L0001450	514456.5	3754037.2	0.85
L0001451	514456.5	3754037.2	-4.32
L0001462	514356.5	3754037.2	-0.71
L0001463	514356.5	3754037.2	-1.93
L0001474	514256.5	3754037.2	-0.91
L0001659	514156.5	3753837.2	-1.13
L0001671	514256.5	3753837.2	0.10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.SFC Met Version: 16216
Profile file: ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 3171 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN
Year: 2011 Year: 2011

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	85.	9.1	273.1	5.5
11	01	01	1	21	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	82.	9.1	273.1	5.5
11	01	01	1	22	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	64.	9.1	272.5	5.5
11	01	01	1	23	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	61.	9.1	272.5	5.5
11	01	01	1	24	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	76.	9.1	272.5	5.5

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
11	01	01	01	5.5	0	-999.	-99.00	274.3	99.0	-99.00	-99.00
11	01	01	01	9.1	1	108.	5.40	-999.0	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001020 , L0001021 , L0001022 , L0001023 , L0001024 ,
L0001025 , L0001026 , L0001027 , L0001028 , L0001029 , L0001030 , L0001031 , L0001032 ,
L0001033 , L0001034 , L0001035 , L0001036 , L0001037 , L0001038 , L0001039 , L0001040 ,
L0001041 , L0001042 , L0001043 , L0001044 , L0001045 , L0001046 , L0001047 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	0.00015	0.00016	0.00017	0.00018	0.00019	0.00020	0.00021	0.00022	0.00023
3754437.16	0.00017	0.00018	0.00019	0.00020	0.00022	0.00023	0.00025	0.00026	0.00028
3754337.16	0.00019	0.00020	0.00022	0.00023	0.00025	0.00027	0.00029	0.00032	0.00034
3754237.16	0.00021	0.00023	0.00025	0.00027	0.00029	0.00032	0.00034	0.00038	0.00042
3754137.16	0.00024	0.00026	0.00029	0.00031	0.00034	0.00037	0.00041	0.00046	0.00052
3754037.16	0.00028	0.00031	0.00035	0.00038	0.00042	0.00047	0.00052	0.00061	0.00069
3753937.16	0.00035	0.00039	0.00044	0.00051	0.00057	0.00065	0.00076	0.00089	0.00104
3753837.16	0.00046	0.00053	0.00062	0.00081	0.00098	0.00117	0.00133	0.00153	0.00180
3753737.16	0.00059	0.00077	0.00113	0.00222	0.00389	0.00286	0.00289	0.00348	0.00440
3753637.16	0.00070	0.00100	0.00167	0.00444	0.00781	0.00542	0.01054	0.01163	0.00862
3753537.16	0.00073	0.00112	0.00197	0.00527	0.00927	0.00874	0.01202	0.00572	0.00396
3753437.16	0.00068	0.00099	0.00153	0.00277	0.00445	0.00534	0.00424	0.00310	0.00246
3753337.16	0.00061	0.00079	0.00104	0.00134	0.00155	0.00157	0.00150	0.00146	0.00141
3753237.16	0.00054	0.00065	0.00077	0.00088	0.00094	0.00095	0.00093	0.00093	0.00094
3753137.16	0.00047	0.00054	0.00061	0.00066	0.00069	0.00070	0.00071	0.00071	0.00073
3753037.16	0.00042	0.00046	0.00050	0.00053	0.00056	0.00057	0.00058	0.00059	0.00061
3752937.16	0.00038	0.00041	0.00043	0.00046	0.00047	0.00049	0.00050	0.00052	0.00053
3752837.16	0.00034	0.00037	0.00039	0.00040	0.00042	0.00043	0.00045	0.00046	0.00047
3752737.16	0.00031	0.00033	0.00035	0.00036	0.00038	0.00039	0.00040	0.00042	0.00043
3752637.16	0.00029	0.00030	0.00032	0.00033	0.00034	0.00035	0.00037	0.00038	0.00039

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001020 , L0001021 , L0001022 , L0001023 , L0001024 ,
L0001025 , L0001026 , L0001027 , L0001028 , L0001029 , L0001030 , L0001031 , L0001032 ,
L0001033 , L0001034 , L0001035 , L0001036 , L0001037 , L0001038 , L0001039 , L0001040 ,
L0001041 , L0001042 , L0001043 , L0001044 , L0001045 , L0001046 , L0001047 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	0.00024	0.00025	0.00026	0.00027	0.00029	0.00032	0.00034	0.00036	0.00039
3754437.16	0.00030	0.00032	0.00033	0.00036	0.00039	0.00044	0.00048	0.00051	0.00054
3754337.16	0.00038	0.00041	0.00044	0.00048	0.00053	0.00059	0.00066	0.00072	0.00077
3754237.16	0.00046	0.00051	0.00057	0.00064	0.00072	0.00082	0.00092	0.00101	0.00111
3754137.16	0.00058	0.00066	0.00075	0.00086	0.00099	0.00112	0.00131	0.00147	0.00166
3754037.16	0.00078	0.00090	0.00104	0.00119	0.00135	0.00154	0.00180	0.00215	0.00255
3753937.16	0.00118	0.00136	0.00155	0.00176	0.00202	0.00235	0.00281	0.00344	0.00452
3753837.16	0.00208	0.00237	0.00273	0.00313	0.00372	0.00465	0.00664	0.01305	0.01297
3753737.16	0.00520	0.00622	0.00813	0.01264	0.01475	0.00916	0.00617	0.00491	0.00435
3753637.16	0.00698	0.00581	0.00488	0.00417	0.00367	0.00333	0.00306	0.00291	0.00289
3753537.16	0.00322	0.00283	0.00256	0.00237	0.00224	0.00216	0.00212	0.00214	0.00222
3753437.16	0.00209	0.00189	0.00176	0.00168	0.00164	0.00163	0.00165	0.00170	0.00180
3753337.16	0.00137	0.00132	0.00129	0.00128	0.00129	0.00131	0.00135	0.00141	0.00149
3753237.16	0.00096	0.00098	0.00099	0.00101	0.00104	0.00108	0.00112	0.00118	0.00125
3753137.16	0.00075	0.00077	0.00080	0.00083	0.00087	0.00091	0.00095	0.00100	0.00105
3753037.16	0.00063	0.00065	0.00068	0.00071	0.00074	0.00078	0.00081	0.00085	0.00089
3752937.16	0.00055	0.00057	0.00059	0.00062	0.00065	0.00068	0.00071	0.00074	0.00076
3752837.16	0.00049	0.00051	0.00053	0.00055	0.00057	0.00059	0.00062	0.00064	0.00066
3752737.16	0.00044	0.00046	0.00047	0.00049	0.00051	0.00053	0.00055	0.00056	0.00057
3752637.16	0.00040	0.00042	0.00043	0.00045	0.00046	0.00047	0.00049	0.00049	0.00050

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001020 , L0001021 , L0001022 , L0001023 , L0001024 ,
L0001025 , L0001026 , L0001027 , L0001028 , L0001029 , L0001030 , L0001031 , L0001032 ,
L0001033 , L0001034 , L0001035 , L0001036 , L0001037 , L0001038 , L0001039 , L0001040 ,
L0001041 , L0001042 , L0001043 , L0001044 , L0001045 , L0001046 , L0001047 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	0.00042	0.00045	0.00050	0.00055	0.00061	0.00069	0.00075	0.00083	0.00094
3754437.16	0.00058	0.00063	0.00070	0.00076	0.00084	0.00096	0.00108	0.00121	0.00138
3754337.16	0.00082	0.00092	0.00103	0.00113	0.00124	0.00141	0.00164	0.00193	0.00231
3754237.16	0.00122	0.00136	0.00159	0.00182	0.00210	0.00246	0.00295	0.00364	0.00442
3754137.16	0.00188	0.00217	0.00258	0.00314	0.00405	0.00520	0.00707	0.00963	0.01325
3754037.16	0.00309	0.00389	0.00490	0.00701	0.01030	0.01724	0.03245	0.04441	0.04776
3753937.16	0.00630	0.01038	0.01587	0.01984	0.03670	0.01800	0.01661	0.01707	0.01725
3753837.16	0.00813	0.00714	0.00835	0.01726	0.02864	0.04193	0.04341	0.04440	0.04187
3753737.16	0.00422	0.00461	0.00598	0.01098	0.02737	0.03317	0.03248	0.03437	0.03247
3753637.16	0.00304	0.00343	0.00415	0.00522	0.00618	0.00685	0.00736	0.00757	0.00732
3753537.16	0.00240	0.00267	0.00303	0.00341	0.00371	0.00388	0.00394	0.00386	0.00362
3753437.16	0.00194	0.00212	0.00231	0.00247	0.00257	0.00263	0.00259	0.00245	0.00228
3753337.16	0.00159	0.00170	0.00180	0.00187	0.00190	0.00191	0.00184	0.00174	0.00162
3753237.16	0.00132	0.00139	0.00144	0.00147	0.00147	0.00145	0.00139	0.00132	0.00124
3753137.16	0.00110	0.00114	0.00117	0.00117	0.00117	0.00114	0.00109	0.00104	0.00099
3753037.16	0.00092	0.00095	0.00096	0.00096	0.00095	0.00093	0.00090	0.00086	0.00082
3752937.16	0.00078	0.00080	0.00080	0.00080	0.00079	0.00077	0.00075	0.00072	0.00069
3752837.16	0.00067	0.00067	0.00067	0.00067	0.00066	0.00065	0.00063	0.00061	0.00059
3752737.16	0.00058	0.00058	0.00058	0.00057	0.00056	0.00055	0.00054	0.00053	0.00051
3752637.16	0.00050	0.00050	0.00050	0.00049	0.00048	0.00048	0.00047	0.00046	0.00045

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001020 , L0001021 , L0001022 , L0001023 , L0001024 ,
L0001025 , L0001026 , L0001027 , L0001028 , L0001029 , L0001030 , L0001031 , L0001032 ,
L0001033 , L0001034 , L0001035 , L0001036 , L0001037 , L0001038 , L0001039 , L0001040 ,
L0001041 , L0001042 , L0001043 , L0001044 , L0001045 , L0001046 , L0001047 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)		
	514556.45	514656.45	514756.45
3754537.16	0.00104	0.00115	0.00123
3754437.16	0.00155	0.00170	0.00181
3754337.16	0.00250	0.00273	0.00284
3754237.16	0.00491	0.00511	0.00496
3754137.16	0.01679	0.01208	0.00854
3754037.16	0.04073	0.02037	0.01151
3753937.16	0.01747	0.01695	0.01154
3753837.16	0.03150	0.01896	0.01138
3753737.16	0.03192	0.01572	0.00888
3753637.16	0.00655	0.00554	0.00475
3753537.16	0.00328	0.00298	0.00273
3753437.16	0.00209	0.00194	0.00180
3753337.16	0.00152	0.00140	0.00131
3753237.16	0.00116	0.00108	0.00101
3753137.16	0.00092	0.00086	0.00082
3753037.16	0.00077	0.00072	0.00068
3752937.16	0.00065	0.00062	0.00065
3752837.16	0.00057	0.00055	0.00050
3752737.16	0.00049	0.00048	0.00036
3752637.16	0.00043	0.00044	0.00034

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL   ***
INCLUDING SOURCE(S):   L0001020   , L0001021   , L0001022   , L0001023   , L0001024   ,
L0001025   , L0001026   , L0001027   , L0001028   , L0001029   , L0001030   , L0001031   , L0001032   ,
L0001033   , L0001034   , L0001035   , L0001036   , L0001037   , L0001038   , L0001039   , L0001040   ,
L0001041   , L0001042   , L0001043   , L0001044   , L0001045   , L0001046   , L0001047   , . . .   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM   IN MICROGRAMS/M**3   **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
512174.67	3753645.97	0.00595	512192.02	3753577.11	0.01021
512191.45	3753561.66	0.01026	512212.91	3753560.22	0.01468
512190.75	3753493.90	0.01097	512214.50	3753494.92	0.01685
512209.80	3753472.53	0.00936	512398.95	3753474.90	0.01599
512216.60	3753638.82	0.01341	512374.77	3753474.15	0.01595
513208.75	3753268.60	0.00113			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.04776 AT (514456.45, 3754037.16, 653.90, 1719.00, 0.00)	GC	UCART1
	2ND HIGHEST VALUE IS	0.04441 AT (514356.45, 3754037.16, 656.20, 1719.00, 0.00)	GC	UCART1
	3RD HIGHEST VALUE IS	0.04440 AT (514356.45, 3753837.16, 649.60, 1590.00, 0.00)	GC	UCART1
	4TH HIGHEST VALUE IS	0.04341 AT (514256.45, 3753837.16, 652.90, 1588.00, 0.00)	GC	UCART1
	5TH HIGHEST VALUE IS	0.04193 AT (514156.45, 3753837.16, 655.80, 1588.00, 0.00)	GC	UCART1
	6TH HIGHEST VALUE IS	0.04187 AT (514456.45, 3753837.16, 646.20, 1719.00, 0.00)	GC	UCART1
	7TH HIGHEST VALUE IS	0.04073 AT (514556.45, 3754037.16, 650.60, 1719.00, 0.00)	GC	UCART1
	8TH HIGHEST VALUE IS	0.03670 AT (514056.45, 3753937.16, 660.90, 1588.00, 0.00)	GC	UCART1
	9TH HIGHEST VALUE IS	0.03437 AT (514356.45, 3753737.16, 646.20, 1590.00, 0.00)	GC	UCART1
	10TH HIGHEST VALUE IS	0.03317 AT (514156.45, 3753737.16, 653.70, 1588.00, 0.00)	GC	UCART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of   0 Fatal Error Message(s)
A Total of   2 Warning Message(s)
A Total of   1311 Informational Message(s)

A Total of   43824 Hours Were Processed

A Total of   64 Calm Hours Identified

A Total of   1247 Missing Hours Identified (2.85 Percent)

   ******** FATAL ERROR MESSAGES ********
             *** NONE ***

   ********   WARNING MESSAGES   ********
ME W186   1765   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used   0.50
ME W187   1765   MEOPEN: ADJ_U* Option for Low Winds used in AERMET

   ****
   *** AERMOD Finishes Successfully ***
   ****

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**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.5.0
** Lakes Environmental Software Inc.
** Date: 3/21/2018
** File: C:\Users\eliza\Desktop\Banning\Project AB3\Project AB3.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE Banning Distribution Center
   TITLETWO Project Only DPM Concentration (2019) AB3
   MODELOPT DFAULT CONC
   AVERTIME PERIOD
   URBANOPT 2189641 Riverside_County
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "Project AB3.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC Hargrave St b/n I-10 EB ramps and Lincoln Ave
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00002172
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512206.123, 3753726.046, 697.06, 3.49, 4.00
** 512200.964, 3753482.939, 691.08, 3.49, 4.00
** ------------------------------------------------------------------
   LOCATION L0001760     VOLUME   512206.032 3753721.752 696.93
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   LOCATION L0001761     VOLUME   512205.849 3753713.164 696.89
   LOCATION L0001762     VOLUME   512205.667 3753704.576 696.83
   LOCATION L0001763     VOLUME   512205.485 3753695.988 696.54
   LOCATION L0001764     VOLUME   512205.303 3753687.400 696.26
   LOCATION L0001765     VOLUME   512205.120 3753678.812 695.98
   LOCATION L0001766     VOLUME   512204.938 3753670.224 695.73
   LOCATION L0001767     VOLUME   512204.756 3753661.636 695.47
   LOCATION L0001768     VOLUME   512204.574 3753653.048 695.22
   LOCATION L0001769     VOLUME   512204.391 3753644.459 694.96
   LOCATION L0001770     VOLUME   512204.209 3753635.871 694.67
   LOCATION L0001771     VOLUME   512204.027 3753627.283 694.39
   LOCATION L0001772     VOLUME   512203.845 3753618.695 694.10
   LOCATION L0001773     VOLUME   512203.662 3753610.107 693.81
   LOCATION L0001774     VOLUME   512203.480 3753601.519 693.53
   LOCATION L0001775     VOLUME   512203.298 3753592.931 693.24
   LOCATION L0001776     VOLUME   512203.116 3753584.343 693.00
   LOCATION L0001777     VOLUME   512202.933 3753575.755 692.98
   LOCATION L0001778     VOLUME   512202.751 3753567.167 692.98
   LOCATION L0001779     VOLUME   512202.569 3753558.579 692.97
   LOCATION L0001780     VOLUME   512202.387 3753549.991 692.79
   LOCATION L0001781     VOLUME   512202.205 3753541.403 692.51
   LOCATION L0001782     VOLUME   512202.022 3753532.815 692.23
   LOCATION L0001783     VOLUME   512201.840 3753524.227 691.95
   LOCATION L0001784     VOLUME   512201.658 3753515.638 691.66
   LOCATION L0001785     VOLUME   512201.476 3753507.050 691.38
   LOCATION L0001786     VOLUME   512201.293 3753498.462 691.10
   LOCATION L0001787     VOLUME   512201.111 3753489.874 691.01
** End of LINE VOLUME Source ID = SLINE1
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC Lincoln Ave west of Hargrave St
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 4.974E-07
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512195.236, 3753483.334, 691.13, 3.49, 4.00
** 511920.568, 3753483.331, 696.21, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0001788     VOLUME   512190.941 3753483.334 691.21
   LOCATION L0001789     VOLUME   512182.351 3753483.334 691.38
   LOCATION L0001790     VOLUME   512173.761 3753483.334 691.54
   LOCATION L0001791     VOLUME   512165.171 3753483.334 691.68
   LOCATION L0001792     VOLUME   512156.581 3753483.334 691.79
   LOCATION L0001793     VOLUME   512147.991 3753483.334 691.91
   LOCATION L0001794     VOLUME   512139.401 3753483.333 692.04
   LOCATION L0001795     VOLUME   512130.811 3753483.333 692.21
   LOCATION L0001796     VOLUME   512122.221 3753483.333 692.38
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   LOCATION L0001797     VOLUME   512113.631 3753483.333 692.55
   LOCATION L0001798     VOLUME   512105.041 3753483.333 692.80
   LOCATION L0001799     VOLUME   512096.451 3753483.333 693.09
   LOCATION L0001800     VOLUME   512087.861 3753483.333 693.38
   LOCATION L0001801     VOLUME   512079.271 3753483.333 693.59
   LOCATION L0001802     VOLUME   512070.681 3753483.333 693.59
   LOCATION L0001803     VOLUME   512062.091 3753483.333 693.59
   LOCATION L0001804     VOLUME   512053.501 3753483.332 693.59
   LOCATION L0001805     VOLUME   512044.911 3753483.332 693.68
   LOCATION L0001806     VOLUME   512036.321 3753483.332 693.80
   LOCATION L0001807     VOLUME   512027.731 3753483.332 693.92
   LOCATION L0001808     VOLUME   512019.141 3753483.332 694.05
   LOCATION L0001809     VOLUME   512010.551 3753483.332 694.22
   LOCATION L0001810     VOLUME   512001.961 3753483.332 694.38
   LOCATION L0001811     VOLUME   511993.371 3753483.332 694.55
   LOCATION L0001812     VOLUME   511984.781 3753483.332 694.81
   LOCATION L0001813     VOLUME   511976.191 3753483.332 695.10
   LOCATION L0001814     VOLUME   511967.601 3753483.332 695.39
   LOCATION L0001815     VOLUME   511959.011 3753483.331 695.62
   LOCATION L0001816     VOLUME   511950.421 3753483.331 695.74
   LOCATION L0001817     VOLUME   511941.831 3753483.331 695.86
   LOCATION L0001818     VOLUME   511933.241 3753483.331 695.98
   LOCATION L0001819     VOLUME   511924.651 3753483.331 696.14
** End of LINE VOLUME Source ID = SLINE2
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC Lincoln Ave b/n Hargrave St and John St
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00001917
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 512204.907, 3753483.413, 691.07, 3.49, 4.00
** 512415.418, 3753485.606, 687.70, 3.49, 4.00
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   LOCATION L0001820     VOLUME   512209.202 3753483.458 690.90
   LOCATION L0001821     VOLUME   512217.791 3753483.547 690.78
   LOCATION L0001822     VOLUME   512226.381 3753483.637 690.67
   LOCATION L0001823     VOLUME   512234.971 3753483.726 690.53
   LOCATION L0001824     VOLUME   512243.560 3753483.816 690.36
   LOCATION L0001825     VOLUME   512252.150 3753483.905 690.19
   LOCATION L0001826     VOLUME   512260.739 3753483.995 690.02
   LOCATION L0001827     VOLUME   512269.329 3753484.084 689.90
   LOCATION L0001828     VOLUME   512277.918 3753484.174 689.79
   LOCATION L0001829     VOLUME   512286.508 3753484.263 689.68
   LOCATION L0001830     VOLUME   512295.097 3753484.353 689.50
   LOCATION L0001831     VOLUME   512303.687 3753484.442 689.22
   LOCATION L0001832     VOLUME   512312.276 3753484.532 688.94
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   LOCATION L0001833     VOLUME   512320.866 3753484.621 688.65
   LOCATION L0001834     VOLUME   512329.455 3753484.711 688.63
   LOCATION L0001835     VOLUME   512338.045 3753484.800 688.64
   LOCATION L0001836     VOLUME   512346.634 3753484.889 688.64
   LOCATION L0001837     VOLUME   512355.224 3753484.979 688.52
   LOCATION L0001838     VOLUME   512363.814 3753485.068 688.24
   LOCATION L0001839     VOLUME   512372.403 3753485.158 687.95
   LOCATION L0001840     VOLUME   512380.993 3753485.247 687.67
   LOCATION L0001841     VOLUME   512389.582 3753485.337 687.65
   LOCATION L0001842     VOLUME   512398.172 3753485.426 687.66
   LOCATION L0001843     VOLUME   512406.761 3753485.516 687.66
   LOCATION L0001844     VOLUME   512415.351 3753485.605 687.54
** End of LINE VOLUME Source ID = SLINE3
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC John St Northbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00001806
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 512415.418, 3753493.281, 687.93, 3.49, 4.00
** 512415.966, 3753572.771, 690.07, 3.49, 4.00
** 512438.991, 3753614.434, 690.99, 3.49, 4.00
** 512480.654, 3753644.585, 691.75, 3.49, 4.00
** 512499.293, 3753651.164, 691.01, 3.49, 4.00
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   LOCATION L0001845     VOLUME   512415.448 3753497.576 687.88
   LOCATION L0001846     VOLUME   512415.507 3753506.166 687.91
   LOCATION L0001847     VOLUME   512415.566 3753514.755 687.95
   LOCATION L0001848     VOLUME   512415.625 3753523.345 687.99
   LOCATION L0001849     VOLUME   512415.685 3753531.935 688.39
   LOCATION L0001850     VOLUME   512415.744 3753540.525 688.92
   LOCATION L0001851     VOLUME   512415.803 3753549.115 689.45
   LOCATION L0001852     VOLUME   512415.862 3753557.704 689.87
   LOCATION L0001853     VOLUME   512415.921 3753566.294 689.91
   LOCATION L0001854     VOLUME   512416.988 3753574.620 689.93
   LOCATION L0001855     VOLUME   512421.143 3753582.139 689.96
   LOCATION L0001856     VOLUME   512425.298 3753589.657 690.13
   LOCATION L0001857     VOLUME   512429.453 3753597.175 690.38
   LOCATION L0001858     VOLUME   512433.608 3753604.694 690.63
   LOCATION L0001859     VOLUME   512437.763 3753612.212 690.88
   LOCATION L0001860     VOLUME   512443.893 3753617.982 691.08
   LOCATION L0001861     VOLUME   512450.852 3753623.018 691.24
   LOCATION L0001862     VOLUME   512457.811 3753628.054 691.41
   LOCATION L0001863     VOLUME   512464.769 3753633.090 691.58
   LOCATION L0001864     VOLUME   512471.728 3753638.126 691.74
   LOCATION L0001865     VOLUME   512478.687 3753643.162 691.68
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   LOCATION L0001866     VOLUME   512486.465 3753646.636 691.55
   LOCATION L0001867     VOLUME   512494.565 3753649.495 691.46
** End of LINE VOLUME Source ID = SLINE4
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE5
** DESCRSRC John Street Eastbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00009977
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 512502.387, 3753650.444, 691.00, 3.49, 4.00
** 512832.772, 3753685.859, 685.86, 3.49, 4.00
** 513071.595, 3753725.931, 681.06, 3.49, 4.00
** 513203.169, 3753751.730, 679.50, 3.49, 4.00
** 513980.318, 3753976.710, 664.82, 3.49, 4.00
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   LOCATION L0001869     VOLUME   512515.199 3753651.818 691.31
   LOCATION L0001870     VOLUME   512523.740 3753652.733 691.30
   LOCATION L0001871     VOLUME   512532.281 3753653.649 691.24
   LOCATION L0001872     VOLUME   512540.822 3753654.564 690.99
   LOCATION L0001873     VOLUME   512549.363 3753655.480 690.73
   LOCATION L0001874     VOLUME   512557.904 3753656.395 690.48
   LOCATION L0001875     VOLUME   512566.445 3753657.311 690.22
   LOCATION L0001876     VOLUME   512574.986 3753658.226 689.97
   LOCATION L0001877     VOLUME   512583.528 3753659.142 689.72
   LOCATION L0001878     VOLUME   512592.069 3753660.057 689.48
   LOCATION L0001879     VOLUME   512600.610 3753660.973 689.51
   LOCATION L0001880     VOLUME   512609.151 3753661.889 689.54
   LOCATION L0001881     VOLUME   512617.692 3753662.804 689.57
   LOCATION L0001882     VOLUME   512626.233 3753663.720 689.44
   LOCATION L0001883     VOLUME   512634.774 3753664.635 689.19
   LOCATION L0001884     VOLUME   512643.315 3753665.551 688.94
   LOCATION L0001885     VOLUME   512651.856 3753666.466 688.68
   LOCATION L0001886     VOLUME   512660.397 3753667.382 688.43
   LOCATION L0001887     VOLUME   512668.938 3753668.297 688.17
   LOCATION L0001888     VOLUME   512677.479 3753669.213 687.92
   LOCATION L0001889     VOLUME   512686.020 3753670.128 687.81
   LOCATION L0001890     VOLUME   512694.561 3753671.044 687.84
   LOCATION L0001891     VOLUME   512703.102 3753671.960 687.87
   LOCATION L0001892     VOLUME   512711.644 3753672.875 687.90
   LOCATION L0001893     VOLUME   512720.185 3753673.791 687.65
   LOCATION L0001894     VOLUME   512728.726 3753674.706 687.39
   LOCATION L0001895     VOLUME   512737.267 3753675.622 687.14
   LOCATION L0001896     VOLUME   512745.808 3753676.537 687.02
   LOCATION L0001897     VOLUME   512754.349 3753677.453 687.03
   LOCATION L0001898     VOLUME   512762.890 3753678.368 687.03
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LOCATION L0001899     VOLUME   512771.431 3753679.284 687.00
LOCATION L0001900     VOLUME   512779.972 3753680.199 686.76
LOCATION L0001901     VOLUME   512788.513 3753681.115 686.54
LOCATION L0001902     VOLUME   512797.054 3753682.031 686.33
LOCATION L0001903     VOLUME   512805.595 3753682.946 686.21
LOCATION L0001904     VOLUME   512814.136 3753683.862 686.16
LOCATION L0001905     VOLUME   512822.677 3753684.777 686.09
LOCATION L0001906     VOLUME   512831.219 3753685.693 686.00
LOCATION L0001907     VOLUME   512839.703 3753687.022 685.83
LOCATION L0001908     VOLUME   512848.174 3753688.444 685.68
LOCATION L0001909     VOLUME   512856.646 3753689.865 685.56
LOCATION L0001910     VOLUME   512865.117 3753691.286 685.40
LOCATION L0001911     VOLUME   512873.589 3753692.708 685.17
LOCATION L0001912     VOLUME   512882.061 3753694.129 684.93
LOCATION L0001913     VOLUME   512890.532 3753695.551 684.70
LOCATION L0001914     VOLUME   512899.004 3753696.972 684.53
LOCATION L0001915     VOLUME   512907.475 3753698.394 684.35
LOCATION L0001916     VOLUME   512915.947 3753699.815 684.15
LOCATION L0001917     VOLUME   512924.419 3753701.237 683.99
LOCATION L0001918     VOLUME   512932.890 3753702.658 683.96
LOCATION L0001919     VOLUME   512941.362 3753704.079 683.96
LOCATION L0001920     VOLUME   512949.833 3753705.501 683.99
LOCATION L0001921     VOLUME   512958.305 3753706.922 683.77
LOCATION L0001922     VOLUME   512966.776 3753708.344 683.49
LOCATION L0001923     VOLUME   512975.248 3753709.765 683.21
LOCATION L0001924     VOLUME   512983.720 3753711.187 682.93
LOCATION L0001925     VOLUME   512992.191 3753712.608 682.65
LOCATION L0001926     VOLUME   513000.663 3753714.030 682.36
LOCATION L0001927     VOLUME   513009.134 3753715.451 682.08
LOCATION L0001928     VOLUME   513017.606 3753716.872 681.87
LOCATION L0001929     VOLUME   513026.077 3753718.294 681.72
LOCATION L0001930     VOLUME   513034.549 3753719.715 681.59
LOCATION L0001931     VOLUME   513043.021 3753721.137 681.49
LOCATION L0001932     VOLUME   513051.492 3753722.558 681.38
LOCATION L0001933     VOLUME   513059.964 3753723.980 681.24
LOCATION L0001934     VOLUME   513068.435 3753725.401 681.07
LOCATION L0001935     VOLUME   513076.880 3753726.968 680.95
LOCATION L0001936     VOLUME   513085.310 3753728.620 680.89
LOCATION L0001937     VOLUME   513093.739 3753730.273 680.87
LOCATION L0001938     VOLUME   513102.169 3753731.926 680.86
LOCATION L0001939     VOLUME   513110.598 3753733.579 680.65
LOCATION L0001940     VOLUME   513119.028 3753735.232 680.41
LOCATION L0001941     VOLUME   513127.457 3753736.885 680.21
LOCATION L0001942     VOLUME   513135.887 3753738.537 680.18
LOCATION L0001943     VOLUME   513144.316 3753740.190 680.24
LOCATION L0001944     VOLUME   513152.746 3753741.843 680.26
LOCATION L0001945     VOLUME   513161.175 3753743.496 680.26
LOCATION L0001946     VOLUME   513169.605 3753745.149 680.05
LOCATION L0001947     VOLUME   513178.034 3753746.802 679.82
LOCATION L0001948     VOLUME   513186.464 3753748.455 679.59
LOCATION L0001949     VOLUME   513194.893 3753750.107 679.37
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LOCATION L0001950     VOLUME   513203.320 3753751.774 679.14
LOCATION L0001951     VOLUME   513211.571 3753754.162 678.95
LOCATION L0001952     VOLUME   513219.822 3753756.551 678.75
LOCATION L0001953     VOLUME   513228.073 3753758.940 678.61
LOCATION L0001954     VOLUME   513236.324 3753761.328 678.43
LOCATION L0001955     VOLUME   513244.576 3753763.717 678.22
LOCATION L0001956     VOLUME   513252.827 3753766.106 678.01
LOCATION L0001957     VOLUME   513261.078 3753768.494 678.06
LOCATION L0001958     VOLUME   513269.329 3753770.883 678.07
LOCATION L0001959     VOLUME   513277.580 3753773.272 678.03
LOCATION L0001960     VOLUME   513285.832 3753775.660 677.90
LOCATION L0001961     VOLUME   513294.083 3753778.049 677.75
LOCATION L0001962     VOLUME   513302.334 3753780.438 677.65
LOCATION L0001963     VOLUME   513310.585 3753782.826 677.58
LOCATION L0001964     VOLUME   513318.836 3753785.215 677.41
LOCATION L0001965     VOLUME   513327.088 3753787.604 677.21
LOCATION L0001966     VOLUME   513335.339 3753789.993 677.02
LOCATION L0001967     VOLUME   513343.590 3753792.381 676.83
LOCATION L0001968     VOLUME   513351.841 3753794.770 676.64
LOCATION L0001969     VOLUME   513360.092 3753797.159 676.43
LOCATION L0001970     VOLUME   513368.344 3753799.547 676.23
LOCATION L0001971     VOLUME   513376.595 3753801.936 676.17
LOCATION L0001972     VOLUME   513384.846 3753804.325 676.16
LOCATION L0001973     VOLUME   513393.097 3753806.713 676.10
LOCATION L0001974     VOLUME   513401.348 3753809.102 676.00
LOCATION L0001975     VOLUME   513409.600 3753811.491 675.87
LOCATION L0001976     VOLUME   513417.851 3753813.879 675.79
LOCATION L0001977     VOLUME   513426.102 3753816.268 675.74
LOCATION L0001978     VOLUME   513434.353 3753818.657 675.67
LOCATION L0001979     VOLUME   513442.604 3753821.045 675.48
LOCATION L0001980     VOLUME   513450.856 3753823.434 675.28
LOCATION L0001981     VOLUME   513459.107 3753825.823 675.08
LOCATION L0001982     VOLUME   513467.358 3753828.211 674.82
LOCATION L0001983     VOLUME   513475.609 3753830.600 674.61
LOCATION L0001984     VOLUME   513483.860 3753832.989 674.44
LOCATION L0001985     VOLUME   513492.112 3753835.377 674.30
LOCATION L0001986     VOLUME   513500.363 3753837.766 674.11
LOCATION L0001987     VOLUME   513508.614 3753840.155 673.91
LOCATION L0001988     VOLUME   513516.865 3753842.543 673.72
LOCATION L0001989     VOLUME   513525.116 3753844.932 673.56
LOCATION L0001990     VOLUME   513533.368 3753847.321 673.44
LOCATION L0001991     VOLUME   513541.619 3753849.709 673.26
LOCATION L0001992     VOLUME   513549.870 3753852.098 673.05
LOCATION L0001993     VOLUME   513558.121 3753854.487 672.78
LOCATION L0001994     VOLUME   513566.372 3753856.876 672.54
LOCATION L0001995     VOLUME   513574.624 3753859.264 672.35
LOCATION L0001996     VOLUME   513582.875 3753861.653 672.19
LOCATION L0001997     VOLUME   513591.126 3753864.042 672.19
LOCATION L0001998     VOLUME   513599.377 3753866.430 672.14
LOCATION L0001999     VOLUME   513607.628 3753868.819 672.06
LOCATION L0002000     VOLUME   513615.880 3753871.208 671.93
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   LOCATION L0002001     VOLUME   513624.131 3753873.596 671.83
   LOCATION L0002002     VOLUME   513632.382 3753875.985 671.77
   LOCATION L0002003     VOLUME   513640.633 3753878.374 671.76
   LOCATION L0002004     VOLUME   513648.884 3753880.762 671.59
   LOCATION L0002005     VOLUME   513657.136 3753883.151 671.39
   LOCATION L0002006     VOLUME   513665.387 3753885.540 671.20
   LOCATION L0002007     VOLUME   513673.638 3753887.928 671.00
   LOCATION L0002008     VOLUME   513681.889 3753890.317 670.81
   LOCATION L0002009     VOLUME   513690.140 3753892.706 670.61
   LOCATION L0002010     VOLUME   513698.392 3753895.094 670.42
   LOCATION L0002011     VOLUME   513706.643 3753897.483 670.33
   LOCATION L0002012     VOLUME   513714.894 3753899.872 670.26
   LOCATION L0002013     VOLUME   513723.145 3753902.260 670.15
   LOCATION L0002014     VOLUME   513731.396 3753904.649 670.00
   LOCATION L0002015     VOLUME   513739.648 3753907.038 669.92
   LOCATION L0002016     VOLUME   513747.899 3753909.426 669.89
   LOCATION L0002017     VOLUME   513756.150 3753911.815 669.89
   LOCATION L0002018     VOLUME   513764.401 3753914.204 669.85
   LOCATION L0002019     VOLUME   513772.652 3753916.592 669.64
   LOCATION L0002020     VOLUME   513780.904 3753918.981 669.42
   LOCATION L0002021     VOLUME   513789.155 3753921.370 669.25
   LOCATION L0002022     VOLUME   513797.406 3753923.759 669.02
   LOCATION L0002023     VOLUME   513805.657 3753926.147 668.71
   LOCATION L0002024     VOLUME   513813.908 3753928.536 668.36
   LOCATION L0002025     VOLUME   513822.160 3753930.925 667.99
   LOCATION L0002026     VOLUME   513830.411 3753933.313 667.88
   LOCATION L0002027     VOLUME   513838.662 3753935.702 667.81
   LOCATION L0002028     VOLUME   513846.913 3753938.091 667.79
   LOCATION L0002029     VOLUME   513855.164 3753940.479 667.70
   LOCATION L0002030     VOLUME   513863.416 3753942.868 667.51
   LOCATION L0002031     VOLUME   513871.667 3753945.257 667.31
   LOCATION L0002032     VOLUME   513879.918 3753947.645 667.05
   LOCATION L0002033     VOLUME   513888.169 3753950.034 666.78
   LOCATION L0002034     VOLUME   513896.420 3753952.423 666.50
   LOCATION L0002035     VOLUME   513904.672 3753954.811 666.23
   LOCATION L0002036     VOLUME   513912.923 3753957.200 665.97
   LOCATION L0002037     VOLUME   513921.174 3753959.589 665.83
   LOCATION L0002038     VOLUME   513929.425 3753961.977 665.73
   LOCATION L0002039     VOLUME   513937.676 3753964.366 665.67
   LOCATION L0002040     VOLUME   513945.928 3753966.755 665.56
   LOCATION L0002041     VOLUME   513954.179 3753969.143 665.36
   LOCATION L0002042     VOLUME   513962.430 3753971.532 665.16
   LOCATION L0002043     VOLUME   513970.681 3753973.921 664.97
   LOCATION L0002044     VOLUME   513978.932 3753976.309 664.77
** End of LINE VOLUME Source ID = SLINE5
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE6
** DESCRSRC On-site Truck Travel SB and EB
** PREFIX
** Length of Side = 8.59
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** Configuration = Adjacent
** Emission Rate = 0.000113
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 513987.147, 3753971.399, 664.44, 3.49, 4.00
** 513989.423, 3753765.009, 659.31, 3.49, 4.00
** 514009.910, 3753748.316, 657.84, 3.49, 4.00
** 514597.970, 3753743.004, 640.06, 3.49, 4.00
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   LOCATION L0002045     VOLUME   513987.194 3753967.104 664.19
   LOCATION L0002046     VOLUME   513987.289 3753958.515 663.90
   LOCATION L0002047     VOLUME   513987.384 3753949.925 663.61
   LOCATION L0002048     VOLUME   513987.478 3753941.336 663.32
   LOCATION L0002049     VOLUME   513987.573 3753932.746 663.03
   LOCATION L0002050     VOLUME   513987.668 3753924.157 662.74
   LOCATION L0002051     VOLUME   513987.763 3753915.567 662.45
   LOCATION L0002052     VOLUME   513987.857 3753906.978 662.17
   LOCATION L0002053     VOLUME   513987.952 3753898.388 661.88
   LOCATION L0002054     VOLUME   513988.047 3753889.799 661.59
   LOCATION L0002055     VOLUME   513988.142 3753881.209 661.36
   LOCATION L0002056     VOLUME   513988.236 3753872.620 661.20
   LOCATION L0002057     VOLUME   513988.331 3753864.030 661.04
   LOCATION L0002058     VOLUME   513988.426 3753855.441 660.87
   LOCATION L0002059     VOLUME   513988.521 3753846.852 660.74
   LOCATION L0002060     VOLUME   513988.615 3753838.262 660.61
   LOCATION L0002061     VOLUME   513988.710 3753829.673 660.48
   LOCATION L0002062     VOLUME   513988.805 3753821.083 660.27
   LOCATION L0002063     VOLUME   513988.899 3753812.494 659.98
   LOCATION L0002064     VOLUME   513988.994 3753803.904 659.69
   LOCATION L0002065     VOLUME   513989.089 3753795.315 659.41
   LOCATION L0002066     VOLUME   513989.184 3753786.725 659.41
   LOCATION L0002067     VOLUME   513989.278 3753778.136 659.41
   LOCATION L0002068     VOLUME   513989.373 3753769.546 659.41
   LOCATION L0002069     VOLUME   513992.565 3753762.449 659.19
   LOCATION L0002070     VOLUME   513999.224 3753757.023 658.79
   LOCATION L0002071     VOLUME   514005.883 3753751.597 658.39
   LOCATION L0002072     VOLUME   514013.305 3753748.285 658.03
   LOCATION L0002073     VOLUME   514021.895 3753748.207 657.74
   LOCATION L0002074     VOLUME   514030.485 3753748.130 657.45
   LOCATION L0002075     VOLUME   514039.074 3753748.052 657.16
   LOCATION L0002076     VOLUME   514047.664 3753747.975 656.87
   LOCATION L0002077     VOLUME   514056.254 3753747.897 656.58
   LOCATION L0002078     VOLUME   514064.843 3753747.819 656.29
   LOCATION L0002079     VOLUME   514073.433 3753747.742 656.00
   LOCATION L0002080     VOLUME   514082.023 3753747.664 655.72
   LOCATION L0002081     VOLUME   514090.612 3753747.587 655.43
   LOCATION L0002082     VOLUME   514099.202 3753747.509 655.14
   LOCATION L0002083     VOLUME   514107.792 3753747.431 654.85
   LOCATION L0002084     VOLUME   514116.381 3753747.354 654.56
   LOCATION L0002085     VOLUME   514124.971 3753747.276 654.34
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LOCATION L0002086     VOLUME   514133.561 3753747.199 654.23
LOCATION L0002087     VOLUME   514142.150 3753747.121 654.12
LOCATION L0002088     VOLUME   514150.740 3753747.044 654.01
LOCATION L0002089     VOLUME   514159.330 3753746.966 653.58
LOCATION L0002090     VOLUME   514167.919 3753746.888 653.11
LOCATION L0002091     VOLUME   514176.509 3753746.811 652.64
LOCATION L0002092     VOLUME   514185.098 3753746.733 652.32
LOCATION L0002093     VOLUME   514193.688 3753746.656 652.22
LOCATION L0002094     VOLUME   514202.278 3753746.578 652.11
LOCATION L0002095     VOLUME   514210.867 3753746.500 652.01
LOCATION L0002096     VOLUME   514219.457 3753746.423 651.57
LOCATION L0002097     VOLUME   514228.047 3753746.345 651.09
LOCATION L0002098     VOLUME   514236.636 3753746.268 650.62
LOCATION L0002099     VOLUME   514245.226 3753746.190 650.23
LOCATION L0002100     VOLUME   514253.816 3753746.113 649.94
LOCATION L0002101     VOLUME   514262.405 3753746.035 649.65
LOCATION L0002102     VOLUME   514270.995 3753745.957 649.36
LOCATION L0002103     VOLUME   514279.585 3753745.880 649.07
LOCATION L0002104     VOLUME   514288.174 3753745.802 648.78
LOCATION L0002105     VOLUME   514296.764 3753745.725 648.49
LOCATION L0002106     VOLUME   514305.354 3753745.647 648.20
LOCATION L0002107     VOLUME   514313.943 3753745.569 647.92
LOCATION L0002108     VOLUME   514322.533 3753745.492 647.63
LOCATION L0002109     VOLUME   514331.123 3753745.414 647.34
LOCATION L0002110     VOLUME   514339.712 3753745.337 647.05
LOCATION L0002111     VOLUME   514348.302 3753745.259 646.76
LOCATION L0002112     VOLUME   514356.891 3753745.182 646.47
LOCATION L0002113     VOLUME   514365.481 3753745.104 646.18
LOCATION L0002114     VOLUME   514374.071 3753745.026 645.89
LOCATION L0002115     VOLUME   514382.660 3753744.949 645.60
LOCATION L0002116     VOLUME   514391.250 3753744.871 645.32
LOCATION L0002117     VOLUME   514399.840 3753744.794 645.30
LOCATION L0002118     VOLUME   514408.429 3753744.716 645.30
LOCATION L0002119     VOLUME   514417.019 3753744.638 645.30
LOCATION L0002120     VOLUME   514425.609 3753744.561 645.16
LOCATION L0002121     VOLUME   514434.198 3753744.483 644.87
LOCATION L0002122     VOLUME   514442.788 3753744.406 644.58
LOCATION L0002123     VOLUME   514451.378 3753744.328 644.29
LOCATION L0002124     VOLUME   514459.967 3753744.251 644.00
LOCATION L0002125     VOLUME   514468.557 3753744.173 643.72
LOCATION L0002126     VOLUME   514477.147 3753744.095 643.43
LOCATION L0002127     VOLUME   514485.736 3753744.018 643.14
LOCATION L0002128     VOLUME   514494.326 3753743.940 642.85
LOCATION L0002129     VOLUME   514502.916 3753743.863 642.56
LOCATION L0002130     VOLUME   514511.505 3753743.785 642.27
LOCATION L0002131     VOLUME   514520.095 3753743.707 642.19
LOCATION L0002132     VOLUME   514528.684 3753743.630 642.11
LOCATION L0002133     VOLUME   514537.274 3753743.552 642.04
LOCATION L0002134     VOLUME   514545.864 3753743.475 641.89
LOCATION L0002135     VOLUME   514554.453 3753743.397 641.68
LOCATION L0002136     VOLUME   514563.043 3753743.320 641.47
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   LOCATION L0002137     VOLUME   514571.633 3753743.242 641.25
   LOCATION L0002138     VOLUME   514580.222 3753743.164 640.96
   LOCATION L0002139     VOLUME   514588.812 3753743.087 640.67
   LOCATION L0002140     VOLUME   514597.402 3753743.009 640.38
** End of LINE VOLUME Source ID = SLINE6
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE7
** DESCRSRC On-site Truck Travel NB, WB, and SB
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00008159
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 514606.317, 3753747.557, 640.08, 3.49, 4.00
** 514602.523, 3754035.137, 649.00, 3.49, 4.00
** 514208.713, 3754029.067, 659.89, 3.49, 4.00
** 514012.946, 3753980.504, 663.69, 3.49, 4.00
** 514011.428, 3753767.285, 658.77, 3.49, 4.00
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   LOCATION L0002141     VOLUME   514606.260 3753751.851 640.45
   LOCATION L0002142     VOLUME   514606.147 3753760.441 640.70
   LOCATION L0002143     VOLUME   514606.034 3753769.030 640.96
   LOCATION L0002144     VOLUME   514605.921 3753777.619 641.25
   LOCATION L0002145     VOLUME   514605.807 3753786.208 641.54
   LOCATION L0002146     VOLUME   514605.694 3753794.798 641.83
   LOCATION L0002147     VOLUME   514605.581 3753803.387 642.12
   LOCATION L0002148     VOLUME   514605.467 3753811.976 642.41
   LOCATION L0002149     VOLUME   514605.354 3753820.565 642.70
   LOCATION L0002150     VOLUME   514605.241 3753829.155 642.99
   LOCATION L0002151     VOLUME   514605.127 3753837.744 643.28
   LOCATION L0002152     VOLUME   514605.014 3753846.333 643.57
   LOCATION L0002153     VOLUME   514604.901 3753854.922 643.86
   LOCATION L0002154     VOLUME   514604.787 3753863.512 643.92
   LOCATION L0002155     VOLUME   514604.674 3753872.101 643.95
   LOCATION L0002156     VOLUME   514604.561 3753880.690 643.98
   LOCATION L0002157     VOLUME   514604.447 3753889.279 644.11
   LOCATION L0002158     VOLUME   514604.334 3753897.869 644.37
   LOCATION L0002159     VOLUME   514604.221 3753906.458 644.63
   LOCATION L0002160     VOLUME   514604.107 3753915.047 644.89
   LOCATION L0002161     VOLUME   514603.994 3753923.636 645.18
   LOCATION L0002162     VOLUME   514603.881 3753932.226 645.47
   LOCATION L0002163     VOLUME   514603.768 3753940.815 645.76
   LOCATION L0002164     VOLUME   514603.654 3753949.404 646.05
   LOCATION L0002165     VOLUME   514603.541 3753957.993 646.34
   LOCATION L0002166     VOLUME   514603.428 3753966.583 646.63
   LOCATION L0002167     VOLUME   514603.314 3753975.172 646.92
   LOCATION L0002168     VOLUME   514603.201 3753983.761 647.21
   LOCATION L0002169     VOLUME   514603.088 3753992.350 647.50
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LOCATION L0002170     VOLUME   514602.974 3754000.940 647.79
LOCATION L0002171     VOLUME   514602.861 3754009.529 648.08
LOCATION L0002172     VOLUME   514602.748 3754018.118 648.37
LOCATION L0002173     VOLUME   514602.634 3754026.707 648.66
LOCATION L0002174     VOLUME   514602.364 3754035.135 648.95
LOCATION L0002175     VOLUME   514593.775 3754035.002 649.24
LOCATION L0002176     VOLUME   514585.186 3754034.870 649.52
LOCATION L0002177     VOLUME   514576.597 3754034.737 649.80
LOCATION L0002178     VOLUME   514568.008 3754034.605 650.08
LOCATION L0002179     VOLUME   514559.419 3754034.473 650.36
LOCATION L0002180     VOLUME   514550.830 3754034.340 650.64
LOCATION L0002181     VOLUME   514542.241 3754034.208 650.93
LOCATION L0002182     VOLUME   514533.652 3754034.075 651.19
LOCATION L0002183     VOLUME   514525.063 3754033.943 651.46
LOCATION L0002184     VOLUME   514516.474 3754033.811 651.72
LOCATION L0002185     VOLUME   514507.885 3754033.678 651.99
LOCATION L0002186     VOLUME   514499.296 3754033.546 652.29
LOCATION L0002187     VOLUME   514490.707 3754033.414 652.59
LOCATION L0002188     VOLUME   514482.118 3754033.281 652.90
LOCATION L0002189     VOLUME   514473.529 3754033.149 653.16
LOCATION L0002190     VOLUME   514464.940 3754033.016 653.41
LOCATION L0002191     VOLUME   514456.351 3754032.884 653.67
LOCATION L0002192     VOLUME   514447.762 3754032.752 653.82
LOCATION L0002193     VOLUME   514439.173 3754032.619 653.84
LOCATION L0002194     VOLUME   514430.584 3754032.487 653.86
LOCATION L0002195     VOLUME   514421.995 3754032.354 653.89
LOCATION L0002196     VOLUME   514413.406 3754032.222 654.15
LOCATION L0002197     VOLUME   514404.817 3754032.090 654.44
LOCATION L0002198     VOLUME   514396.228 3754031.957 654.72
LOCATION L0002199     VOLUME   514387.639 3754031.825 655.00
LOCATION L0002200     VOLUME   514379.050 3754031.692 655.28
LOCATION L0002201     VOLUME   514370.461 3754031.560 655.56
LOCATION L0002202     VOLUME   514361.872 3754031.428 655.85
LOCATION L0002203     VOLUME   514353.283 3754031.295 656.13
LOCATION L0002204     VOLUME   514344.694 3754031.163 656.41
LOCATION L0002205     VOLUME   514336.105 3754031.030 656.69
LOCATION L0002206     VOLUME   514327.516 3754030.898 656.97
LOCATION L0002207     VOLUME   514318.927 3754030.766 657.26
LOCATION L0002208     VOLUME   514310.338 3754030.633 657.54
LOCATION L0002209     VOLUME   514301.749 3754030.501 657.82
LOCATION L0002210     VOLUME   514293.160 3754030.368 658.10
LOCATION L0002211     VOLUME   514284.571 3754030.236 658.38
LOCATION L0002212     VOLUME   514275.982 3754030.104 658.66
LOCATION L0002213     VOLUME   514267.393 3754029.971 658.81
LOCATION L0002214     VOLUME   514258.804 3754029.839 658.80
LOCATION L0002215     VOLUME   514250.215 3754029.707 658.80
LOCATION L0002216     VOLUME   514241.626 3754029.574 658.80
LOCATION L0002217     VOLUME   514233.037 3754029.442 659.07
LOCATION L0002218     VOLUME   514224.448 3754029.309 659.36
LOCATION L0002219     VOLUME   514215.859 3754029.177 659.64
LOCATION L0002220     VOLUME   514207.313 3754028.720 659.80
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   LOCATION L0002221     VOLUME   514198.975 3754026.651 659.82
   LOCATION L0002222     VOLUME   514190.638 3754024.583 659.89
   LOCATION L0002223     VOLUME   514182.301 3754022.515 659.99
   LOCATION L0002224     VOLUME   514173.964 3754020.447 660.12
   LOCATION L0002225     VOLUME   514165.626 3754018.379 660.22
   LOCATION L0002226     VOLUME   514157.289 3754016.311 660.29
   LOCATION L0002227     VOLUME   514148.952 3754014.242 660.37
   LOCATION L0002228     VOLUME   514140.614 3754012.174 660.58
   LOCATION L0002229     VOLUME   514132.277 3754010.106 660.79
   LOCATION L0002230     VOLUME   514123.940 3754008.038 661.00
   LOCATION L0002231     VOLUME   514115.602 3754005.970 661.21
   LOCATION L0002232     VOLUME   514107.265 3754003.901 661.42
   LOCATION L0002233     VOLUME   514098.928 3754001.833 661.62
   LOCATION L0002234     VOLUME   514090.590 3753999.765 661.83
   LOCATION L0002235     VOLUME   514082.253 3753997.697 662.04
   LOCATION L0002236     VOLUME   514073.916 3753995.629 662.25
   LOCATION L0002237     VOLUME   514065.578 3753993.561 662.46
   LOCATION L0002238     VOLUME   514057.241 3753991.492 662.67
   LOCATION L0002239     VOLUME   514048.904 3753989.424 662.88
   LOCATION L0002240     VOLUME   514040.567 3753987.356 663.09
   LOCATION L0002241     VOLUME   514032.229 3753985.288 663.30
   LOCATION L0002242     VOLUME   514023.892 3753983.220 663.51
   LOCATION L0002243     VOLUME   514015.555 3753981.152 663.71
   LOCATION L0002244     VOLUME   514012.904 3753974.603 663.58
   LOCATION L0002245     VOLUME   514012.842 3753966.013 663.30
   LOCATION L0002246     VOLUME   514012.781 3753957.423 663.02
   LOCATION L0002247     VOLUME   514012.720 3753948.833 662.73
   LOCATION L0002248     VOLUME   514012.659 3753940.244 662.45
   LOCATION L0002249     VOLUME   514012.598 3753931.654 662.16
   LOCATION L0002250     VOLUME   514012.537 3753923.064 661.88
   LOCATION L0002251     VOLUME   514012.476 3753914.474 661.59
   LOCATION L0002252     VOLUME   514012.414 3753905.884 661.31
   LOCATION L0002253     VOLUME   514012.353 3753897.295 661.03
   LOCATION L0002254     VOLUME   514012.292 3753888.705 660.74
   LOCATION L0002255     VOLUME   514012.231 3753880.115 660.52
   LOCATION L0002256     VOLUME   514012.170 3753871.525 660.34
   LOCATION L0002257     VOLUME   514012.109 3753862.935 660.16
   LOCATION L0002258     VOLUME   514012.048 3753854.346 659.98
   LOCATION L0002259     VOLUME   514011.987 3753845.756 659.88
   LOCATION L0002260     VOLUME   514011.925 3753837.166 659.79
   LOCATION L0002261     VOLUME   514011.864 3753828.576 659.69
   LOCATION L0002262     VOLUME   514011.803 3753819.987 659.47
   LOCATION L0002263     VOLUME   514011.742 3753811.397 659.18
   LOCATION L0002264     VOLUME   514011.681 3753802.807 658.90
   LOCATION L0002265     VOLUME   514011.620 3753794.217 658.66
   LOCATION L0002266     VOLUME   514011.559 3753785.627 658.67
   LOCATION L0002267     VOLUME   514011.497 3753777.038 658.67
   LOCATION L0002268     VOLUME   514011.436 3753768.448 658.67
** End of LINE VOLUME Source ID = SLINE7
** ----------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
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** LINE VOLUME Source ID = SLINE8
** DESCRSRC Truck Travel for Southern Loading Area
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0000334
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 514095.893, 3753760.030, 655.88, 3.49, 4.00
** 514095.134, 3753804.041, 656.11, 3.49, 4.00
** 514538.280, 3753797.211, 642.99, 3.49, 4.00
** 514537.522, 3753756.235, 642.09, 3.49, 4.00
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   LOCATION L0002269     VOLUME   514095.818 3753764.324 655.81
   LOCATION L0002270     VOLUME   514095.670 3753772.913 655.90
   LOCATION L0002271     VOLUME   514095.522 3753781.501 655.94
   LOCATION L0002272     VOLUME   514095.374 3753790.090 655.98
   LOCATION L0002273     VOLUME   514095.226 3753798.679 656.09
   LOCATION L0002274     VOLUME   514098.361 3753803.991 656.21
   LOCATION L0002275     VOLUME   514106.950 3753803.859 656.13
   LOCATION L0002276     VOLUME   514115.539 3753803.726 656.05
   LOCATION L0002277     VOLUME   514124.128 3753803.594 655.94
   LOCATION L0002278     VOLUME   514132.717 3753803.462 655.72
   LOCATION L0002279     VOLUME   514141.306 3753803.329 655.51
   LOCATION L0002280     VOLUME   514149.895 3753803.197 655.29
   LOCATION L0002281     VOLUME   514158.483 3753803.064 655.01
   LOCATION L0002282     VOLUME   514167.072 3753802.932 654.72
   LOCATION L0002283     VOLUME   514175.661 3753802.800 654.43
   LOCATION L0002284     VOLUME   514184.250 3753802.667 654.14
   LOCATION L0002285     VOLUME   514192.839 3753802.535 653.85
   LOCATION L0002286     VOLUME   514201.428 3753802.403 653.56
   LOCATION L0002287     VOLUME   514210.017 3753802.270 653.27
   LOCATION L0002288     VOLUME   514218.606 3753802.138 652.98
   LOCATION L0002289     VOLUME   514227.195 3753802.006 652.69
   LOCATION L0002290     VOLUME   514235.784 3753801.873 652.40
   LOCATION L0002291     VOLUME   514244.373 3753801.741 652.11
   LOCATION L0002292     VOLUME   514252.962 3753801.608 651.82
   LOCATION L0002293     VOLUME   514261.551 3753801.476 651.53
   LOCATION L0002294     VOLUME   514270.140 3753801.344 651.23
   LOCATION L0002295     VOLUME   514278.729 3753801.211 650.94
   LOCATION L0002296     VOLUME   514287.318 3753801.079 650.65
   LOCATION L0002297     VOLUME   514295.907 3753800.947 650.36
   LOCATION L0002298     VOLUME   514304.496 3753800.814 650.07
   LOCATION L0002299     VOLUME   514313.085 3753800.682 649.78
   LOCATION L0002300     VOLUME   514321.674 3753800.550 649.49
   LOCATION L0002301     VOLUME   514330.263 3753800.417 649.20
   LOCATION L0002302     VOLUME   514338.852 3753800.285 648.91
   LOCATION L0002303     VOLUME   514347.441 3753800.152 648.62
   LOCATION L0002304     VOLUME   514356.030 3753800.020 648.33
   LOCATION L0002305     VOLUME   514364.619 3753799.888 648.04
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   LOCATION L0002306     VOLUME   514373.208 3753799.755 647.75
   LOCATION L0002307     VOLUME   514381.797 3753799.623 647.46
   LOCATION L0002308     VOLUME   514390.386 3753799.491 647.16
   LOCATION L0002309     VOLUME   514398.975 3753799.358 646.84
   LOCATION L0002310     VOLUME   514407.564 3753799.226 646.52
   LOCATION L0002311     VOLUME   514416.153 3753799.093 646.20
   LOCATION L0002312     VOLUME   514424.742 3753798.961 645.90
   LOCATION L0002313     VOLUME   514433.331 3753798.829 645.65
   LOCATION L0002314     VOLUME   514441.920 3753798.696 645.39
   LOCATION L0002315     VOLUME   514450.509 3753798.564 645.13
   LOCATION L0002316     VOLUME   514459.098 3753798.432 645.07
   LOCATION L0002317     VOLUME   514467.687 3753798.299 645.04
   LOCATION L0002318     VOLUME   514476.276 3753798.167 645.01
   LOCATION L0002319     VOLUME   514484.865 3753798.035 644.90
   LOCATION L0002320     VOLUME   514493.454 3753797.902 644.63
   LOCATION L0002321     VOLUME   514502.043 3753797.770 644.36
   LOCATION L0002322     VOLUME   514510.632 3753797.637 644.09
   LOCATION L0002323     VOLUME   514519.221 3753797.505 643.80
   LOCATION L0002324     VOLUME   514527.810 3753797.373 643.51
   LOCATION L0002325     VOLUME   514536.399 3753797.240 643.22
   LOCATION L0002326     VOLUME   514538.156 3753790.505 642.94
   LOCATION L0002327     VOLUME   514537.997 3753781.916 642.66
   LOCATION L0002328     VOLUME   514537.838 3753773.328 642.38
   LOCATION L0002329     VOLUME   514537.679 3753764.739 642.12
** End of LINE VOLUME Source ID = SLINE8
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE9
** DESCRSRC Truck Travel Northern Loading Area
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00003985
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 7
** 514593.675, 3754133.588, 651.03, 3.49, 4.00
** 514514.728, 3754090.277, 653.91, 3.49, 4.00
** 514513.083, 3754080.409, 653.55, 3.49, 4.00
** 514416.592, 3754058.479, 655.75, 3.49, 4.00
** 514304.201, 3754056.286, 658.81, 3.49, 4.00
** 514493.346, 3754111.110, 655.89, 3.49, 4.00
** 514511.438, 3754090.825, 653.96, 3.49, 4.00
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   LOCATION L0002330     VOLUME   514589.909 3754131.523 651.58
   LOCATION L0002331     VOLUME   514582.378 3754127.391 651.69
   LOCATION L0002332     VOLUME   514574.847 3754123.259 651.88
   LOCATION L0002333     VOLUME   514567.316 3754119.128 652.25
   LOCATION L0002334     VOLUME   514559.785 3754114.996 652.64
   LOCATION L0002335     VOLUME   514552.254 3754110.864 652.97
   LOCATION L0002336     VOLUME   514544.723 3754106.733 653.22
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LOCATION L0002337     VOLUME   514537.192 3754102.601 653.37
LOCATION L0002338     VOLUME   514529.660 3754098.469 653.49
LOCATION L0002339     VOLUME   514522.129 3754094.338 653.60
LOCATION L0002340     VOLUME   514514.703 3754090.132 653.71
LOCATION L0002341     VOLUME   514513.291 3754081.658 653.47
LOCATION L0002342     VOLUME   514505.942 3754078.786 653.62
LOCATION L0002343     VOLUME   514497.566 3754076.882 653.84
LOCATION L0002344     VOLUME   514489.189 3754074.978 654.05
LOCATION L0002345     VOLUME   514480.813 3754073.075 654.27
LOCATION L0002346     VOLUME   514472.436 3754071.171 654.49
LOCATION L0002347     VOLUME   514464.060 3754069.267 654.70
LOCATION L0002348     VOLUME   514455.684 3754067.363 654.92
LOCATION L0002349     VOLUME   514447.307 3754065.460 655.13
LOCATION L0002350     VOLUME   514438.931 3754063.556 655.32
LOCATION L0002351     VOLUME   514430.554 3754061.652 655.47
LOCATION L0002352     VOLUME   514422.178 3754059.748 655.59
LOCATION L0002353     VOLUME   514413.731 3754058.423 655.58
LOCATION L0002354     VOLUME   514405.143 3754058.255 655.64
LOCATION L0002355     VOLUME   514396.554 3754058.088 655.70
LOCATION L0002356     VOLUME   514387.966 3754057.920 655.86
LOCATION L0002357     VOLUME   514379.378 3754057.753 656.14
LOCATION L0002358     VOLUME   514370.789 3754057.585 656.42
LOCATION L0002359     VOLUME   514362.201 3754057.418 656.70
LOCATION L0002360     VOLUME   514353.613 3754057.250 656.98
LOCATION L0002361     VOLUME   514345.024 3754057.082 657.26
LOCATION L0002362     VOLUME   514336.436 3754056.915 657.54
LOCATION L0002363     VOLUME   514327.847 3754056.747 657.82
LOCATION L0002364     VOLUME   514319.259 3754056.580 658.10
LOCATION L0002365     VOLUME   514310.671 3754056.412 658.39
LOCATION L0002366     VOLUME   514306.237 3754056.876 658.55
LOCATION L0002367     VOLUME   514314.487 3754059.267 658.35
LOCATION L0002368     VOLUME   514322.738 3754061.659 658.16
LOCATION L0002369     VOLUME   514330.988 3754064.050 657.96
LOCATION L0002370     VOLUME   514339.239 3754066.442 657.77
LOCATION L0002371     VOLUME   514347.489 3754068.833 657.57
LOCATION L0002372     VOLUME   514355.739 3754071.224 657.38
LOCATION L0002373     VOLUME   514363.990 3754073.616 657.18
LOCATION L0002374     VOLUME   514372.240 3754076.007 656.99
LOCATION L0002375     VOLUME   514380.491 3754078.399 656.79
LOCATION L0002376     VOLUME   514388.741 3754080.790 656.60
LOCATION L0002377     VOLUME   514396.991 3754083.182 656.58
LOCATION L0002378     VOLUME   514405.242 3754085.573 656.66
LOCATION L0002379     VOLUME   514413.492 3754087.964 656.74
LOCATION L0002380     VOLUME   514421.743 3754090.356 656.81
LOCATION L0002381     VOLUME   514429.993 3754092.747 656.62
LOCATION L0002382     VOLUME   514438.243 3754095.139 656.42
LOCATION L0002383     VOLUME   514446.494 3754097.530 656.28
LOCATION L0002384     VOLUME   514454.744 3754099.921 656.17
LOCATION L0002385     VOLUME   514462.995 3754102.313 656.06
LOCATION L0002386     VOLUME   514471.245 3754104.704 655.94
LOCATION L0002387     VOLUME   514479.495 3754107.096 655.83
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   LOCATION L0002388     VOLUME   514487.746 3754109.487 655.62
   LOCATION L0002389     VOLUME   514495.183 3754109.051 655.23
   LOCATION L0002390     VOLUME   514500.900 3754102.640 654.67
   LOCATION L0002391     VOLUME   514506.618 3754096.230 654.18
** End of LINE VOLUME Source ID = SLINE9
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE10
** DESCRSRC South Loading Area Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001072
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514089.755, 3753831.008, 656.98, 3.49, 4.00
** 514545.053, 3753824.179, 643.96, 3.49, 4.00
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   LOCATION L0002392     VOLUME   514094.050 3753830.944 657.09
   LOCATION L0002393     VOLUME   514102.639 3753830.815 656.80
   LOCATION L0002394     VOLUME   514111.228 3753830.686 656.51
   LOCATION L0002395     VOLUME   514119.817 3753830.557 656.22
   LOCATION L0002396     VOLUME   514128.406 3753830.428 656.12
   LOCATION L0002397     VOLUME   514136.995 3753830.300 656.07
   LOCATION L0002398     VOLUME   514145.584 3753830.171 656.03
   LOCATION L0002399     VOLUME   514154.173 3753830.042 655.91
   LOCATION L0002400     VOLUME   514162.762 3753829.913 655.63
   LOCATION L0002401     VOLUME   514171.351 3753829.784 655.34
   LOCATION L0002402     VOLUME   514179.940 3753829.655 655.05
   LOCATION L0002403     VOLUME   514188.529 3753829.527 654.77
   LOCATION L0002404     VOLUME   514197.118 3753829.398 654.48
   LOCATION L0002405     VOLUME   514205.707 3753829.269 654.19
   LOCATION L0002406     VOLUME   514214.296 3753829.140 653.92
   LOCATION L0002407     VOLUME   514222.885 3753829.011 653.66
   LOCATION L0002408     VOLUME   514231.474 3753828.882 653.41
   LOCATION L0002409     VOLUME   514240.063 3753828.754 653.15
   LOCATION L0002410     VOLUME   514248.652 3753828.625 652.86
   LOCATION L0002411     VOLUME   514257.241 3753828.496 652.57
   LOCATION L0002412     VOLUME   514265.830 3753828.367 652.28
   LOCATION L0002413     VOLUME   514274.419 3753828.238 651.99
   LOCATION L0002414     VOLUME   514283.008 3753828.109 651.70
   LOCATION L0002415     VOLUME   514291.598 3753827.981 651.41
   LOCATION L0002416     VOLUME   514300.187 3753827.852 651.12
   LOCATION L0002417     VOLUME   514308.776 3753827.723 650.83
   LOCATION L0002418     VOLUME   514317.365 3753827.594 650.54
   LOCATION L0002419     VOLUME   514325.954 3753827.465 650.24
   LOCATION L0002420     VOLUME   514334.543 3753827.336 649.95
   LOCATION L0002421     VOLUME   514343.132 3753827.208 649.66
   LOCATION L0002422     VOLUME   514351.721 3753827.079 649.37
   LOCATION L0002423     VOLUME   514360.310 3753826.950 649.08
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   LOCATION L0002424     VOLUME   514368.899 3753826.821 648.79
   LOCATION L0002425     VOLUME   514377.488 3753826.692 648.50
   LOCATION L0002426     VOLUME   514386.077 3753826.563 648.21
   LOCATION L0002427     VOLUME   514394.666 3753826.435 647.82
   LOCATION L0002428     VOLUME   514403.255 3753826.306 647.25
   LOCATION L0002429     VOLUME   514411.844 3753826.177 646.67
   LOCATION L0002430     VOLUME   514420.433 3753826.048 646.10
   LOCATION L0002431     VOLUME   514429.022 3753825.919 646.01
   LOCATION L0002432     VOLUME   514437.611 3753825.790 646.00
   LOCATION L0002433     VOLUME   514446.200 3753825.662 646.00
   LOCATION L0002434     VOLUME   514454.789 3753825.533 645.89
   LOCATION L0002435     VOLUME   514463.378 3753825.404 645.60
   LOCATION L0002436     VOLUME   514471.967 3753825.275 645.31
   LOCATION L0002437     VOLUME   514480.556 3753825.146 645.03
   LOCATION L0002438     VOLUME   514489.145 3753825.017 644.99
   LOCATION L0002439     VOLUME   514497.734 3753824.889 644.99
   LOCATION L0002440     VOLUME   514506.323 3753824.760 644.97
   LOCATION L0002441     VOLUME   514514.912 3753824.631 644.85
   LOCATION L0002442     VOLUME   514523.501 3753824.502 644.56
   LOCATION L0002443     VOLUME   514532.090 3753824.373 644.27
   LOCATION L0002444     VOLUME   514540.679 3753824.244 643.98
** End of LINE VOLUME Source ID = SLINE10
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE11
** DESCRSRC North Loading Area Idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00009806
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514225.586, 3754009.333, 658.54, 3.49, 4.00
** 514575.406, 3754013.886, 648.91, 3.49, 4.00
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   LOCATION L0002445     VOLUME   514229.880 3754009.389 658.51
   LOCATION L0002446     VOLUME   514238.470 3754009.501 658.23
   LOCATION L0002447     VOLUME   514247.059 3754009.613 658.13
   LOCATION L0002448     VOLUME   514255.648 3754009.725 658.13
   LOCATION L0002449     VOLUME   514264.238 3754009.836 658.14
   LOCATION L0002450     VOLUME   514272.827 3754009.948 658.10
   LOCATION L0002451     VOLUME   514281.416 3754010.060 657.82
   LOCATION L0002452     VOLUME   514290.005 3754010.172 657.53
   LOCATION L0002453     VOLUME   514298.595 3754010.284 657.25
   LOCATION L0002454     VOLUME   514307.184 3754010.395 656.97
   LOCATION L0002455     VOLUME   514315.773 3754010.507 656.69
   LOCATION L0002456     VOLUME   514324.362 3754010.619 656.40
   LOCATION L0002457     VOLUME   514332.952 3754010.731 656.12
   LOCATION L0002458     VOLUME   514341.541 3754010.843 655.84
   LOCATION L0002459     VOLUME   514350.130 3754010.954 655.56
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   LOCATION L0002460     VOLUME   514358.720 3754011.066 655.27
   LOCATION L0002461     VOLUME   514367.309 3754011.178 654.99
   LOCATION L0002462     VOLUME   514375.898 3754011.290 654.71
   LOCATION L0002463     VOLUME   514384.487 3754011.401 654.42
   LOCATION L0002464     VOLUME   514393.077 3754011.513 654.14
   LOCATION L0002465     VOLUME   514401.666 3754011.625 653.86
   LOCATION L0002466     VOLUME   514410.255 3754011.737 653.58
   LOCATION L0002467     VOLUME   514418.844 3754011.849 653.29
   LOCATION L0002468     VOLUME   514427.434 3754011.960 653.05
   LOCATION L0002469     VOLUME   514436.023 3754012.072 652.83
   LOCATION L0002470     VOLUME   514444.612 3754012.184 652.61
   LOCATION L0002471     VOLUME   514453.202 3754012.296 652.43
   LOCATION L0002472     VOLUME   514461.791 3754012.408 652.37
   LOCATION L0002473     VOLUME   514470.380 3754012.519 652.31
   LOCATION L0002474     VOLUME   514478.969 3754012.631 652.25
   LOCATION L0002475     VOLUME   514487.559 3754012.743 651.88
   LOCATION L0002476     VOLUME   514496.148 3754012.855 651.38
   LOCATION L0002477     VOLUME   514504.737 3754012.967 650.88
   LOCATION L0002478     VOLUME   514513.326 3754013.078 650.48
   LOCATION L0002479     VOLUME   514521.916 3754013.190 650.41
   LOCATION L0002480     VOLUME   514530.505 3754013.302 650.35
   LOCATION L0002481     VOLUME   514539.094 3754013.414 650.28
   LOCATION L0002482     VOLUME   514547.684 3754013.525 650.06
   LOCATION L0002483     VOLUME   514556.273 3754013.637 649.77
   LOCATION L0002484     VOLUME   514564.862 3754013.749 649.49
   LOCATION L0002485     VOLUME   514573.451 3754013.861 649.21
** End of LINE VOLUME Source ID = SLINE11
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE12
** DESCRSRC West Loading Area idling
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00002807
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 514044.090, 3753964.333, 662.52, 3.49, 4.00
** 514045.734, 3753847.004, 659.05, 3.49, 4.00
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   LOCATION L0002486     VOLUME   514044.150 3753960.039 662.06
   LOCATION L0002487     VOLUME   514044.270 3753951.450 661.77
   LOCATION L0002488     VOLUME   514044.391 3753942.861 661.48
   LOCATION L0002489     VOLUME   514044.511 3753934.271 661.19
   LOCATION L0002490     VOLUME   514044.631 3753925.682 660.90
   LOCATION L0002491     VOLUME   514044.752 3753917.093 660.61
   LOCATION L0002492     VOLUME   514044.872 3753908.504 660.42
   LOCATION L0002493     VOLUME   514044.993 3753899.915 660.26
   LOCATION L0002494     VOLUME   514045.113 3753891.326 660.10
   LOCATION L0002495     VOLUME   514045.233 3753882.737 659.91
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   LOCATION L0002496     VOLUME   514045.354 3753874.147 659.65
   LOCATION L0002497     VOLUME   514045.474 3753865.558 659.38
   LOCATION L0002498     VOLUME   514045.595 3753856.969 659.10
   LOCATION L0002499     VOLUME   514045.715 3753848.380 658.93
** End of LINE VOLUME Source ID = SLINE12
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0001760     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001761     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001762     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001763     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001764     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001765     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001766     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001767     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001768     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001769     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001770     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001771     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001772     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001773     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001774     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001775     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001776     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001777     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001778     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001779     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001780     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001781     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001782     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001783     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001784     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001785     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001786     0.0000007757      3.49      4.00      3.25
   SRCPARAM L0001787     0.0000007757      3.49      4.00      3.25
** ----------------------------------------------------------------
** LINE VOLUME Source ID = SLINE2
   SRCPARAM L0001788     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001789     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001790     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001791     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001792     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001793     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001794     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001795     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001796     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001797     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001798     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001799     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001800     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001801     0.00000001554      3.49      4.00      3.25
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   SRCPARAM L0001802     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001803     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001804     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001805     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001806     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001807     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001808     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001809     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001810     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001811     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001812     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001813     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001814     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001815     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001816     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001817     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001818     0.00000001554      3.49      4.00      3.25
   SRCPARAM L0001819     0.00000001554      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0001820     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001821     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001822     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001823     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001824     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001825     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001826     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001827     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001828     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001829     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001830     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001831     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001832     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001833     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001834     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001835     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001836     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001837     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001838     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001839     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001840     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001841     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001842     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001843     0.0000007668      3.49      4.00      3.25
   SRCPARAM L0001844     0.0000007668      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE4
   SRCPARAM L0001845     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001846     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001847     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001848     0.0000007852      3.49      4.00      3.25
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   SRCPARAM L0001849     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001850     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001851     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001852     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001853     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001854     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001855     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001856     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001857     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001858     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001859     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001860     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001861     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001862     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001863     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001864     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001865     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001866     0.0000007852      3.49      4.00      3.25
   SRCPARAM L0001867     0.0000007852      3.49      4.00      3.25
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE5
   SRCPARAM L0001868     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001869     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001870     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001871     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001872     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001873     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001874     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001875     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001876     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001877     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001878     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001879     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001880     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001881     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001882     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001883     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001884     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001885     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001886     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001887     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001888     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001889     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001890     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001891     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001892     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001893     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001894     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001895     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001896     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0001897     0.0000005637      3.49      4.00      3.25
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SRCPARAM L0001898     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001899     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001900     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001901     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001902     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001903     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001904     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001905     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001906     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001907     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001908     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001909     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001910     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001911     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001912     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001913     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001914     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001915     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001916     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001917     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001918     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001919     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001920     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001921     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001922     0.0000005637      3.49      4.00      3.25
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SRCPARAM L0001924     0.0000005637      3.49      4.00      3.25
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SRCPARAM L0001928     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001929     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001930     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001931     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001932     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001933     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001934     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001935     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001936     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001937     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001938     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001939     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001940     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001941     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001942     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001943     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001944     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001945     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001946     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001947     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001948     0.0000005637      3.49      4.00      3.25
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SRCPARAM L0001949     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001950     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001951     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001952     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001953     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001954     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001955     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001956     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001957     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001958     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001959     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001960     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001961     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001962     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001963     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001964     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001965     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001966     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001967     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001968     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001969     0.0000005637      3.49      4.00      3.25
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SRCPARAM L0001971     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001972     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001973     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001974     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001975     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001976     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001977     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001978     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001979     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001980     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001981     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001982     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001983     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001984     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001985     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001986     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001987     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001988     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001989     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001990     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001991     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001992     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001993     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001994     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001995     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001996     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001997     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001998     0.0000005637      3.49      4.00      3.25
SRCPARAM L0001999     0.0000005637      3.49      4.00      3.25
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   SRCPARAM L0002000     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002001     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002002     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002003     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002004     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002005     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002006     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002007     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002008     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002009     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002010     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002011     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002012     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002013     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002014     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002015     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002016     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002017     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002018     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002019     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002020     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002021     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002022     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002023     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002024     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002025     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002026     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002027     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002028     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002029     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002030     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002031     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002032     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002033     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002034     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002035     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002036     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002037     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002038     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002039     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002040     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002041     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002042     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002043     0.0000005637      3.49      4.00      3.25
   SRCPARAM L0002044     0.0000005637      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE6
   SRCPARAM L0002045     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002046     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002047     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002048     0.000001177      3.49      4.00      3.25
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SRCPARAM L0002049     0.000001177      3.49      4.00      3.25
SRCPARAM L0002050     0.000001177      3.49      4.00      3.25
SRCPARAM L0002051     0.000001177      3.49      4.00      3.25
SRCPARAM L0002052     0.000001177      3.49      4.00      3.25
SRCPARAM L0002053     0.000001177      3.49      4.00      3.25
SRCPARAM L0002054     0.000001177      3.49      4.00      3.25
SRCPARAM L0002055     0.000001177      3.49      4.00      3.25
SRCPARAM L0002056     0.000001177      3.49      4.00      3.25
SRCPARAM L0002057     0.000001177      3.49      4.00      3.25
SRCPARAM L0002058     0.000001177      3.49      4.00      3.25
SRCPARAM L0002059     0.000001177      3.49      4.00      3.25
SRCPARAM L0002060     0.000001177      3.49      4.00      3.25
SRCPARAM L0002061     0.000001177      3.49      4.00      3.25
SRCPARAM L0002062     0.000001177      3.49      4.00      3.25
SRCPARAM L0002063     0.000001177      3.49      4.00      3.25
SRCPARAM L0002064     0.000001177      3.49      4.00      3.25
SRCPARAM L0002065     0.000001177      3.49      4.00      3.25
SRCPARAM L0002066     0.000001177      3.49      4.00      3.25
SRCPARAM L0002067     0.000001177      3.49      4.00      3.25
SRCPARAM L0002068     0.000001177      3.49      4.00      3.25
SRCPARAM L0002069     0.000001177      3.49      4.00      3.25
SRCPARAM L0002070     0.000001177      3.49      4.00      3.25
SRCPARAM L0002071     0.000001177      3.49      4.00      3.25
SRCPARAM L0002072     0.000001177      3.49      4.00      3.25
SRCPARAM L0002073     0.000001177      3.49      4.00      3.25
SRCPARAM L0002074     0.000001177      3.49      4.00      3.25
SRCPARAM L0002075     0.000001177      3.49      4.00      3.25
SRCPARAM L0002076     0.000001177      3.49      4.00      3.25
SRCPARAM L0002077     0.000001177      3.49      4.00      3.25
SRCPARAM L0002078     0.000001177      3.49      4.00      3.25
SRCPARAM L0002079     0.000001177      3.49      4.00      3.25
SRCPARAM L0002080     0.000001177      3.49      4.00      3.25
SRCPARAM L0002081     0.000001177      3.49      4.00      3.25
SRCPARAM L0002082     0.000001177      3.49      4.00      3.25
SRCPARAM L0002083     0.000001177      3.49      4.00      3.25
SRCPARAM L0002084     0.000001177      3.49      4.00      3.25
SRCPARAM L0002085     0.000001177      3.49      4.00      3.25
SRCPARAM L0002086     0.000001177      3.49      4.00      3.25
SRCPARAM L0002087     0.000001177      3.49      4.00      3.25
SRCPARAM L0002088     0.000001177      3.49      4.00      3.25
SRCPARAM L0002089     0.000001177      3.49      4.00      3.25
SRCPARAM L0002090     0.000001177      3.49      4.00      3.25
SRCPARAM L0002091     0.000001177      3.49      4.00      3.25
SRCPARAM L0002092     0.000001177      3.49      4.00      3.25
SRCPARAM L0002093     0.000001177      3.49      4.00      3.25
SRCPARAM L0002094     0.000001177      3.49      4.00      3.25
SRCPARAM L0002095     0.000001177      3.49      4.00      3.25
SRCPARAM L0002096     0.000001177      3.49      4.00      3.25
SRCPARAM L0002097     0.000001177      3.49      4.00      3.25
SRCPARAM L0002098     0.000001177      3.49      4.00      3.25
SRCPARAM L0002099     0.000001177      3.49      4.00      3.25
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   SRCPARAM L0002100     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002101     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002102     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002103     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002104     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002105     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002106     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002107     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002108     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002109     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002110     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002111     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002112     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002113     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002114     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002115     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002116     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002117     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002118     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002119     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002120     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002121     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002122     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002123     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002124     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002125     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002126     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002127     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002128     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002129     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002130     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002131     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002132     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002133     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002134     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002135     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002136     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002137     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002138     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002139     0.000001177      3.49      4.00      3.25
   SRCPARAM L0002140     0.000001177      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE7
   SRCPARAM L0002141     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002142     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002143     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002144     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002145     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002146     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002147     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002148     0.0000006374      3.49      4.00      3.25
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SRCPARAM L0002149     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002150     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002151     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002152     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002153     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002154     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002155     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002156     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002157     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002158     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002159     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002160     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002161     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002162     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002163     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002164     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002165     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002166     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002167     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002168     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002169     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002170     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002171     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002172     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002173     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002174     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002175     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002176     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002177     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002178     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002179     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002180     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002181     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002182     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002183     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002184     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002185     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002186     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002187     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002188     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002189     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002190     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002191     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002192     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002193     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002194     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002195     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002196     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002197     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002198     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002199     0.0000006374      3.49      4.00      3.25
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SRCPARAM L0002200     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002201     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002202     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002203     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002204     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002205     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002206     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002207     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002208     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002209     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002210     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002211     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002212     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002213     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002214     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002215     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002216     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002217     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002218     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002219     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002220     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002221     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002222     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002223     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002224     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002225     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002226     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002227     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002228     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002229     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002230     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002231     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002232     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002233     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002234     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002235     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002236     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002237     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002238     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002239     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002240     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002241     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002242     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002243     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002244     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002245     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002246     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002247     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002248     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002249     0.0000006374      3.49      4.00      3.25
SRCPARAM L0002250     0.0000006374      3.49      4.00      3.25
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   SRCPARAM L0002251     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002252     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002253     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002254     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002255     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002256     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002257     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002258     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002259     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002260     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002261     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002262     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002263     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002264     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002265     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002266     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002267     0.0000006374      3.49      4.00      3.25
   SRCPARAM L0002268     0.0000006374      3.49      4.00      3.25
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE8
   SRCPARAM L0002269     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002270     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002271     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002272     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002273     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002274     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002275     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002276     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002277     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002278     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002279     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002280     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002281     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002282     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002283     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002284     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002285     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002286     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002287     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002288     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002289     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002290     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002291     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002292     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002293     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002294     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002295     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002296     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002297     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002298     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002299     0.0000005475      3.49      4.00      3.25
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   SRCPARAM L0002300     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002301     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002302     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002303     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002304     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002305     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002306     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002307     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002308     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002309     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002310     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002311     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002312     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002313     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002314     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002315     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002316     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002317     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002318     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002319     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002320     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002321     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002322     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002323     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002324     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002325     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002326     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002327     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002328     0.0000005475      3.49      4.00      3.25
   SRCPARAM L0002329     0.0000005475      3.49      4.00      3.25
** ------------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE9
   SRCPARAM L0002330     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002331     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002332     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002333     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002334     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002335     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002336     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002337     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002338     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002339     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002340     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002341     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002342     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002343     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002344     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002345     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002346     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002347     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002348     0.0000006427      3.49      4.00      3.25
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   SRCPARAM L0002349     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002350     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002351     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002352     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002353     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002354     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002355     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002356     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002357     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002358     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002359     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002360     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002361     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002362     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002363     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002364     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002365     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002366     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002367     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002368     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002369     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002370     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002371     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002372     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002373     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002374     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002375     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002376     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002377     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002378     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002379     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002380     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002381     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002382     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002383     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002384     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002385     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002386     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002387     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002388     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002389     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002390     0.0000006427      3.49      4.00      3.25
   SRCPARAM L0002391     0.0000006427      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE10
   SRCPARAM L0002392     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002393     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002394     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002395     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002396     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002397     0.000002023      3.49      4.00      3.25
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   SRCPARAM L0002398     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002399     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002400     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002401     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002402     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002403     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002404     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002405     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002406     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002407     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002408     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002409     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002410     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002411     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002412     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002413     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002414     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002415     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002416     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002417     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002418     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002419     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002420     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002421     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002422     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002423     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002424     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002425     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002426     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002427     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002428     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002429     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002430     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002431     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002432     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002433     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002434     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002435     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002436     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002437     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002438     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002439     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002440     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002441     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002442     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002443     0.000002023      3.49      4.00      3.25
   SRCPARAM L0002444     0.000002023      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE11
   SRCPARAM L0002445     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002446     0.000002392      3.49      4.00      3.25
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   SRCPARAM L0002447     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002448     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002449     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002450     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002451     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002452     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002453     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002454     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002455     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002456     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002457     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002458     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002459     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002460     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002461     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002462     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002463     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002464     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002465     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002466     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002467     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002468     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002469     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002470     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002471     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002472     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002473     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002474     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002475     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002476     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002477     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002478     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002479     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002480     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002481     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002482     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002483     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002484     0.000002392      3.49      4.00      3.25
   SRCPARAM L0002485     0.000002392      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE12
   SRCPARAM L0002486     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002487     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002488     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002489     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002490     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002491     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002492     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002493     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002494     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002495     0.000002005      3.49      4.00      3.25
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   SRCPARAM L0002496     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002497     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002498     0.000002005      3.49      4.00      3.25
   SRCPARAM L0002499     0.000002005      3.49      4.00      3.25
** ------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "Project AB3.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.SFC
   PROFFILE ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.PFL
   SURFDATA 3171 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 660.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE PERIOD ALL "PROJECT AB3.AD\PE00GALL.PLT" 31
   SUMMFILE "Project AB3.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)
```

```
   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W186    1765       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
ME W187    1765       MEOPEN: ADJ_U* Option for Low Winds used in AERMET

*********************************
*** SETUP Finishes Successfully ***
*********************************
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                        ***   MODEL SETUP OPTIONS SUMMARY   ***
- -

**Model Is Setup For Calculation of Average CONCentration Values.

  -- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION. DRYDPLT = F
**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses URBAN Dispersion Algorithm for the SBL for   740 Source(s),
  for Total of   1 Urban Area(s):
  Urban Population =   2189641.0 ; Urban Roughness Length = 1.000 m

**Model Uses Regulatory DEFAULT Options:
       1. Stack-tip Downwash.
       2. Model Accounts for ELEVated Terrain Effects.
       3. Use Calms Processing Routine.
       4. Use Missing Data Processing Routine.
       5. No Exponential Decay.
       6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
       ADJ_U*   - Use ADJ_U* BETA option for SBL in AERMET
       TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: DPM

**Model Calculates PERIOD Averages Only

**This Run Includes: 740 Source(s);   1 Source Group(s); and   611 Receptor(s)

              with: 0 POINT(s), including
                         0 POINTCAP(s) and   0 POINTHOR(s)
               and: 740 VOLUME source(s)
               and: 0 AREA type source(s)
               and: 0 LINE source(s)
               and: 0 OPENPIT source(s)
               and: 0 BUOYANT LINE source(s) with   0 line(s)

**Model Set To Continue RUNning After the Setup Testing.

```
**The AERMET Input Meteorological Data Version Date:  16216

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   660.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.9 MB of RAM.

**Detailed Error/Message File:   Project AB3.err
**File for Summary of Results:   Project AB3.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001760	0	0.77570E-06	512206.0	3753721.8	696.9	3.49	4.00	3.25	YES	
L0001761	0	0.77570E-06	512205.8	3753713.2	696.9	3.49	4.00	3.25	YES	
L0001762	0	0.77570E-06	512205.7	3753704.6	696.8	3.49	4.00	3.25	YES	
L0001763	0	0.77570E-06	512205.5	3753696.0	696.5	3.49	4.00	3.25	YES	
L0001764	0	0.77570E-06	512205.3	3753687.4	696.3	3.49	4.00	3.25	YES	
L0001765	0	0.77570E-06	512205.1	3753678.8	696.0	3.49	4.00	3.25	YES	
L0001766	0	0.77570E-06	512204.9	3753670.2	695.7	3.49	4.00	3.25	YES	
L0001767	0	0.77570E-06	512204.8	3753661.6	695.5	3.49	4.00	3.25	YES	
L0001768	0	0.77570E-06	512204.6	3753653.0	695.2	3.49	4.00	3.25	YES	
L0001769	0	0.77570E-06	512204.4	3753644.5	695.0	3.49	4.00	3.25	YES	
L0001770	0	0.77570E-06	512204.2	3753635.9	694.7	3.49	4.00	3.25	YES	
L0001771	0	0.77570E-06	512204.0	3753627.3	694.4	3.49	4.00	3.25	YES	
L0001772	0	0.77570E-06	512203.8	3753618.7	694.1	3.49	4.00	3.25	YES	
L0001773	0	0.77570E-06	512203.7	3753610.1	693.8	3.49	4.00	3.25	YES	
L0001774	0	0.77570E-06	512203.5	3753601.5	693.5	3.49	4.00	3.25	YES	
L0001775	0	0.77570E-06	512203.3	3753592.9	693.2	3.49	4.00	3.25	YES	
L0001776	0	0.77570E-06	512203.1	3753584.3	693.0	3.49	4.00	3.25	YES	
L0001777	0	0.77570E-06	512202.9	3753575.8	693.0	3.49	4.00	3.25	YES	
L0001778	0	0.77570E-06	512202.8	3753567.2	693.0	3.49	4.00	3.25	YES	
L0001779	0	0.77570E-06	512202.6	3753558.6	693.0	3.49	4.00	3.25	YES	
L0001780	0	0.77570E-06	512202.4	3753550.0	692.8	3.49	4.00	3.25	YES	
L0001781	0	0.77570E-06	512202.2	3753541.4	692.5	3.49	4.00	3.25	YES	
L0001782	0	0.77570E-06	512202.0	3753532.8	692.2	3.49	4.00	3.25	YES	
L0001783	0	0.77570E-06	512201.8	3753524.2	691.9	3.49	4.00	3.25	YES	
L0001784	0	0.77570E-06	512201.7	3753515.6	691.7	3.49	4.00	3.25	YES	
L0001785	0	0.77570E-06	512201.5	3753507.0	691.4	3.49	4.00	3.25	YES	
L0001786	0	0.77570E-06	512201.3	3753498.5	691.1	3.49	4.00	3.25	YES	
L0001787	0	0.77570E-06	512201.1	3753489.9	691.0	3.49	4.00	3.25	YES	
L0001788	0	0.15540E-07	512190.9	3753483.3	691.2	3.49	4.00	3.25	YES	
L0001789	0	0.15540E-07	512182.4	3753483.3	691.4	3.49	4.00	3.25	YES	
L0001790	0	0.15540E-07	512173.8	3753483.3	691.5	3.49	4.00	3.25	YES	
L0001791	0	0.15540E-07	512165.2	3753483.3	691.7	3.49	4.00	3.25	YES	
L0001792	0	0.15540E-07	512156.6	3753483.3	691.8	3.49	4.00	3.25	YES	
L0001793	0	0.15540E-07	512148.0	3753483.3	691.9	3.49	4.00	3.25	YES	
L0001794	0	0.15540E-07	512139.4	3753483.3	692.0	3.49	4.00	3.25	YES	
L0001795	0	0.15540E-07	512130.8	3753483.3	692.2	3.49	4.00	3.25	YES	
L0001796	0	0.15540E-07	512122.2	3753483.3	692.4	3.49	4.00	3.25	YES	
L0001797	0	0.15540E-07	512113.6	3753483.3	692.5	3.49	4.00	3.25	YES	
L0001798	0	0.15540E-07	512105.0	3753483.3	692.8	3.49	4.00	3.25	YES	
L0001799	0	0.15540E-07	512096.5	3753483.3	693.1	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001800	0	0.15540E-07	512087.9	3753483.3	693.4	3.49	4.00	3.25	YES	
L0001801	0	0.15540E-07	512079.3	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001802	0	0.15540E-07	512070.7	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001803	0	0.15540E-07	512062.1	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001804	0	0.15540E-07	512053.5	3753483.3	693.6	3.49	4.00	3.25	YES	
L0001805	0	0.15540E-07	512044.9	3753483.3	693.7	3.49	4.00	3.25	YES	
L0001806	0	0.15540E-07	512036.3	3753483.3	693.8	3.49	4.00	3.25	YES	
L0001807	0	0.15540E-07	512027.7	3753483.3	693.9	3.49	4.00	3.25	YES	
L0001808	0	0.15540E-07	512019.1	3753483.3	694.0	3.49	4.00	3.25	YES	
L0001809	0	0.15540E-07	512010.6	3753483.3	694.2	3.49	4.00	3.25	YES	
L0001810	0	0.15540E-07	512002.0	3753483.3	694.4	3.49	4.00	3.25	YES	
L0001811	0	0.15540E-07	511993.4	3753483.3	694.5	3.49	4.00	3.25	YES	
L0001812	0	0.15540E-07	511984.8	3753483.3	694.8	3.49	4.00	3.25	YES	
L0001813	0	0.15540E-07	511976.2	3753483.3	695.1	3.49	4.00	3.25	YES	
L0001814	0	0.15540E-07	511967.6	3753483.3	695.4	3.49	4.00	3.25	YES	
L0001815	0	0.15540E-07	511959.0	3753483.3	695.6	3.49	4.00	3.25	YES	
L0001816	0	0.15540E-07	511950.4	3753483.3	695.7	3.49	4.00	3.25	YES	
L0001817	0	0.15540E-07	511941.8	3753483.3	695.9	3.49	4.00	3.25	YES	
L0001818	0	0.15540E-07	511933.2	3753483.3	696.0	3.49	4.00	3.25	YES	
L0001819	0	0.15540E-07	511924.7	3753483.3	696.1	3.49	4.00	3.25	YES	
L0001820	0	0.76680E-06	512209.2	3753483.5	690.9	3.49	4.00	3.25	YES	
L0001821	0	0.76680E-06	512217.8	3753483.5	690.8	3.49	4.00	3.25	YES	
L0001822	0	0.76680E-06	512226.4	3753483.6	690.7	3.49	4.00	3.25	YES	
L0001823	0	0.76680E-06	512235.0	3753483.7	690.5	3.49	4.00	3.25	YES	
L0001824	0	0.76680E-06	512243.6	3753483.8	690.4	3.49	4.00	3.25	YES	
L0001825	0	0.76680E-06	512252.1	3753483.9	690.2	3.49	4.00	3.25	YES	
L0001826	0	0.76680E-06	512260.7	3753484.0	690.0	3.49	4.00	3.25	YES	
L0001827	0	0.76680E-06	512269.3	3753484.1	689.9	3.49	4.00	3.25	YES	
L0001828	0	0.76680E-06	512277.9	3753484.2	689.8	3.49	4.00	3.25	YES	
L0001829	0	0.76680E-06	512286.5	3753484.3	689.7	3.49	4.00	3.25	YES	
L0001830	0	0.76680E-06	512295.1	3753484.4	689.5	3.49	4.00	3.25	YES	
L0001831	0	0.76680E-06	512303.7	3753484.4	689.2	3.49	4.00	3.25	YES	
L0001832	0	0.76680E-06	512312.3	3753484.5	688.9	3.49	4.00	3.25	YES	
L0001833	0	0.76680E-06	512320.9	3753484.6	688.6	3.49	4.00	3.25	YES	
L0001834	0	0.76680E-06	512329.5	3753484.7	688.6	3.49	4.00	3.25	YES	
L0001835	0	0.76680E-06	512338.0	3753484.8	688.6	3.49	4.00	3.25	YES	
L0001836	0	0.76680E-06	512346.6	3753484.9	688.6	3.49	4.00	3.25	YES	
L0001837	0	0.76680E-06	512355.2	3753485.0	688.5	3.49	4.00	3.25	YES	
L0001838	0	0.76680E-06	512363.8	3753485.1	688.2	3.49	4.00	3.25	YES	
L0001839	0	0.76680E-06	512372.4	3753485.2	687.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001840	0	0.76680E-06	512381.0	3753485.2	687.7	3.49	4.00	3.25	YES	
L0001841	0	0.76680E-06	512389.6	3753485.3	687.6	3.49	4.00	3.25	YES	
L0001842	0	0.76680E-06	512398.2	3753485.4	687.7	3.49	4.00	3.25	YES	
L0001843	0	0.76680E-06	512406.8	3753485.5	687.7	3.49	4.00	3.25	YES	
L0001844	0	0.76680E-06	512415.4	3753485.6	687.5	3.49	4.00	3.25	YES	
L0001845	0	0.78520E-06	512415.4	3753497.6	687.9	3.49	4.00	3.25	YES	
L0001846	0	0.78520E-06	512415.5	3753506.2	687.9	3.49	4.00	3.25	YES	
L0001847	0	0.78520E-06	512415.6	3753514.8	687.9	3.49	4.00	3.25	YES	
L0001848	0	0.78520E-06	512415.6	3753523.3	688.0	3.49	4.00	3.25	YES	
L0001849	0	0.78520E-06	512415.7	3753531.9	688.4	3.49	4.00	3.25	YES	
L0001850	0	0.78520E-06	512415.7	3753540.5	688.9	3.49	4.00	3.25	YES	
L0001851	0	0.78520E-06	512415.8	3753549.1	689.4	3.49	4.00	3.25	YES	
L0001852	0	0.78520E-06	512415.9	3753557.7	689.9	3.49	4.00	3.25	YES	
L0001853	0	0.78520E-06	512415.9	3753566.3	689.9	3.49	4.00	3.25	YES	
L0001854	0	0.78520E-06	512417.0	3753574.6	689.9	3.49	4.00	3.25	YES	
L0001855	0	0.78520E-06	512421.1	3753582.1	690.0	3.49	4.00	3.25	YES	
L0001856	0	0.78520E-06	512425.3	3753589.7	690.1	3.49	4.00	3.25	YES	
L0001857	0	0.78520E-06	512429.5	3753597.2	690.4	3.49	4.00	3.25	YES	
L0001858	0	0.78520E-06	512433.6	3753604.7	690.6	3.49	4.00	3.25	YES	
L0001859	0	0.78520E-06	512437.8	3753612.2	690.9	3.49	4.00	3.25	YES	
L0001860	0	0.78520E-06	512443.9	3753618.0	691.1	3.49	4.00	3.25	YES	
L0001861	0	0.78520E-06	512450.9	3753623.0	691.2	3.49	4.00	3.25	YES	
L0001862	0	0.78520E-06	512457.8	3753628.1	691.4	3.49	4.00	3.25	YES	
L0001863	0	0.78520E-06	512464.8	3753633.1	691.6	3.49	4.00	3.25	YES	
L0001864	0	0.78520E-06	512471.7	3753638.1	691.7	3.49	4.00	3.25	YES	
L0001865	0	0.78520E-06	512478.7	3753643.2	691.7	3.49	4.00	3.25	YES	
L0001866	0	0.78520E-06	512486.5	3753646.6	691.5	3.49	4.00	3.25	YES	
L0001867	0	0.78520E-06	512494.6	3753649.5	691.5	3.49	4.00	3.25	YES	
L0001868	0	0.56370E-06	512506.7	3753650.9	691.3	3.49	4.00	3.25	YES	
L0001869	0	0.56370E-06	512515.2	3753651.8	691.3	3.49	4.00	3.25	YES	
L0001870	0	0.56370E-06	512523.7	3753652.7	691.3	3.49	4.00	3.25	YES	
L0001871	0	0.56370E-06	512532.3	3753653.6	691.2	3.49	4.00	3.25	YES	
L0001872	0	0.56370E-06	512540.8	3753654.6	691.0	3.49	4.00	3.25	YES	
L0001873	0	0.56370E-06	512549.4	3753655.5	690.7	3.49	4.00	3.25	YES	
L0001874	0	0.56370E-06	512557.9	3753656.4	690.5	3.49	4.00	3.25	YES	
L0001875	0	0.56370E-06	512566.4	3753657.3	690.2	3.49	4.00	3.25	YES	
L0001876	0	0.56370E-06	512575.0	3753658.2	690.0	3.49	4.00	3.25	YES	
L0001877	0	0.56370E-06	512583.5	3753659.1	689.7	3.49	4.00	3.25	YES	
L0001878	0	0.56370E-06	512592.1	3753660.1	689.5	3.49	4.00	3.25	YES	
L0001879	0	0.56370E-06	512600.6	3753661.0	689.5	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001880	0	0.56370E-06	512609.2	3753661.9	689.5	3.49	4.00	3.25	YES	
L0001881	0	0.56370E-06	512617.7	3753662.8	689.6	3.49	4.00	3.25	YES	
L0001882	0	0.56370E-06	512626.2	3753663.7	689.4	3.49	4.00	3.25	YES	
L0001883	0	0.56370E-06	512634.8	3753664.6	689.2	3.49	4.00	3.25	YES	
L0001884	0	0.56370E-06	512643.3	3753665.6	688.9	3.49	4.00	3.25	YES	
L0001885	0	0.56370E-06	512651.9	3753666.5	688.7	3.49	4.00	3.25	YES	
L0001886	0	0.56370E-06	512660.4	3753667.4	688.4	3.49	4.00	3.25	YES	
L0001887	0	0.56370E-06	512668.9	3753668.3	688.2	3.49	4.00	3.25	YES	
L0001888	0	0.56370E-06	512677.5	3753669.2	687.9	3.49	4.00	3.25	YES	
L0001889	0	0.56370E-06	512686.0	3753670.1	687.8	3.49	4.00	3.25	YES	
L0001890	0	0.56370E-06	512694.6	3753671.0	687.8	3.49	4.00	3.25	YES	
L0001891	0	0.56370E-06	512703.1	3753672.0	687.9	3.49	4.00	3.25	YES	
L0001892	0	0.56370E-06	512711.6	3753672.9	687.9	3.49	4.00	3.25	YES	
L0001893	0	0.56370E-06	512720.2	3753673.8	687.6	3.49	4.00	3.25	YES	
L0001894	0	0.56370E-06	512728.7	3753674.7	687.4	3.49	4.00	3.25	YES	
L0001895	0	0.56370E-06	512737.3	3753675.6	687.1	3.49	4.00	3.25	YES	
L0001896	0	0.56370E-06	512745.8	3753676.5	687.0	3.49	4.00	3.25	YES	
L0001897	0	0.56370E-06	512754.3	3753677.5	687.0	3.49	4.00	3.25	YES	
L0001898	0	0.56370E-06	512762.9	3753678.4	687.0	3.49	4.00	3.25	YES	
L0001899	0	0.56370E-06	512771.4	3753679.3	687.0	3.49	4.00	3.25	YES	
L0001900	0	0.56370E-06	512780.0	3753680.2	686.8	3.49	4.00	3.25	YES	
L0001901	0	0.56370E-06	512788.5	3753681.1	686.5	3.49	4.00	3.25	YES	
L0001902	0	0.56370E-06	512797.1	3753682.0	686.3	3.49	4.00	3.25	YES	
L0001903	0	0.56370E-06	512805.6	3753682.9	686.2	3.49	4.00	3.25	YES	
L0001904	0	0.56370E-06	512814.1	3753683.9	686.2	3.49	4.00	3.25	YES	
L0001905	0	0.56370E-06	512822.7	3753684.8	686.1	3.49	4.00	3.25	YES	
L0001906	0	0.56370E-06	512831.2	3753685.7	686.0	3.49	4.00	3.25	YES	
L0001907	0	0.56370E-06	512839.7	3753687.0	685.8	3.49	4.00	3.25	YES	
L0001908	0	0.56370E-06	512848.2	3753688.4	685.7	3.49	4.00	3.25	YES	
L0001909	0	0.56370E-06	512856.6	3753689.9	685.6	3.49	4.00	3.25	YES	
L0001910	0	0.56370E-06	512865.1	3753691.3	685.4	3.49	4.00	3.25	YES	
L0001911	0	0.56370E-06	512873.6	3753692.7	685.2	3.49	4.00	3.25	YES	
L0001912	0	0.56370E-06	512882.1	3753694.1	684.9	3.49	4.00	3.25	YES	
L0001913	0	0.56370E-06	512890.5	3753695.6	684.7	3.49	4.00	3.25	YES	
L0001914	0	0.56370E-06	512899.0	3753697.0	684.5	3.49	4.00	3.25	YES	
L0001915	0	0.56370E-06	512907.5	3753698.4	684.3	3.49	4.00	3.25	YES	
L0001916	0	0.56370E-06	512915.9	3753699.8	684.1	3.49	4.00	3.25	YES	
L0001917	0	0.56370E-06	512924.4	3753701.2	684.0	3.49	4.00	3.25	YES	
L0001918	0	0.56370E-06	512932.9	3753702.7	684.0	3.49	4.00	3.25	YES	
L0001919	0	0.56370E-06	512941.4	3753704.1	684.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001920	0	0.56370E-06	512949.8	3753705.5	684.0	3.49	4.00	3.25	YES	
L0001921	0	0.56370E-06	512958.3	3753706.9	683.8	3.49	4.00	3.25	YES	
L0001922	0	0.56370E-06	512966.8	3753708.3	683.5	3.49	4.00	3.25	YES	
L0001923	0	0.56370E-06	512975.2	3753709.8	683.2	3.49	4.00	3.25	YES	
L0001924	0	0.56370E-06	512983.7	3753711.2	682.9	3.49	4.00	3.25	YES	
L0001925	0	0.56370E-06	512992.2	3753712.6	682.6	3.49	4.00	3.25	YES	
L0001926	0	0.56370E-06	513000.7	3753714.0	682.4	3.49	4.00	3.25	YES	
L0001927	0	0.56370E-06	513009.1	3753715.5	682.1	3.49	4.00	3.25	YES	
L0001928	0	0.56370E-06	513017.6	3753716.9	681.9	3.49	4.00	3.25	YES	
L0001929	0	0.56370E-06	513026.1	3753718.3	681.7	3.49	4.00	3.25	YES	
L0001930	0	0.56370E-06	513034.5	3753719.7	681.6	3.49	4.00	3.25	YES	
L0001931	0	0.56370E-06	513043.0	3753721.1	681.5	3.49	4.00	3.25	YES	
L0001932	0	0.56370E-06	513051.5	3753722.6	681.4	3.49	4.00	3.25	YES	
L0001933	0	0.56370E-06	513060.0	3753724.0	681.2	3.49	4.00	3.25	YES	
L0001934	0	0.56370E-06	513068.4	3753725.4	681.1	3.49	4.00	3.25	YES	
L0001935	0	0.56370E-06	513076.9	3753727.0	680.9	3.49	4.00	3.25	YES	
L0001936	0	0.56370E-06	513085.3	3753728.6	680.9	3.49	4.00	3.25	YES	
L0001937	0	0.56370E-06	513093.7	3753730.3	680.9	3.49	4.00	3.25	YES	
L0001938	0	0.56370E-06	513102.2	3753731.9	680.9	3.49	4.00	3.25	YES	
L0001939	0	0.56370E-06	513110.6	3753733.6	680.6	3.49	4.00	3.25	YES	
L0001940	0	0.56370E-06	513119.0	3753735.2	680.4	3.49	4.00	3.25	YES	
L0001941	0	0.56370E-06	513127.5	3753736.9	680.2	3.49	4.00	3.25	YES	
L0001942	0	0.56370E-06	513135.9	3753738.5	680.2	3.49	4.00	3.25	YES	
L0001943	0	0.56370E-06	513144.3	3753740.2	680.2	3.49	4.00	3.25	YES	
L0001944	0	0.56370E-06	513152.7	3753741.8	680.3	3.49	4.00	3.25	YES	
L0001945	0	0.56370E-06	513161.2	3753743.5	680.3	3.49	4.00	3.25	YES	
L0001946	0	0.56370E-06	513169.6	3753745.1	680.0	3.49	4.00	3.25	YES	
L0001947	0	0.56370E-06	513178.0	3753746.8	679.8	3.49	4.00	3.25	YES	
L0001948	0	0.56370E-06	513186.5	3753748.5	679.6	3.49	4.00	3.25	YES	
L0001949	0	0.56370E-06	513194.9	3753750.1	679.4	3.49	4.00	3.25	YES	
L0001950	0	0.56370E-06	513203.3	3753751.8	679.1	3.49	4.00	3.25	YES	
L0001951	0	0.56370E-06	513211.6	3753754.2	678.9	3.49	4.00	3.25	YES	
L0001952	0	0.56370E-06	513219.8	3753756.6	678.8	3.49	4.00	3.25	YES	
L0001953	0	0.56370E-06	513228.1	3753758.9	678.6	3.49	4.00	3.25	YES	
L0001954	0	0.56370E-06	513236.3	3753761.3	678.4	3.49	4.00	3.25	YES	
L0001955	0	0.56370E-06	513244.6	3753763.7	678.2	3.49	4.00	3.25	YES	
L0001956	0	0.56370E-06	513252.8	3753766.1	678.0	3.49	4.00	3.25	YES	
L0001957	0	0.56370E-06	513261.1	3753768.5	678.1	3.49	4.00	3.25	YES	
L0001958	0	0.56370E-06	513269.3	3753770.9	678.1	3.49	4.00	3.25	YES	
L0001959	0	0.56370E-06	513277.6	3753773.3	678.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001960	0	0.56370E-06	513285.8	3753775.7	677.9	3.49	4.00	3.25	YES	
L0001961	0	0.56370E-06	513294.1	3753778.0	677.8	3.49	4.00	3.25	YES	
L0001962	0	0.56370E-06	513302.3	3753780.4	677.6	3.49	4.00	3.25	YES	
L0001963	0	0.56370E-06	513310.6	3753782.8	677.6	3.49	4.00	3.25	YES	
L0001964	0	0.56370E-06	513318.8	3753785.2	677.4	3.49	4.00	3.25	YES	
L0001965	0	0.56370E-06	513327.1	3753787.6	677.2	3.49	4.00	3.25	YES	
L0001966	0	0.56370E-06	513335.3	3753790.0	677.0	3.49	4.00	3.25	YES	
L0001967	0	0.56370E-06	513343.6	3753792.4	676.8	3.49	4.00	3.25	YES	
L0001968	0	0.56370E-06	513351.8	3753794.8	676.6	3.49	4.00	3.25	YES	
L0001969	0	0.56370E-06	513360.1	3753797.2	676.4	3.49	4.00	3.25	YES	
L0001970	0	0.56370E-06	513368.3	3753799.5	676.2	3.49	4.00	3.25	YES	
L0001971	0	0.56370E-06	513376.6	3753801.9	676.2	3.49	4.00	3.25	YES	
L0001972	0	0.56370E-06	513384.8	3753804.3	676.2	3.49	4.00	3.25	YES	
L0001973	0	0.56370E-06	513393.1	3753806.7	676.1	3.49	4.00	3.25	YES	
L0001974	0	0.56370E-06	513401.3	3753809.1	676.0	3.49	4.00	3.25	YES	
L0001975	0	0.56370E-06	513409.6	3753811.5	675.9	3.49	4.00	3.25	YES	
L0001976	0	0.56370E-06	513417.9	3753813.9	675.8	3.49	4.00	3.25	YES	
L0001977	0	0.56370E-06	513426.1	3753816.3	675.7	3.49	4.00	3.25	YES	
L0001978	0	0.56370E-06	513434.4	3753818.7	675.7	3.49	4.00	3.25	YES	
L0001979	0	0.56370E-06	513442.6	3753821.0	675.5	3.49	4.00	3.25	YES	
L0001980	0	0.56370E-06	513450.9	3753823.4	675.3	3.49	4.00	3.25	YES	
L0001981	0	0.56370E-06	513459.1	3753825.8	675.1	3.49	4.00	3.25	YES	
L0001982	0	0.56370E-06	513467.4	3753828.2	674.8	3.49	4.00	3.25	YES	
L0001983	0	0.56370E-06	513475.6	3753830.6	674.6	3.49	4.00	3.25	YES	
L0001984	0	0.56370E-06	513483.9	3753833.0	674.4	3.49	4.00	3.25	YES	
L0001985	0	0.56370E-06	513492.1	3753835.4	674.3	3.49	4.00	3.25	YES	
L0001986	0	0.56370E-06	513500.4	3753837.8	674.1	3.49	4.00	3.25	YES	
L0001987	0	0.56370E-06	513508.6	3753840.2	673.9	3.49	4.00	3.25	YES	
L0001988	0	0.56370E-06	513516.9	3753842.5	673.7	3.49	4.00	3.25	YES	
L0001989	0	0.56370E-06	513525.1	3753844.9	673.6	3.49	4.00	3.25	YES	
L0001990	0	0.56370E-06	513533.4	3753847.3	673.4	3.49	4.00	3.25	YES	
L0001991	0	0.56370E-06	513541.6	3753849.7	673.3	3.49	4.00	3.25	YES	
L0001992	0	0.56370E-06	513549.9	3753852.1	673.0	3.49	4.00	3.25	YES	
L0001993	0	0.56370E-06	513558.1	3753854.5	672.8	3.49	4.00	3.25	YES	
L0001994	0	0.56370E-06	513566.4	3753856.9	672.5	3.49	4.00	3.25	YES	
L0001995	0	0.56370E-06	513574.6	3753859.3	672.3	3.49	4.00	3.25	YES	
L0001996	0	0.56370E-06	513582.9	3753861.7	672.2	3.49	4.00	3.25	YES	
L0001997	0	0.56370E-06	513591.1	3753864.0	672.2	3.49	4.00	3.25	YES	
L0001998	0	0.56370E-06	513599.4	3753866.4	672.1	3.49	4.00	3.25	YES	
L0001999	0	0.56370E-06	513607.6	3753868.8	672.1	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002000	0	0.56370E-06	513615.9	3753871.2	671.9	3.49	4.00	3.25	YES	
L0002001	0	0.56370E-06	513624.1	3753873.6	671.8	3.49	4.00	3.25	YES	
L0002002	0	0.56370E-06	513632.4	3753876.0	671.8	3.49	4.00	3.25	YES	
L0002003	0	0.56370E-06	513640.6	3753878.4	671.8	3.49	4.00	3.25	YES	
L0002004	0	0.56370E-06	513648.9	3753880.8	671.6	3.49	4.00	3.25	YES	
L0002005	0	0.56370E-06	513657.1	3753883.2	671.4	3.49	4.00	3.25	YES	
L0002006	0	0.56370E-06	513665.4	3753885.5	671.2	3.49	4.00	3.25	YES	
L0002007	0	0.56370E-06	513673.6	3753887.9	671.0	3.49	4.00	3.25	YES	
L0002008	0	0.56370E-06	513681.9	3753890.3	670.8	3.49	4.00	3.25	YES	
L0002009	0	0.56370E-06	513690.1	3753892.7	670.6	3.49	4.00	3.25	YES	
L0002010	0	0.56370E-06	513698.4	3753895.1	670.4	3.49	4.00	3.25	YES	
L0002011	0	0.56370E-06	513706.6	3753897.5	670.3	3.49	4.00	3.25	YES	
L0002012	0	0.56370E-06	513714.9	3753899.9	670.3	3.49	4.00	3.25	YES	
L0002013	0	0.56370E-06	513723.1	3753902.3	670.1	3.49	4.00	3.25	YES	
L0002014	0	0.56370E-06	513731.4	3753904.6	670.0	3.49	4.00	3.25	YES	
L0002015	0	0.56370E-06	513739.6	3753907.0	669.9	3.49	4.00	3.25	YES	
L0002016	0	0.56370E-06	513747.9	3753909.4	669.9	3.49	4.00	3.25	YES	
L0002017	0	0.56370E-06	513756.1	3753911.8	669.9	3.49	4.00	3.25	YES	
L0002018	0	0.56370E-06	513764.4	3753914.2	669.8	3.49	4.00	3.25	YES	
L0002019	0	0.56370E-06	513772.7	3753916.6	669.6	3.49	4.00	3.25	YES	
L0002020	0	0.56370E-06	513780.9	3753919.0	669.4	3.49	4.00	3.25	YES	
L0002021	0	0.56370E-06	513789.2	3753921.4	669.2	3.49	4.00	3.25	YES	
L0002022	0	0.56370E-06	513797.4	3753923.8	669.0	3.49	4.00	3.25	YES	
L0002023	0	0.56370E-06	513805.7	3753926.1	668.7	3.49	4.00	3.25	YES	
L0002024	0	0.56370E-06	513813.9	3753928.5	668.4	3.49	4.00	3.25	YES	
L0002025	0	0.56370E-06	513822.2	3753930.9	668.0	3.49	4.00	3.25	YES	
L0002026	0	0.56370E-06	513830.4	3753933.3	667.9	3.49	4.00	3.25	YES	
L0002027	0	0.56370E-06	513838.7	3753935.7	667.8	3.49	4.00	3.25	YES	
L0002028	0	0.56370E-06	513846.9	3753938.1	667.8	3.49	4.00	3.25	YES	
L0002029	0	0.56370E-06	513855.2	3753940.5	667.7	3.49	4.00	3.25	YES	
L0002030	0	0.56370E-06	513863.4	3753942.9	667.5	3.49	4.00	3.25	YES	
L0002031	0	0.56370E-06	513871.7	3753945.3	667.3	3.49	4.00	3.25	YES	
L0002032	0	0.56370E-06	513879.9	3753947.6	667.0	3.49	4.00	3.25	YES	
L0002033	0	0.56370E-06	513888.2	3753950.0	666.8	3.49	4.00	3.25	YES	
L0002034	0	0.56370E-06	513896.4	3753952.4	666.5	3.49	4.00	3.25	YES	
L0002035	0	0.56370E-06	513904.7	3753954.8	666.2	3.49	4.00	3.25	YES	
L0002036	0	0.56370E-06	513912.9	3753957.2	666.0	3.49	4.00	3.25	YES	
L0002037	0	0.56370E-06	513921.2	3753959.6	665.8	3.49	4.00	3.25	YES	
L0002038	0	0.56370E-06	513929.4	3753962.0	665.7	3.49	4.00	3.25	YES	
L0002039	0	0.56370E-06	513937.7	3753964.4	665.7	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002040	0	0.56370E-06	513945.9	3753966.8	665.6	3.49	4.00	3.25	YES	
L0002041	0	0.56370E-06	513954.2	3753969.1	665.4	3.49	4.00	3.25	YES	
L0002042	0	0.56370E-06	513962.4	3753971.5	665.2	3.49	4.00	3.25	YES	
L0002043	0	0.56370E-06	513970.7	3753973.9	665.0	3.49	4.00	3.25	YES	
L0002044	0	0.56370E-06	513978.9	3753976.3	664.8	3.49	4.00	3.25	YES	
L0002045	0	0.11770E-05	513987.2	3753967.1	664.2	3.49	4.00	3.25	YES	
L0002046	0	0.11770E-05	513987.3	3753958.5	663.9	3.49	4.00	3.25	YES	
L0002047	0	0.11770E-05	513987.4	3753949.9	663.6	3.49	4.00	3.25	YES	
L0002048	0	0.11770E-05	513987.5	3753941.3	663.3	3.49	4.00	3.25	YES	
L0002049	0	0.11770E-05	513987.6	3753932.7	663.0	3.49	4.00	3.25	YES	
L0002050	0	0.11770E-05	513987.7	3753924.2	662.7	3.49	4.00	3.25	YES	
L0002051	0	0.11770E-05	513987.8	3753915.6	662.4	3.49	4.00	3.25	YES	
L0002052	0	0.11770E-05	513987.9	3753907.0	662.2	3.49	4.00	3.25	YES	
L0002053	0	0.11770E-05	513988.0	3753898.4	661.9	3.49	4.00	3.25	YES	
L0002054	0	0.11770E-05	513988.0	3753889.8	661.6	3.49	4.00	3.25	YES	
L0002055	0	0.11770E-05	513988.1	3753881.2	661.4	3.49	4.00	3.25	YES	
L0002056	0	0.11770E-05	513988.2	3753872.6	661.2	3.49	4.00	3.25	YES	
L0002057	0	0.11770E-05	513988.3	3753864.0	661.0	3.49	4.00	3.25	YES	
L0002058	0	0.11770E-05	513988.4	3753855.4	660.9	3.49	4.00	3.25	YES	
L0002059	0	0.11770E-05	513988.5	3753846.9	660.7	3.49	4.00	3.25	YES	
L0002060	0	0.11770E-05	513988.6	3753838.3	660.6	3.49	4.00	3.25	YES	
L0002061	0	0.11770E-05	513988.7	3753829.7	660.5	3.49	4.00	3.25	YES	
L0002062	0	0.11770E-05	513988.8	3753821.1	660.3	3.49	4.00	3.25	YES	
L0002063	0	0.11770E-05	513988.9	3753812.5	660.0	3.49	4.00	3.25	YES	
L0002064	0	0.11770E-05	513989.0	3753803.9	659.7	3.49	4.00	3.25	YES	
L0002065	0	0.11770E-05	513989.1	3753795.3	659.4	3.49	4.00	3.25	YES	
L0002066	0	0.11770E-05	513989.2	3753786.7	659.4	3.49	4.00	3.25	YES	
L0002067	0	0.11770E-05	513989.3	3753778.1	659.4	3.49	4.00	3.25	YES	
L0002068	0	0.11770E-05	513989.4	3753769.5	659.4	3.49	4.00	3.25	YES	
L0002069	0	0.11770E-05	513992.6	3753762.4	659.2	3.49	4.00	3.25	YES	
L0002070	0	0.11770E-05	513999.2	3753757.0	658.8	3.49	4.00	3.25	YES	
L0002071	0	0.11770E-05	514005.9	3753751.6	658.4	3.49	4.00	3.25	YES	
L0002072	0	0.11770E-05	514013.3	3753748.3	658.0	3.49	4.00	3.25	YES	
L0002073	0	0.11770E-05	514021.9	3753748.2	657.7	3.49	4.00	3.25	YES	
L0002074	0	0.11770E-05	514030.5	3753748.1	657.4	3.49	4.00	3.25	YES	
L0002075	0	0.11770E-05	514039.1	3753748.1	657.2	3.49	4.00	3.25	YES	
L0002076	0	0.11770E-05	514047.7	3753748.0	656.9	3.49	4.00	3.25	YES	
L0002077	0	0.11770E-05	514056.3	3753747.9	656.6	3.49	4.00	3.25	YES	
L0002078	0	0.11770E-05	514064.8	3753747.8	656.3	3.49	4.00	3.25	YES	
L0002079	0	0.11770E-05	514073.4	3753747.7	656.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002080	0	0.11770E-05	514082.0	3753747.7	655.7	3.49	4.00	3.25	YES	
L0002081	0	0.11770E-05	514090.6	3753747.6	655.4	3.49	4.00	3.25	YES	
L0002082	0	0.11770E-05	514099.2	3753747.5	655.1	3.49	4.00	3.25	YES	
L0002083	0	0.11770E-05	514107.8	3753747.4	654.8	3.49	4.00	3.25	YES	
L0002084	0	0.11770E-05	514116.4	3753747.4	654.6	3.49	4.00	3.25	YES	
L0002085	0	0.11770E-05	514125.0	3753747.3	654.3	3.49	4.00	3.25	YES	
L0002086	0	0.11770E-05	514133.6	3753747.2	654.2	3.49	4.00	3.25	YES	
L0002087	0	0.11770E-05	514142.1	3753747.1	654.1	3.49	4.00	3.25	YES	
L0002088	0	0.11770E-05	514150.7	3753747.0	654.0	3.49	4.00	3.25	YES	
L0002089	0	0.11770E-05	514159.3	3753747.0	653.6	3.49	4.00	3.25	YES	
L0002090	0	0.11770E-05	514167.9	3753746.9	653.1	3.49	4.00	3.25	YES	
L0002091	0	0.11770E-05	514176.5	3753746.8	652.6	3.49	4.00	3.25	YES	
L0002092	0	0.11770E-05	514185.1	3753746.7	652.3	3.49	4.00	3.25	YES	
L0002093	0	0.11770E-05	514193.7	3753746.7	652.2	3.49	4.00	3.25	YES	
L0002094	0	0.11770E-05	514202.3	3753746.6	652.1	3.49	4.00	3.25	YES	
L0002095	0	0.11770E-05	514210.9	3753746.5	652.0	3.49	4.00	3.25	YES	
L0002096	0	0.11770E-05	514219.5	3753746.4	651.6	3.49	4.00	3.25	YES	
L0002097	0	0.11770E-05	514228.0	3753746.3	651.1	3.49	4.00	3.25	YES	
L0002098	0	0.11770E-05	514236.6	3753746.3	650.6	3.49	4.00	3.25	YES	
L0002099	0	0.11770E-05	514245.2	3753746.2	650.2	3.49	4.00	3.25	YES	
L0002100	0	0.11770E-05	514253.8	3753746.1	649.9	3.49	4.00	3.25	YES	
L0002101	0	0.11770E-05	514262.4	3753746.0	649.6	3.49	4.00	3.25	YES	
L0002102	0	0.11770E-05	514271.0	3753746.0	649.4	3.49	4.00	3.25	YES	
L0002103	0	0.11770E-05	514279.6	3753745.9	649.1	3.49	4.00	3.25	YES	
L0002104	0	0.11770E-05	514288.2	3753745.8	648.8	3.49	4.00	3.25	YES	
L0002105	0	0.11770E-05	514296.8	3753745.7	648.5	3.49	4.00	3.25	YES	
L0002106	0	0.11770E-05	514305.4	3753745.6	648.2	3.49	4.00	3.25	YES	
L0002107	0	0.11770E-05	514313.9	3753745.6	647.9	3.49	4.00	3.25	YES	
L0002108	0	0.11770E-05	514322.5	3753745.5	647.6	3.49	4.00	3.25	YES	
L0002109	0	0.11770E-05	514331.1	3753745.4	647.3	3.49	4.00	3.25	YES	
L0002110	0	0.11770E-05	514339.7	3753745.3	647.0	3.49	4.00	3.25	YES	
L0002111	0	0.11770E-05	514348.3	3753745.3	646.8	3.49	4.00	3.25	YES	
L0002112	0	0.11770E-05	514356.9	3753745.2	646.5	3.49	4.00	3.25	YES	
L0002113	0	0.11770E-05	514365.5	3753745.1	646.2	3.49	4.00	3.25	YES	
L0002114	0	0.11770E-05	514374.1	3753745.0	645.9	3.49	4.00	3.25	YES	
L0002115	0	0.11770E-05	514382.7	3753744.9	645.6	3.49	4.00	3.25	YES	
L0002116	0	0.11770E-05	514391.2	3753744.9	645.3	3.49	4.00	3.25	YES	
L0002117	0	0.11770E-05	514399.8	3753744.8	645.3	3.49	4.00	3.25	YES	
L0002118	0	0.11770E-05	514408.4	3753744.7	645.3	3.49	4.00	3.25	YES	
L0002119	0	0.11770E-05	514417.0	3753744.6	645.3	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002120	0	0.11770E-05	514425.6	3753744.6	645.2	3.49	4.00	3.25	YES	
L0002121	0	0.11770E-05	514434.2	3753744.5	644.9	3.49	4.00	3.25	YES	
L0002122	0	0.11770E-05	514442.8	3753744.4	644.6	3.49	4.00	3.25	YES	
L0002123	0	0.11770E-05	514451.4	3753744.3	644.3	3.49	4.00	3.25	YES	
L0002124	0	0.11770E-05	514460.0	3753744.3	644.0	3.49	4.00	3.25	YES	
L0002125	0	0.11770E-05	514468.6	3753744.2	643.7	3.49	4.00	3.25	YES	
L0002126	0	0.11770E-05	514477.1	3753744.1	643.4	3.49	4.00	3.25	YES	
L0002127	0	0.11770E-05	514485.7	3753744.0	643.1	3.49	4.00	3.25	YES	
L0002128	0	0.11770E-05	514494.3	3753743.9	642.8	3.49	4.00	3.25	YES	
L0002129	0	0.11770E-05	514502.9	3753743.9	642.6	3.49	4.00	3.25	YES	
L0002130	0	0.11770E-05	514511.5	3753743.8	642.3	3.49	4.00	3.25	YES	
L0002131	0	0.11770E-05	514520.1	3753743.7	642.2	3.49	4.00	3.25	YES	
L0002132	0	0.11770E-05	514528.7	3753743.6	642.1	3.49	4.00	3.25	YES	
L0002133	0	0.11770E-05	514537.3	3753743.6	642.0	3.49	4.00	3.25	YES	
L0002134	0	0.11770E-05	514545.9	3753743.5	641.9	3.49	4.00	3.25	YES	
L0002135	0	0.11770E-05	514554.5	3753743.4	641.7	3.49	4.00	3.25	YES	
L0002136	0	0.11770E-05	514563.0	3753743.3	641.5	3.49	4.00	3.25	YES	
L0002137	0	0.11770E-05	514571.6	3753743.2	641.2	3.49	4.00	3.25	YES	
L0002138	0	0.11770E-05	514580.2	3753743.2	641.0	3.49	4.00	3.25	YES	
L0002139	0	0.11770E-05	514588.8	3753743.1	640.7	3.49	4.00	3.25	YES	
L0002140	0	0.11770E-05	514597.4	3753743.0	640.4	3.49	4.00	3.25	YES	
L0002141	0	0.63740E-06	514606.3	3753751.9	640.4	3.49	4.00	3.25	YES	
L0002142	0	0.63740E-06	514606.1	3753760.4	640.7	3.49	4.00	3.25	YES	
L0002143	0	0.63740E-06	514606.0	3753769.0	641.0	3.49	4.00	3.25	YES	
L0002144	0	0.63740E-06	514605.9	3753777.6	641.2	3.49	4.00	3.25	YES	
L0002145	0	0.63740E-06	514605.8	3753786.2	641.5	3.49	4.00	3.25	YES	
L0002146	0	0.63740E-06	514605.7	3753794.8	641.8	3.49	4.00	3.25	YES	
L0002147	0	0.63740E-06	514605.6	3753803.4	642.1	3.49	4.00	3.25	YES	
L0002148	0	0.63740E-06	514605.5	3753812.0	642.4	3.49	4.00	3.25	YES	
L0002149	0	0.63740E-06	514605.4	3753820.6	642.7	3.49	4.00	3.25	YES	
L0002150	0	0.63740E-06	514605.2	3753829.2	643.0	3.49	4.00	3.25	YES	
L0002151	0	0.63740E-06	514605.1	3753837.7	643.3	3.49	4.00	3.25	YES	
L0002152	0	0.63740E-06	514605.0	3753846.3	643.6	3.49	4.00	3.25	YES	
L0002153	0	0.63740E-06	514604.9	3753854.9	643.9	3.49	4.00	3.25	YES	
L0002154	0	0.63740E-06	514604.8	3753863.5	643.9	3.49	4.00	3.25	YES	
L0002155	0	0.63740E-06	514604.7	3753872.1	643.9	3.49	4.00	3.25	YES	
L0002156	0	0.63740E-06	514604.6	3753880.7	644.0	3.49	4.00	3.25	YES	
L0002157	0	0.63740E-06	514604.4	3753889.3	644.1	3.49	4.00	3.25	YES	
L0002158	0	0.63740E-06	514604.3	3753897.9	644.4	3.49	4.00	3.25	YES	
L0002159	0	0.63740E-06	514604.2	3753906.5	644.6	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002160	0	0.63740E-06	514604.1	3753915.0	644.9	3.49	4.00	3.25	YES	
L0002161	0	0.63740E-06	514604.0	3753923.6	645.2	3.49	4.00	3.25	YES	
L0002162	0	0.63740E-06	514603.9	3753932.2	645.5	3.49	4.00	3.25	YES	
L0002163	0	0.63740E-06	514603.8	3753940.8	645.8	3.49	4.00	3.25	YES	
L0002164	0	0.63740E-06	514603.7	3753949.4	646.0	3.49	4.00	3.25	YES	
L0002165	0	0.63740E-06	514603.5	3753958.0	646.3	3.49	4.00	3.25	YES	
L0002166	0	0.63740E-06	514603.4	3753966.6	646.6	3.49	4.00	3.25	YES	
L0002167	0	0.63740E-06	514603.3	3753975.2	646.9	3.49	4.00	3.25	YES	
L0002168	0	0.63740E-06	514603.2	3753983.8	647.2	3.49	4.00	3.25	YES	
L0002169	0	0.63740E-06	514603.1	3753992.3	647.5	3.49	4.00	3.25	YES	
L0002170	0	0.63740E-06	514603.0	3754000.9	647.8	3.49	4.00	3.25	YES	
L0002171	0	0.63740E-06	514602.9	3754009.5	648.1	3.49	4.00	3.25	YES	
L0002172	0	0.63740E-06	514602.7	3754018.1	648.4	3.49	4.00	3.25	YES	
L0002173	0	0.63740E-06	514602.6	3754026.7	648.7	3.49	4.00	3.25	YES	
L0002174	0	0.63740E-06	514602.4	3754035.1	648.9	3.49	4.00	3.25	YES	
L0002175	0	0.63740E-06	514593.8	3754035.0	649.2	3.49	4.00	3.25	YES	
L0002176	0	0.63740E-06	514585.2	3754034.9	649.5	3.49	4.00	3.25	YES	
L0002177	0	0.63740E-06	514576.6	3754034.7	649.8	3.49	4.00	3.25	YES	
L0002178	0	0.63740E-06	514568.0	3754034.6	650.1	3.49	4.00	3.25	YES	
L0002179	0	0.63740E-06	514559.4	3754034.5	650.4	3.49	4.00	3.25	YES	
L0002180	0	0.63740E-06	514550.8	3754034.3	650.6	3.49	4.00	3.25	YES	
L0002181	0	0.63740E-06	514542.2	3754034.2	650.9	3.49	4.00	3.25	YES	
L0002182	0	0.63740E-06	514533.7	3754034.1	651.2	3.49	4.00	3.25	YES	
L0002183	0	0.63740E-06	514525.1	3754033.9	651.5	3.49	4.00	3.25	YES	
L0002184	0	0.63740E-06	514516.5	3754033.8	651.7	3.49	4.00	3.25	YES	
L0002185	0	0.63740E-06	514507.9	3754033.7	652.0	3.49	4.00	3.25	YES	
L0002186	0	0.63740E-06	514499.3	3754033.5	652.3	3.49	4.00	3.25	YES	
L0002187	0	0.63740E-06	514490.7	3754033.4	652.6	3.49	4.00	3.25	YES	
L0002188	0	0.63740E-06	514482.1	3754033.3	652.9	3.49	4.00	3.25	YES	
L0002189	0	0.63740E-06	514473.5	3754033.1	653.2	3.49	4.00	3.25	YES	
L0002190	0	0.63740E-06	514464.9	3754033.0	653.4	3.49	4.00	3.25	YES	
L0002191	0	0.63740E-06	514456.4	3754032.9	653.7	3.49	4.00	3.25	YES	
L0002192	0	0.63740E-06	514447.8	3754032.8	653.8	3.49	4.00	3.25	YES	
L0002193	0	0.63740E-06	514439.2	3754032.6	653.8	3.49	4.00	3.25	YES	
L0002194	0	0.63740E-06	514430.6	3754032.5	653.9	3.49	4.00	3.25	YES	
L0002195	0	0.63740E-06	514422.0	3754032.4	653.9	3.49	4.00	3.25	YES	
L0002196	0	0.63740E-06	514413.4	3754032.2	654.1	3.49	4.00	3.25	YES	
L0002197	0	0.63740E-06	514404.8	3754032.1	654.4	3.49	4.00	3.25	YES	
L0002198	0	0.63740E-06	514396.2	3754032.0	654.7	3.49	4.00	3.25	YES	
L0002199	0	0.63740E-06	514387.6	3754031.8	655.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002200	0	0.63740E-06	514379.0	3754031.7	655.3	3.49	4.00	3.25	YES	
L0002201	0	0.63740E-06	514370.5	3754031.6	655.6	3.49	4.00	3.25	YES	
L0002202	0	0.63740E-06	514361.9	3754031.4	655.8	3.49	4.00	3.25	YES	
L0002203	0	0.63740E-06	514353.3	3754031.3	656.1	3.49	4.00	3.25	YES	
L0002204	0	0.63740E-06	514344.7	3754031.2	656.4	3.49	4.00	3.25	YES	
L0002205	0	0.63740E-06	514336.1	3754031.0	656.7	3.49	4.00	3.25	YES	
L0002206	0	0.63740E-06	514327.5	3754030.9	657.0	3.49	4.00	3.25	YES	
L0002207	0	0.63740E-06	514318.9	3754030.8	657.3	3.49	4.00	3.25	YES	
L0002208	0	0.63740E-06	514310.3	3754030.6	657.5	3.49	4.00	3.25	YES	
L0002209	0	0.63740E-06	514301.7	3754030.5	657.8	3.49	4.00	3.25	YES	
L0002210	0	0.63740E-06	514293.2	3754030.4	658.1	3.49	4.00	3.25	YES	
L0002211	0	0.63740E-06	514284.6	3754030.2	658.4	3.49	4.00	3.25	YES	
L0002212	0	0.63740E-06	514276.0	3754030.1	658.7	3.49	4.00	3.25	YES	
L0002213	0	0.63740E-06	514267.4	3754030.0	658.8	3.49	4.00	3.25	YES	
L0002214	0	0.63740E-06	514258.8	3754029.8	658.8	3.49	4.00	3.25	YES	
L0002215	0	0.63740E-06	514250.2	3754029.7	658.8	3.49	4.00	3.25	YES	
L0002216	0	0.63740E-06	514241.6	3754029.6	658.8	3.49	4.00	3.25	YES	
L0002217	0	0.63740E-06	514233.0	3754029.4	659.1	3.49	4.00	3.25	YES	
L0002218	0	0.63740E-06	514224.4	3754029.3	659.4	3.49	4.00	3.25	YES	
L0002219	0	0.63740E-06	514215.9	3754029.2	659.6	3.49	4.00	3.25	YES	
L0002220	0	0.63740E-06	514207.3	3754028.7	659.8	3.49	4.00	3.25	YES	
L0002221	0	0.63740E-06	514199.0	3754026.7	659.8	3.49	4.00	3.25	YES	
L0002222	0	0.63740E-06	514190.6	3754024.6	659.9	3.49	4.00	3.25	YES	
L0002223	0	0.63740E-06	514182.3	3754022.5	660.0	3.49	4.00	3.25	YES	
L0002224	0	0.63740E-06	514174.0	3754020.4	660.1	3.49	4.00	3.25	YES	
L0002225	0	0.63740E-06	514165.6	3754018.4	660.2	3.49	4.00	3.25	YES	
L0002226	0	0.63740E-06	514157.3	3754016.3	660.3	3.49	4.00	3.25	YES	
L0002227	0	0.63740E-06	514149.0	3754014.2	660.4	3.49	4.00	3.25	YES	
L0002228	0	0.63740E-06	514140.6	3754012.2	660.6	3.49	4.00	3.25	YES	
L0002229	0	0.63740E-06	514132.3	3754010.1	660.8	3.49	4.00	3.25	YES	
L0002230	0	0.63740E-06	514123.9	3754008.0	661.0	3.49	4.00	3.25	YES	
L0002231	0	0.63740E-06	514115.6	3754006.0	661.2	3.49	4.00	3.25	YES	
L0002232	0	0.63740E-06	514107.3	3754003.9	661.4	3.49	4.00	3.25	YES	
L0002233	0	0.63740E-06	514098.9	3754001.8	661.6	3.49	4.00	3.25	YES	
L0002234	0	0.63740E-06	514090.6	3753999.8	661.8	3.49	4.00	3.25	YES	
L0002235	0	0.63740E-06	514082.3	3753997.7	662.0	3.49	4.00	3.25	YES	
L0002236	0	0.63740E-06	514073.9	3753995.6	662.2	3.49	4.00	3.25	YES	
L0002237	0	0.63740E-06	514065.6	3753993.6	662.5	3.49	4.00	3.25	YES	
L0002238	0	0.63740E-06	514057.2	3753991.5	662.7	3.49	4.00	3.25	YES	
L0002239	0	0.63740E-06	514048.9	3753989.4	662.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002240	0	0.63740E-06	514040.6	3753987.4	663.1	3.49	4.00	3.25	YES	
L0002241	0	0.63740E-06	514032.2	3753985.3	663.3	3.49	4.00	3.25	YES	
L0002242	0	0.63740E-06	514023.9	3753983.2	663.5	3.49	4.00	3.25	YES	
L0002243	0	0.63740E-06	514015.6	3753981.2	663.7	3.49	4.00	3.25	YES	
L0002244	0	0.63740E-06	514012.9	3753974.6	663.6	3.49	4.00	3.25	YES	
L0002245	0	0.63740E-06	514012.8	3753966.0	663.3	3.49	4.00	3.25	YES	
L0002246	0	0.63740E-06	514012.8	3753957.4	663.0	3.49	4.00	3.25	YES	
L0002247	0	0.63740E-06	514012.7	3753948.8	662.7	3.49	4.00	3.25	YES	
L0002248	0	0.63740E-06	514012.7	3753940.2	662.4	3.49	4.00	3.25	YES	
L0002249	0	0.63740E-06	514012.6	3753931.7	662.2	3.49	4.00	3.25	YES	
L0002250	0	0.63740E-06	514012.5	3753923.1	661.9	3.49	4.00	3.25	YES	
L0002251	0	0.63740E-06	514012.5	3753914.5	661.6	3.49	4.00	3.25	YES	
L0002252	0	0.63740E-06	514012.4	3753905.9	661.3	3.49	4.00	3.25	YES	
L0002253	0	0.63740E-06	514012.4	3753897.3	661.0	3.49	4.00	3.25	YES	
L0002254	0	0.63740E-06	514012.3	3753888.7	660.7	3.49	4.00	3.25	YES	
L0002255	0	0.63740E-06	514012.2	3753880.1	660.5	3.49	4.00	3.25	YES	
L0002256	0	0.63740E-06	514012.2	3753871.5	660.3	3.49	4.00	3.25	YES	
L0002257	0	0.63740E-06	514012.1	3753862.9	660.2	3.49	4.00	3.25	YES	
L0002258	0	0.63740E-06	514012.0	3753854.3	660.0	3.49	4.00	3.25	YES	
L0002259	0	0.63740E-06	514012.0	3753845.8	659.9	3.49	4.00	3.25	YES	
L0002260	0	0.63740E-06	514011.9	3753837.2	659.8	3.49	4.00	3.25	YES	
L0002261	0	0.63740E-06	514011.9	3753828.6	659.7	3.49	4.00	3.25	YES	
L0002262	0	0.63740E-06	514011.8	3753820.0	659.5	3.49	4.00	3.25	YES	
L0002263	0	0.63740E-06	514011.7	3753811.4	659.2	3.49	4.00	3.25	YES	
L0002264	0	0.63740E-06	514011.7	3753802.8	658.9	3.49	4.00	3.25	YES	
L0002265	0	0.63740E-06	514011.6	3753794.2	658.7	3.49	4.00	3.25	YES	
L0002266	0	0.63740E-06	514011.6	3753785.6	658.7	3.49	4.00	3.25	YES	
L0002267	0	0.63740E-06	514011.5	3753777.0	658.7	3.49	4.00	3.25	YES	
L0002268	0	0.63740E-06	514011.4	3753768.4	658.7	3.49	4.00	3.25	YES	
L0002269	0	0.54750E-06	514095.8	3753764.3	655.8	3.49	4.00	3.25	YES	
L0002270	0	0.54750E-06	514095.7	3753772.9	655.9	3.49	4.00	3.25	YES	
L0002271	0	0.54750E-06	514095.5	3753781.5	655.9	3.49	4.00	3.25	YES	
L0002272	0	0.54750E-06	514095.4	3753790.1	656.0	3.49	4.00	3.25	YES	
L0002273	0	0.54750E-06	514095.2	3753798.7	656.1	3.49	4.00	3.25	YES	
L0002274	0	0.54750E-06	514098.4	3753804.0	656.2	3.49	4.00	3.25	YES	
L0002275	0	0.54750E-06	514107.0	3753803.9	656.1	3.49	4.00	3.25	YES	
L0002276	0	0.54750E-06	514115.5	3753803.7	656.0	3.49	4.00	3.25	YES	
L0002277	0	0.54750E-06	514124.1	3753803.6	655.9	3.49	4.00	3.25	YES	
L0002278	0	0.54750E-06	514132.7	3753803.5	655.7	3.49	4.00	3.25	YES	
L0002279	0	0.54750E-06	514141.3	3753803.3	655.5	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002280	0	0.54750E-06	514149.9	3753803.2	655.3	3.49	4.00	3.25	YES	
L0002281	0	0.54750E-06	514158.5	3753803.1	655.0	3.49	4.00	3.25	YES	
L0002282	0	0.54750E-06	514167.1	3753802.9	654.7	3.49	4.00	3.25	YES	
L0002283	0	0.54750E-06	514175.7	3753802.8	654.4	3.49	4.00	3.25	YES	
L0002284	0	0.54750E-06	514184.2	3753802.7	654.1	3.49	4.00	3.25	YES	
L0002285	0	0.54750E-06	514192.8	3753802.5	653.8	3.49	4.00	3.25	YES	
L0002286	0	0.54750E-06	514201.4	3753802.4	653.6	3.49	4.00	3.25	YES	
L0002287	0	0.54750E-06	514210.0	3753802.3	653.3	3.49	4.00	3.25	YES	
L0002288	0	0.54750E-06	514218.6	3753802.1	653.0	3.49	4.00	3.25	YES	
L0002289	0	0.54750E-06	514227.2	3753802.0	652.7	3.49	4.00	3.25	YES	
L0002290	0	0.54750E-06	514235.8	3753801.9	652.4	3.49	4.00	3.25	YES	
L0002291	0	0.54750E-06	514244.4	3753801.7	652.1	3.49	4.00	3.25	YES	
L0002292	0	0.54750E-06	514253.0	3753801.6	651.8	3.49	4.00	3.25	YES	
L0002293	0	0.54750E-06	514261.6	3753801.5	651.5	3.49	4.00	3.25	YES	
L0002294	0	0.54750E-06	514270.1	3753801.3	651.2	3.49	4.00	3.25	YES	
L0002295	0	0.54750E-06	514278.7	3753801.2	650.9	3.49	4.00	3.25	YES	
L0002296	0	0.54750E-06	514287.3	3753801.1	650.6	3.49	4.00	3.25	YES	
L0002297	0	0.54750E-06	514295.9	3753800.9	650.4	3.49	4.00	3.25	YES	
L0002298	0	0.54750E-06	514304.5	3753800.8	650.1	3.49	4.00	3.25	YES	
L0002299	0	0.54750E-06	514313.1	3753800.7	649.8	3.49	4.00	3.25	YES	
L0002300	0	0.54750E-06	514321.7	3753800.5	649.5	3.49	4.00	3.25	YES	
L0002301	0	0.54750E-06	514330.3	3753800.4	649.2	3.49	4.00	3.25	YES	
L0002302	0	0.54750E-06	514338.9	3753800.3	648.9	3.49	4.00	3.25	YES	
L0002303	0	0.54750E-06	514347.4	3753800.2	648.6	3.49	4.00	3.25	YES	
L0002304	0	0.54750E-06	514356.0	3753800.0	648.3	3.49	4.00	3.25	YES	
L0002305	0	0.54750E-06	514364.6	3753799.9	648.0	3.49	4.00	3.25	YES	
L0002306	0	0.54750E-06	514373.2	3753799.8	647.8	3.49	4.00	3.25	YES	
L0002307	0	0.54750E-06	514381.8	3753799.6	647.5	3.49	4.00	3.25	YES	
L0002308	0	0.54750E-06	514390.4	3753799.5	647.2	3.49	4.00	3.25	YES	
L0002309	0	0.54750E-06	514399.0	3753799.4	646.8	3.49	4.00	3.25	YES	
L0002310	0	0.54750E-06	514407.6	3753799.2	646.5	3.49	4.00	3.25	YES	
L0002311	0	0.54750E-06	514416.2	3753799.1	646.2	3.49	4.00	3.25	YES	
L0002312	0	0.54750E-06	514424.7	3753799.0	645.9	3.49	4.00	3.25	YES	
L0002313	0	0.54750E-06	514433.3	3753798.8	645.6	3.49	4.00	3.25	YES	
L0002314	0	0.54750E-06	514441.9	3753798.7	645.4	3.49	4.00	3.25	YES	
L0002315	0	0.54750E-06	514450.5	3753798.6	645.1	3.49	4.00	3.25	YES	
L0002316	0	0.54750E-06	514459.1	3753798.4	645.1	3.49	4.00	3.25	YES	
L0002317	0	0.54750E-06	514467.7	3753798.3	645.0	3.49	4.00	3.25	YES	
L0002318	0	0.54750E-06	514476.3	3753798.2	645.0	3.49	4.00	3.25	YES	
L0002319	0	0.54750E-06	514484.9	3753798.0	644.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002320	0	0.54750E-06	514493.5	3753797.9	644.6	3.49	4.00	3.25	YES	
L0002321	0	0.54750E-06	514502.0	3753797.8	644.4	3.49	4.00	3.25	YES	
L0002322	0	0.54750E-06	514510.6	3753797.6	644.1	3.49	4.00	3.25	YES	
L0002323	0	0.54750E-06	514519.2	3753797.5	643.8	3.49	4.00	3.25	YES	
L0002324	0	0.54750E-06	514527.8	3753797.4	643.5	3.49	4.00	3.25	YES	
L0002325	0	0.54750E-06	514536.4	3753797.2	643.2	3.49	4.00	3.25	YES	
L0002326	0	0.54750E-06	514538.2	3753790.5	642.9	3.49	4.00	3.25	YES	
L0002327	0	0.54750E-06	514538.0	3753781.9	642.7	3.49	4.00	3.25	YES	
L0002328	0	0.54750E-06	514537.8	3753773.3	642.4	3.49	4.00	3.25	YES	
L0002329	0	0.54750E-06	514537.7	3753764.7	642.1	3.49	4.00	3.25	YES	
L0002330	0	0.64270E-06	514589.9	3754131.5	651.6	3.49	4.00	3.25	YES	
L0002331	0	0.64270E-06	514582.4	3754127.4	651.7	3.49	4.00	3.25	YES	
L0002332	0	0.64270E-06	514574.8	3754123.3	651.9	3.49	4.00	3.25	YES	
L0002333	0	0.64270E-06	514567.3	3754119.1	652.2	3.49	4.00	3.25	YES	
L0002334	0	0.64270E-06	514559.8	3754115.0	652.6	3.49	4.00	3.25	YES	
L0002335	0	0.64270E-06	514552.3	3754110.9	653.0	3.49	4.00	3.25	YES	
L0002336	0	0.64270E-06	514544.7	3754106.7	653.2	3.49	4.00	3.25	YES	
L0002337	0	0.64270E-06	514537.2	3754102.6	653.4	3.49	4.00	3.25	YES	
L0002338	0	0.64270E-06	514529.7	3754098.5	653.5	3.49	4.00	3.25	YES	
L0002339	0	0.64270E-06	514522.1	3754094.3	653.6	3.49	4.00	3.25	YES	
L0002340	0	0.64270E-06	514514.7	3754090.1	653.7	3.49	4.00	3.25	YES	
L0002341	0	0.64270E-06	514513.3	3754081.7	653.5	3.49	4.00	3.25	YES	
L0002342	0	0.64270E-06	514505.9	3754078.8	653.6	3.49	4.00	3.25	YES	
L0002343	0	0.64270E-06	514497.6	3754076.9	653.8	3.49	4.00	3.25	YES	
L0002344	0	0.64270E-06	514489.2	3754075.0	654.0	3.49	4.00	3.25	YES	
L0002345	0	0.64270E-06	514480.8	3754073.1	654.3	3.49	4.00	3.25	YES	
L0002346	0	0.64270E-06	514472.4	3754071.2	654.5	3.49	4.00	3.25	YES	
L0002347	0	0.64270E-06	514464.1	3754069.3	654.7	3.49	4.00	3.25	YES	
L0002348	0	0.64270E-06	514455.7	3754067.4	654.9	3.49	4.00	3.25	YES	
L0002349	0	0.64270E-06	514447.3	3754065.5	655.1	3.49	4.00	3.25	YES	
L0002350	0	0.64270E-06	514438.9	3754063.6	655.3	3.49	4.00	3.25	YES	
L0002351	0	0.64270E-06	514430.6	3754061.7	655.5	3.49	4.00	3.25	YES	
L0002352	0	0.64270E-06	514422.2	3754059.7	655.6	3.49	4.00	3.25	YES	
L0002353	0	0.64270E-06	514413.7	3754058.4	655.6	3.49	4.00	3.25	YES	
L0002354	0	0.64270E-06	514405.1	3754058.3	655.6	3.49	4.00	3.25	YES	
L0002355	0	0.64270E-06	514396.6	3754058.1	655.7	3.49	4.00	3.25	YES	
L0002356	0	0.64270E-06	514388.0	3754057.9	655.9	3.49	4.00	3.25	YES	
L0002357	0	0.64270E-06	514379.4	3754057.8	656.1	3.49	4.00	3.25	YES	
L0002358	0	0.64270E-06	514370.8	3754057.6	656.4	3.49	4.00	3.25	YES	
L0002359	0	0.64270E-06	514362.2	3754057.4	656.7	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002360	0	0.64270E-06	514353.6	3754057.2	657.0	3.49	4.00	3.25	YES	
L0002361	0	0.64270E-06	514345.0	3754057.1	657.3	3.49	4.00	3.25	YES	
L0002362	0	0.64270E-06	514336.4	3754056.9	657.5	3.49	4.00	3.25	YES	
L0002363	0	0.64270E-06	514327.8	3754056.7	657.8	3.49	4.00	3.25	YES	
L0002364	0	0.64270E-06	514319.3	3754056.6	658.1	3.49	4.00	3.25	YES	
L0002365	0	0.64270E-06	514310.7	3754056.4	658.4	3.49	4.00	3.25	YES	
L0002366	0	0.64270E-06	514306.2	3754056.9	658.5	3.49	4.00	3.25	YES	
L0002367	0	0.64270E-06	514314.5	3754059.3	658.3	3.49	4.00	3.25	YES	
L0002368	0	0.64270E-06	514322.7	3754061.7	658.2	3.49	4.00	3.25	YES	
L0002369	0	0.64270E-06	514331.0	3754064.0	658.0	3.49	4.00	3.25	YES	
L0002370	0	0.64270E-06	514339.2	3754066.4	657.8	3.49	4.00	3.25	YES	
L0002371	0	0.64270E-06	514347.5	3754068.8	657.6	3.49	4.00	3.25	YES	
L0002372	0	0.64270E-06	514355.7	3754071.2	657.4	3.49	4.00	3.25	YES	
L0002373	0	0.64270E-06	514364.0	3754073.6	657.2	3.49	4.00	3.25	YES	
L0002374	0	0.64270E-06	514372.2	3754076.0	657.0	3.49	4.00	3.25	YES	
L0002375	0	0.64270E-06	514380.5	3754078.4	656.8	3.49	4.00	3.25	YES	
L0002376	0	0.64270E-06	514388.7	3754080.8	656.6	3.49	4.00	3.25	YES	
L0002377	0	0.64270E-06	514397.0	3754083.2	656.6	3.49	4.00	3.25	YES	
L0002378	0	0.64270E-06	514405.2	3754085.6	656.7	3.49	4.00	3.25	YES	
L0002379	0	0.64270E-06	514413.5	3754088.0	656.7	3.49	4.00	3.25	YES	
L0002380	0	0.64270E-06	514421.7	3754090.4	656.8	3.49	4.00	3.25	YES	
L0002381	0	0.64270E-06	514430.0	3754092.7	656.6	3.49	4.00	3.25	YES	
L0002382	0	0.64270E-06	514438.2	3754095.1	656.4	3.49	4.00	3.25	YES	
L0002383	0	0.64270E-06	514446.5	3754097.5	656.3	3.49	4.00	3.25	YES	
L0002384	0	0.64270E-06	514454.7	3754099.9	656.2	3.49	4.00	3.25	YES	
L0002385	0	0.64270E-06	514463.0	3754102.3	656.1	3.49	4.00	3.25	YES	
L0002386	0	0.64270E-06	514471.2	3754104.7	655.9	3.49	4.00	3.25	YES	
L0002387	0	0.64270E-06	514479.5	3754107.1	655.8	3.49	4.00	3.25	YES	
L0002388	0	0.64270E-06	514487.7	3754109.5	655.6	3.49	4.00	3.25	YES	
L0002389	0	0.64270E-06	514495.2	3754109.1	655.2	3.49	4.00	3.25	YES	
L0002390	0	0.64270E-06	514500.9	3754102.6	654.7	3.49	4.00	3.25	YES	
L0002391	0	0.64270E-06	514506.6	3754096.2	654.2	3.49	4.00	3.25	YES	
L0002392	0	0.20230E-05	514094.0	3753830.9	657.1	3.49	4.00	3.25	YES	
L0002393	0	0.20230E-05	514102.6	3753830.8	656.8	3.49	4.00	3.25	YES	
L0002394	0	0.20230E-05	514111.2	3753830.7	656.5	3.49	4.00	3.25	YES	
L0002395	0	0.20230E-05	514119.8	3753830.6	656.2	3.49	4.00	3.25	YES	
L0002396	0	0.20230E-05	514128.4	3753830.4	656.1	3.49	4.00	3.25	YES	
L0002397	0	0.20230E-05	514137.0	3753830.3	656.1	3.49	4.00	3.25	YES	
L0002398	0	0.20230E-05	514145.6	3753830.2	656.0	3.49	4.00	3.25	YES	
L0002399	0	0.20230E-05	514154.2	3753830.0	655.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002400	0	0.20230E-05	514162.8	3753829.9	655.6	3.49	4.00	3.25	YES	
L0002401	0	0.20230E-05	514171.4	3753829.8	655.3	3.49	4.00	3.25	YES	
L0002402	0	0.20230E-05	514179.9	3753829.7	655.0	3.49	4.00	3.25	YES	
L0002403	0	0.20230E-05	514188.5	3753829.5	654.8	3.49	4.00	3.25	YES	
L0002404	0	0.20230E-05	514197.1	3753829.4	654.5	3.49	4.00	3.25	YES	
L0002405	0	0.20230E-05	514205.7	3753829.3	654.2	3.49	4.00	3.25	YES	
L0002406	0	0.20230E-05	514214.3	3753829.1	653.9	3.49	4.00	3.25	YES	
L0002407	0	0.20230E-05	514222.9	3753829.0	653.7	3.49	4.00	3.25	YES	
L0002408	0	0.20230E-05	514231.5	3753828.9	653.4	3.49	4.00	3.25	YES	
L0002409	0	0.20230E-05	514240.1	3753828.8	653.1	3.49	4.00	3.25	YES	
L0002410	0	0.20230E-05	514248.7	3753828.6	652.9	3.49	4.00	3.25	YES	
L0002411	0	0.20230E-05	514257.2	3753828.5	652.6	3.49	4.00	3.25	YES	
L0002412	0	0.20230E-05	514265.8	3753828.4	652.3	3.49	4.00	3.25	YES	
L0002413	0	0.20230E-05	514274.4	3753828.2	652.0	3.49	4.00	3.25	YES	
L0002414	0	0.20230E-05	514283.0	3753828.1	651.7	3.49	4.00	3.25	YES	
L0002415	0	0.20230E-05	514291.6	3753828.0	651.4	3.49	4.00	3.25	YES	
L0002416	0	0.20230E-05	514300.2	3753827.9	651.1	3.49	4.00	3.25	YES	
L0002417	0	0.20230E-05	514308.8	3753827.7	650.8	3.49	4.00	3.25	YES	
L0002418	0	0.20230E-05	514317.4	3753827.6	650.5	3.49	4.00	3.25	YES	
L0002419	0	0.20230E-05	514326.0	3753827.5	650.2	3.49	4.00	3.25	YES	
L0002420	0	0.20230E-05	514334.5	3753827.3	649.9	3.49	4.00	3.25	YES	
L0002421	0	0.20230E-05	514343.1	3753827.2	649.7	3.49	4.00	3.25	YES	
L0002422	0	0.20230E-05	514351.7	3753827.1	649.4	3.49	4.00	3.25	YES	
L0002423	0	0.20230E-05	514360.3	3753826.9	649.1	3.49	4.00	3.25	YES	
L0002424	0	0.20230E-05	514368.9	3753826.8	648.8	3.49	4.00	3.25	YES	
L0002425	0	0.20230E-05	514377.5	3753826.7	648.5	3.49	4.00	3.25	YES	
L0002426	0	0.20230E-05	514386.1	3753826.6	648.2	3.49	4.00	3.25	YES	
L0002427	0	0.20230E-05	514394.7	3753826.4	647.8	3.49	4.00	3.25	YES	
L0002428	0	0.20230E-05	514403.3	3753826.3	647.2	3.49	4.00	3.25	YES	
L0002429	0	0.20230E-05	514411.8	3753826.2	646.7	3.49	4.00	3.25	YES	
L0002430	0	0.20230E-05	514420.4	3753826.0	646.1	3.49	4.00	3.25	YES	
L0002431	0	0.20230E-05	514429.0	3753825.9	646.0	3.49	4.00	3.25	YES	
L0002432	0	0.20230E-05	514437.6	3753825.8	646.0	3.49	4.00	3.25	YES	
L0002433	0	0.20230E-05	514446.2	3753825.7	646.0	3.49	4.00	3.25	YES	
L0002434	0	0.20230E-05	514454.8	3753825.5	645.9	3.49	4.00	3.25	YES	
L0002435	0	0.20230E-05	514463.4	3753825.4	645.6	3.49	4.00	3.25	YES	
L0002436	0	0.20230E-05	514472.0	3753825.3	645.3	3.49	4.00	3.25	YES	
L0002437	0	0.20230E-05	514480.6	3753825.1	645.0	3.49	4.00	3.25	YES	
L0002438	0	0.20230E-05	514489.1	3753825.0	645.0	3.49	4.00	3.25	YES	
L0002439	0	0.20230E-05	514497.7	3753824.9	645.0	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002440	0	0.20230E-05	514506.3	3753824.8	645.0	3.49	4.00	3.25	YES	
L0002441	0	0.20230E-05	514514.9	3753824.6	644.8	3.49	4.00	3.25	YES	
L0002442	0	0.20230E-05	514523.5	3753824.5	644.6	3.49	4.00	3.25	YES	
L0002443	0	0.20230E-05	514532.1	3753824.4	644.3	3.49	4.00	3.25	YES	
L0002444	0	0.20230E-05	514540.7	3753824.2	644.0	3.49	4.00	3.25	YES	
L0002445	0	0.23920E-05	514229.9	3754009.4	658.5	3.49	4.00	3.25	YES	
L0002446	0	0.23920E-05	514238.5	3754009.5	658.2	3.49	4.00	3.25	YES	
L0002447	0	0.23920E-05	514247.1	3754009.6	658.1	3.49	4.00	3.25	YES	
L0002448	0	0.23920E-05	514255.6	3754009.7	658.1	3.49	4.00	3.25	YES	
L0002449	0	0.23920E-05	514264.2	3754009.8	658.1	3.49	4.00	3.25	YES	
L0002450	0	0.23920E-05	514272.8	3754009.9	658.1	3.49	4.00	3.25	YES	
L0002451	0	0.23920E-05	514281.4	3754010.1	657.8	3.49	4.00	3.25	YES	
L0002452	0	0.23920E-05	514290.0	3754010.2	657.5	3.49	4.00	3.25	YES	
L0002453	0	0.23920E-05	514298.6	3754010.3	657.2	3.49	4.00	3.25	YES	
L0002454	0	0.23920E-05	514307.2	3754010.4	657.0	3.49	4.00	3.25	YES	
L0002455	0	0.23920E-05	514315.8	3754010.5	656.7	3.49	4.00	3.25	YES	
L0002456	0	0.23920E-05	514324.4	3754010.6	656.4	3.49	4.00	3.25	YES	
L0002457	0	0.23920E-05	514333.0	3754010.7	656.1	3.49	4.00	3.25	YES	
L0002458	0	0.23920E-05	514341.5	3754010.8	655.8	3.49	4.00	3.25	YES	
L0002459	0	0.23920E-05	514350.1	3754011.0	655.6	3.49	4.00	3.25	YES	
L0002460	0	0.23920E-05	514358.7	3754011.1	655.3	3.49	4.00	3.25	YES	
L0002461	0	0.23920E-05	514367.3	3754011.2	655.0	3.49	4.00	3.25	YES	
L0002462	0	0.23920E-05	514375.9	3754011.3	654.7	3.49	4.00	3.25	YES	
L0002463	0	0.23920E-05	514384.5	3754011.4	654.4	3.49	4.00	3.25	YES	
L0002464	0	0.23920E-05	514393.1	3754011.5	654.1	3.49	4.00	3.25	YES	
L0002465	0	0.23920E-05	514401.7	3754011.6	653.9	3.49	4.00	3.25	YES	
L0002466	0	0.23920E-05	514410.3	3754011.7	653.6	3.49	4.00	3.25	YES	
L0002467	0	0.23920E-05	514418.8	3754011.8	653.3	3.49	4.00	3.25	YES	
L0002468	0	0.23920E-05	514427.4	3754012.0	653.0	3.49	4.00	3.25	YES	
L0002469	0	0.23920E-05	514436.0	3754012.1	652.8	3.49	4.00	3.25	YES	
L0002470	0	0.23920E-05	514444.6	3754012.2	652.6	3.49	4.00	3.25	YES	
L0002471	0	0.23920E-05	514453.2	3754012.3	652.4	3.49	4.00	3.25	YES	
L0002472	0	0.23920E-05	514461.8	3754012.4	652.4	3.49	4.00	3.25	YES	
L0002473	0	0.23920E-05	514470.4	3754012.5	652.3	3.49	4.00	3.25	YES	
L0002474	0	0.23920E-05	514479.0	3754012.6	652.2	3.49	4.00	3.25	YES	
L0002475	0	0.23920E-05	514487.6	3754012.7	651.9	3.49	4.00	3.25	YES	
L0002476	0	0.23920E-05	514496.1	3754012.9	651.4	3.49	4.00	3.25	YES	
L0002477	0	0.23920E-05	514504.7	3754013.0	650.9	3.49	4.00	3.25	YES	
L0002478	0	0.23920E-05	514513.3	3754013.1	650.5	3.49	4.00	3.25	YES	
L0002479	0	0.23920E-05	514521.9	3754013.2	650.4	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002480	0	0.23920E-05	514530.5	3754013.3	650.3	3.49	4.00	3.25	YES	
L0002481	0	0.23920E-05	514539.1	3754013.4	650.3	3.49	4.00	3.25	YES	
L0002482	0	0.23920E-05	514547.7	3754013.5	650.1	3.49	4.00	3.25	YES	
L0002483	0	0.23920E-05	514556.3	3754013.6	649.8	3.49	4.00	3.25	YES	
L0002484	0	0.23920E-05	514564.9	3754013.7	649.5	3.49	4.00	3.25	YES	
L0002485	0	0.23920E-05	514573.5	3754013.9	649.2	3.49	4.00	3.25	YES	
L0002486	0	0.20050E-05	514044.1	3753960.0	662.1	3.49	4.00	3.25	YES	
L0002487	0	0.20050E-05	514044.3	3753951.4	661.8	3.49	4.00	3.25	YES	
L0002488	0	0.20050E-05	514044.4	3753942.9	661.5	3.49	4.00	3.25	YES	
L0002489	0	0.20050E-05	514044.5	3753934.3	661.2	3.49	4.00	3.25	YES	
L0002490	0	0.20050E-05	514044.6	3753925.7	660.9	3.49	4.00	3.25	YES	
L0002491	0	0.20050E-05	514044.8	3753917.1	660.6	3.49	4.00	3.25	YES	
L0002492	0	0.20050E-05	514044.9	3753908.5	660.4	3.49	4.00	3.25	YES	
L0002493	0	0.20050E-05	514045.0	3753899.9	660.3	3.49	4.00	3.25	YES	
L0002494	0	0.20050E-05	514045.1	3753891.3	660.1	3.49	4.00	3.25	YES	
L0002495	0	0.20050E-05	514045.2	3753882.7	659.9	3.49	4.00	3.25	YES	
L0002496	0	0.20050E-05	514045.4	3753874.1	659.6	3.49	4.00	3.25	YES	
L0002497	0	0.20050E-05	514045.5	3753865.6	659.4	3.49	4.00	3.25	YES	
L0002498	0	0.20050E-05	514045.6	3753857.0	659.1	3.49	4.00	3.25	YES	
L0002499	0	0.20050E-05	514045.7	3753848.4	658.9	3.49	4.00	3.25	YES	

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	L0001760 , L0001761 , L0001762 , L0001763 , L0001764 , L0001765 , L0001766 , L0001767 ,
	L0001768 , L0001769 , L0001770 , L0001771 , L0001772 , L0001773 , L0001774 , L0001775 ,
	L0001776 , L0001777 , L0001778 , L0001779 , L0001780 , L0001781 , L0001782 , L0001783 ,
	L0001784 , L0001785 , L0001786 , L0001787 , L0001788 , L0001789 , L0001790 , L0001791 ,
	L0001792 , L0001793 , L0001794 , L0001795 , L0001796 , L0001797 , L0001798 , L0001799 ,
	L0001800 , L0001801 , L0001802 , L0001803 , L0001804 , L0001805 , L0001806 , L0001807 ,
	L0001808 , L0001809 , L0001810 , L0001811 , L0001812 , L0001813 , L0001814 , L0001815 ,
	L0001816 , L0001817 , L0001818 , L0001819 , L0001820 , L0001821 , L0001822 , L0001823 ,
	L0001824 , L0001825 , L0001826 , L0001827 , L0001828 , L0001829 , L0001830 , L0001831 ,
	L0001832 , L0001833 , L0001834 , L0001835 , L0001836 , L0001837 , L0001838 , L0001839 ,
	L0001840 , L0001841 , L0001842 , L0001843 , L0001844 , L0001845 , L0001846 , L0001847 ,
	L0001848 , L0001849 , L0001850 , L0001851 , L0001852 , L0001853 , L0001854 , L0001855 ,
	L0001856 , L0001857 , L0001858 , L0001859 , L0001860 , L0001861 , L0001862 , L0001863 ,
	L0001864 , L0001865 , L0001866 , L0001867 , L0001868 , L0001869 , L0001870 , L0001871 ,
	L0001872 , L0001873 , L0001874 , L0001875 , L0001876 , L0001877 , L0001878 , L0001879 ,
	L0001880 , L0001881 , L0001882 , L0001883 , L0001884 , L0001885 , L0001886 , L0001887 ,
	L0001888 , L0001889 , L0001890 , L0001891 , L0001892 , L0001893 , L0001894 , L0001895 ,
	L0001896 , L0001897 , L0001898 , L0001899 , L0001900 , L0001901 , L0001902 , L0001903 ,
	L0001904 , L0001905 , L0001906 , L0001907 , L0001908 , L0001909 , L0001910 , L0001911 ,
	L0001912 , L0001913 , L0001914 , L0001915 , L0001916 , L0001917 , L0001918 , L0001919 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0001920 , L0001921 , L0001922 , L0001923 , L0001924 , L0001925 , L0001926 , L0001927 ,
	L0001928 , L0001929 , L0001930 , L0001931 , L0001932 , L0001933 , L0001934 , L0001935 ,
	L0001936 , L0001937 , L0001938 , L0001939 , L0001940 , L0001941 , L0001942 , L0001943 ,
	L0001944 , L0001945 , L0001946 , L0001947 , L0001948 , L0001949 , L0001950 , L0001951 ,
	L0001952 , L0001953 , L0001954 , L0001955 , L0001956 , L0001957 , L0001958 , L0001959 ,
	L0001960 , L0001961 , L0001962 , L0001963 , L0001964 , L0001965 , L0001966 , L0001967 ,
	L0001968 , L0001969 , L0001970 , L0001971 , L0001972 , L0001973 , L0001974 , L0001975 ,
	L0001976 , L0001977 , L0001978 , L0001979 , L0001980 , L0001981 , L0001982 , L0001983 ,
	L0001984 , L0001985 , L0001986 , L0001987 , L0001988 , L0001989 , L0001990 , L0001991 ,
	L0001992 , L0001993 , L0001994 , L0001995 , L0001996 , L0001997 , L0001998 , L0001999 ,
	L0002000 , L0002001 , L0002002 , L0002003 , L0002004 , L0002005 , L0002006 , L0002007 ,
	L0002008 , L0002009 , L0002010 , L0002011 , L0002012 , L0002013 , L0002014 , L0002015 ,
	L0002016 , L0002017 , L0002018 , L0002019 , L0002020 , L0002021 , L0002022 , L0002023 ,
	L0002024 , L0002025 , L0002026 , L0002027 , L0002028 , L0002029 , L0002030 , L0002031 ,
	L0002032 , L0002033 , L0002034 , L0002035 , L0002036 , L0002037 , L0002038 , L0002039 ,
	L0002040 , L0002041 , L0002042 , L0002043 , L0002044 , L0002045 , L0002046 , L0002047 ,
	L0002048 , L0002049 , L0002050 , L0002051 , L0002052 , L0002053 , L0002054 , L0002055 ,
	L0002056 , L0002057 , L0002058 , L0002059 , L0002060 , L0002061 , L0002062 , L0002063 ,
	L0002064 , L0002065 , L0002066 , L0002067 , L0002068 , L0002069 , L0002070 , L0002071 ,
	L0002072 , L0002073 , L0002074 , L0002075 , L0002076 , L0002077 , L0002078 , L0002079 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0002080 , L0002081 , L0002082 , L0002083 , L0002084 , L0002085 , L0002086 , L0002087 ,
	L0002088 , L0002089 , L0002090 , L0002091 , L0002092 , L0002093 , L0002094 , L0002095 ,
	L0002096 , L0002097 , L0002098 , L0002099 , L0002100 , L0002101 , L0002102 , L0002103 ,
	L0002104 , L0002105 , L0002106 , L0002107 , L0002108 , L0002109 , L0002110 , L0002111 ,
	L0002112 , L0002113 , L0002114 , L0002115 , L0002116 , L0002117 , L0002118 , L0002119 ,
	L0002120 , L0002121 , L0002122 , L0002123 , L0002124 , L0002125 , L0002126 , L0002127 ,
	L0002128 , L0002129 , L0002130 , L0002131 , L0002132 , L0002133 , L0002134 , L0002135 ,
	L0002136 , L0002137 , L0002138 , L0002139 , L0002140 , L0002141 , L0002142 , L0002143 ,
	L0002144 , L0002145 , L0002146 , L0002147 , L0002148 , L0002149 , L0002150 , L0002151 ,
	L0002152 , L0002153 , L0002154 , L0002155 , L0002156 , L0002157 , L0002158 , L0002159 ,
	L0002160 , L0002161 , L0002162 , L0002163 , L0002164 , L0002165 , L0002166 , L0002167 ,
	L0002168 , L0002169 , L0002170 , L0002171 , L0002172 , L0002173 , L0002174 , L0002175 ,
	L0002176 , L0002177 , L0002178 , L0002179 , L0002180 , L0002181 , L0002182 , L0002183 ,
	L0002184 , L0002185 , L0002186 , L0002187 , L0002188 , L0002189 , L0002190 , L0002191 ,
	L0002192 , L0002193 , L0002194 , L0002195 , L0002196 , L0002197 , L0002198 , L0002199 ,
	L0002200 , L0002201 , L0002202 , L0002203 , L0002204 , L0002205 , L0002206 , L0002207 ,
	L0002208 , L0002209 , L0002210 , L0002211 , L0002212 , L0002213 , L0002214 , L0002215 ,
	L0002216 , L0002217 , L0002218 , L0002219 , L0002220 , L0002221 , L0002222 , L0002223 ,
	L0002224 , L0002225 , L0002226 , L0002227 , L0002228 , L0002229 , L0002230 , L0002231 ,
	L0002232 , L0002233 , L0002234 , L0002235 , L0002236 , L0002237 , L0002238 , L0002239 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0002240 , L0002241 , L0002242 , L0002243 , L0002244 , L0002245 , L0002246 , L0002247 ,
	L0002248 , L0002249 , L0002250 , L0002251 , L0002252 , L0002253 , L0002254 , L0002255 ,
	L0002256 , L0002257 , L0002258 , L0002259 , L0002260 , L0002261 , L0002262 , L0002263 ,
	L0002264 , L0002265 , L0002266 , L0002267 , L0002268 , L0002269 , L0002270 , L0002271 ,
	L0002272 , L0002273 , L0002274 , L0002275 , L0002276 , L0002277 , L0002278 , L0002279 ,
	L0002280 , L0002281 , L0002282 , L0002283 , L0002284 , L0002285 , L0002286 , L0002287 ,
	L0002288 , L0002289 , L0002290 , L0002291 , L0002292 , L0002293 , L0002294 , L0002295 ,
	L0002296 , L0002297 , L0002298 , L0002299 , L0002300 , L0002301 , L0002302 , L0002303 ,
	L0002304 , L0002305 , L0002306 , L0002307 , L0002308 , L0002309 , L0002310 , L0002311 ,
	L0002312 , L0002313 , L0002314 , L0002315 , L0002316 , L0002317 , L0002318 , L0002319 ,
	L0002320 , L0002321 , L0002322 , L0002323 , L0002324 , L0002325 , L0002326 , L0002327 ,
	L0002328 , L0002329 , L0002330 , L0002331 , L0002332 , L0002333 , L0002334 , L0002335 ,
	L0002336 , L0002337 , L0002338 , L0002339 , L0002340 , L0002341 , L0002342 , L0002343 ,
	L0002344 , L0002345 , L0002346 , L0002347 , L0002348 , L0002349 , L0002350 , L0002351 ,
	L0002352 , L0002353 , L0002354 , L0002355 , L0002356 , L0002357 , L0002358 , L0002359 ,
	L0002360 , L0002361 , L0002362 , L0002363 , L0002364 , L0002365 , L0002366 , L0002367 ,
	L0002368 , L0002369 , L0002370 , L0002371 , L0002372 , L0002373 , L0002374 , L0002375 ,
	L0002376 , L0002377 , L0002378 , L0002379 , L0002380 , L0002381 , L0002382 , L0002383 ,
	L0002384 , L0002385 , L0002386 , L0002387 , L0002388 , L0002389 , L0002390 , L0002391 ,
	L0002392 , L0002393 , L0002394 , L0002395 , L0002396 , L0002397 , L0002398 , L0002399 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
	L0002400 , L0002401 , L0002402 , L0002403 , L0002404 , L0002405 , L0002406 , L0002407 ,
	L0002408 , L0002409 , L0002410 , L0002411 , L0002412 , L0002413 , L0002414 , L0002415 ,
	L0002416 , L0002417 , L0002418 , L0002419 , L0002420 , L0002421 , L0002422 , L0002423 ,
	L0002424 , L0002425 , L0002426 , L0002427 , L0002428 , L0002429 , L0002430 , L0002431 ,
	L0002432 , L0002433 , L0002434 , L0002435 , L0002436 , L0002437 , L0002438 , L0002439 ,
	L0002440 , L0002441 , L0002442 , L0002443 , L0002444 , L0002445 , L0002446 , L0002447 ,
	L0002448 , L0002449 , L0002450 , L0002451 , L0002452 , L0002453 , L0002454 , L0002455 ,
	L0002456 , L0002457 , L0002458 , L0002459 , L0002460 , L0002461 , L0002462 , L0002463 ,
	L0002464 , L0002465 , L0002466 , L0002467 , L0002468 , L0002469 , L0002470 , L0002471 ,
	L0002472 , L0002473 , L0002474 , L0002475 , L0002476 , L0002477 , L0002478 , L0002479 ,
	L0002480 , L0002481 , L0002482 , L0002483 , L0002484 , L0002485 , L0002486 , L0002487 ,
	L0002488 , L0002489 , L0002490 , L0002491 , L0002492 , L0002493 , L0002494 , L0002495 ,
	L0002496 , L0002497 , L0002498 , L0002499 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	2189641.	L0001760 , L0001761 , L0001762 , L0001763 , L0001764 , L0001765 , L0001766 , L0001767 ,
		L0001768 , L0001769 , L0001770 , L0001771 , L0001772 , L0001773 , L0001774 , L0001775 ,
		L0001776 , L0001777 , L0001778 , L0001779 , L0001780 , L0001781 , L0001782 , L0001783 ,
		L0001784 , L0001785 , L0001786 , L0001787 , L0001788 , L0001789 , L0001790 , L0001791 ,
		L0001792 , L0001793 , L0001794 , L0001795 , L0001796 , L0001797 , L0001798 , L0001799 ,
		L0001800 , L0001801 , L0001802 , L0001803 , L0001804 , L0001805 , L0001806 , L0001807 ,
		L0001808 , L0001809 , L0001810 , L0001811 , L0001812 , L0001813 , L0001814 , L0001815 ,
		L0001816 , L0001817 , L0001818 , L0001819 , L0001820 , L0001821 , L0001822 , L0001823 ,
		L0001824 , L0001825 , L0001826 , L0001827 , L0001828 , L0001829 , L0001830 , L0001831 ,
		L0001832 , L0001833 , L0001834 , L0001835 , L0001836 , L0001837 , L0001838 , L0001839 ,
		L0001840 , L0001841 , L0001842 , L0001843 , L0001844 , L0001845 , L0001846 , L0001847 ,
		L0001848 , L0001849 , L0001850 , L0001851 , L0001852 , L0001853 , L0001854 , L0001855 ,
		L0001856 , L0001857 , L0001858 , L0001859 , L0001860 , L0001861 , L0001862 , L0001863 ,
		L0001864 , L0001865 , L0001866 , L0001867 , L0001868 , L0001869 , L0001870 , L0001871 ,
		L0001872 , L0001873 , L0001874 , L0001875 , L0001876 , L0001877 , L0001878 , L0001879 ,
		L0001880 , L0001881 , L0001882 , L0001883 , L0001884 , L0001885 , L0001886 , L0001887 ,
		L0001888 , L0001889 , L0001890 , L0001891 , L0001892 , L0001893 , L0001894 , L0001895 ,
		L0001896 , L0001897 , L0001898 , L0001899 , L0001900 , L0001901 , L0001902 , L0001903 ,
		L0001904 , L0001905 , L0001906 , L0001907 , L0001908 , L0001909 , L0001910 , L0001911 ,
		L0001912 , L0001913 , L0001914 , L0001915 , L0001916 , L0001917 , L0001918 , L0001919 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0001920 , L0001921 , L0001922 , L0001923 , L0001924 , L0001925 , L0001926 , L0001927 ,
		L0001928 , L0001929 , L0001930 , L0001931 , L0001932 , L0001933 , L0001934 , L0001935 ,
		L0001936 , L0001937 , L0001938 , L0001939 , L0001940 , L0001941 , L0001942 , L0001943 ,
		L0001944 , L0001945 , L0001946 , L0001947 , L0001948 , L0001949 , L0001950 , L0001951 ,
		L0001952 , L0001953 , L0001954 , L0001955 , L0001956 , L0001957 , L0001958 , L0001959 ,
		L0001960 , L0001961 , L0001962 , L0001963 , L0001964 , L0001965 , L0001966 , L0001967 ,
		L0001968 , L0001969 , L0001970 , L0001971 , L0001972 , L0001973 , L0001974 , L0001975 ,
		L0001976 , L0001977 , L0001978 , L0001979 , L0001980 , L0001981 , L0001982 , L0001983 ,
		L0001984 , L0001985 , L0001986 , L0001987 , L0001988 , L0001989 , L0001990 , L0001991 ,
		L0001992 , L0001993 , L0001994 , L0001995 , L0001996 , L0001997 , L0001998 , L0001999 ,
		L0002000 , L0002001 , L0002002 , L0002003 , L0002004 , L0002005 , L0002006 , L0002007 ,
		L0002008 , L0002009 , L0002010 , L0002011 , L0002012 , L0002013 , L0002014 , L0002015 ,
		L0002016 , L0002017 , L0002018 , L0002019 , L0002020 , L0002021 , L0002022 , L0002023 ,
		L0002024 , L0002025 , L0002026 , L0002027 , L0002028 , L0002029 , L0002030 , L0002031 ,
		L0002032 , L0002033 , L0002034 , L0002035 , L0002036 , L0002037 , L0002038 , L0002039 ,
		L0002040 , L0002041 , L0002042 , L0002043 , L0002044 , L0002045 , L0002046 , L0002047 ,
		L0002048 , L0002049 , L0002050 , L0002051 , L0002052 , L0002053 , L0002054 , L0002055 ,
		L0002056 , L0002057 , L0002058 , L0002059 , L0002060 , L0002061 , L0002062 , L0002063 ,
		L0002064 , L0002065 , L0002066 , L0002067 , L0002068 , L0002069 , L0002070 , L0002071 ,
		L0002072 , L0002073 , L0002074 , L0002075 , L0002076 , L0002077 , L0002078 , L0002079 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0002080 , L0002081 , L0002082 , L0002083 , L0002084 , L0002085 , L0002086 , L0002087 ,
		L0002088 , L0002089 , L0002090 , L0002091 , L0002092 , L0002093 , L0002094 , L0002095 ,
		L0002096 , L0002097 , L0002098 , L0002099 , L0002100 , L0002101 , L0002102 , L0002103 ,
		L0002104 , L0002105 , L0002106 , L0002107 , L0002108 , L0002109 , L0002110 , L0002111 ,
		L0002112 , L0002113 , L0002114 , L0002115 , L0002116 , L0002117 , L0002118 , L0002119 ,
		L0002120 , L0002121 , L0002122 , L0002123 , L0002124 , L0002125 , L0002126 , L0002127 ,
		L0002128 , L0002129 , L0002130 , L0002131 , L0002132 , L0002133 , L0002134 , L0002135 ,
		L0002136 , L0002137 , L0002138 , L0002139 , L0002140 , L0002141 , L0002142 , L0002143 ,
		L0002144 , L0002145 , L0002146 , L0002147 , L0002148 , L0002149 , L0002150 , L0002151 ,
		L0002152 , L0002153 , L0002154 , L0002155 , L0002156 , L0002157 , L0002158 , L0002159 ,
		L0002160 , L0002161 , L0002162 , L0002163 , L0002164 , L0002165 , L0002166 , L0002167 ,
		L0002168 , L0002169 , L0002170 , L0002171 , L0002172 , L0002173 , L0002174 , L0002175 ,
		L0002176 , L0002177 , L0002178 , L0002179 , L0002180 , L0002181 , L0002182 , L0002183 ,
		L0002184 , L0002185 , L0002186 , L0002187 , L0002188 , L0002189 , L0002190 , L0002191 ,
		L0002192 , L0002193 , L0002194 , L0002195 , L0002196 , L0002197 , L0002198 , L0002199 ,
		L0002200 , L0002201 , L0002202 , L0002203 , L0002204 , L0002205 , L0002206 , L0002207 ,
		L0002208 , L0002209 , L0002210 , L0002211 , L0002212 , L0002213 , L0002214 , L0002215 ,
		L0002216 , L0002217 , L0002218 , L0002219 , L0002220 , L0002221 , L0002222 , L0002223 ,
		L0002224 , L0002225 , L0002226 , L0002227 , L0002228 , L0002229 , L0002230 , L0002231 ,
		L0002232 , L0002233 , L0002234 , L0002235 , L0002236 , L0002237 , L0002238 , L0002239 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0002240 , L0002241 , L0002242 , L0002243 , L0002244 , L0002245 , L0002246 , L0002247 ,
		L0002248 , L0002249 , L0002250 , L0002251 , L0002252 , L0002253 , L0002254 , L0002255 ,
		L0002256 , L0002257 , L0002258 , L0002259 , L0002260 , L0002261 , L0002262 , L0002263 ,
		L0002264 , L0002265 , L0002266 , L0002267 , L0002268 , L0002269 , L0002270 , L0002271 ,
		L0002272 , L0002273 , L0002274 , L0002275 , L0002276 , L0002277 , L0002278 , L0002279 ,
		L0002280 , L0002281 , L0002282 , L0002283 , L0002284 , L0002285 , L0002286 , L0002287 ,
		L0002288 , L0002289 , L0002290 , L0002291 , L0002292 , L0002293 , L0002294 , L0002295 ,
		L0002296 , L0002297 , L0002298 , L0002299 , L0002300 , L0002301 , L0002302 , L0002303 ,
		L0002304 , L0002305 , L0002306 , L0002307 , L0002308 , L0002309 , L0002310 , L0002311 ,
		L0002312 , L0002313 , L0002314 , L0002315 , L0002316 , L0002317 , L0002318 , L0002319 ,
		L0002320 , L0002321 , L0002322 , L0002323 , L0002324 , L0002325 , L0002326 , L0002327 ,
		L0002328 , L0002329 , L0002330 , L0002331 , L0002332 , L0002333 , L0002334 , L0002335 ,
		L0002336 , L0002337 , L0002338 , L0002339 , L0002340 , L0002341 , L0002342 , L0002343 ,
		L0002344 , L0002345 , L0002346 , L0002347 , L0002348 , L0002349 , L0002350 , L0002351 ,
		L0002352 , L0002353 , L0002354 , L0002355 , L0002356 , L0002357 , L0002358 , L0002359 ,
		L0002360 , L0002361 , L0002362 , L0002363 , L0002364 , L0002365 , L0002366 , L0002367 ,
		L0002368 , L0002369 , L0002370 , L0002371 , L0002372 , L0002373 , L0002374 , L0002375 ,
		L0002376 , L0002377 , L0002378 , L0002379 , L0002380 , L0002381 , L0002382 , L0002383 ,
		L0002384 , L0002385 , L0002386 , L0002387 , L0002388 , L0002389 , L0002390 , L0002391 ,
		L0002392 , L0002393 , L0002394 , L0002395 , L0002396 , L0002397 , L0002398 , L0002399 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0002400 , L0002401 , L0002402 , L0002403 , L0002404 , L0002405 , L0002406 , L0002407 ,
		L0002408 , L0002409 , L0002410 , L0002411 , L0002412 , L0002413 , L0002414 , L0002415 ,
		L0002416 , L0002417 , L0002418 , L0002419 , L0002420 , L0002421 , L0002422 , L0002423 ,
		L0002424 , L0002425 , L0002426 , L0002427 , L0002428 , L0002429 , L0002430 , L0002431 ,
		L0002432 , L0002433 , L0002434 , L0002435 , L0002436 , L0002437 , L0002438 , L0002439 ,
		L0002440 , L0002441 , L0002442 , L0002443 , L0002444 , L0002445 , L0002446 , L0002447 ,
		L0002448 , L0002449 , L0002450 , L0002451 , L0002452 , L0002453 , L0002454 , L0002455 ,
		L0002456 , L0002457 , L0002458 , L0002459 , L0002460 , L0002461 , L0002462 , L0002463 ,
		L0002464 , L0002465 , L0002466 , L0002467 , L0002468 , L0002469 , L0002470 , L0002471 ,
		L0002472 , L0002473 , L0002474 , L0002475 , L0002476 , L0002477 , L0002478 , L0002479 ,
		L0002480 , L0002481 , L0002482 , L0002483 , L0002484 , L0002485 , L0002486 , L0002487 ,
		L0002488 , L0002489 , L0002490 , L0002491 , L0002492 , L0002493 , L0002494 , L0002495 ,
		L0002496 , L0002497 , L0002498 , L0002499 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

511856.5, 511956.5, 512056.5, 512156.5, 512256.5, 512356.5, 512456.5, 512556.5, 512656.5, 512756.5,
512856.5, 512956.5, 513056.5, 513156.5, 513256.5, 513356.5, 513456.5, 513556.5, 513656.5, 513756.5,
513856.5, 513956.5, 514056.5, 514156.5, 514256.5, 514356.5, 514456.5, 514556.5, 514656.5, 514756.5,

*** Y-COORDINATES OF GRID ***
(METERS)

3752637.2, 3752737.2, 3752837.2, 3752937.2, 3753037.2, 3753137.2, 3753237.2, 3753337.2, 3753437.2, 3753537.2,
3753637.2, 3753737.2, 3753837.2, 3753937.2, 3754037.2, 3754137.2, 3754237.2, 3754337.2, 3754437.2, 3754537.2,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	727.60	725.90	724.60	722.70	720.90	719.60	717.70	715.90	713.60
3754437.16	723.90	722.40	721.20	719.40	717.60	716.20	713.90	712.40	710.20
3754337.16	720.00	719.00	717.90	716.00	714.20	712.90	711.00	709.00	706.90
3754237.16	716.90	715.80	714.60	713.20	711.70	709.70	708.20	706.10	704.00
3754137.16	714.40	713.40	711.40	710.20	708.40	707.20	705.40	703.50	701.30
3754037.16	712.00	710.00	708.90	707.50	706.00	704.00	702.60	700.20	698.90
3753937.16	709.20	706.90	705.70	704.40	702.90	701.60	699.90	697.80	695.70
3753837.16	706.40	704.60	703.20	701.40	699.60	698.40	697.40	695.50	693.20
3753737.16	704.50	702.20	700.00	698.60	696.20	696.00	695.00	693.20	690.90
3753637.16	702.20	699.80	697.60	695.20	694.10	692.70	691.70	689.90	687.60
3753537.16	699.20	696.60	695.20	692.90	691.50	689.90	688.20	686.40	684.40
3753437.16	696.60	694.20	692.80	690.60	689.00	686.90	685.00	683.20	681.80
3753337.16	694.20	692.10	690.60	688.40	686.70	684.60	682.40	680.70	678.70
3753237.16	691.70	690.10	687.90	685.90	684.10	682.30	680.20	678.10	676.20
3753137.16	689.50	688.00	685.80	683.50	682.00	679.90	678.00	676.00	673.80
3753037.16	687.20	684.90	683.00	681.20	679.80	677.60	675.90	674.00	671.80
3752937.16	684.90	682.60	681.20	679.20	677.50	675.30	673.70	672.10	670.30
3752837.16	683.00	681.20	679.00	677.00	675.20	673.00	671.50	670.00	668.00
3752737.16	681.20	679.10	677.00	675.20	673.10	671.00	669.40	667.80	666.60
3752637.16	679.20	677.10	675.20	673.20	671.20	669.20	667.70	666.10	664.30

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	711.20	709.90	707.80	704.90	701.90	698.60	696.20	693.90	690.60
3754437.16	707.40	706.90	706.20	702.70	699.50	695.80	692.90	690.60	688.20
3754337.16	704.60	703.20	701.90	699.60	697.20	693.90	690.60	687.20	685.00
3754237.16	702.20	700.70	698.60	696.70	694.70	691.10	687.20	684.90	682.60
3754137.16	699.70	698.10	695.90	693.90	690.90	688.20	683.90	681.50	679.30
3754037.16	697.00	695.20	692.90	690.60	688.20	685.80	682.60	679.20	676.90
3753937.16	694.40	692.10	689.70	687.20	684.90	682.60	680.20	677.80	674.60
3753837.16	691.40	689.40	686.40	684.70	682.10	680.20	677.70	675.20	672.80
3753737.16	688.60	686.20	683.90	681.50	680.10	677.80	675.50	673.00	670.80
3753637.16	685.90	684.10	682.00	679.20	676.90	675.60	673.20	670.20	668.00
3753537.16	682.90	681.50	679.20	676.40	674.50	672.40	670.90	669.60	666.20
3753437.16	679.60	678.00	675.90	673.60	672.00	669.90	668.50	666.20	663.90
3753337.16	676.70	674.90	672.60	670.40	668.90	667.60	665.90	663.80	661.60
3753237.16	674.20	672.40	669.90	668.20	667.10	665.30	663.70	661.50	659.90
3753137.16	671.50	670.00	668.00	666.50	665.00	663.00	661.50	659.20	657.00
3753037.16	669.50	668.00	666.60	664.90	662.90	660.70	659.20	657.10	655.00
3752937.16	668.20	666.50	664.30	662.70	660.60	658.40	656.90	654.60	652.90
3752837.16	666.50	664.20	662.80	660.60	659.00	656.80	654.60	652.20	650.80
3752737.16	664.40	662.80	660.60	658.70	656.90	654.60	652.20	650.10	648.00
3752637.16	662.70	660.60	658.80	656.70	654.50	652.20	649.90	647.60	645.90

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	687.50	684.90	681.60	678.50	675.90	672.60	670.20	667.80	664.80
3754437.16	685.70	682.60	679.20	676.50	673.60	670.30	667.70	665.50	662.80
3754337.16	683.50	680.20	676.90	674.50	672.00	668.90	666.00	663.20	660.00
3754237.16	680.20	677.80	674.60	672.20	669.20	666.60	663.90	661.20	657.80
3754137.16	676.90	674.60	671.90	669.70	666.60	664.20	661.70	659.50	658.20
3754037.16	674.60	671.20	669.80	666.60	664.00	660.90	659.00	656.20	653.90
3753937.16	672.40	670.10	667.60	664.20	660.90	657.70	655.90	652.90	649.60
3753837.16	669.90	667.60	664.80	661.70	658.20	655.80	652.90	649.60	646.20
3753737.16	668.00	665.20	662.80	659.60	656.20	653.70	649.60	646.20	643.90
3753637.16	665.90	663.10	660.60	658.20	654.90	651.60	648.20	644.90	641.60
3753537.16	662.90	660.60	659.20	655.90	652.60	649.80	646.70	643.20	639.20
3753437.16	660.50	658.00	655.90	652.60	649.20	647.80	644.60	640.40	636.90
3753337.16	659.90	656.30	653.60	649.40	646.10	644.60	641.20	637.90	634.70
3753237.16	657.70	654.60	651.20	647.90	645.20	641.90	637.90	635.10	632.80
3753137.16	654.60	652.20	648.90	645.60	643.20	639.90	635.10	633.00	630.80
3753037.16	652.50	649.90	646.80	644.50	642.20	639.80	636.50	634.20	630.80
3752937.16	650.90	648.20	645.80	643.50	641.10	638.90	636.70	634.50	631.80
3752837.16	649.00	643.40	642.10	641.60	639.20	638.00	636.50	634.20	631.80
3752737.16	646.70	641.30	641.00	640.50	636.90	635.70	635.70	634.20	631.80
3752637.16	642.70	639.10	639.00	638.50	635.20	634.00	634.00	634.00	631.80

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 514556.45	514656.45	514756.45
3754537.16	662.20	659.20	656.60
3754437.16	659.90	656.70	653.70
3754337.16	658.00	654.40	650.90
3754237.16	655.20	652.10	648.80
3754137.16	653.20	649.60	646.30
3754037.16	650.60	647.20	644.00
3753937.16	647.20	644.10	642.00
3753837.16	643.90	641.60	639.40
3753737.16	641.50	639.20	636.90
3753637.16	638.70	636.10	633.70
3753537.16	635.70	633.50	631.30
3753437.16	633.50	631.20	628.90
3753337.16	633.20	628.90	626.00
3753237.16	629.90	626.60	623.20
3753137.16	627.00	623.20	621.00
3753037.16	626.40	621.20	620.00
3752937.16	627.30	623.80	641.50
3752837.16	629.00	628.80	657.20
3752737.16	630.00	630.30	664.40
3752637.16	630.00	636.80	662.10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3754037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00	1588.00
3754437.16	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00
3754337.16	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1588.00	1588.00
3754237.16	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1588.00
3754137.16	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00	1586.00
3754037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00	1586.00
3753937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00
3753837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00
3753737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1551.00
3753637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753537.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753437.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753337.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	1588.00	1590.00	1590.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754437.16	1588.00	1588.00	1590.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754337.16	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00	1719.00
3754237.16	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00
3754137.16	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1590.00	1719.00	1719.00
3754037.16	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1719.00	1719.00
3753937.16	1586.00	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1590.00	1719.00
3753837.16	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1588.00	1590.00	1719.00
3753737.16	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1590.00	1719.00
3753637.16	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00	1590.00
3753537.16	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00	1588.00
3753437.16	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00	1588.00
3753337.16	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00	1588.00
3753237.16	1331.00	1331.00	1331.00	1331.00	1551.00	1551.00	1586.00	1586.00	1586.00
3753137.16	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1586.00	1586.00
3753037.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00	1551.00	1551.00
3752937.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1550.00
3752837.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1381.00	1382.00
3752737.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1382.00	1382.00
3752637.16	1331.00	1331.00	1331.00	1331.00	1331.00	1331.00	1382.00	1382.00	1382.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)		
	514556.45	514656.45	514756.45
3754537.16	1719.00	1719.00	1719.00
3754437.16	1719.00	1719.00	1719.00
3754337.16	1719.00	1719.00	1719.00
3754237.16	1719.00	1719.00	1719.00
3754137.16	1719.00	1719.00	1719.00
3754037.16	1719.00	1719.00	1719.00
3753937.16	1719.00	1719.00	1719.00
3753837.16	1719.00	1719.00	1719.00
3753737.16	1719.00	1719.00	1719.00
3753637.16	1719.00	1719.00	1719.00
3753537.16	1719.00	1719.00	1719.00
3753437.16	1588.00	1719.00	1719.00
3753337.16	1588.00	1719.00	1719.00
3753237.16	1588.00	1719.00	1719.00
3753137.16	1586.00	1588.00	1719.00
3753037.16	1586.00	1586.00	1588.00
3752937.16	1551.00	1586.00	1550.00
3752837.16	1382.00	1550.00	1382.00
3752737.16	1382.00	1382.00	1382.00
3752637.16	1382.00	1382.00	1382.00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(	512174.7,	3753646.0,	695.0,	1331.0,	0.0);	(	512192.0,	3753577.1,	693.2,	1331.0,	0.0);
(	512191.5,	3753561.7,	693.1,	1331.0,	0.0);	(	512212.9,	3753560.2,	692.7,	1331.0,	0.0);
(	512190.8,	3753493.9,	691.3,	1331.0,	0.0);	(	512214.5,	3753494.9,	691.0,	1331.0,	0.0);
(	512209.8,	3753472.5,	690.8,	1331.0,	0.0);	(	512399.0,	3753474.9,	687.3,	1331.0,	0.0);
(	512216.6,	3753638.8,	694.8,	1331.0,	0.0);	(	512374.8,	3753474.1,	687.5,	1331.0,	0.0);
(	513208.8,	3753268.6,	666.7,	1331.0,	0.0);						

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0001862	512456.5	3753637.2	0.61
L0001863	512456.5	3753637.2	0.66
L0001944	513156.5	3753737.2	-2.63
L0001945	513156.5	3753737.2	-0.70
L0002028	513856.5	3753937.2	0.98
L0002029	513856.5	3753937.2	-5.04
L0002030	513856.5	3753937.2	0.41
L0002100	514256.5	3753737.2	0.73
L0002112	514356.5	3753737.2	-0.57
L0002123	514456.5	3753737.2	0.18
L0002124	514456.5	3753737.2	-0.68
L0002135	514556.5	3753737.2	-2.05
L0002136	514556.5	3753737.2	0.42
L0002179	514556.5	3754037.2	-4.60
L0002180	514556.5	3754037.2	-2.31
L0002190	514456.5	3754037.2	0.85
L0002191	514456.5	3754037.2	-4.32
L0002202	514356.5	3754037.2	-0.71
L0002203	514356.5	3754037.2	-1.93
L0002214	514256.5	3754037.2	-0.91
L0002399	514156.5	3753837.2	-1.13
L0002411	514256.5	3753837.2	0.10

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.SFC Met Version: 16216
Profile file: ..\..\BanningADJU\BNAP_V9_ADJU\BNAP_v9.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 3171 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN
Year: 2011 Year: 2011

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
11	01	01	1	01	-50.0	0.519	-9.000	-9.000	-999.	897.	296.2	0.15	4.23	1.00	5.40	108.	9.1	274.2	5.5
11	01	01	1	02	-54.0	0.559	-9.000	-9.000	-999.	1002.	343.7	0.15	4.23	1.00	5.80	113.	9.1	273.8	5.5
11	01	01	1	03	-50.2	0.519	-9.000	-9.000	-999.	899.	296.1	0.15	4.23	1.00	5.40	112.	9.1	273.1	5.5
11	01	01	1	04	-45.5	0.469	-9.000	-9.000	-999.	773.	241.8	0.15	4.23	1.00	4.90	111.	9.1	272.5	5.5
11	01	01	1	05	-13.5	0.164	-9.000	-9.000	-999.	293.	29.5	0.15	4.23	1.00	1.80	78.	9.1	270.9	5.5
11	01	01	1	06	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	58.	9.1	270.4	5.5
11	01	01	1	07	-19.9	0.203	-9.000	-9.000	-999.	220.	45.4	0.15	4.23	1.00	2.20	54.	9.1	270.4	5.5
11	01	01	1	08	-12.2	0.206	-9.000	-9.000	-999.	224.	60.4	0.15	4.23	0.55	2.20	60.	9.1	270.9	5.5
11	01	01	1	09	45.6	0.455	0.587	0.005	150.	738.	-174.7	0.15	4.23	0.34	4.50	96.	9.1	273.8	5.5
11	01	01	1	10	126.7	0.592	0.981	0.005	252.	1092.	-138.5	0.15	4.23	0.27	5.80	102.	9.1	274.9	5.5
11	01	01	1	11	195.5	0.684	1.823	0.009	1048.	1355.	-138.3	0.15	4.23	0.25	6.70	100.	9.1	275.9	5.5
11	01	01	1	12	229.2	0.688	2.066	0.009	1302.	1370.	-120.1	0.15	4.23	0.24	6.70	96.	9.1	276.4	5.5
11	01	01	1	13	190.6	0.647	1.999	0.009	1417.	1254.	-120.0	0.15	4.23	0.24	6.30	95.	9.1	277.0	5.5
11	01	01	1	14	115.4	0.590	1.708	0.009	1459.	1094.	-150.2	0.15	4.23	0.26	5.80	98.	9.1	277.0	5.5
11	01	01	1	15	101.2	0.588	1.649	0.009	1496.	1081.	-169.0	0.15	4.23	0.29	5.80	99.	9.1	276.4	5.5
11	01	01	1	16	27.7	0.534	1.074	0.009	1507.	940.	-462.4	0.15	4.23	0.38	5.40	103.	9.1	276.4	5.5
11	01	01	1	17	-42.8	0.469	-9.000	-9.000	-999.	777.	242.4	0.15	4.23	0.67	4.90	106.	9.1	275.9	5.5
11	01	01	1	18	-32.7	0.340	-9.000	-9.000	-999.	489.	127.2	0.15	4.23	1.00	3.60	100.	9.1	274.9	5.5
11	01	01	1	19	-24.4	0.252	-9.000	-9.000	-999.	308.	69.8	0.15	4.23	1.00	2.70	70.	9.1	273.1	5.5
11	01	01	1	20	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	85.	9.1	273.1	5.5
11	01	01	1	21	-28.2	0.291	-9.000	-9.000	-999.	377.	93.1	0.15	4.23	1.00	3.10	82.	9.1	273.1	5.5
11	01	01	1	22	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	64.	9.1	272.5	5.5
11	01	01	1	23	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	61.	9.1	272.5	5.5
11	01	01	1	24	-24.5	0.252	-9.000	-9.000	-999.	304.	69.8	0.15	4.23	1.00	2.70	76.	9.1	272.5	5.5

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
11	01	01	01	5.5	0	-999.	-99.00	274.3	99.0	-99.00	-99.00
11	01	01	01	9.1	1	108.	5.40	-999.0	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001760 , L0001761 , L0001762 , L0001763 , L0001764 ,
L0001765 , L0001766 , L0001767 , L0001768 , L0001769 , L0001770 , L0001771 , L0001772 ,
L0001773 , L0001774 , L0001775 , L0001776 , L0001777 , L0001778 , L0001779 , L0001780 ,
L0001781 , L0001782 , L0001783 , L0001784 , L0001785 , L0001786 , L0001787 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	511856.45	511956.45	512056.45	512156.45	512256.45	512356.45	512456.45	512556.45	512656.45
3754537.16	0.00007	0.00007	0.00007	0.00008	0.00008	0.00009	0.00009	0.00010	0.00010
3754437.16	0.00007	0.00008	0.00008	0.00009	0.00010	0.00010	0.00011	0.00012	0.00013
3754337.16	0.00008	0.00009	0.00009	0.00010	0.00011	0.00012	0.00013	0.00014	0.00015
3754237.16	0.00009	0.00010	0.00011	0.00012	0.00012	0.00014	0.00015	0.00016	0.00018
3754137.16	0.00010	0.00011	0.00012	0.00013	0.00015	0.00016	0.00017	0.00019	0.00022
3754037.16	0.00012	0.00013	0.00014	0.00016	0.00018	0.00020	0.00022	0.00025	0.00028
3753937.16	0.00014	0.00016	0.00018	0.00021	0.00023	0.00026	0.00031	0.00036	0.00042
3753837.16	0.00018	0.00021	0.00025	0.00032	0.00039	0.00046	0.00053	0.00061	0.00071
3753737.16	0.00024	0.00030	0.00044	0.00086	0.00150	0.00111	0.00112	0.00135	0.00171
3753637.16	0.00028	0.00039	0.00065	0.00171	0.00300	0.00209	0.00404	0.00448	0.00334
3753537.16	0.00029	0.00044	0.00076	0.00202	0.00355	0.00335	0.00460	0.00220	0.00154
3753437.16	0.00027	0.00039	0.00060	0.00107	0.00171	0.00205	0.00163	0.00120	0.00096
3753337.16	0.00024	0.00031	0.00041	0.00052	0.00061	0.00062	0.00059	0.00058	0.00056
3753237.16	0.00022	0.00026	0.00031	0.00035	0.00037	0.00038	0.00037	0.00037	0.00038
3753137.16	0.00019	0.00022	0.00024	0.00026	0.00028	0.00028	0.00029	0.00029	0.00030
3753037.16	0.00017	0.00019	0.00021	0.00022	0.00023	0.00024	0.00024	0.00025	0.00025
3752937.16	0.00016	0.00017	0.00018	0.00019	0.00020	0.00020	0.00021	0.00022	0.00022
3752837.16	0.00014	0.00015	0.00016	0.00017	0.00018	0.00018	0.00019	0.00020	0.00020
3752737.16	0.00013	0.00014	0.00015	0.00015	0.00016	0.00017	0.00017	0.00018	0.00018
3752637.16	0.00012	0.00013	0.00013	0.00014	0.00015	0.00015	0.00016	0.00016	0.00017

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001760 , L0001761 , L0001762 , L0001763 , L0001764 ,
L0001765 , L0001766 , L0001767 , L0001768 , L0001769 , L0001770 , L0001771 , L0001772 ,
L0001773 , L0001774 , L0001775 , L0001776 , L0001777 , L0001778 , L0001779 , L0001780 ,
L0001781 , L0001782 , L0001783 , L0001784 , L0001785 , L0001786 , L0001787 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	512756.45	512856.45	512956.45	513056.45	513156.45	513256.45	513356.45	513456.45	513556.45
3754537.16	0.00011	0.00011	0.00012	0.00012	0.00013	0.00014	0.00015	0.00016	0.00017
3754437.16	0.00014	0.00014	0.00015	0.00016	0.00017	0.00019	0.00021	0.00022	0.00023
3754337.16	0.00016	0.00018	0.00019	0.00021	0.00023	0.00026	0.00029	0.00031	0.00034
3754237.16	0.00020	0.00022	0.00025	0.00028	0.00031	0.00035	0.00040	0.00044	0.00048
3754137.16	0.00025	0.00028	0.00032	0.00036	0.00042	0.00048	0.00056	0.00063	0.00072
3754037.16	0.00032	0.00037	0.00043	0.00049	0.00056	0.00064	0.00076	0.00091	0.00108
3753937.16	0.00048	0.00055	0.00063	0.00071	0.00082	0.00096	0.00115	0.00141	0.00185
3753837.16	0.00082	0.00094	0.00108	0.00124	0.00148	0.00184	0.00263	0.00512	0.00511
3753737.16	0.00203	0.00242	0.00317	0.00492	0.00574	0.00358	0.00244	0.00197	0.00177
3753637.16	0.00271	0.00226	0.00191	0.00164	0.00146	0.00133	0.00124	0.00119	0.00120
3753537.16	0.00126	0.00111	0.00101	0.00094	0.00090	0.00088	0.00087	0.00089	0.00094
3753437.16	0.00082	0.00075	0.00071	0.00068	0.00067	0.00067	0.00069	0.00072	0.00077
3753337.16	0.00055	0.00053	0.00053	0.00053	0.00053	0.00055	0.00057	0.00060	0.00065
3753237.16	0.00039	0.00040	0.00041	0.00042	0.00044	0.00046	0.00048	0.00051	0.00054
3753137.16	0.00031	0.00032	0.00034	0.00035	0.00037	0.00039	0.00041	0.00044	0.00046
3753037.16	0.00026	0.00028	0.00029	0.00030	0.00032	0.00034	0.00036	0.00038	0.00039
3752937.16	0.00023	0.00024	0.00025	0.00027	0.00028	0.00030	0.00031	0.00033	0.00034
3752837.16	0.00021	0.00022	0.00023	0.00024	0.00025	0.00026	0.00027	0.00028	0.00029
3752737.16	0.00019	0.00020	0.00021	0.00022	0.00023	0.00023	0.00024	0.00025	0.00026
3752637.16	0.00018	0.00018	0.00019	0.00020	0.00020	0.00021	0.00022	0.00022	0.00022

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001760 , L0001761 , L0001762 , L0001763 , L0001764 ,
L0001765 , L0001766 , L0001767 , L0001768 , L0001769 , L0001770 , L0001771 , L0001772 ,
L0001773 , L0001774 , L0001775 , L0001776 , L0001777 , L0001778 , L0001779 , L0001780 ,
L0001781 , L0001782 , L0001783 , L0001784 , L0001785 , L0001786 , L0001787 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	513656.45	513756.45	513856.45	513956.45	514056.45	514156.45	514256.45	514356.45	514456.45
3754537.16	0.00018	0.00019	0.00021	0.00024	0.00026	0.00030	0.00033	0.00037	0.00042
3754437.16	0.00025	0.00027	0.00030	0.00033	0.00037	0.00042	0.00048	0.00054	0.00062
3754337.16	0.00036	0.00040	0.00045	0.00049	0.00054	0.00062	0.00073	0.00087	0.00104
3754237.16	0.00053	0.00060	0.00070	0.00080	0.00093	0.00109	0.00132	0.00164	0.00201
3754137.16	0.00082	0.00095	0.00113	0.00139	0.00181	0.00233	0.00320	0.00433	0.00583
3754037.16	0.00132	0.00167	0.00210	0.00302	0.00449	0.00761	0.01517	0.02163	0.02350
3753937.16	0.00257	0.00421	0.00646	0.00838	0.01887	0.00872	0.00825	0.00867	0.00883
3753837.16	0.00328	0.00295	0.00355	0.00734	0.01340	0.02313	0.02422	0.02495	0.02340
3753737.16	0.00175	0.00195	0.00256	0.00464	0.01114	0.01359	0.01350	0.01431	0.01356
3753637.16	0.00129	0.00147	0.00181	0.00229	0.00273	0.00305	0.00327	0.00335	0.00322
3753537.16	0.00103	0.00116	0.00133	0.00152	0.00166	0.00175	0.00177	0.00173	0.00161
3753437.16	0.00084	0.00093	0.00102	0.00110	0.00116	0.00118	0.00116	0.00110	0.00102
3753337.16	0.00070	0.00075	0.00080	0.00084	0.00085	0.00086	0.00083	0.00078	0.00073
3753237.16	0.00058	0.00061	0.00064	0.00066	0.00066	0.00065	0.00062	0.00059	0.00056
3753137.16	0.00049	0.00051	0.00052	0.00053	0.00052	0.00051	0.00049	0.00047	0.00044
3753037.16	0.00041	0.00042	0.00043	0.00043	0.00043	0.00042	0.00040	0.00039	0.00037
3752937.16	0.00035	0.00036	0.00036	0.00036	0.00035	0.00035	0.00034	0.00032	0.00031
3752837.16	0.00030	0.00030	0.00030	0.00030	0.00030	0.00029	0.00028	0.00028	0.00027
3752737.16	0.00026	0.00026	0.00026	0.00026	0.00025	0.00025	0.00024	0.00024	0.00023
3752637.16	0.00023	0.00022	0.00022	0.00022	0.00022	0.00021	0.00021	0.00021	0.00020

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001760 , L0001761 , L0001762 , L0001763 , L0001764 ,
L0001765 , L0001766 , L0001767 , L0001768 , L0001769 , L0001770 , L0001771 , L0001772 ,
L0001773 , L0001774 , L0001775 , L0001776 , L0001777 , L0001778 , L0001779 , L0001780 ,
L0001781 , L0001782 , L0001783 , L0001784 , L0001785 , L0001786 , L0001787 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 514556.45	514656.45	514756.45
3754537.16	0.00046	0.00052	0.00056
3754437.16	0.00070	0.00078	0.00083
3754337.16	0.00114	0.00125	0.00131
3754237.16	0.00224	0.00235	0.00230
3754137.16	0.00735	0.00550	0.00401
3754037.16	0.02036	0.00988	0.00554
3753937.16	0.00863	0.00799	0.00551
3753837.16	0.01666	0.00875	0.00526
3753737.16	0.01313	0.00675	0.00397
3753637.16	0.00288	0.00245	0.00212
3753537.16	0.00146	0.00133	0.00122
3753437.16	0.00094	0.00087	0.00081
3753337.16	0.00068	0.00063	0.00058
3753237.16	0.00052	0.00048	0.00045
3753137.16	0.00041	0.00039	0.00037
3753037.16	0.00034	0.00032	0.00031
3752937.16	0.00029	0.00028	0.00029
3752837.16	0.00025	0.00025	0.00022
3752737.16	0.00022	0.00022	0.00016
3752637.16	0.00019	0.00020	0.00015

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001760 , L0001761 , L0001762 , L0001763 , L0001764 ,
L0001765 , L0001766 , L0001767 , L0001768 , L0001769 , L0001770 , L0001771 , L0001772 ,
L0001773 , L0001774 , L0001775 , L0001776 , L0001777 , L0001778 , L0001779 , L0001780 ,
L0001781 , L0001782 , L0001783 , L0001784 , L0001785 , L0001786 , L0001787 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
512174.67	3753645.97	0.00228	512192.02	3753577.11	0.00391
512191.45	3753561.66	0.00393	512212.91	3753560.22	0.00561
512190.75	3753493.90	0.00420	512214.50	3753494.92	0.00644
512209.80	3753472.53	0.00358	512398.95	3753474.90	0.00611
512216.60	3753638.82	0.00513	512374.77	3753474.15	0.00609
513208.75	3753268.60	0.00047			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC		RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)					OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.02495	AT (	514356.45,	3753837.16,	649.60,	1590.00,	0.00)	GC	UCART1
	2ND HIGHEST VALUE IS	0.02422	AT (	514256.45,	3753837.16,	652.90,	1588.00,	0.00)	GC	UCART1
	3RD HIGHEST VALUE IS	0.02350	AT (	514456.45,	3754037.16,	653.90,	1719.00,	0.00)	GC	UCART1
	4TH HIGHEST VALUE IS	0.02340	AT (	514456.45,	3753837.16,	646.20,	1719.00,	0.00)	GC	UCART1
	5TH HIGHEST VALUE IS	0.02313	AT (	514156.45,	3753837.16,	655.80,	1588.00,	0.00)	GC	UCART1
	6TH HIGHEST VALUE IS	0.02163	AT (	514356.45,	3754037.16,	656.20,	1719.00,	0.00)	GC	UCART1
	7TH HIGHEST VALUE IS	0.02036	AT (	514556.45,	3754037.16,	650.60,	1719.00,	0.00)	GC	UCART1
	8TH HIGHEST VALUE IS	0.01887	AT (	514056.45,	3753937.16,	660.90,	1588.00,	0.00)	GC	UCART1
	9TH HIGHEST VALUE IS	0.01666	AT (	514556.45,	3753837.16,	643.90,	1719.00,	0.00)	GC	UCART1
	10TH HIGHEST VALUE IS	0.01517	AT (	514256.45,	3754037.16,	659.00,	1590.00,	0.00)	GC	UCART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of   0 Fatal Error Message(s)
A Total of   2 Warning Message(s)
A Total of   1311 Informational Message(s)

A Total of   43824 Hours Were Processed

A Total of   64 Calm Hours Identified

A Total of   1247 Missing Hours Identified (2.85 Percent)

   ******** FATAL ERROR MESSAGES ********
              *** NONE ***

   ********   WARNING MESSAGES   ********
ME W186   1765   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used   0.50
ME W187   1765   MEOPEN: ADJ_U* Option for Low Winds used in AERMET

   ****
   *** AERMOD Finishes Successfully ***
   ****

Appendix C.3

CalEEMod Version: CalEEMod.2016.3.2

Date: 6/4/2018 1:16 PM

Banning Distribution Center - 2030 GHG Analysis - South Coast AQMD Air District, Annual

Banning Distribution Center - 2030 GHG Analysis

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,000.00	1000sqft	22.96	1,000,000.00	0
Other Asphalt Surfaces	856.47	1000sqft	19.66	856,470.00	0
Other Non-Asphalt Surfaces	20.89	Acre	20.89	909,968.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2030
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	510.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.01

1.3 User Entered Comments & Non-Default Data

Project Characteristics - City of Banning Electricity Co. 50% RPS included
Land Use - Per Site Plan
Construction Phase - Construction not modeled
Off-road Equipment - Construction not modeled
Vehicle Trips - 100 miles from ports, TIA truck trips
Energy Use - Per Banning Utility
Water And Wastewater - Per Landscape Architect
Energy Mitigation - Project Mitigation for High Efficiency Lighting
Water Mitigation -
Waste Mitigation - Per AB 341

Fleet Mix - per TIA truck trip

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	250
tblAreaCoating	Area_EF_Nonresidential_Interior	100	250
tblAreaCoating	Area_EF_Residential_Exterior	50	100
tblConstructionPhase	NumDays	70.00	0.00
tblFleetMix	HHD	0.04	0.23
tblFleetMix	LDA	0.55	0.42
tblFleetMix	LDT1	0.04	0.03
tblFleetMix	LDT2	0.21	0.16
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	5.7380e-003	0.06
tblFleetMix	MCY	4.9140e-003	3.7600e-003
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	7.5700e-004	5.8000e-004
tblFleetMix	MHD	0.02	0.09
tblFleetMix	OBUS	2.1850e-003	0.02
tblFleetMix	SBUS	7.1700e-004	5.5000e-004
tblFleetMix	UBUS	1.5060e-003	1.1500e-003
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	510.9
tblProjectCharacteristics	N2OIntensityFactor	0	0.01
tblVehicleTrips	CNW_TL	6.90	100.00
tblVehicleTrips	CNW_TTP	41.00	38.10
tblVehicleTrips	CW_TTP	59.00	61.90
tblVehicleTrips	DV_TP	5.00	0.00

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblWater	IndoorWaterUseRate	231,250,000.00	8,406,966.94
tblWater	OutdoorWaterUseRate	0.00	6,908,050.35

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9132	2.1000e-004	0.0238	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0496
Energy	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	655.2357	655.2357	0.0331	0.0127	659.8456
Mobile	1.4043	20.8821	20.7391	0.2026	11.9094	0.0970	12.0064	3.2644	0.0916	3.3560	0.0000	19,468.3592	19,468.3592	0.8306	0.0000	19,489.1229
Waste						0.0000	0.0000		0.0000	0.0000	190.8115	0.0000	190.8115	11.2766	0.0000	472.7274
Water						0.0000	0.0000		0.0000	0.0000	2.6671	43.1537	45.8208	0.2764	7.3100e-003	54.9098
Total	**6.3284**	**20.9818**	**20.8465**	**0.2032**	**11.9094**	**0.1046**	**12.0140**	**3.2644**	**0.0992**	**3.3636**	**193.4787**	**20,166.7952**	**20,360.2738**	**12.4168**	**0.0200**	**20,676.6554**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9132	2.1000e-004	0.0238	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0496
Energy	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	451.8836	451.8836	0.0216	8.7100e-003	455.0188
Mobile	1.4043	20.8821	20.7391	0.2026	11.9094	0.0970	12.0064	3.2644	0.0916	3.3560	0.0000	19,468.3592	19,468.3592	0.8306	0.0000	19,489.1229
Waste						0.0000	0.0000		0.0000	0.0000	47.7029	0.0000	47.7029	2.8192	0.0000	118.1819
Water						0.0000	0.0000		0.0000	0.0000	2.1337	38.0801	40.2138	0.2213	5.9200e-003	47.5108
Total	**6.3284**	**20.9818**	**20.8465**	**0.2032**	**11.9094**	**0.1046**	**12.0140**	**3.2644**	**0.0992**	**3.3636**	**49.8366**	**19,958.3694**	**20,008.2060**	**3.8927**	**0.0146**	**20,109.8840**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**74.24**	**1.03**	**1.73**	**68.65**	**26.85**	**2.74**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4043	20.8821	20.7391	0.2026	11.9094	0.0970	12.0064	3.2644	0.0916	3.3560	0.0000	19,468.3592	19,468.3592	0.8306	0.0000	19,489.1229
Unmitigated	1.4043	20.8821	20.7391	0.2026	11.9094	0.0970	12.0064	3.2644	0.0916	3.3560	0.0000	19,468.3592	19,468.3592	0.8306	0.0000	19,489.1229

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,680.00	1,680.00	1680.00	29,582,525	29,582,525
Total	1,680.00	1,680.00	1,680.00	29,582,525	29,582,525

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	16.60	8.40	100.00	61.90	0.00	38.10	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Other Non-Asphalt Surfaces	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Unrefrigerated Warehouse-No Rail	0.421850	0.031710	0.157740	0.000000	0.000000	0.064880	0.086310	0.229800	0.016700	0.001150	0.003760	0.000550	0.000580

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	343.5551	343.5551	0.0195	6.7200e-003	346.0465
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	546.9072	546.9072	0.0310	0.0107	550.8733
NaturalGas Mitigated	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723
NaturalGas Unmitigated	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.03e+006	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723
Total		**0.0110**	**0.0995**	**0.0836**	**6.0000e-004**		**7.5600e-003**	**7.5600e-003**		**7.5600e-003**	**7.5600e-003**	**0.0000**	**108.3285**	**108.3285**	**2.0800e-003**	**1.9900e-003**	**108.9723**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.03e+006	0.0110	0.0995	0.0836	6.0000e-004		7.5600e-003	7.5600e-003		7.5600e-003	7.5600e-003	0.0000	108.3285	108.3285	2.0800e-003	1.9900e-003	108.9723
Total		**0.0110**	**0.0995**	**0.0836**	**6.0000e-004**		**7.5600e-003**	**7.5600e-003**		**7.5600e-003**	**7.5600e-003**	**0.0000**	**108.3285**	**108.3285**	**2.0800e-003**	**1.9900e-003**	**108.9723**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.36e+006	546.9072	0.0310	0.0107	550.8733
Total		**546.9072**	**0.0310**	**0.0107**	**550.8733**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.4825e+006	343.5551	0.0195	6.7200e-003	346.0465
Total		**343.5551**	**0.0195**	**6.7200e-003**	**346.0465**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9132	2.1000e-004	0.0238	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0496
Unmitigated	4.9132	2.1000e-004	0.0238	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0496

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1833					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.7277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1800e-003	2.1000e-004	0.0238	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0496
Total	**4.9132**	**2.1000e-004**	**0.0238**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0466**	**0.0466**	**1.2000e-004**	**0.0000**	**0.0496**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1833					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.7277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.1800e-003	2.1000e-004	0.0238	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0466	0.0466	1.2000e-004	0.0000	0.0496
Total	**4.9132**	**2.1000e-004**	**0.0238**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0466**	**0.0466**	**1.2000e-004**	**0.0000**	**0.0496**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	40.2138	0.2213	5.9200e-003	47.5108
Unmitigated	45.8208	0.2764	7.3100e-003	54.9098

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	8.40697 / 6.90805	45.8208	0.2764	7.3100e-003	54.9098
Total		**45.8208**	**0.2764**	**7.3100e-003**	**54.9098**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.72557 / 6.90805	40.2138	0.2213	5.9200e-003	47.5108
Total		**40.2138**	**0.2213**	**5.9200e-003**	**47.5108**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	47.7029	2.8192	0.0000	118.1819
Unmitigated	190.8115	11.2766	0.0000	472.7274

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	940	190.8115	11.2766	0.0000	472.7274
Total		**190.8115**	**11.2766**	**0.0000**	**472.7274**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	235	47.7029	2.8192	0.0000	118.1819
Total		**47.7029**	**2.8192**	**0.0000**	**118.1819**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix D

HABITAT ASSESSMENT AND WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS REPORT
BANNING INDUSTRIAL PARK PROJECT
CITY OF BANNING, RIVERSIDE COUNTY, CALIFORNIA



Submitted to:
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506
Contact: Stephanie Standerfer

Prepared by:
Amec Foster Wheeler Environment & Infrastructure, Inc.
3120 Chicago Avenue, Suite 110
Riverside, California 92507
Tel: (951) 369-8060
Principal Investigador: Scott Crawford

December 19, 2017

Amec Foster Wheeler Project No.: 1655400680

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EXECUTIVE SUMMARY

Amec Foster Wheeler Environment & Infrastructure, Incorporated (Amec Foster Wheeler) conducted a biological resources assessment and prepared a Habitat Assessment and Western Riverside County Multiple Species Habitat Conservation Plan Consistency Analysis Report for an approximately sixty acre project site located in the City of Banning, Riverside County, California. The proposed development of the parcel includes development of industrial buildings, a parking lot, detention basin, and associated off-site infrastructure including 5,968 linear feet of off-site sewer, 9,350 of off-site water utilities and 5,000 linear foot of emergency road access. These off-site infrastructure areas are also part of the project. The project occurs within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

The project site encompasses Assessor's Parcel Numbers: 532-110-006, 532-130-001, and 532-130-002 as well as the off-site infrastructure alignments (Figure 1). The Banning Industrial Park Project (project site) is currently undeveloped, with no existing structures, and appears to contain natural scrub habitat that has been heavily disturbed by historic grazing activities. It is dominated by desert scrub with patches of disturbed non-native grassland vegetation. Surrounding land use includes existing railroad right-of-way and Interstate 10 to the north, the Banning Airport to the south, undeveloped open space to the east, rural residential to the west.

Tasks performed by Amec Foster Wheeler included a literature review, a general biological field assessment, a jurisdictional delineation of waters of the US/State (under separate cover), and analysis of the project relative to the MSHCP. As part of the MSHCP, a habitat assessment was completed for burrowing owl (*Athene cunicularia*), Marvin's onion (*Allium marvinii*), and many-stemmed dudleya (*Dudleya multicaulis*). Also, the project site was evaluated for sensitive biological resources and/or habitat such as riparian/riverine areas, vernal pools, and those sensitive species associated with those habitats.

The project site is located in The Pass Area Plan of the MSHCP. The project site does not lie within any MSHCP Criteria Cells or Cell Groups.

The project site and off-site alignments are located within the MSHCP designated burrowing owl survey area. No suitable habitat (i.e. burrows) or other man-made structures (i.e. pipes, concrete refuge, etc.) suitable for burrowing owl use were observed on-site during the reconnaissance-level survey. Marginal, low quality burrowing owl foraging habitat (i.e. scattered pockets of non-native grasslands) were found within the project boundary of the site at the time of the surveys. The nearest known burrowing owl occurrence is approximately 3 miles northeast of the project site (Scott Crawford personal observation 2008). Due to the low potential for burrowing owls to forage on the site at any time in the future, and considering that construction is not scheduled to occur within the next six months, it is a requirement of the MSHCP that a 30-day pre-construction clearance survey be conducted immediately prior to commencement of construction activities to ensure no owls have migrated onto the site to prevent impacts to any burrowing owls.

The project site and off-site alignments are located within the MSHCP designated narrow endemic plant species survey area. Two narrow endemic plants, Marvin's onion (*Allium*

marvinii) and many-stemmed dudleya (*Dudleya variegata*) were identified as potentially occurring within the project site and require a habitat assessment/focused surveys. No suitable habitat (i.e. chaparral and/or clay soils) is present on-site. Therefore, focused surveys for these plants are not required.

A portion of the off-site utility alignment, south of the project site, occurs immediately adjacent to the survey area for Los Angeles pocket mouse (*Perognathus longimembris brevinasus, LAPM*). The proposed project was redesigned to avoid the LAPM survey area. The majority of the suitable habitat in this area is associated with Smith Creek which the project improvements do not impact. There is some marginally suitable habitat southeast of the utility line, but will not be impacted by project improvements. The proposed utility line will be a temporary impact and this portion of the MSHCP planning area is fragmented from any Core Conservation Areas and is not suitable for long-term conservation and will not likely impede any dispersal of this species to surrounding habitat. Therefore, a Determination of Biologically Equivalent or Superior Preservation (DBESP) report is not required for Los Angeles pocket mouse.

The MSHCP Conservation Summary Generator indicates that the project area does not require Criteria Area Plant Species or Sensitive Amphibian survey.

The project site does contain suitable nesting habitat for several birds protected under the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Wildlife (CDFW) Code within the project boundaries. Several trees are located in the vicinity of the project site and tall shrubs and dense non-native grasslands occur throughout the site providing nesting habitat for a variety of migratory birds. If construction activities are to take place during the nesting season (mid-February through the end of August), pre-construction nesting bird surveys are required to ensure that no active nests are present within the work area and to ensure MBTA compliance. Impact avoidance generally requires that no construction activities be conducted within a 500-foot radius of active raptor or sensitive species nests and/or a 300-foot radius for other unlisted passerine species.

The project site is not located within any United States Fish and Wildlife Service (USFWS) designated Critical Habitat for any species.

According to the MSHCP, the Urban/Wildlands Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Areas (MSHCP, pages 6-42). The project site is within a Special Linkage Area; therefore the project will need to incorporate Urban/Wildlife Interface Guidelines during construction.

Based on the current project design, the project and associated infrastructure will potentially impact all six drainage features within the project site. As such, regulatory permitting will be required prior to any grading activity affecting these drainages. Also, a DBESP Report was prepared for impacts to Riparian/Riverine areas within the project site and off-site infrastructure alignments (also under separate cover). A total of 0.23 acre of permanent impacts and 0.07 acre of temporary impacts will occur during project development. These impacts will be mitigated by on-site habitat creation of 1.20 acre within two separate drainage features, both of which will be constructed in existing upland areas and will convey nuisance flows and natural

run-off around the proposed development to minimize erosion and maintain off-site flows. If it is determined that on-site mitigation is not feasible, additional alternatives could include, but are not limited to off-site purchase of land or payment into an acceptable mitigation bank, in-lieu fee program, or RCA conservation area.

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APPENDIX

A Plant & Wildlife Species List
B Photographic Exhibits

ACRONYMS AND ABBREVIATIONS

AMSL	Above Mean Sea Level
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
CASSA	Criteria Area Species Survey Area
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFG Code	California Department of Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CWA	Clean Water Act
ESA	Endangered Species Act
FESA	Federal Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
I-15	Interstate 15
MBTA	Migratory Bird Treaty Act
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NEPSSA	Narrow Endemic Plant Species Survey Area
RCA	Riverside County Authority
RWQCB	Regional Water Quality Control Board
OHWM	Ordinary High Water Mark
USACE	United States Army Corps of Engineers
USDA NRCS	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
Webb	Albert A. Webb Associates
WSC	Waters of the State
WUS	Waters of the U.S.

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) was contracted by Albert A. Webb Associates (Webb) to conduct a biological resources assessment and a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) compliance report for a 63.9-acre project site located in the city of Banning, Riverside County, California.

The proposed project involves the development of Assessor's Parcel Number (APN) 532-110-006, 532-130-001, and 532-130-002. The proposed project includes the development of the Banning Industrial park, which includes industrial buildings, associated parking lot, detention basin, and associated infrastructure. The project area analyzed herein also includes 5,968 linear feet of off-site sewer, 9,350 of off-site water utilities and 5,000 linear foot emergency road access. These off-site infrastructure areas are also part of the project.

The City of Banning requires a biological resources assessment in compliance with the MSHCP as part of the California Environmental Quality Act (CEQA) requirements.

2.0 PROJECT LOCATION AND SITE DESCRIPTION

The project site and associated infrastructure is specifically located north of Charles Street, south of Interstate 10, and east of Hargrave Street (Figure 1) and can be found in Sections 11 and 14 of Township 3 South, Range 1 East, as shown on the *Cabazon, California,* United States Geological Survey (USGS) 7.5 minute quadrangle (Figure 2). The elevation of the project site ranges from 2,105 to 2,240 feet above sea level. The geographic coordinates near the middle of the site are 33° 55.520' North latitude and -116°50.767' West longitude.

The project site is currently undeveloped with no existing structures. Desert scrub habitat dominates the site with small patches of disturbed non-native grasslands. The study area contains evidence of routine grazing by cattle. However, no cattle were observed within the project site during the survey. Cattle were observed in a pasture just south of the airport. Surrounding land use includes Union Pacific Railroad right-of-way and Intestate 10 to the north, Banning Airport to the south, existing rural residential development to the west, vacant Morongo-owned property to the east.

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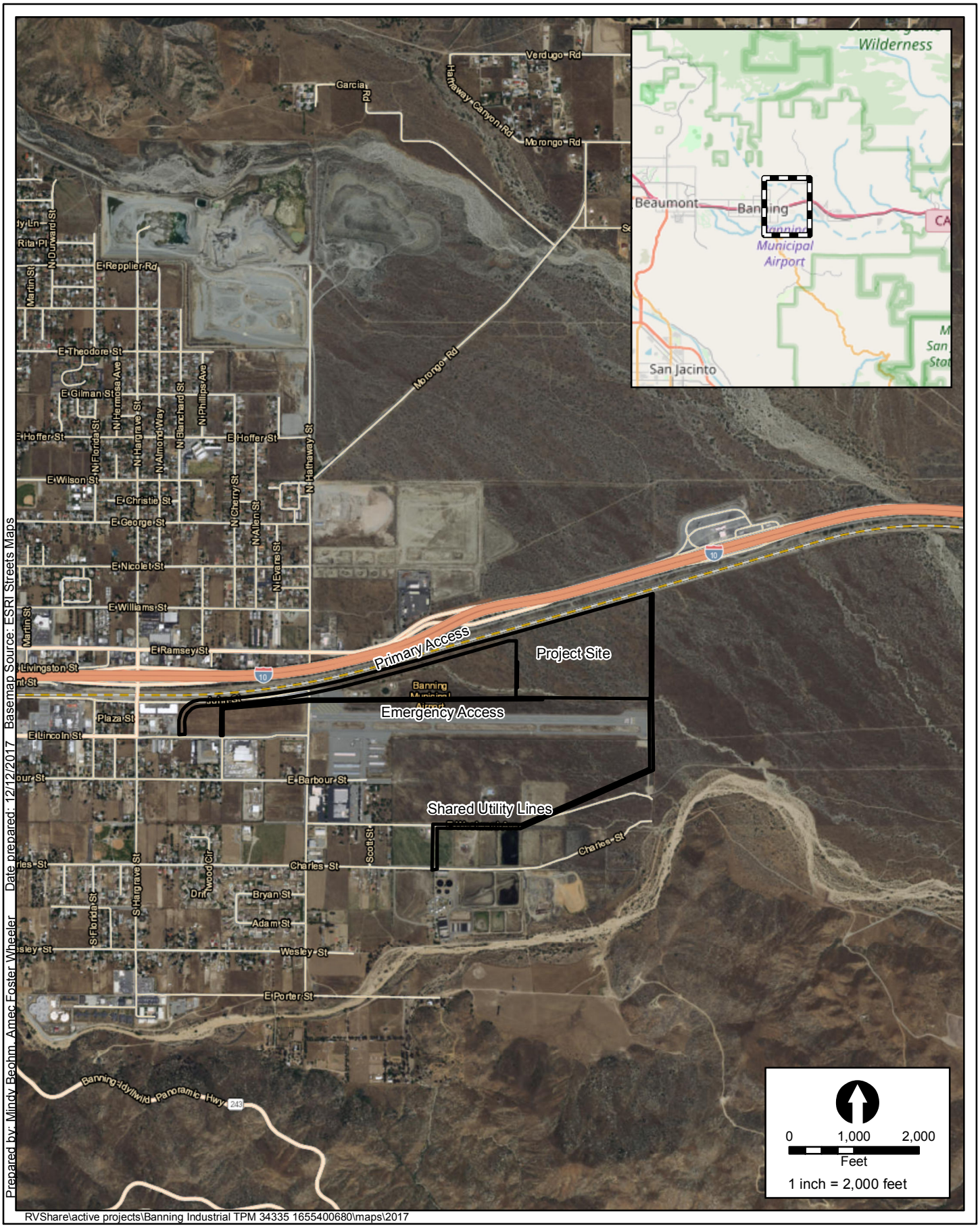

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: ESRI Streets Maps

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amec foster wheeler

Regional and Vicinity Map

Banning Industrial Park

FIGURE

1

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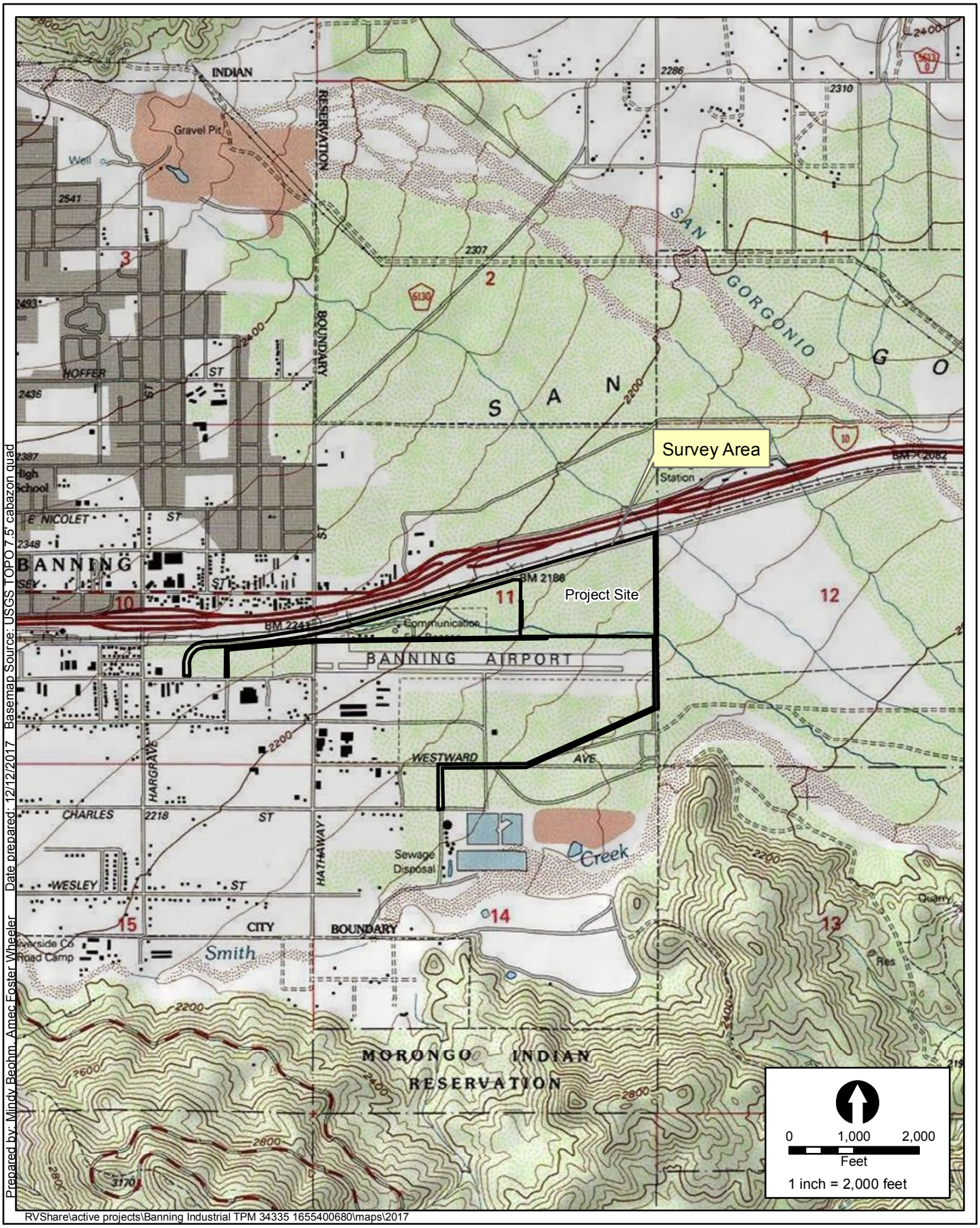

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: USGS TOPO 7.5' cabazon quad

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Topographic Map

Banning Industrial Park

FIGURE

2

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3.0 REGULATORY FRAMEWORK

3.1 Federal

Federal Endangered Species Act - The USFWS administers the Federal Endangered Species Act (FESA). The FESA provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The FESA defines as "endangered" any plant or animal species that is in danger of extinction throughout all or a significant portion of its known geographic range. A "threatened" species is a species that is likely to become endangered. A "proposed" species is one that has been officially proposed by the USFWS for addition to the federal threatened and endangered species list.

FESA Section 9 prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. The presence of any federally threatened or endangered species in a biological survey area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the FESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

3.1.1 California Endangered Species Act

California Department Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA). The State of California considers an "endangered" species one whose prospects of survival and reproduction are in immediate jeopardy. A "threatened" species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A "rare" species is one present in such small numbers throughout its portion of its known geographic range that it may become endangered or threatened if its present environment worsens. The rare species designation applies to California native plants. State threatened and endangered species are fully protected against take, as defined above. The term "species of special concern" is an informal designation used by CDFW for some declining wildlife species that are not state candidates for listing. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFW.

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects all wild birds, common or otherwise, found in the United States (U.S.) except non-native species such as the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), -rock dove (*Columba livia*), Eurasian collared dove (*Streptopelia decaocto*) and resident game birds such as ring-neck pheasant (*Phasianus colchicus*), grouse (various genera and species), quail (*Callipepla* spp), and wild turkey (*Meleagris gallopavo*). Resident game birds are managed separately by each state. The MBTA

makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird including feathers, parts, nests, or eggs.

Pursuant to the MBTA, it is unlawful to "take" (i.e., capture, kill, pursue, or possess) migratory and resident birds and/or their nests. Nesting birds must not be disturbed. The MBTA requires that impacts to nesting bird species be minimized or eliminated by avoiding impacts to active nest sites present in the project area.

3.1.3 California Fish and Wildlife Code – Section 3503 and Section 3511

The CDFW administers the California Fish and Game (CFG) Code. There are particular sections of the CFG Code that are applicable to natural resource management. For example, Section 3503 of the CFG Code states it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird that is protected under the MBTA. CFG Code Section 3503.5 further protects all birds in the orders Falconiformes and Strigiformes, birds of prey such as hawks and owls, and their eggs and nests from any form of take. CFG Code Section 3511 lists fully protected bird species where the CDFW is unable to authorize the issuance of permits or licenses to take these species.

3.1.4 Riverside County

The MSHCP is a comprehensive, multi-jurisdictional effort that includes Riverside County, fourteen (14) cities (including Banning) and seven public agencies. Rather than address sensitive species on an individual basis, the purpose of the MSHCP is to focus on the collective conservation of 146 species known to occur in the coverage area. Most importantly, the MSHCP allows participating entities to issue Take permits for listed species so that individual applicants need not seek their own permits on a case-by-case basis from the USFWS and/or the CDFW. The MSHCP consists of a reserve system of approximately 500,000 acres and includes a mechanism to fund and implement the reserve system (Riverside County MSHCP 2005). Approximately 347,000 acres of the reserve system are currently within public ownership and 153,000 acres are currently in private ownership. This 500,000-acre reserve system throughout the County is intended to compensate for impacts to these sensitive species from development projects throughout the plan area. The MSCHP is designed to contribute to the economic viability of the County by providing landowners and developers with a more efficient and cost-effective regulatory and permitting process. The MSHCP was adopted on June 17, 2003 by the Riverside County Board of Supervisors, and the Incidental Take Authorization issued by both the USFWS and CDFG on June 22, 2004, thereby approving the final MSHCP. In western Riverside County many federal and state listed or sensitive species and habitats are now considered “covered species” under the MSHCP. In most instances the MSHCP requires no further surveys for most of the 146 covered species; however, Section 6 of the MSHCP states that additional surveys for 38 of these species are required if either the property occurs in a specific species survey area (i.e., burrowing owl, Criteria Area Species Survey Area [CASSA]) or if potential habitat exists on the property (i.e., least Bell’s vireo [*Vireo bellii pusillus*], or Riverside fairy shrimp [*Streptocephalus wootoni*]). This plan satisfies requirements of the Natural Communities Conservation Plan (NCCP) legislation.

3.1.5 Jurisdictional Waters and Wetlands

Impacts to natural drainage features and wetland areas are regulated by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW based upon the policies and regulations discussed below.

United States Army Corp of Engineers Regulations

Federal Clean Water Act - Section 404

The USACE administers Section 404 of the federal Clean Water Act (CWA). These sections regulate the discharge of dredge and fill material into waters of the U.S. USACE has established a series of nationwide permits that authorize certain activities in waters of the U.S., if a proposed activity can demonstrate compliance with standard conditions. Normally, USACE requires an individual permit for an activity that will affect an area equal to or in excess of 0.5 acre of waters of the U.S. Projects that result in impacts to less than 0.5 acre can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions.

Waters of the United States

Waters of the U.S. (WUS), as defined in the Code of Federal Regulations (CFR) Section 328.3, include all waters or tributaries to waters such as lakes, rivers, intermittent and perennial streams, mudflats, sand-flats, natural ponds, wetlands, wet meadows, and other aquatic habitats. Frequently, WUS, with at least intermittently flowing water or tidal influences are demarcated by an Ordinary High Water Mark (OHWM). The OHWM is defined in CFR Section 328.3(e) as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. In this region, the OHWM is typically indicated by the presence of an incised streambed with defined bank shelving.

In June 2001, the USACE South Pacific Division has issued Guidelines for Jurisdictional Delineations for Waters of the United States in the Arid Southwest. The purpose of this document was to provide background information concerning physical characteristics of dry land drainage systems. These guidelines were reviewed and used to identify jurisdictional drainage features within the biological survey area.

Wetlands

According to the USACE Wetlands Delineation Manual, Technical Report, three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation)

2. Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils)
3. Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology)

Wetland vegetation is characterized by vegetation in which more than 50 percent of the composition of dominant plant species are obligate wetland, facultative wetland, and/or facultative species that occur in wetlands. As a result of the 2001 Solid Waste Agency of North Cook County (SWANCC) case, a wetland must show connectivity to a stream course in order for such a feature to be considered jurisdictional. Although wetland criteria was used to identify if areas were considered wetlands, the exact limits of jurisdiction were not measured based on the standard wetland delineation protocol as described in the 1987 USACE manual.

United States Army Corp of Engineers Regulated Activities
The USACE regulates the discharge of dredged or fill material, including, but not limited to, grading, placing of rip-rap for erosion control, pouring concrete, laying sod, and stockpiling excavated material. Activities that generally do not involve a regulated discharge, if performed specifically in a manner to avoid discharges, include driving pilings, drainage channel maintenance, temporary mining and farm/forest roads, and excavating without stockpiling.

Regional Water Quality Control Board Regulations

Clean Water Act - Section 401

According to section 401 of the CWA, "any applicant for a Federal permit for activities that involve a discharge to waters of the State, shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal CWA." Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the RWQCB.

Porter-Cologne Water Quality Act
The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (water code §13260(a)), pursuant to provisions of the Porter-Cologne Water Quality Act. "Waters of the State" (WSC) are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (water code Section 13050 [e]).

Regional Water Quality Control Board Regulated Activities
Under Section 401 of the CWA, the RWQCB regulates all activities that are regulated by the USACE. Additionally, under the Porter-Cologne Water Quality Act, the RWQCB regulates all activities, including dredging, filling, or discharge of materials into waters of the state that are not regulated by the USACE due to a lack of connectivity with a navigable water body and/or lack of an OHWM.

3.1.6 California Department of Fish and Game Regulations

California Fish and Game Code Section 1600 to Section 16003

The CFG Code mandates that "it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity." CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses, including dry washes, characterized by the presence of hydrophytic vegetation, the location of definable bed and banks, and the presence of existing fish or wildlife resources.

Furthermore, CDFW jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function as part of the riparian system. Historic court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdiction. However, CDFW does not regulate isolated wetlands; that is, those that are not associated with a river, stream, or lake.

California Department of Fish and Wildlife Regulated Activities

The CDFW regulates activities that involve diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources.

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4.0 METHODOLOGY

4.1 Western Riverside County MSCHP Consistency Analysis

Geographic Information System (GIS) software was utilized to map the project site in relation to the MSHCP areas including Criteria Cells, Core Habitat, Linkages, and areas proposed for conservation. The Riverside County Integrated Project (RCIP) Conservation Summary Report Generator was queried to determine habitat assessment and potential survey requirements for the project site.

The MSHCP requires habitat assessments for the burrowing owl, and two narrow endemic plant species Marvin's onion and many-stemmed dudleya. The documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.3 and Section 6.3.2.

4.1.1 Literature Review

Prior to the field visit, a literature review was conducted of the environmental and regulatory setting for the biological project site. The literature review provides a baseline from which to evaluate the biological resources potentially occurring within the study area, and within the local and regional vicinity.

A list of special-status plant and wildlife species and their habitats, known to occur near the project site was compiled. The primary source for this data was the CDFW California Natural Diversity Database (CNDDB 2017), which is a sensitive species and plant community database. Amec Foster Wheeler conducted a query of the CNDDB records based on a 5-mile radius surrounding the project site that included the Cabazon and Beaumont, California USGS 7.5-minute topographic quadrangle maps.

Additionally a review of pertinent literature and database search was conducted, including records from the California Native Plant Society (CNPS) on-line inventory database was also queried for the project site and vicinity (CNPS 2017). The CNPS on-line inventory provided additional sensitive species information for many species that have not been reported to the CNDDB database. The on-line *Web Soil Survey* (United States Department of Agriculture, Natural Resources Conservation Service [USDA NRCS] 2017), and the MSHCP Conservation Summary Generator and website (Western Riverside County 2017) were also queried for the project site and vicinity. The collective knowledge of Amec Foster Wheeler staff was also utilized. *Scientific* nomenclature for this report is from the following standard reference sources: plant communities, Holland (1986); flora, Sawyer Keeler Wolf (2009); flora, Baldwin et al (2012) and Munz (1974); reptiles, Moriarty, John J. (2012); and, birds, American Ornithologists Union (2015).

The Habitat Assessment Report for the Messenger Industrial Park-Banning Airport Project, Riverside County, CA (Rocks 2006) was also reviewed prior to conducting surveys on the

project site. This report was prepared for a previous development plan, but the project was not completed. The purpose of reviewing the document was to identify any additional sensitive species that may have been previously observed within the project site. The report was also reviewed to determine if existing project conditions have changed over time.

The Riverside County Integrated Project (RCIP) Summary Report Generator (online) was queried by parcel number for specific MSHCP concerns (2017).

4.1.2 Jurisdictional Waters and Wetlands

Aerial photography was reviewed prior to conducting general surveys (Imagery Date: 21 November 2016). The photographs were used to locate and inspect any potential natural drainage features and water bodies that may be considered under the jurisdiction of either the USACE and/or CDFW. An inspection of the project site to determine presence or absence of potential jurisdictional wetlands and waters was conducted during the above mentioned general biological assessment.

4.1.3 Field Investigation

Amec Foster Wheeler senior Scott Crawford conducted a reconnaissance-level field survey on 9 May 2017 from 0800 to 1245 hours. Weather conditions during the survey included clear skies with a temperature of 57°F (degrees Fahrenheit) and winds between 5 and 6 miles per hour. Habitat was assessed based on the presence or absence of habitat components (e.g., soils, vegetation and topography) that are characteristic of potentially occurring special-status species determined by the literature review. All flora and vertebrate fauna observed or otherwise detected (e.g., vocalizations, presence of scat, tracks, and/or bones) on the project site during the course of this assessment were recorded and are included in Appendices A and B.

4.1.4 Wildlife Corridor

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated “islands” of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967, Soule 1987, Harris and Gallagher 1989, Bennett 1990). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed “demes”) linked together via a system of corridors is termed a “metapopulation.” The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An

increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983, Fahrig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989).

Wildlife movement usually fall into one of three categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," "habitat linkage," and "wildlife crossing" to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

Travel Route: A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relative direct link between target habitat areas.

Wildlife Corridor: A piece of habitat, usually linear in nature that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

Wildlife Crossing: A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under, over or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often "choke points" along a movement corridor.

5.0 RESULTS

5.1 Soils

The United States Department of Agriculture National Resources Conservation Service (USDA NCRS) maintains an on-line searchable soils database, the Web Soil Survey (USDA 2015), which was consulted during the project literature search in order to determine the soil associations and soil types occurring on the project site. The following mapping units occur on the site (Figure 3):

- Gorgonio gravelly loamy fine sand (GmD) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of gravelly loamy fine sand on the surface and the parent material is alluvium derived from granite.
- Gorgonio cobbly loamy fine sand (GnD) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of cobbly loamy fine sand on the surface and the parent material is composed of alluvium derived from granite.
- Hanford cobbly coarse sandy loam (HdD2) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of cobbly coarse sandy loam on the surface and the parent material is composed of alluvium derived from granite.
- Hanford coarse sandy loam, 2 to 8 percent slopes (HcC) – This well drained soil occurs on alluvial fans and alluvial plains with 2 to 8 percent slopes. It is composed of a mix of coarse and sandy loam on the surface and the parent material is composed of alluvium derived from granite.
- Tujunga gravelly loamy sand, 0 to 8 percent slopes (TwC) – This excessively drained soil occurs on flood plains and alluvial fans with 0 to 8 percent slopes. The parent material is composed of sandy alluvium derived from granite.

The NRCS lists Hanford Cobbly Coarse Sandy loam as a hydric soils. This soil is the most prevalent soil within the project site, followed by isolated patches of Gorgonio gravelly loamy fine sand. The other three soils occur in areas containing associated infrastructure such as utility lines, and emergency access roads.

5.2 Vegetation

As shown in the Photographic Exhibits (Appendix B), and depicted on Figure 4, the site contains a mix of desert scrub habitat and non-native grasslands. The plant list compiled by Amec Foster Wheeler during the assessment consists of sixty-one (61) plant species. This number does not reflect the total number of plant species likely to occur on the site, as surveys were conducted during the middle of spring when some species may still be undetectable, either because they are early emergence plants and have already flowered or are late blooming plants and have not

flowered yet. The common desert scrub plants observed on-site include desert encelina (*Encelia farinosa*), California buckwheat (*Eriogonum fasciculatum*), and deer weed (*Acmispon glaber*). Non-native grassland species observed on-site include Russian thistle (*Salsola tragus*), wild mustard (*Hirschfeldia incana*), rip-gut grass (*Bromus diandrus*), and red-stemmed filaree (*Erodium cicutarium*).

5.3 Narrow Endemic Plant Species (MSHCP Section 6.1.3)

The project site is located within the MSHCP designated Narrow Endemic Plant Species Survey Area (NEPSSA) for Marvin's onion (*Allium marvinii*) and many-stemmed dudleya (*Dudleya variegata*) (Figure 5). Suitable habitat (i.e. chaparral and/or clay soils) is, however, not present on-site. Therefore, focused surveys for these plant species is not required.

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amec foster wheeler

Soils Map

Banning Industrial Park

FIGURE

3

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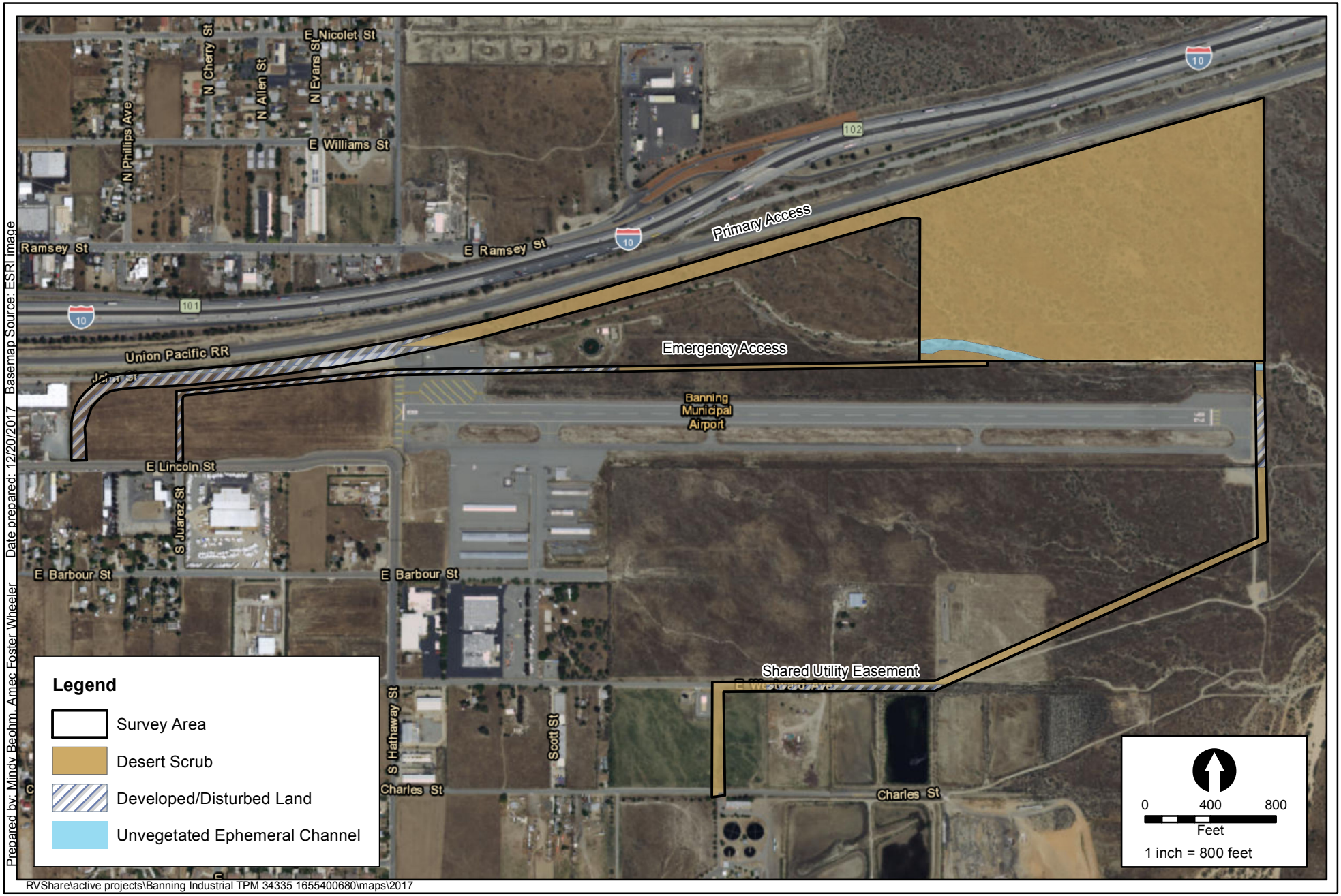

amec foster wheeler

Vegetation Map

Banning Industrial Park

FIGURE

4

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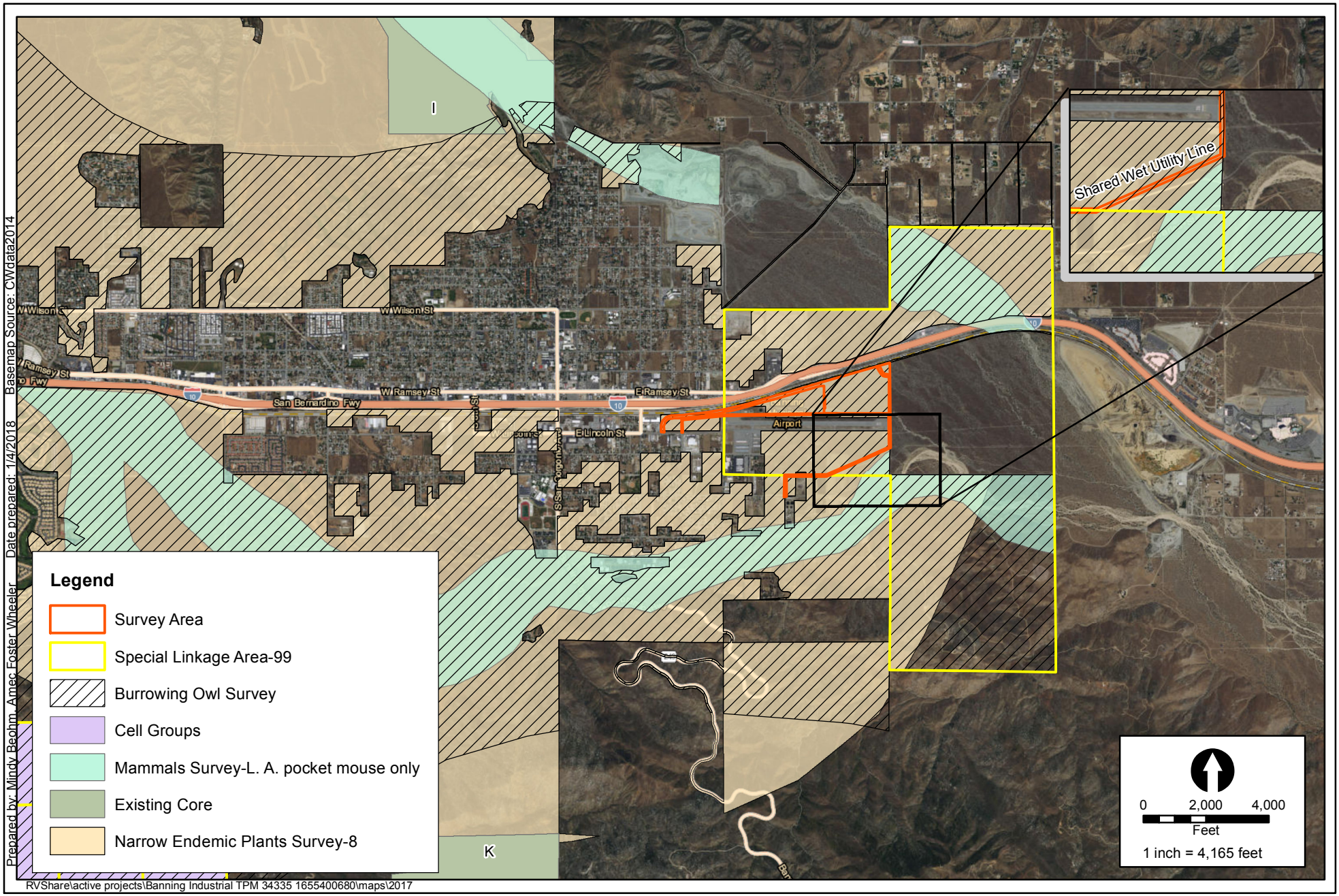

amec foster wheeler

MSHCP Map

Banning Industrial Park

FIGURE

5

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5.4 Wildlife

Appendix A lists the twenty-nine (29) wildlife species that were observed within the project site or immediate vicinity. A complete inventory of the wildlife on the project site would require extensive year-round surveys for invertebrates, birds, amphibians, and reptiles, and a live-trapping program for the detection of nocturnal and/or fossorial mammals.

Birds detected during the field survey include (but not limited to) species commonly seen in many areas of western Riverside County including red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), western meadowlark (*Sturnella neglecta*), and white-crowned sparrow (*Zonotrichia leucophrys*).

5.4.1 Sensitive Plant Species.

Of the 14 special status plant species known from the general project area, 8 plants are assumed to be absent due to lack of habitat, elevational range, extirpation, or extinction. Three plants have a Moderate Potential to occur within the project site including Plummer's mariposa lily (*Calochortus plummerae*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), and white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*). The remaining 3 species, some of which are state and/or federally listed as threatened and/or endangered, have low potential for occurrence.

Table 1. Special Status Plant Species Potential for Occurrence

Species	Status (F=Federal, C=California)	Habitat	Flowering Period	BSA Occurrence Probability
Abronia villosa var. *aurita* chaparral sand-verbena	F: BLM, FS C: S2 CNPS: 1B.1 MSHCP: No	In sandy areas in chaparral, coastal dunes and desert dunes, 75 - 1,600 meters (elevation).	(January) March-September	Absent. No suitable dune habitat on-site. No records near the BSA. Not observed during survey.
Allium marvinii Yucaipa onion	F: FS C: S1 CNPS: 1B.2 MSHCP: Yes	Chaparral in openings on clay soils. 850-1070 meters.	April – May	Absent No clay soils mapped in BSA.
Astragalus lentiginosus var. *coachellae* Coachella Valley milk-vetch	F: END C: S1 CNPS: 1B.2 MSHCP: No	Desert dunes and sandy Sonoran desert scrub. 40 - 655 meters.	February - May	Absent No suitable habitat. Details on CNPS record unknown.
Astragalus pachypus var. *jaegeri* Jaeger's bush milk-vetch	F: BLM, FS C: S2 CNPS: 1B.1 MSHCP: Yes	Sandy or rocky places in chaparral, cismontane woodland, coastal scrub, and valley & foothill grassland, 365 - 975 meters.	December - June	Low A few patches of habitat present in BSA

Species	Status (F=Federal, C=California)	Habitat	Flowering Period	BSA Occurrence Probability
Calochortus plummerae Plummer's mariposa lily	F: ND C: S4 CNPS: 4.2 MSHCP: Yes	Cismontane woodlands, chaparral, coastal scrub, grasslands, lower montane coniferous forest; 100 - 1,700 meters.	May - July	Moderate Patches of potential habitat in BSA.
Caulanthus simulans Payson's jewelflower	F: FS C: S4 CNPS: 4.2 MSHCP: Yes	Sandy, granitic areas in chaparral and coastal scrub, 90 - 2,200 meters.	(February) March-May (June)	Low Only known local record upslope on San Jacinto Mountains.
Centromadia pungens ssp. *laevis* smooth tarplant	F: ND C: S2 CNPS: 1B.1 MSHCP: Yes	Annual herb found in alkaline areas within chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland below 480 meters.	April - November	Absent. No records near the BSA and no suitable habitat.
Chorizanthe parryi var. *parryi* Parry's spineflower	F: BLM, FS C: S2 CNPS: 1B.1 MSHCP: Yes	Sandy or rocky openings in chaparral, coastal sage scrub, cismontane woodland & valley foothill grassland; 275-1,220 meters.	April - June	Moderate Patches of potential habitat present in BSA.
Chorizanthe xanti var. leucotheca white-bracted spineflower	F: N/A C: S3 CNPS: 1B.2 MSHCP: Yes	Coastal scrub, Mojavean desert scrub, and Pinyon and juniper woodland in sandy and gravelly areas; 300-1,220 meters.	April - June	Moderate Patches of potential habitat present in BSA.
Deinandra mohavensis Mojave tarplant	F: BLM, FS C: **END**, S2 CNPS: 1B.3 MSHCP: Yes	Low sand bars in river beds; mostly in riparian areas or in ephemeral grassy areas. Riparian scrub, coastal scrub, chaparral. 640-1600 meters.	(May) June –October (January)	Low Habitat present in BSA, but no records in immediate BSA.
Horkelia cuneata var. *puberula* mesa horkelia	F: FS C: S1 CNPS: 1B.1 MSHCP: No	Sandy or gravelly soils in chaparral, or rarely in cismontane woodland or coastal scrub at 70 - 825 meters.	February – September	Absent Marginal habitat patches specifically located within Drainage A, which will mostly be avoided. Not observed during surveys.
Mentzelia tricuspis spiny-hair blazing star	F: ND C: S2 CNPS: 2B.1 MSHCP: No	Sandy, gravelly, slopes, and washes in Mojavean desert scrub, 150 - 1,280 meters.	March - May	Absent No suitable Mojavean desert scrub habitat present. There is one old record in the vicinity, likely misidentified.
Petalonyx linearis Narrow-leaf sandpaper-plant	F: ND C: S2S3 CNPS: 2B.3 MSHCP: No	Mojavean desert scrub at -25 – 1115 meters. Known from only one occurrence 3 miles south of the project site. Last seen in1999.	March-May	Absent No suitable habitat present.

Species	Status (F=Federal, C=California)	Habitat	Flowering Period	BSA Occurrence Probability
Symphyotrichum defoliatum San Bernardino aster	F: BLM, FS C: S2 CNPS: 1B.2 MSHCP: No	Vernally wet sites such as ditches, streams, and springs in many plant communities below 2,040 meters.	July - November	Absent. No records near the BSA and no suitable habitat onsite.

KEY TO TABLE 1

Definitions of occurrence probability:

Occurs: Observed on the site by Amec Foster Wheeler biologists, or recorded on-site by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.
Absent: A focused study failed to detect the species, or, no suitable habitat is present.
Unknown: Distribution and habitat use has not been clearly determined.

Federal designations: (F = federal Endangered Species Act or federal agency designations)
END: Federally listed, Endangered
THR: Federally listed, Threatened
CAN: Candidate for Federal listing
BLM = Bureau of Land Management Sensitive
FS: Forest Service sensitive
ND: No designation

***State designations*:** (C = California Endangered Species Act or CDFG designations)
END: State listed, Endangered
THR: State listed, Threatened
CAN: Candidate for State listing
RARE: State listed, Rare
FP: Fully Protected Species
SSC: Species of Special Concern
WL: Watch List Species
ND: No designation

CDFW state rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:
S1 = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
  S1.1 = very threatened
  S1.2 = threatened
  S1.3 = no current threats known
S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
  S2.1 = very threatened
  S2.2 = threatened
  S2.3 = no current threats known
S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
  S3.1 = very threatened
  S3.2 = threatened
  S3.3 = no current threats known
S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant

MSHCP designations (Riverside County only)
Yes: Covered by the plan

No: Not covered by the plan

California Native Plant Society (CNPS) designations (Rare Plant Ranks):

Primary Categories (Lists)
1A: Plants presumed extirpated in California and either rare or extinct elsewhere
1B: Plants rare, threatened, or endangered in California and elsewhere
2A: Plants presumed extirpated in California, but common elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed - a Review List
4: Plants of limited distribution - a Watch List
Subdivisions within Categories (threat ranks)
0.1: Seriously threatened in California
0.2: Moderately threatened in California
0.3: Not very threatened in California

According to the CDFW (Special Plants): "all California Rare Plant Rank 1 and 2 and some Rank 3 and 4 plants may fall under Section 15380 of CEQA."

5.4.2 Sensitive Wildlife Species

Wildlife species may be considered "sensitive" due to declining populations, vulnerability to habitat change or loss, or because of restricted distribution. Three sensitive wildlife species were observed on the study area during the field survey, loggerhead shrike (*Lanius ludovicianus*), horned lark (*Eremophila alpestris*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii)*. All three species are covered adequately under the existing MSHCP and no additional protocol surveys are required.

Invertebrates – Of the two special status invertebrates known from the BSA, one is presumed absent due to lack of habitat and/or extirpation (Jerusalem cricket). The habitats of the second, Crotch bumble bee (*Bombus crotchii*), are little known, but several of its host plants are known to occur within the project site. It is not listed as threatened and/or endangered. None were observed during the habitat assessment site visit.

Fish – No special status fish species have been recorded to occur within the vicinity of the project site. No fish or fish habitat was observed during the habitat assessment site visit.

Amphibians – Two special status amphibian species, southern mountain yellow-legged frog (*Rana muscosa*) and western spadefoot (*Spea hammondii*), are known to occur within the vicinity of the BSA. No suitable habitat occurs within the BSA for either of these species.

Reptiles – Of the five special status reptiles known to occur within the vicinity of the BSA, three have a high potential to occur. These include: (Belding's) orange-throated whiptail (*Aspidoscelis hyperythra*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), and (northern) red-diamond rattlesnake (*Crotalus ruber*). The other two species, California (coastal) glossy snake (*Arizona elegans occidentalis*) and coast (San Diego) horned lizard (*Phrynosoma blainvillii*) have a moderate potential to occur. None of the five species were observed during the site visit.

Birds – Two special status bird species have been recorded within the BSA and are considered present California horned lark and loggerhead shrike. Five sensitive avian species are considered absent, Ferruginous hawk (*Buteo regalis*), purple martin (*Progne subis*), yellow

warbler (*Setophaga petechia*), Le Conte's thrasher (*Toxostoma lecontei*), and least Bell's vireo (*Vireo bellii pusillus*). Suitable habitat for these species does not occur within the project site. Of the remaining three species, the coastal California gnatcatcher (*Polioptila californica californica*) is the only federally listed threatened species. This species has a moderate potential to occur, due to a known recorded occurrence in the vicinity of the project site, but a general lack of suitable coastal sage scrub habitat. The remaining two species, both of which are unlisted, have varying potentials for occurrence which are shown in Table 3 below. The other two species are Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) and burrowing owl (*Athene cunicularia*).

Burrowing owl is treated differently than most unlisted birds because they are uniquely vulnerable to ground disturbance. This is because they roost and nest underground. No suitable habitat (i.e. burrows) or other man-made structures (i.e. pipes, concrete refuge, etc.) suitable for burrowing owl use were observed on-site during the reconnaissance-level survey. Marginal, low quality burrowing owl foraging habitat (i.e. scattered pockets of non-native grasslands) were found within the project boundary of the site at the time of the surveys. The nearest known burrowing owl occurrence is approximately 3 miles northeast of the project site (Scott Crawford personal observation 2008). Due to the low potential for burrowing owls to forage on the site at any time in the future, and considering that construction is not scheduled to occur within the next six months, it is a requirement of the MSHCP that a 30-day pre-construction clearance survey be conducted immediately prior to commencement of construction activities to ensure no owls have migrated onto the site to prevent impacts to any burrowing owls.

Mammals – Of the seven special status mammal species known occur within the vicinity of the BSA, only one, the San Diego black-tailed jackrabbit is the only species recorded to be present within the BSA. The Palm Springs round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*) is the only species considered to be absent. The one local record was far out of range and believed to be a vagrant. The remaining five species, all of which are unlisted, have varying potentials for occurrence which are shown in Table 3 below. Three of the mammal species have a moderate potential to occur and are not covered under the MSHCP including pallid bat (*Antrozous pallidus*), pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*), and American badger (*Taxidea taxus*). Although the pallid bat has a moderate potential to occur on-site, it is in reference to foraging and not roosting. The project site has no rocky areas or similar habitat that would provide suitable roosting areas. The incremental loss of foraging habitat within the project site would not constitute a significant impact because there is an abundance of similar foraging habitat to the east and south of the project. Pallid San Diego pocket mouse is not a federal or state listed threatened or endangered species. The only suitable habitat is within the active portion of Drainage 1, which will be mostly avoided. The loss of a small portion of the drainage will not reduce the population of pallid San Diego Pocket mouse to a less than self-sustaining level. Therefore, even if present in low numbers, impacts to this species would not constitute a significant impact under CEQA guidelines. No American badger or any sign of this species was observed during the reconnaissance-level survey. This species is known to occur throughout the area in large open-space areas. Due to the relatively isolated nature of the project site, situated between Interstate 10 and the Banning Airport, it is reasonable to assume that this species potential to occur within the project site is lower than the surrounding areas. However, the presence of this species can't be completely ruled out, due to the size of the

suitable habitat within the project site. A biological monitor is required during initial vegetation removal and any initial soil disturbance to ensure that no American badgers are impacted by project development.

Table 3. Special Status Animals

Species	Protective Status (F=Federal; C=California)	Habitat	BSA Occurrence Probability
Invertebrates			
Bombus crotchii Crotch bumble bee	F: ND C: S1S2 MSHCP: No	Occurs in open grassland and scrub habitats. Host plants include Asclepias, Chaenactis, Lupinus, Medicago, Phacelia, and Salvia sp.	Low Little is known about this species preferred habitat, but food plants occur on-site & records are scattered around the BSA.
Stenopelmatus cahuilaensis Coachella Valley Jerusalem cricket	F: ND C: S1S2 MSHCP: No	Desert dune habitats	Absent No suitable habitat in BSA. No recorded occurrences in the vicinity.
Amphibians			
Rana muscosa *Southern mountain yellow-legged frog*	F: END C: END, WL MSHCP: Yes	Aquatic habitats with sloping banks with rocks and vegetation to the water's edge. Seldom found away from water.	Absent No suitable habitat in BSA. No recorded occurrences in the vicinity.
Spea hammondii western spadefoot	F: BLM C: SSC, S3 MSHCP: Yes	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Absent No vernal pool or ponded habitat in BSA. No recorded occurrences in the vicinity.
Reptiles			
Arizona elegans occidentalis California (coastal) glossy snake	F: ND C: SSC, S2 MSHCP: No	Reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Moderate Suitable habitat present in BSA.
Aspidoscelis hyperythra (Belding's) orange-throated whiptail	F: FS C: WL, S2S3 MSHCP: Yes	Prefers chaparral, coastal sage scrub, juniper woodland, and oak woodland.	High Known from recent records in vicinity of BSA. Ample suitable habitat in BSA.
Aspidoscelis tigris stejnegeri coastal western whiptail	F: ND C: SSC, S3 MSHCP: Yes	Wide variety of habitats including coastal sage scrub, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California.	High Suitable habitat present in BSA.

Species	Protective Status (F=Federal; C=California)	Habitat	BSA Occurrence Probability
Crotalus ruber (northern) red-diamond rattlesnake	F: FS C: SSC, S3 MSHCP: Yes	Chaparral, woodland, grassland, & desert areas. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	High Suitable habitat present in BSA.
Phrynosoma blainvillii coast (San Diego) horned lizard	F: BLM C: SSC, S3S4 MSHCP: Yes	Occurs in many scrub and woodland habitats, grasslands; loose soils. Prefers open country, especially sandy areas, washes, and floodplains. Requires open areas for sunning, bushes for cover, ants.	Moderate Potential habitat patches present in BSA.
Birds			
Aimophila ruficeps canescens Southern California rufous-crowned sparrow	F: MBTA C: WL, S3, FGC MSHCP: Yes	Steep, rocky coastal sage scrub and open chaparral habitats, particularly scrubby areas mixed with grasslands. From Santa Barbara County to northwestern Baja California.	High Suitable habitat present in BSA and there are recent nearby records.
Athene cunicularia burrowing owl	F: BCC, BLM, MBTA C: SSC, S3, FGC MSHCP: Yes	Occupies ground squirrel burrows in open, dry grasslands, agricultural, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. Nests in burrows, drainpipes, and piles of debris in grasslands, scrub habitats, and agricultural areas.	Low Potential habitat scattered throughout BSA, but no suitable burrows. Recorded to occur within 5-miles of the site.
Buteo regalis ferruginous hawk	F: BCC, MBTA C: WL, S3S4, FGC MSHCP: Yes	Open terrain, grasslands, deserts.	Nesting: Absent BSA not in breeding range. Foraging: Moderate In winter and migration.
Eremophila alpestris actia California horned lark	F: MBTA C: WL, S4, FGC MSHCP: Yes	Open grasslands and fields, agricultural area, open montane grasslands with very short or no vegetation, including bare agricultural fields. During the breeding season, this species is found in short grassland, short-stature sage shrubland, and desert habitat.	Present Observed in isolated patches of grasslands and disturbed roads in BSA.
Lanius ludovicianus loggerhead shrike	F: BCC, MBTA C: SSC, S4, FGC MSHCP: Yes	Found in open habitats with widely spaced vegetation.	Present Observed in the southeastern corner of the BSA.
Polioptila californica californica coastal California gnatcatcher	F: **THR**, MBTA C: SSC, S2, FGC MSHCP: Yes	Inhabits sage scrub in low-lying foothills and valleys, and sparse chaparral habitats.	Moderate Potential habitat patches present in BSA. Amec Foster Wheeler surveys in the surrounding area in recent years have found the species, but not observed on-site. The BSA is located at the eastern extent of this species range.

Species	Protective Status (F=Federal; C=California)	Habitat	BSA Occurrence Probability
Progne subis purple martin	F: MBTA C: SSC, S3, FGC MSHCP: Yes	Inhabits woodlands, coniferous forest often in tall, isolated tree/snag.	Absent No suitable habitat in BSA, remnant population in our area breeds in montane settings.
Setophaga petechia yellow warbler	F: BCC, MBTA C: SSC, S3S4, FGC MSHCP: Yes	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash,& alders	Absent No recorded occurrences within the project site and no suitable habitat within the BSA.
Toxostoma lecontei LeConte's thrasher	F: BCC C: CSC (San Joaquin population only) State rank: S3 MSHCP: No	Resident of open desert wash, scrub, alkali scrub, succulent scrub habitats, nests in dense spiny shrubs and cacti in washes	Absent (Site lacks dense, spiny shrubs for nesting habitat)
Vireo bellii pusillus least Bell's vireo	F: END, MBTA C: END, S2, FGC MSHCP: Yes	Inhabits riparian forests and willow thickets. Nests from central California to northern Baja California and winters in southern Baja California.	Absent No recorded occurrences within the project site and no suitable habitat within the BSA.
Mammals			
Antrozous pallidus pallid bat	F: BLM, FS C: SSC, S3 WBWG: H MSHCP: No	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential foraging habitat is present, but no roosting areas present.
Chaetodipus fallax fallax Northwestern San Diego pocket mouse	F: ND C: SSC, S3S4 MSHCP: Yes	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in coastal scrub, chaparral, grasslands, and sagebrush.	Moderate Highest probability in the BSA is within the active wash area south of the project site.
Chaetodipus fallax pallidus Pallid San Diego pocket mouse	F: ND C: CSC State rank: S3S4 CVMSHCP: No	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in desert wash, desert scrub, desert succulent scrub, pinyon-juniper woodlands, etc. in desert border areas of Southern California into Mexico.	Moderate Marginal quality sandy habitat only occurs within Drainage A south of the project site, which is mostly avoided. No desert scrub, succulent scrub, or pinyon-juniper woodlands occur on-site.
Lepus californicus bennettii San Diego black-tailed jackrabbit	F: ND C: SSC, S3S4 MSHCP: Yes	Variety of habitats including herbaceous and scrub areas, early stages of open forest and chaparral. Most common in relatively open habitats. Restricted to the cismontane areas of Southern California.	High Extensive suitable habitat in the BSA, seen by Amec Foster Wheeler biologists in the general area.

Species	Protective Status (F=Federal; C=California)	Habitat	BSA Occurrence Probability
Perognathus longimembris brevinasus Los Angeles pocket mouse	F: ND C: SSC, S1S2 MSHCP: Yes	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin on open ground with fine, sandy soils.	Moderate Highest probability in the BSA at the southeast corner of the shared utility line.
Taxidea taxus American badger	F: ND C: SSC, S3 MSHCP: No	Inhabits areas herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Moderate Where contiguous open habitats are present in the BSA.
Xerospermophilus tereticaudus chlorus Palm Springs round-tailed ground squirrel.	F: ND C: SSC, S2 MSHCP: No	Chenopod scrub, Sonoran desert scrub	Absent No recorded occurrences within the project site and no suitable habitat within the BSA.

KEY TO TABLE

Definitions of occurrence probability:

Occurs: Observed on the site by Amec Foster Wheeler biologists, or recorded on-site by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.
Absent: A focused study failed to detect the species, or, no suitable habitat is present.
Unknown: Distribution and habitat use has not been clearly determined.

***Federal designations*:** (F = federal Endangered Species Act or federal agency designations)
END: Federally listed, Endangered
THR: Federally listed, Threatened
CAN: Candidate for Federal listing
MBTA: Migratory Bird Treaty Act
BEPA: Bald Eagle Protection Act (also protects Golden Eagles)
BCC: Birds of Conservation Concern
BLM = Bureau of Land Management Sensitive
FS: Forest Service sensitive
ND: No designation

***State designations*:** (C = California Endangered Species Act or CDFG designations)
END: State listed, Endangered
THR: State listed, Threatened
CAN: Candidate for State listing
RARE: State listed, Rare
FP: Fully Protected Species
SSC: Species of Special Concern
WL: Watch List Species
FGC: Bird species protected by Fish and Game Code
ND: No designation

CDFW state rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:

S1 = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
- **S1.1** = very threatened
- **S1.2** = threatened
- **S1.3** = no current threats known

S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- **S2.1** = very threatened
- **S2.2** = threatened
- **S2.3** = no current threats known

S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
- **S3.1** = very threatened
- **S3.2** = threatened
- **S3.3** = no current threats known

S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant

MSHCP designations (Riverside County only)
Yes: Covered by the plan
No: Not covered by the plan

Western Bat Working Group (WBWG) designations:
H = High: Species which are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.
M: = Medium: Species which warrant a medium level of concern and need closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat.
L: = Low: Species for which most of the existing data support stable populations, and for which the potential for major changes in status in the near future is considered unlikely. There may be localized concerns, but the overall status of the species is believed to be secure. Conservation actions would still apply for these bats, but limited resources are best used on High and Medium status species.
P: = Periphery: This designation indicates a species on the edge of its range, for which no other designation has been determined.

5.4.3 Special Status Vegetation Communities

Of the special status vegetation communities known from the general project area, none were observed and are considered to be absent.

Table 2. Special Status Vegetation Communities Potential for Occurrence

Community	Status (F=Federal, C=California)	Habitat		BSA Occurrence Probability
Southern Cottonwood Willow Riparian Forest	F: ND C: S3.2 MSHCP: No	Riparian forest community dominated by Fremont cottonwood and any of several species of willow. Trees are generally greater than 20 feet high.		**Absent**

KEY TO TABLE 2

Definitions of occurrence probability:
Occurs: Observed on the site by Amec Foster Wheeler biologists, or recorded on-site by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.
Absent: A focused study failed to detect the species, or, no suitable habitat is present.
Unknown: Distribution and habitat use has not been clearly determined.

Federal designations: (F = federal Endangered Species Act or federal agency designations)
ND: No designation

***State designations*:** (C = California Endangered Species Act or CDFG designations)

CDFW state rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:

S1 = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
- **S1.1** = very threatened
- **S1.2** = threatened
- **S1.3** = no current threats known

S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- **S2.1** = very threatened
- **S2.2** = threatened
- **S2.3** = no current threats known

S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
- **S3.1** = very threatened
- **S3.2** = threatened
- **S3.3** = no current threats known

S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant

MSHCP designations (Riverside County only)
Yes: Covered by the plan
No: Not covered by the plan

5.4.4 Wildlife Corridors

The project site was assessed to determine if a wildlife corridor occurs on or within a portion of the project site. The project site does not lie within any designated MSHCP core linkages or proposed linkages; the nearest designated MSHCP core linkage lies approximately 9 miles east (Constrained Linkage 22). The project site does not connected any large blocks of undisturbed lands that may be used as a wildlife corridor. Localized wildlife species may utilize a portion of the project site as a daily travel path, but it is not part of a regional wildlife corridor.

The project site is within an area designated as a Special Linkage Area (SLA) under the MSHCP. Under the plan, project within the SLA require a separate assessment to determine if the proposed project provides connecting habitat for providing a corridor for wildlife movement. Since the project site is located between the Banning Airport and the I-10 corridor/Union Pacific Railroad right-of-way, and there is residential and commercial development to the west, it does not function as a wildlife corridor and does not provide an extension of contiguous habitat. Also, the project site is located on the eastern extent of the city of Banning development footprint and is adjacent to the undeveloped portion of the Morongo Reservation. The location of the project site will not inhibit any regional wildlife movement along the San Gorgonio Wash and does not result in the loss of contiguous lands.

5.4.5 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (MSHCP Section 6.1.2)

Riparian avian species identified in Section 6.1.2 of the MSHCP, including southwestern willow flycatcher, western yellow-billed cuckoo, and least bell's vireo, require a separate habitat assessment in addition to the Riverside County Report Generator. Based on the MSHCP habitat assessment survey, there are individual riparian trees that are commonly found within

suitable habitat for these species, including arroyo willow and mule fat, but do not meet the density requirements or canopy cover to be considered suitable habitat for these species. The presence of one or two individual trees does not constitute a vegetation community, which is the basis for determining suitable habitat. Therefore, the project site does not contain any suitable habitat for southwestern willow flycatcher, western yellow-billed cuckoo, and least bell's vireo.

5.4.6 Burrowing Owl (MSHCP Section 6.3.2)

As mentioned previously, the project area lies within the MSHCP survey area for burrowing owl (Figure 5). The burrowing owl is an avian species of special concern that is protected by the MBTA and CFG Code Section 3503. This species typically occurs in grassland and scrub habitats characterized by low-growing vegetation with an abundance of small mammal burrows, including the California ground squirrel (*Otospermophilus beecheyi*). Burrowing owls often prefers areas with moderate disturbance and/or berms or drainage features. Reasons for burrowing owl population decline include habitat destruction, insecticide poisoning, rodenticide (particularly California ground squirrel eradication), and shooting.

No suitable habitat (i.e. low-growing vegetation with adequate sized burrows) or other manmade structures suitable for burrowing owl refuse (i.e. pipes, concrete refuge, etc.) were observed on-site. Marginal, low quality burrowing owl habitat (i.e. few isolated patches of non-native grasslands) were found at the time of the survey, but are not large enough to support a population of burrowing owl. Also, no suitable burrows or burrowing owl refuse was observed during the burrow survey. A single large burrow (estimated at 24 inches tall and 12 inches wide) was observed within dense scrub habitat along the northern property boundary and is most likely from a San Diego black-tailed jackrabbit based on the size and shape of the hole and the scat surrounding the opening. No sign of burrowing owl was observed during the survey. The nearest known burrowing owl occurrence is over three miles northeast of the project. Due to the low potential for burrowing owls to occur on the site at any time in the future, and considering that construction is not scheduled to occur within the next six months, it is a requirement of the MSHCP that a 30-day pre-construction clearance survey be conducted immediately prior to commencement of construction activities to ensure no owls have migrated onto the site to prevent impacts to any burrowing owls.

5.4.7 Los Angeles Pocket Mouse (MSHCP Section 6.3.2)

A portion of the proposed water line and proposed sewer line, south of the project site, occurs immediately adjacent to the MSHCP required survey area for Los Angeles pocket mouse. The majority of the suitable habitat in the vicinity of the BSA is associated with Smith Creek. However, there is some marginally suitable habitat at the southeastern corner of the utility line easement, but has been avoided by project realignment. The project off-site utility alignment was re-designed to be outside of the LAPM survey area. Therefore, focused surveys for Los Angeles pocket mouse will not be required.

5.4.8 Urban/Wildlands Interface Analysis (MSHCP 6.1.4)

The project site does not lie within and is not adjacent to any MSCHP Conservation Areas. The nearest Core (Core I) is approximately 2 miles north of the project site. Core K is located 3 miles south of the project site. However, the project site is located within Special Linkage Area subunit 3 (San Timoteo Creek Portion that connects San Gorgonio River/San Bernardino-San Jacinto Mountain Range). Thus, the project will require design features from MSHCP Section 6.1.4 "Guidelines Pertaining to the Urban/Wildlands Interface" to minimize potentially significant impacts associated with the Urban/Wildlands interface. Compliance with Section 6.1.4 of the MSHCP is covered under Section 6.3 below.

5.5 Drainages and/or Jurisdictional Waters

The project site contains six drainage features that meet the requirements to be considered riverine areas and/or jurisdictional water features. A jurisdictional delineation was prepared to assess the impacts to drainage features within the project site. A stand-alone jurisdictional delineation report is under separate cover. All drainage features contain sandy soils with gravel, cobbles, and boulders. There is no evidence of hydric soils and no wetland hydrology indicators. Although some riparian vegetation occurs along the edges of the drainage features, the majority of the channels are relatively un-vegetated. All six drainage features are considered non-wetland waters of the US/State, as well as riverine features under Section 6.1.2 of the MSHCP.

6.0 MSHCP DISCUSSION AND RECOMMENDATIONS

6.1 Migratory Bird Treaty Act

The project site contains suitable nesting habitat for ground-nesting birds protected under the MBTA such as killdeer (*Charadrius vociferous*), western meadowlark, and horned lark. Several large trees adjacent to the project site and several small bushes scattered throughout the project may also provide nesting habitat. Some common native birds that could potentially nest in the vegetation found within the project site include, but are not limited to: bushtit (*Psaltriparus minimus*), black phoebe (*Sayornis nigricans*), western kingbird (*Tyrannus verticalis*), house finch (*Haemorhous mexicana*), Bewick's wren (*Thryomanes bewickii*), mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), and a variety of raptors.

Impacts to nesting birds, both direct and indirect, can be minimized or eliminated by conducting work activities outside of the breeding season. Although some nesting birds can occur year-round in Southern California, typical avian breeding season is from mid-February through the end of August, so it is recommended to schedule work from about early September through the end of January to avoid nesting activity. If work must be done during the nesting season, the project site and adjacent areas (500-foot buffer) should be examined by a qualified biologist prior to any ground disturbance or vegetation removal activities, especially where there could be any direct impacts to potential nest areas. If active nests are found, the nests should be avoided and a no disturbance buffer zone established and observed until young have fledged. While there is no established protocol for nest avoidance and buffer zones, when consulted the CDFW generally recommends avoidance buffers of 500 feet for raptors and listed species and 100–300 feet for other unlisted birds. Nest avoidance and buffer zones are decided on a case by case basis and can sometimes be reduced depending on a variety of factors including topography, vegetation structure and the species in question. Construction activity may encroach into the buffer area at the discretion of the biological monitor with CDFW concurrence.

6.2 Burrowing Owls

As previously mentioned above, the project site is located within the MSHCP Burrowing Owl Survey Area, which requires habitat assessment surveys for burrowing owl habitat and focused surveys where habitat is present. Based on the 2006 Rocks Biological Consulting Report, suitable habitat was not present and burrowing owl focused surveys were not recommended. Following the most recent site visit (May 2017), the existing habitat on-site is less suitable for burrowing owl than during the 2006 survey. Due to the recent 2017 rain events, the vegetation within the project site has grown higher, which has diminished the habitat suitability for burrowing owls. Although some isolated patches of grassland still remain within the project site, it is not sufficient to support a population of burrowing owl and is not considered suitable habitat. A burrow survey was conducted on the site and only a single burrowing, assumed to be a San Diego black-tailed jackrabbit based on the size and shape of the hole and the scat surrounding the opening. No sign of burrowing owl was observed during the survey.

However, due to the presence of marginally suitable foraging habitat, it is a requirement of the MSHCP that prior to any project-related ground disturbance or vegetation removal a 30-day pre-construction clearance survey be conducted prior to construction activities. This will ensure that burrowing owls that may have migrated onto the project site and/or adjacent to the project site are avoided during project implementation.

6.3 Los Angeles Pocket Mouse

The Los Angeles pocket mouse is a California species of concern and a covered species under the MSHCP. This species likely occurs in patchy distribution in relation to soils and habitat conditions. Although this species is widespread within the MSHCP area, it is uncommon. Although the size and extent of the current populations of Los Angeles pocket mouse in the Plan Area is unknown, the key populations are well understood. Most of the key populations are already conserved within the MSHCP conservation areas. With the exception of populations in Temecula and Murrieta, it is unlikely that additional key populations will need conserving. Currently, the proposed project site is extremely fragmented from either Core I or Core K, and conservation of the area identified as potential Los Angeles pocket mouse adjacent to the project utility line easement is not suitable for long term conservation (Figure 5). In addition, the installation of the utility lines will be a temporary impact and will not permanently affect any Los Angeles pocket mouse habitat, even though it is outside of the required survey area. Based on the 2015 habitat assessment report from Rocks Biological Consulting, no additional surveys are required for this species within the main project site. Also, due to the relocation of the utility lines outside of the LAPM survey area, a protocol survey for LAPM will not be required.

6.1 Narrow Endemic Plant Species

Although located within a MSHCP designated NEPSSA for Marvin's onion and many-stemmed dudleya, suitable chaparral and/or clay soil habitats are not present on the project site. No further action or consideration of narrow endemic plant species is required.

6.2 MSHCP Criteria Cells, Cores, and Linkages

Criteria Area Cells are lands where the MSHCP reserve system is being assembled. The project site is not within or located directly adjacent to the criteria cell and thus will not contribute to any connectivity to the Criteria Cell(s) or its conservation objectives.

6.3 Urban/Wildlands Interface Analysis (MSHCP 6.1.4)

The entire project site is located within Special Linkage Area subunit 3 (San Timoteo Creek Portion that connects San Gorgonio River/San Bernardino-San Jacinto Mountain Range). To minimize indirect impacts to the adjacent open-space lands that are located to the east, the following recommendations pertaining to urban/wildlands interface should be implemented. With these guidelines implemented, no significant impacts are likely to occur to the adjacent wildlands or the SLA. Guidelines Pertaining to Urban/Wildlands Interface for the management of

edge factors such as lighting, urban runoff, toxics, and noise are presented in Section 6.1.4 of the MSHCP document.

• **Drainages.** The project will comply with State water quality permitting requirements under Federal Clean Water Act (CWA) Section 402, Storm Water Discharge and Wastewater Discharge Requirements; National Pollution Discharge Elimination System (NPDES) and local ordinances (Storm Water Pollution Prevention Plan [SWPPP]). The Regional Water Quality Control Board (RWQCB) has issued Tentative Order No. R9-2010-0016, NPDES No. CAS-0108766. The proposed storm water system modifications and water treatment facilities include construction of bio-strips, bio-swales, and potentially a detention basin. The new storm water facilities will be located within the along the eastern and western perimeter of the project site.

• **Toxics.** The project will incorporate measures to minimize the potential impacts of chemicals harmful or toxic to plants, animals, and water quality. These measures are detailed in the Storm Water Data Report.

• **Lighting.** Night lighting during and after construction will be shielded and directed away from the adjacent natural communities. Light beams from vehicle headlights will be blocked by road barriers and/or landscaping along the right-of-way. Shielding will be incorporated in project design to ensure ambient lighting in the habitat areas is not increased.

• **Noise.** According to the MSHCP Guidelines Pertaining to the Urban/Wildlands Interface Section 6.1.4, the MSHCP Conservation area should not be subject to noise greater than residential noise standards (50–65 Community Noise Equivalent Level [CNEL]). Noise levels during construction should be monitored to ensure that noise levels do not exceed the residential standard. A minimization measure in the form of a sound wall would be excessive since the existing ambient noise levels from the I-10 mainline (68–70 dBA Leq) would not be attenuated. Noise minimization measure suggestions for the interchange loop are planting native trees and shrubs in the temporary impact areas, if necessary.

• **Invasive Plants.** Plant species identified in any associated landscape plan or restoration plan for this project will not include plants identified as invasive such as, but not limited to, tamarisk, fountain grass, Arundo, and/or pampas grass, or

• **Barriers.** At this point, no barriers are currently designed along the eastern boundary, other than the proposed drainage feature to off-set impacts to on-site drainage features. Although this portion of the project site is immediately adjacent to an open-space area (Morongo Reservation), it is not part of a residential development and therefore there are no specific recommendation for perimeter fencing, other than for aesthetics.

• **Grading/Land Development.** Grading will be minimized to the extent feasible to construction the project site. The project perimeter will be staked or otherwise marked to identify the edges of grading and the limits of development. This will ensure that all grading activities and project development will be completely within the project footprint.

6.4 Riparian/Riverine Areas and Vernal Pools

There are no vernal pools present within or adjacent to the project site. No additional actions are required for vernal pool compliance.

The project site contains six drainage features that are described as riparian/riverine features and convey storm flows from the project site to Smith Creek south of the project site (Figure 6). Although these drainage feature does not convey flows to a conservation area, they do flow into Smith Creek, which is considered a wildlife corridor and connects Cabazon with the Badlands. Therefore, any impacts to these riverine areas will require a DBESP report to discuss project related impacts and mitigation measures.

Based on the current project design (Figure 7), the proposed project will result in 0.23 acre of permanent impacts and 0.07 acres of temporary impacts to the riparian/riverine areas found within the project site, both on- and off-site. Proposed mitigation for project related impacts to riparian/riverine areas will include the creation of 1.20 acres of riparian/riverine areas will include on-site drainage creation of in-kind habitat, described below. Currently, there are no active mitigation banks or in-lieu fee programs in this area.

The proposed habitat creation areas will occur in two areas along the edges of the proposed development. The first area is located along the western edge of the project site boundary (Figure 7). A 30-foot wide low-flow drainage feature will be constructed along the western portion of the project site and will redirect flows from Drainages 3 and 4 to the south, around the development, and then empty into Drainage 1 south of the proposed development. The drainage will meander within the mitigation area creating a natural looking drainage for approximately 400 linear feet. The active channel will be approximately 0.27 acres and include in-kind replacement of non-wetland riparian scrub habitat.

The second feature will convey flows in a 20 to 30 foot wide channel along the eastern property boundary. The swale will have an overall length of 1,587 linear feet and includes approximately 0.93 acres.

Dominant vegetation within the mitigation area will consist of California encelia (*Encelia farinosa*) and coyote bush (*Baccharis pilularis*). The upland area adjacent to the riparian habitat will consist of California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), interior golden bush (*Ericameria linearifolia*), and deerweed (*Lotus scoparius*).

Under the MSHCP, the created habitat will be monitored by the project proponent for a minimum of 5 years; monitoring reports shall be provided to the City and appropriate regulatory agency on an annual basis. The restoration area must meet standardized success criteria as described in the Habitat Mitigation and Monitoring Plan, which is required as part of the permit process for a Streambed Alteration Agreement with the California Department of Fish and Wildlife. Since project related impacts within the site will all be permanent, no temporary impacts will occur.

Project related mitigation measures associated with the impacts to riparian/riverine areas will not conflict with the mitigation measures required by the United States Army Corps of Engineers, Regional Water Quality Control Board, and CDFW as part of the regulatory permitting process.

Since portion of some drainage features will be relocated along the edge of the project site, it will be maintained as a natural filter for potentially contaminated water flowing from I-10 and the adjacent railroad ROW to the north. The increased amount of flows, due to the impermeable surface associated with the proposed development will be maintained within a channel that is wider than the current channel, which will reduce any significant erosion or scouring caused by an increase in flows. The amount of project related direct and/or indirect impacts is relatively small, will be completely mitigated on-site and off-site, and will not have any significant downstream effects on conserved species. Typically, habitat creation areas established for the purpose of mitigation for impacts to riparian/riverine areas under the MSHCP are conserved in a conservation easement and managed with funds generated from a non-wasting endowment. However, due to the isolated nature of the proposed mitigation, a conservation easement may not be required since it will not contribute lands within or adjacent to an existing conservation area.

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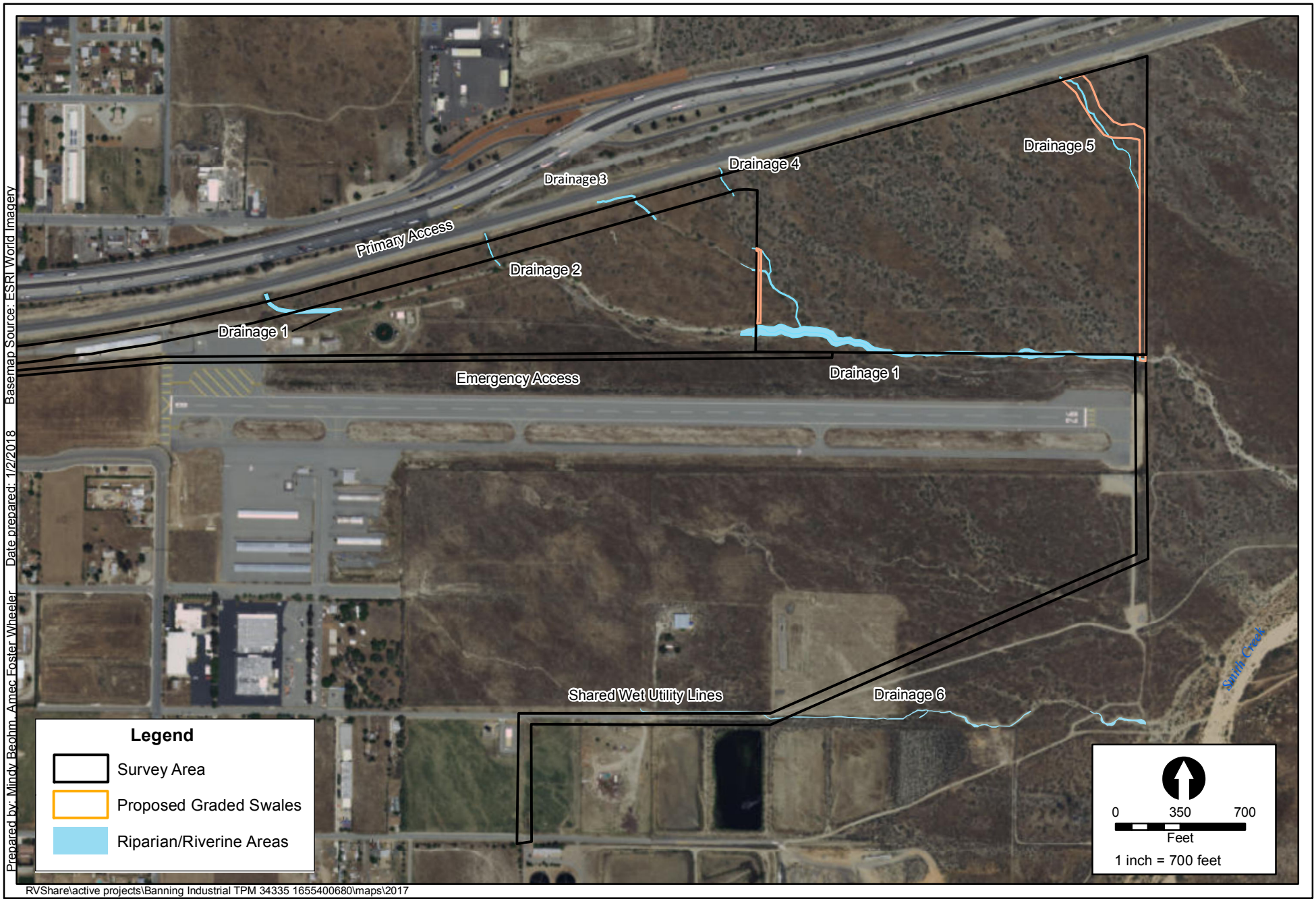

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Riparian/Riverine Map

Banning Industrial Park

FIGURE

6

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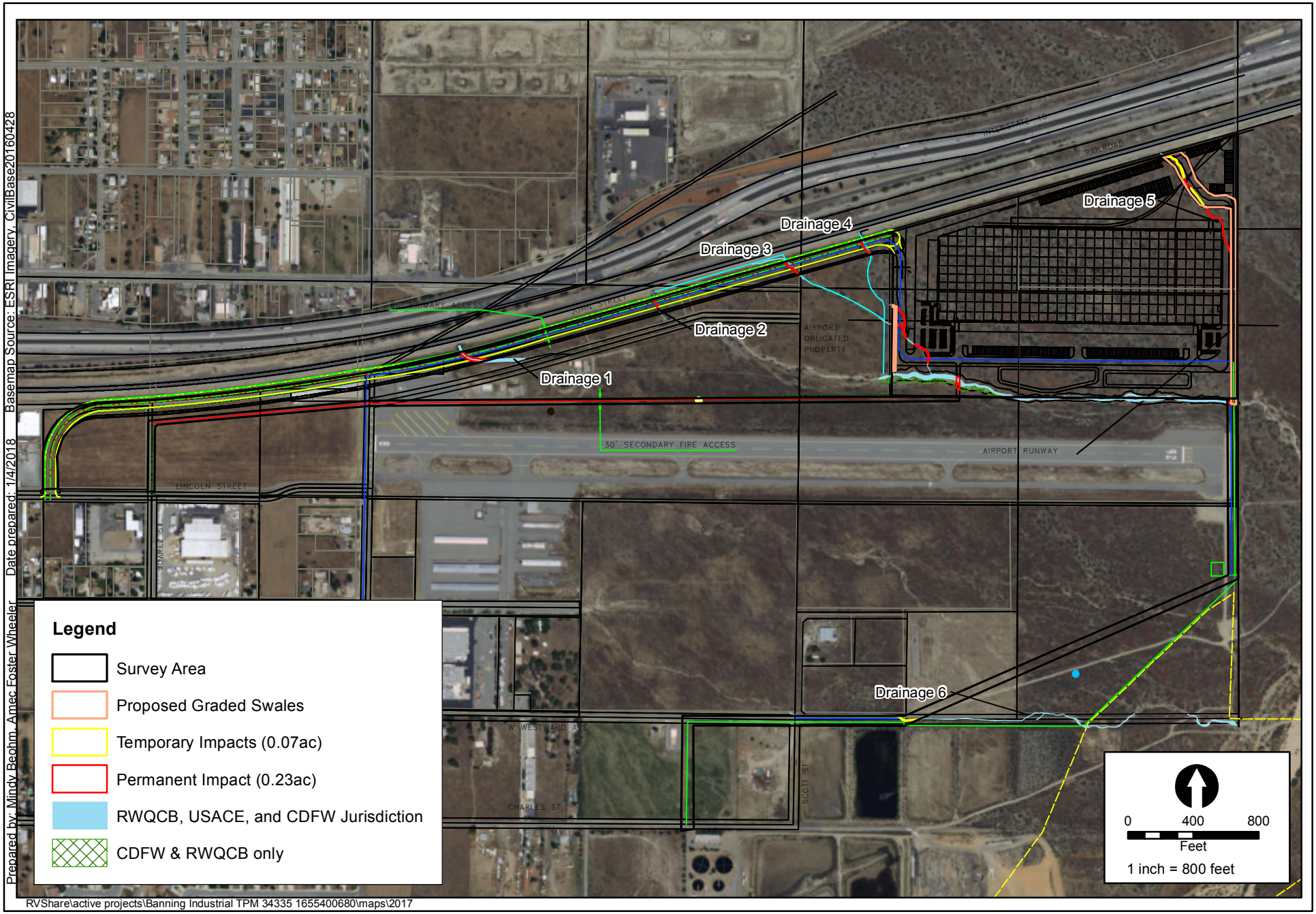

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Site Plan Map

Banning Industrial Park

FIGURE

7

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7.0 CONCLUSIONS

A biological resources assessment and MSHCP consistency analysis was conducted for the 63.9-acre Banning Industrial Park project site along with the off-site infrastructure improvements needed to support the project development (An additional 8.0 acres). The project site is located within the MSHCP designated burrowing owl survey area; no suitable nesting habitat and marginally suitable foraging habitat for the burrowing owl was found on-site. No burrowing owls or their sign (i.e. pellets, white wash, or feathers) were detected during the burrowing owl burrow survey. A pre-construction/clearance survey, conducted no more than 30 days prior to site disturbance is required to ensure that burrowing owls have not colonized the site prior to initiating construction activities.

The project site and off-site infrastructure improvements are located within the MSHCP designated narrow endemic plant survey area. There is no suitable habitat on-site for either of these two narrow endemic plant species (Marvin's onion and many-stemmed dudleya). The project site does not lie within any linkage or proposed linkages and does not connect any large blocks of undisturbed lands that may be used as a wildlife corridor. The proposed project does occur immediately adjacent to open space areas of the Morongo Reservation.

The project site is located adjacent to the MSHCP designated Los Angeles pocket mouse survey area, but not within (See Figure 5). Project development will not impact any portion of the LAPM survey area. Therefore, a protocol survey for Los Angeles Pocket Mouse is not required since the alignment of the utility line was redesigned to avoid this area. Due to the fragmented nature of the habitat on-site the project is not suitable for any long-term conservation under the Plan. The project site will not impede any future dispersal of this species and is not connected to any large blocks of conservation areas. Therefore, additional mitigation for impacts to this species are not required.

The non-native grasslands and a few large trees and shrubs located on and/or immediately adjacent to the project site provide suitable nesting habitat for raptors, common ravens and various songbirds protected by the MBTA. If ground disturbance and/or vegetation removal occurs during the nesting bird season (mid-February through the end of August) a pre-construction clearance survey will be required to avoid any indirect impacts to nesting birds.

The project site contains six drainage features (Figure 6) that are described as waters of the US/State and qualify as riparian/riverine features under the MSHCP. Prior to obtaining a grading permit, all regulatory permits will be required including the 404 permit from USACE, 401 Certification from RWQCB, and 1602 permit from CDFW. In addition, impacts to riparian/riverine areas will require a DBESP report to discuss project related impacts and mitigation measures. Both the Jurisdictional Delineation and DBESP are prepared under separate cover. The

preferred mitigation for impacts to on-site drainage features is on-site creation of 1.20 acres of in-kind desert scrub habitat within an ephemeral drainage feature.

Based on the biological resources assessment and MSHCP consistency analysis, the development of the Banning Industrial Park project and associated off-site infrastructure improvements, following the above mentioned avoidance/minimization measures and proposed mitigation measures, will ensure that the proposed project is consistent with the MSHCP.

8.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.



December 19, 2017

Scott Crawford
Biology Group Manager

Date

9.0 REFERENCES

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APPENDIX A

Plant & Wildlife Species List

Fauna Compendium

Pieridae		**Whites, Sulphurs, and Orangetips**
Pieris	*rapae*	cabbage white
Riodinidae		**Metalmarks**
Apodemia	*mormo virgulti*	Behr's metalmark
Phrynosomatidae		**Lizards**
Sceloporus	*occidentalis*	western fence lizard
Cathartidae		**Vultures**
Cathartes	*aura*	turkey vulture
Accipitridae		**Hawks**
Buteo	*jamaicensis*	red-tailed hawk
Aquila	*chrysaetos*	golden eagle
Falconidae		**Falcons**
Falco	*sparverius*	American kestrel
Charadriidae		**Plovers**
Charadrius	*vociferus*	killdeer
Columbidae		**Pigeons/Doves**
Zenaida	*macroura*	mourning dove
Trochilidae		**Hummingbirds**
Calypte	*anna*	Anna's hummingbird
Tyrannidae		**Flycatchers**
Sayornis	*nigricans*	black phoebe
Sayornis	*saya*	Say's phoebe
Tyrannus	*verticalis*	western kingbird
Laniidae		**Shrikes**
Lanius	*ludovicianus*	loggerhead shrike
Corvidae		**Jays/Crows**
Corvus	*corax*	common raven
Alaudidae		**Larks**
Eremophila	*alpestris*	horned lark
Hirundinidae		**Swallows**
Stelgidopteryx	*serripennis*	northern rough-winged swallow
Aegithalidae		**Bushtits**
Psaltriparus	*minimus*	bushtit
Troglodytidae		**Wrens**
Thryomanes	*bewickii*	Bewick's wren
Parulidae		**New world warblers**
Dendroica	*coronata*	yellow-rumped warbler
Emberizidae		**Warblers, sparrow, etc.**
Zonotrichia	*leucophrys*	white-crowned sparrow

Fauna Compendium

Icteridae		**New world blackbirds**
Sturnella	*neglecta*	western meadowlark
Fringillidae		**Finches**
Haemorhous	*mexicanus*	house finch
Carduelis	*psaltria*	lesser goldfinch
Leporidae		**Hares and Rabbits**
Lepus	*californicus*	black-tailed jackrabbit
Sylvilagus	*audubonii*	desert cottontail
Sciuridae		**Squirrels**
Otospermophilus	*beecheyi*	California ground squirrel
Geomyidae		**Pocket Gophers**
Thomomys	*bottae*	Botta's pocket gopher
Canidae		**Wolves and Foxes**
Canis	*latrans*	coyote

Flora Compendia

Amaranthaceae		**Amaranth Family**
Amaranthus	*albus*	tumbling pigweed
Anacardiaceae		**Sumac or Cashew Family**
Schinus	*molle*	Peruvian pepper tree
Asteraceae		**Sunflower Family**
Ambrosia	*acanthicarpa*	annual bursage
Ambrosia	*psilostachya*	western ragweed
Ambrosia	*salsola*	cheese bush
Artemisia	*californica*	California sagebrush
Baccharis	*salicifolia*	mule fat
Centaurea	*solstitialis*	yellow star-thistle
Chaenactis	*sp.*	unknown pincushion species
Conyza	*canadensis*	horseweed
Corethrogyne	*filaginifolia*	California aster
Cotula	*coronopifolia*	brass-buttons
Encelia	*farinosa*	brittlebush
Ericameria	*linearifolia*	interior goldenbush
Gnaphalium	*californicum*	California everlasting
Helianthus	*annuus*	common sunflower
Hemizonia	*paniculata*	San Diego tarweed
Heterotheca	*grandiflora*	telegraphweed
Logfia	*californica*	California cottonrose
Senecio	*flaccidus*	threadleaf ragwort
Senecio	*vulgaris*	common groundsel
Stephanomeria	*virgata*	twiggy wreathplant
Tetradymia	*comosa*	hairy horsebrush
Boraginaceae		**Borage Family**
Amsinckia	*menziesii*	Menzies' fiddleneck
Heliotropium	*curassivicum*	saltmarsh heliotrope
Brassicaceae		**Mustard Family**
Brassica	*tournefortii*	Asian mustard
Hirschfeldia	*incana*	short-podded mustard
Cactaceae		**Cactus Family**
Cylindropuntia	*california var. parkeri*	cane cholla
Opuntia	*basilaris*	beavertail cactus
Chenopodiaceae		**Goosefoot Family**
Salsola	*tragus*	Russian thistle
Cucurbitaceae		**Gourd Family**
Cucurbita	*foetidissima*	calabazilla
Cucurbita	*palmata*	coyote gourd

Flora Compendia

Marah	*macrocarpus*	wild cucumber
Elaeagnaceae		**Oleaster Family**
Elaeagnus	*angustifolia*	oleaster
Euphorbiaceae		**Spurge Family**
Chamaesyce	*albomarginata*	rattlesnake weed
Croton	*californicus*	California croton
Fabaceae		**Legume Family**
Acacia	*greggii*	catclaw acacia
Lotus	*scoparius*	common deerweed
Lupinus	*hirsutissimus*	stinging lupine
Lupinus	*succulentus*	arroyo lupine
Geraniaceae		**Geranium Family**
Erodium	*botrys*	broadleaf filaree
Erodium	*cicutarium*	red-stemmed stork's bill
Lamiaceae		**Mint Family**
Salvia	*columbariae*	chia
Trichostema	*lanatum*	woolly bluecurls
Nyctaginaceae		**Four O'Clock Family**
Mirabilis	*laevis var. crassifolia*	California wishbone bush
Polygonaceae		**Buckwheat Family**
Eriogonum	*fasciculatum*	California buckwheat
Rhamnaceae		**Buckthorn Family**
Ceanothus	*sp.*	unknown ceanothus sp.
Salicaceae		**Willow Family**
Populus	*fremontii ssp. fremontii*	Fremont cottonwood
Salix	*gooddingii*	Goodding's willow
Salix	*lasiolepis*	arroyo willow
Simaroubaceae		**Quassia Family**
Ailanthus	*altissima*	tree of heaven
Solanaceae		**Nightshade Family**
Datura	*wrightii*	jimson weed
Nicotiana	*glauca*	tree tobacco
Tamaricaceae		**Tamarisk Family**
Tamarix	*sp.*	unknown tamarisk sp.
Agavaceae		**Agave Family**
Yucca	*schidigera*	Mohave yucca
Poaceae		**Grass Family**
Avena	*barbata*	slender oat
Avena	*fatua*	wild oat

Flora Compendia

Bromus	*diandrus*	ripgut brome
Bromus	*rubens*	red brome
Lamarckia	*aurea*	golden top grass
Themidaceae		**Brodiaea Family**
Dichelostemma	*capitatum*	blue dicks

APPENDIX B

Photographic Exhibits



Photo 1 – Looking northeast at the central portion of the project site. Note non-native grassland in the foreground and desert scrub in the background.



Photo 2 – Looking north at desert scrub habitat. Disturbed railroad ROW in the background.



Photo 3 – Looking south along the eastern extent of the proposed utility ROW.



Photo 4 – Looking east along the southern portion of the Utility ROW before heading south.

Appendix D.2

WESTERN BURROWING OWL SURVEY REPORT
BANNING INDUSTRIAL PARK PROJECT
CITY OF BANNING, RIVERSIDE COUNTY, CALIFORNIA



Submitted to:
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506
Contact: Stephanie Standerfer

Submitted by:
Wood Environment & Infrastructure Solutions
(formerly Amec Foster Wheeler)
3120 Chicago Avenue, Suite 110
Riverside, California 92507
Contact: Lisa Wadley

31 May 2018

Wood E&I Solutions Project No. 1655400680

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
CDFW	California Department of Fish and Wildlife
FGC	Fish and Game Code
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
USGS	United States Geological Survey
Webb	Albert A. Webb Associates
Wood E&I Solutions	Wood Environment & Infrastructure Solutions

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1.0 INTRODUCTION

Wood Environment and Infrastructure Solutions (Wood E&I Solutions) was contracted by Albert A. Webb Associates (Webb) to conduct a focused western burrowing owl (*Athene cunicularia hypugaea*) survey.

The proposed project involves the development of Assessor's Parcel Number (APN) 532-110-006, 532-130-001, and 532-130-002. The proposed project includes the development of the Banning Industrial Park, which includes industrial buildings, associated parking lot, detention basin, and associated infrastructure.

1.1 Project Description and Location

The proposed development of the parcel includes development of industrial buildings, a parking lot, detention basin, and associated off-site infrastructure including 5,968 linear feet of off-site sewer, 9,350 of off-site water utilities and 5,000 linear foot of emergency road access. These off-site infrastructure areas are also part of the project.

The project site and associated infrastructure is specifically located north of Charles Street, south of Interstate 10, and east of Hargrave Street (Figure 1) and can be found in Sections 11 and 14 of Township 3 South, Range 1 East, as shown on the *Cabazon, California,* United States Geological Survey (USGS) 7.5 minute quadrangle (Figure 2). The elevation of the project site ranges from 2,105 to 2,240 feet above sea level. The geographic coordinates near the middle of the site are 33° 55.520' North latitude and -116°50.767' West longitude.

1.2 Purpose and Need

The project site and off-site alignments are located within the MSHCP designated burrowing owl survey area. No suitable habitat (i.e. burrows) or other man-made structures (i.e. pipes, concrete refuge, etc.) suitable for burrowing owl use were observed on-site during the reconnaissance-level survey. Marginal, low quality burrowing owl foraging habitat (i.e. scattered pockets of non-native grasslands) were found within the project boundary of the site at the time of the biological assessment surveys. The nearest known burrowing owl occurrence is approximately 3 miles northeast of the project site (Wood E&I Solutions senior biologist Scott Crawford personal observation 2008). Due to marginal suitable habitat found onsite during previous surveys conducted by Wood E&I Solutions, Webb contacted Wood E&I Solutions to conduct a focused western burrowing owl survey to ensure no owls were present with adjacent areas where marginal suitable habitat for burrowing owl occurred.

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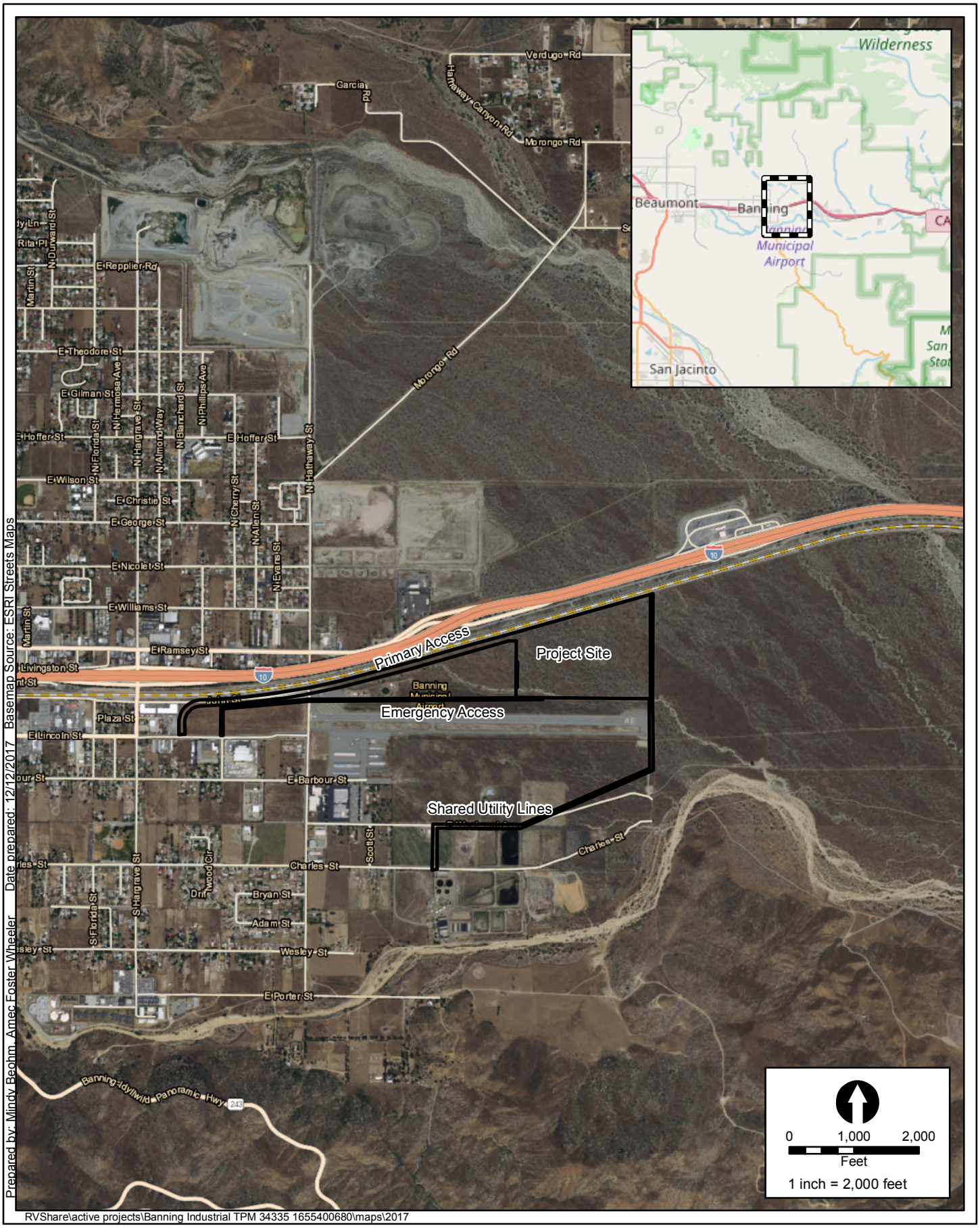

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: ESRI Streets Maps

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Regional and Vicinity Map

Banning Industrial Park

FIGURE

1

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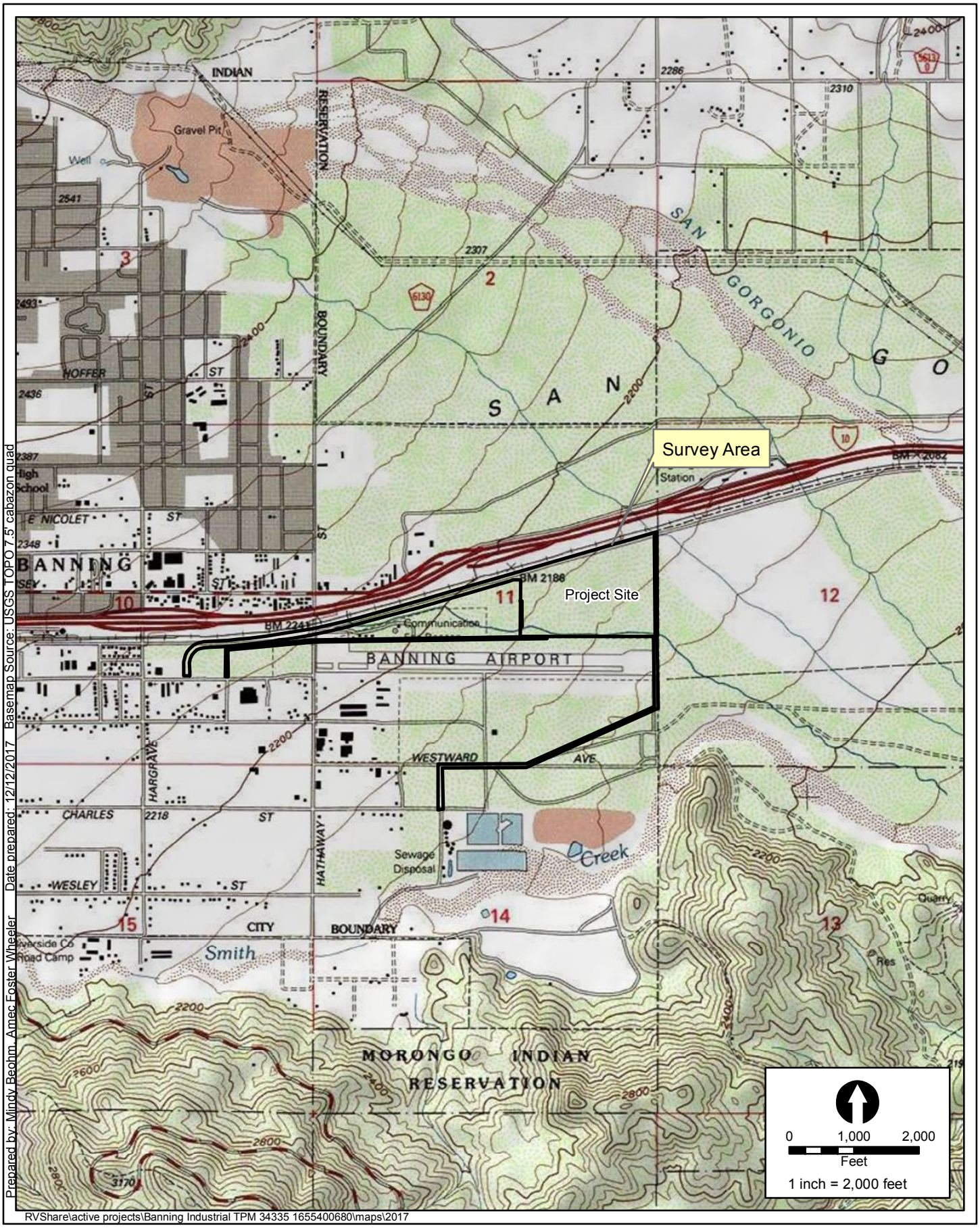

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: USGS TOPO 7.5' cabazon quad

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Topographic Map

Banning Industrial Park

FIGURE

2

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2.0 EXISTING CONDITIONS

The proposed project site is currently an active airport with associated structures. Elevations on the proposed project site range from approximately 2,105 to 2,240 feet above sea level. Surrounding land use includes Union Pacific Railroad right-of-way and Intestate 10 to the north, Banning Airport to the south, existing rural residential development to the west, vacant Morongo-owned property to the east.

The project site is currently undeveloped with no existing structures. Desert scrub habitat dominates the site with small patches of disturbed non-native grasslands. The common desert scrub plants observed on-site include desert encelina (*Encelia farinosa*), California buckwheat (*Eriogonum fasciculatum*), and deer weed (*Acmispon glaber*). Non-native grassland species observed on-site include Russian thistle (*Salsola tragus*), wild mustard (*Hirschfeldia incana*), rip-gut grass (*Bromus diandrus*), and red-stemmed filaree (*Erodium cicutarium*).

The study area contains evidence of routine grazing by cattle. However, no cattle were observed within the project site during the survey. Cattle were observed in a pasture just south of the airport. Additionally, during the last day of surveys a tractor was observed grubbing and blading vegetation areas within the airport runway.

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3.0 BURROWING OWL BACKGROUND

The western burrowing owl is listed as a “species of special concern” by the California Department of Fish and Wildlife (CDFW). Take of individual burrowing owls and their nests is prohibited by Fish and Game Code (FGC) sections 3503, 3503.5 and 3513. Take is defined in FGC Section 86 as “hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture or kill”. The western burrowing owl is also protected under the Migratory Bird Treaty Act.

In California, preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils (Haug et al., 1993). Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. In addition, burrowing owls may occur in some agricultural areas, ruderal grassy fields, vacant lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity (Gervais et al., 2008). Burrows used by the owls are usually dug by other species termed host burrowers. In California, California ground squirrel (*Spermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) burrows are frequently used by burrowing owls but they may use dens or holes dug by other fossorial species including badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (Ronan, 2002). In some instances, owls have been known to excavate their own burrows (Thompson, 1971, Barclay 2007). Natural rock cavities, debris piles, culverts, and pipes also are used for nesting and roosting (Rosenberg et al., 1998).

In California, the breeding season for the burrowing owl typically occurs between 1 February and 31 August (Thompson, 1971, Gervais et al., 2008). Breeding behavior includes nest site selection by the male, pair formation, copulation, egg laying, hatching, fledging, and post-fledging care of young by the parents. The peak of the breeding season occurs between 15 April and 15 July and is the period when most burrowing owls have active nests (eggs or young). The incubation period lasts 29 days (Coulombe, 1971) and young fledge after 44 days (Haug et al., 1993).

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4.0 METHODOLOGY

Burrowing owl surveys were conducted in accordance with the Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area (County of Riverside, 2006). A burrowing owl habitat assessment was conducted on the project site on 9 May 2017 (AMEC, 2017). The habitat assessment no suitable habitat (i.e. burrows) or other man-made structures (i.e. pipes, concrete refuge, etc.) suitable for burrowing owl use on-site during the reconnaissance-level survey completed in 2017. However, marginal, low quality burrowing owl foraging habitat (i.e. scattered pockets of non-native grasslands) were found within the project boundary of the site at the time of the survey.

A focused burrow survey was then conducted during the breeding season which extends generally from March 1st to August 31st. The study area for the survey included the entire project site in addition to all suitable habitat within 500 feet of the project site boundary. The locations of all burrows suitable for habitation by burrowing owl were recorded. Survey transects were spaced <100 feet apart to allow for 100% visual coverage of the ground surface in areas accessible by foot. Areas not accessible (i.e. on private property, field adjacent to active airport runway) were surveyed using binoculars and/or spotting scopes to determine if owls were present in these areas adjacent to project site. A total of four surveys were conducted. The focused burrow survey was conducted at the same time as the first focused burrowing owl survey. Surveys were conducted either in the morning one hour before sunrise to two hours after sunrise or in the evening two hours before sunset to one hour after sunset. Surveys were not conducted during rain or within five days of rain, winds greater than 20 miles per hour, dense fog, or temperatures over 90 degrees Fahrenheit. Surveys were conducted in accordance with the Burrowing Owl Survey Instructions for the WRMSHCP (County of Riverside, 2006).

Table 1-1
Survey Data

Survey Date	Surveyor	Time	Temperature (°F)	Wind (MPH)	Skies
14 May 2018	L. Wadley	0520-0815	51-55	3-8	100% to partly cloudy (5%)
16 May 2018	L. Wadley	0520-0815	50-56	1-6	clear
22 May 2018	L. Wadley	1740-1950	71-62	3-13	Partly cloudy (50%) to clear
24 May 2018	L. Wadley	0520-0800	50-54	3-10	100% with mist

Notes: °F = degrees Fahrenheit, MPH = miles per hour

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5.0 RESULTS

The area surveyed is shown in Figure 3 along with the locations of suitable burrows. No burrowing owls were observed during the focused burrowing owl surveys of the project site or buffer area. Some fossorial animal burrows were found along the fence line adjacent to the fields and the project site; however, no burrows showed characteristic burrowing owl sign of excrement, pellets, or feathers outside the burrows. No suitable burrows were associated with any of the onsite drainages identified in previous reports. At the present time, the western burrowing owl is considered to be absent from the project site (which includes the on and off-site project improvement areas) and/or surrounding buffer area. The absence of burrowing owls is likely due to presence of larger, predatory avian species observed on-site and within buffer areas during the focused survey (i.e. red-tailed hawk (*Buteo jamaicensis*), common raven (*Corvus corax*), and prairie falcon (*Falco mexicanus*).

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Prepared by: Mindy Beohm, AMEC Foster Wheeler Date prepared: 5/25/2018

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Burrowing Owl Survey Results Map

Banning Industrial Park

FIGURE

3

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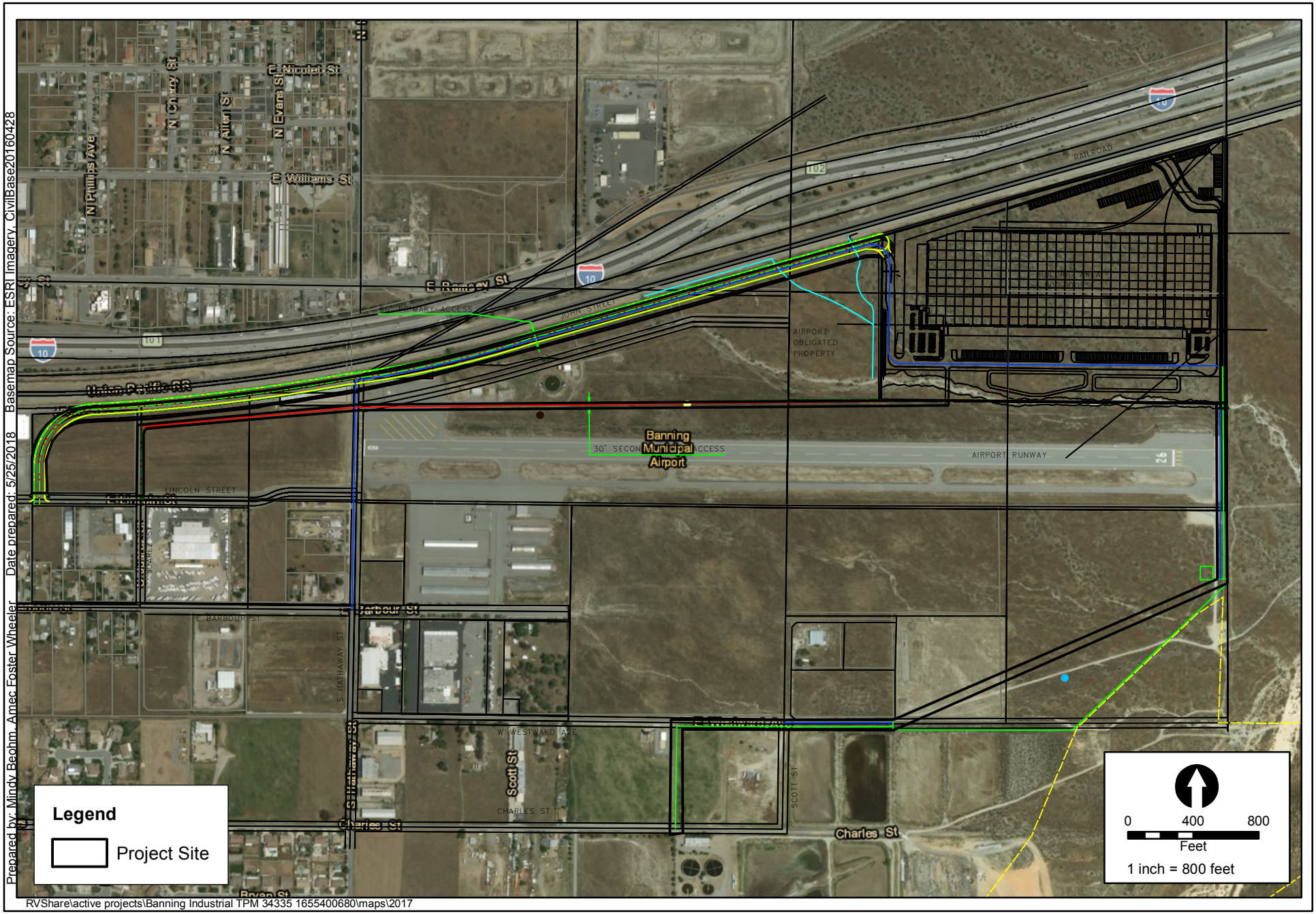

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Site Plan Map

Banning Industrial Park

FIGURE

4

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6.0 CERTIFICATION STATEMENT

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Signed: _____ Date: 05/31/18

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APPENDIX A

SITE PHOTOGRAPHS



Photo 1. Photo of field south of John Street, north of Westward Avenue and west of the airport; seen facing southeast.



Photo 2. Photo of field south of John Street, north of Westward Avenue and west of the airport; seen facing southwest.



Photo 2. Photo showing typical mammal burrow found at the fence line found west of the airport.



Photo 2. Photo showing typical mammal burrow found along berm between railroad tracks (north of airfield) and John Street (access road to airfield).

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APPENDIX B

PLANTS AND WILDLIFE OBSERVED

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PLANTS OBSERVED	
Asteraceae	**Sunflower family**
Encelia farinosa	Brittlebush
Boraginaceae	**Borage family**
Amsinckia menziesii	Common fiddleneck
Brassicaceae	**Mustard family**
*Hirschfeldia incana**	Wild mustard
Chenopodiaceae	**Saltbush family**
*Salsola tragus**	Russian thistle
Convolvulaceae	**Morning-glory family**
*Convolvulus arvensis**	Field bindweed
Geraniaceae	**Geranium family**
*Erodium cicutarium**	Coastal heron's bill
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum	California buckwheat
Poaceae	**Grass family**
Avena sp.*	Oat
*Bromus diandrus**	Ripgut brome
Bromus madritensis ssp. *madritensis**	Foxtail chess
Typhaceae	**Cattail family**
Acmispon glaber	deerweed
WILDLIFE OBSERVED	
AVES	**BIRDS**
Ardeidae	**Herons, Egrets, and Bitterns**
Egretta thula	Snowy egret
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	Red-tailed hawk
Falconidae	**Falcons**
Falco sparverius	American kestrel
Falco mexicanus	Prairie falcon
Columbidae	**Pigeons and Doves**
*Columba livia**	Rock pigeon
Zenaida macroura	Mourning dove
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say’s phoebe
Tyrannus verticalis	Western kingbird
Corvidae	**Crows and Ravens**
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Hirundinidae	**Swallows**
Hirundo rustica	Barn swallow
Sturnidae	**Starlings**

*Sturnus vulgaris**	European starling
Icteridae	**Blackbirds, Orioles and Allies**
Sturnella neglecta	Western meadowlark
Euphagus cyanocephalus	Brewer's blackbird
Fringillidae	**Finches**
Carpodacus mexicanus	House finch
MAMMALIA	**MAMMALS**
LAGOMORPHA	***RABBITS, HARES AND PIKA***
Leporidae	**Rabbits and Hares**
Sylvilagus audubonii	Desert cottontail
RODENTIA	***RODENTS***
Sciuridae	**Squirrels**
Otospermophilus beecheyi	California ground squirrel

*non-native species

Appendix E

DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION
BANNING INDUSTRIAL PARK PROJECT
CITY OF BANNING, RIVERSIDE COUNTY, CALIFORNIA



Submitted to:
Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506
Contact: Stephanie Standerfer

Submitted by:
Amec Foster Wheeler Environment & Infrastructure, Inc.
3120 Chicago Avenue, Suite 110
Riverside, California 92507
Contact: Scott Crawford

December 2017

Amec Foster Wheeler Project No. 1655400680

amec foster wheeler

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ACRONYMS AND ABBREVIATIONS

Amec Foster Wheeler	Amec Foster Wheeler, Environment & Infrastructure, Inc.
AMSL	above mean sea level
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
DBESP	Determination of Biologically Equivalent or Superior Preservation
LBV	Least Bell's Vireo
MSHCP	Western Riverside Multiple Species Habitat Conservation Plan
NPDES	National Pollutant Discharge Elimination System
PQP	Public/Quasi-Public
R4SBJ	Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States
RCA	Resource Conservation Authority
RCRCD	Riverside County Resource Conservation District
SWFL	Southwestern willow flycatcher
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
USGS	U. S. Geologic Survey
WSC	Waters of the State of California
WQMP	Water Quality Management Plan

1.0 INTRODUCTION

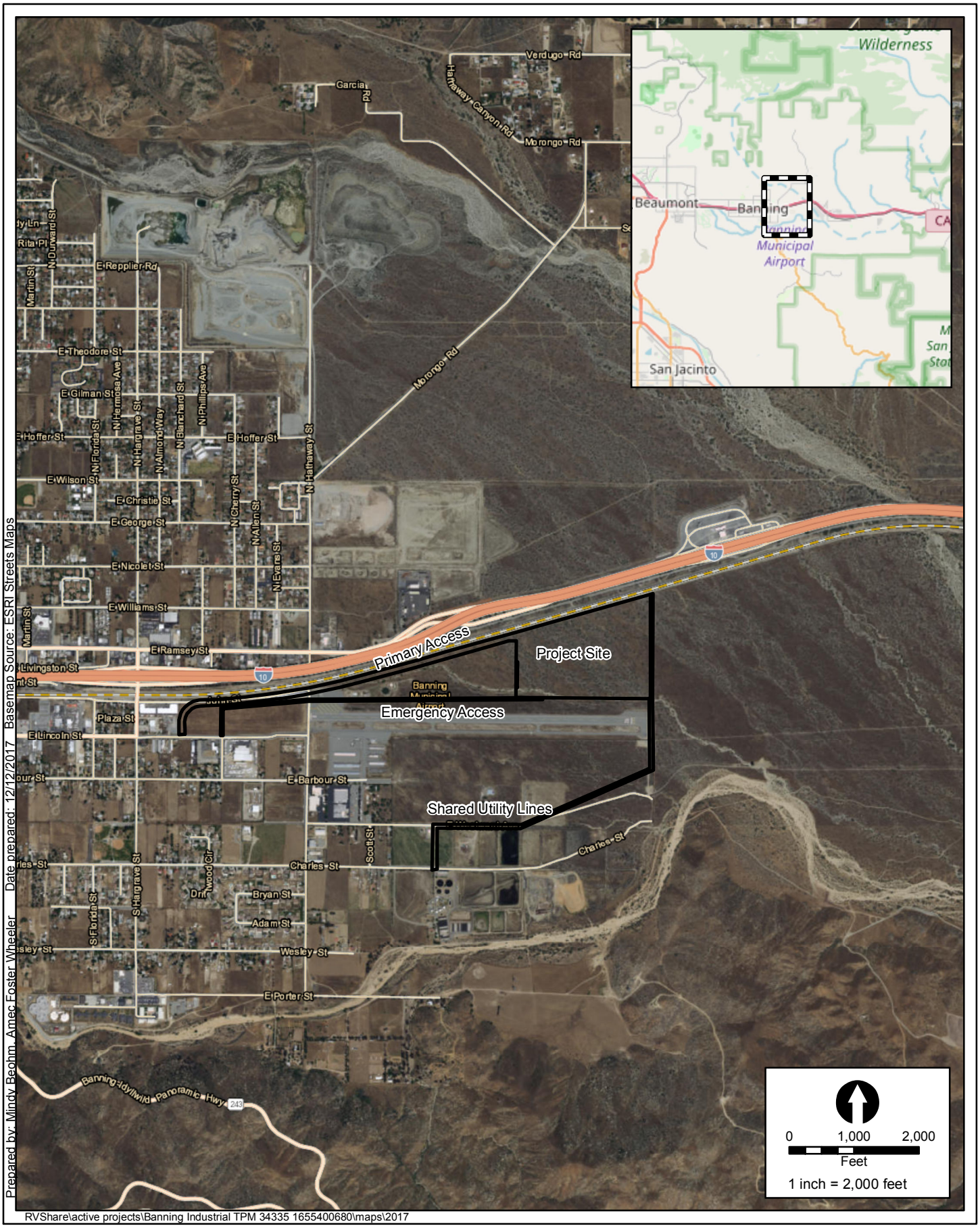
Amec Foster Wheeler, Environment & Infrastructure, Inc. (Amec Foster Wheeler) was contracted by Albert A. Webb Associates to conduct a Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Determination of Biologically Equivalent or Superior Preservation (DBESP) for the Banning Industrial Project parcels, hereafter referred to as project, project site, or site. A DBESP is required because the project will result in impacts to riparian/riverine areas, as defined by the MSHCP (Riverside County 2003). The purpose of this report is to demonstrate that the proposed mitigation would provide an equivalent or superior preservation of habitat functions and values of riparian/riverine resources.

1.1 Project Description

The proposed project involves the development of Assessor's Parcel Number (APN) 532-110-006, 532-130-001, and 532-130-002. The proposed project includes the development of the Banning Industrial park, which includes industrial buildings, associated parking lot, detention basin, and associated infrastructure. The project area analyzed herein also includes 5,968 linear feet of off-site sewer, 9,350 of off-site water utilities and 5,000 linear foot emergency road access. These off-site infrastructure areas are also part of the project.

1.2 Project Location

The project site is generally located north of State Route (SR) 74, south of Interstate (I) 10, east of SR 243, and west of SR 111 (Figure 1). The project is located in Section 11 and 14 of Township 3 South, Range 1 East on the Cabazon, California United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2). The project is specifically located north of the Banning Municipal Airport, south of I-10, east of Hargrave Street, and west of the San Gorgonio River. The project site boundary was provided to Amec Foster Wheeler Environment and Infrastructure, Inc. (Amec Foster Wheeler) by Albert A. Webb Associates, Inc. The geographic coordinates near the middle of the project site are 33° 55.520' North latitude and -116°50.767' West longitude.



Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: ESRI Streets Maps

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Regional and Vicinity Map

Banning Industrial Park

FIGURE

1

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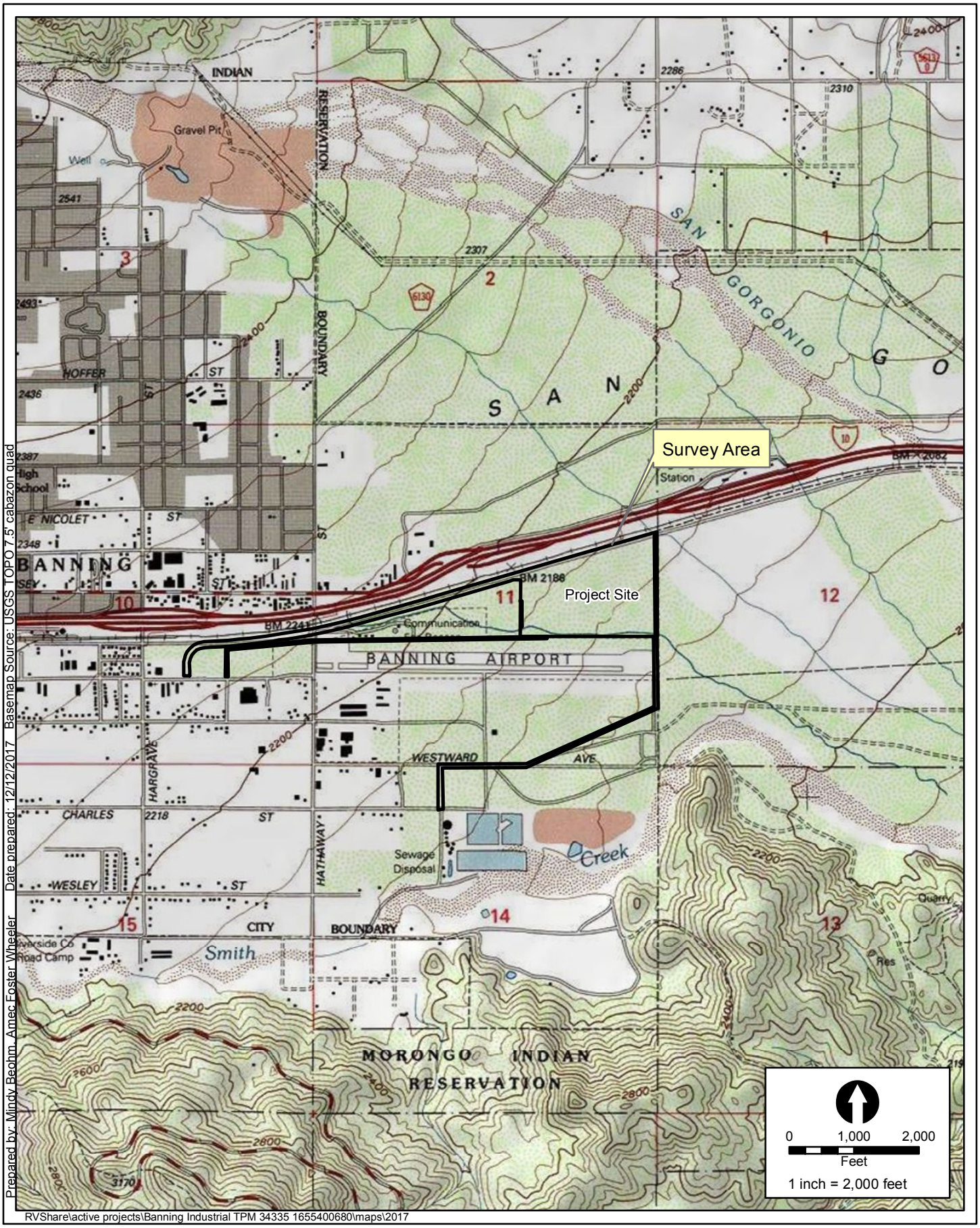

Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: USGS TOPO 7.5' cabazon quad

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Topographic Map

Banning Industrial Park

FIGURE

2

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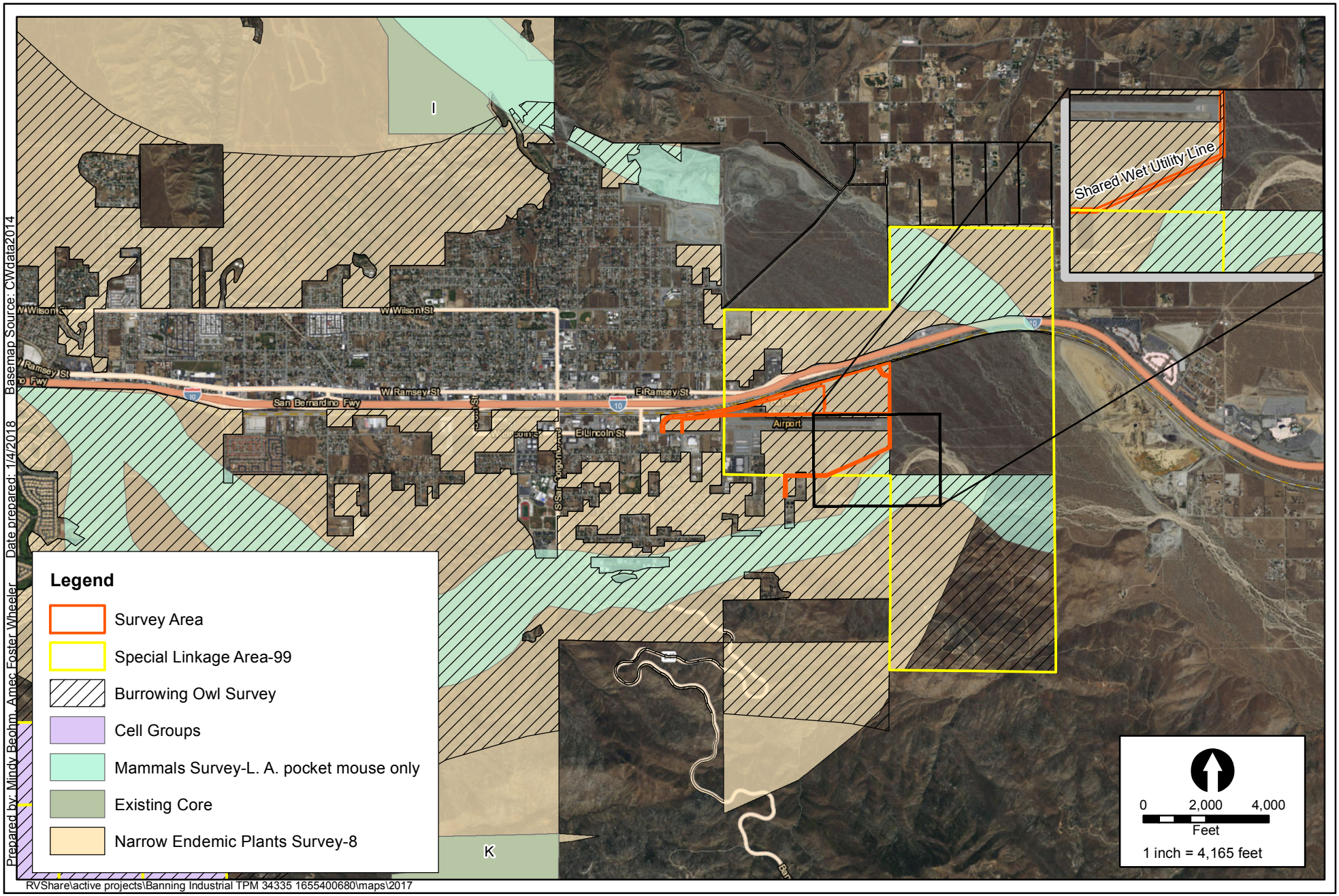

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MSHCP Map

Banning Industrial Park

FIGURE

3

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2.0 METHODS

2.1 Literature Review

Amec Foster Wheeler conducted a review of existing documents for the proposed project and other relevant reference materials prior to the subject analysis. Previous documentation for the proposed project reviewed for the preparation of the subject DBESP includes the following:

- Biological Resources at the messenger industrial Park-Banning Airport Project (Rocks Biological Consulting, 2015)
- Habitat Assessment Report for the Messenger Industrial Park Banning Airport Project, Riverside County, CA (Rocks Biological Consulting, 2006)
- Jurisdictional Delineation Report Banning Industrial Park, City of Banning, Riverside County, California (Amec Foster Wheeler 2016)
- Habitat Assessment and Western Riverside County MSHCP Consistency Analysis Report, Banning Industrial Park Project, City of Banning, Riverside County, California (Amec Foster Wheeler 2017)

2.2 Field Reconnaissance

Amec Foster Wheeler senior biologists Scott Crawford conducted a jurisdictional delineation survey on 24 May, 2016 from 0830 to 1130 hours. It was revised on 9 May 2017 from 0800 to 1200 hours. Weather conditions during the surveys included clear to cloudy skies with an average temperature of 55°F to 57°F (degrees Fahrenheit) and winds between 5 and 10 miles per hour. All drainage features within the project site were assessed based on the presence or absence of riparian/riverine habitat components (e.g., bed and bank features, riparian vegetation, and change in soil texture) that are characteristic of riparian/riverine areas. All flora and vertebrate fauna observed or otherwise detected (e.g., vocalizations, presence of scat, tracks, and/or bones) on the project site during the course of this assessment were recorded and are included in Appendix A.

2.2.1 Riparian/Riverine/Vernal Pools and Fairy Shrimp Habitat Methods

MSHCP Section 6.1.2, “Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools,” (Riverside County 2003) describes the process through which the biological functions and values of such areas throughout the MSHCP area are maintained such that habitat values for species in the MSHCP conservation area are maintained. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a project’s potentially significant effects on riparian/riverine areas, vernal pools, and fairy shrimp habitat is required. Guidelines for determining whether these resources exist on-site are described below.

Riparian/riverine areas, vernal pools, and fairy shrimp habitat are defined as follows:

- **Riparian/Riverine Areas:** Lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.
- **Vernal Pools:** Seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The determination that an area exhibits vernal pool characteristics, and the definition of the watershed supporting vernal pool hydrology, must be made on a case-by-case basis. Such determinations should consider the length of the time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.
- **Fairy Shrimp:** For fairy shrimp, mapping of stock ponds, ephemeral pools and other features shall also be undertaken as determined appropriate by a qualified biologist.

To assess the potential impacts to riparian/riverine resources, vernal pools, and fairy shrimp habitat, features exhibiting the characteristics described above are evaluated, including wetlands created for the specific purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses. Other made-made features are excluded. The delineation should consider topography/ hydrology, soil composition, vegetation communities, and other biological factors. The reported results consider hydrologic regime, flood storage and flood flow modification, nutrient retention and transformation, sediment trapping and transport, toxicant trapping, public use, wildlife habitat, and aquatic habitat in relation to determining functions and values to the "purpose species" listed in Table 1 and the additional species listed in Table 2. The functions and values assessment focuses on those areas (if any) that should be considered for priority acquisition for the Conservation Area, as well as those functions that may affect downstream values related to conservation of Covered Species.

Table 1
Riparian / Riverine Areas and Vernal Pools Purpose Species*

Species Category	Species
Plants	Brand's phacelia (*Phacelia stellaris*)
	California Orcutt grass (*Orcuttia californica*)
	California black walnut (*Juglans californica* var*. californica*)
	Coulter's matilija poppy (*Romneya coulteri*)
	Engelmann oak (*Quercus engelmannii*)
	Fish's milkwort (*Polygala cornuta* var*. fishiae*)
	graceful tarplant (*Holocarpha virgata* ssp*. elongata*)
	lemon lily (*Lilium parryi*)
	Mojave tarplant (*Deinandra mohavensis*)
	mud nama (*Nama stenocarpum*)
	ocellated Humboldt lily (*Lilium humboldtii* ssp*. ocellatum*)
	Orcutt's brodiaea (*Brodiaea orcuttii*)
	Parish's meadowfoam (*Limnanthes alba* ssp*. parishii*)
	prostrate navarretia (*Navarretia prostrata*)
	San Diego button-celery (*Eryngium aristulatum* var*. parishii*)
	San Jacinto Valley crownscale (*Atriplex coronata* var*. notatior*)
	San Miguel savory (*Clinopodium chandleri*)
	Santa Ana River woolly-star (*Eriastrum densifolium* ssp*. sanctorum*)
	slender-horned spine flower (*Dodecahema leptoceras*)
	smooth tarplant (*Centromadia pungens* ssp*. laevis*)
	spreading (Moran's) navarretia (*Navarretia fossalis*)
	thread-leaved brodiaea (*Brodiaea filifolia*)
	vernal barley (*Hordeum intercedens*)
Invertebrates	Riverside fairy shrimp (*Streptocephalus woottoni*)[1]
	vernal pool fairy shrimp (*Branchinecta lynchi*)[1]
Fish	Santa Ana sucker (*Catostomus santaanae*)
Amphibians	arroyo toad (*Anaxyrus californicus*)
	(Southern) mountain yellow-legged frog (*Rana mucosa*)
	California red-legged frog (*Rana draytonii*)
Birds	bald eagle (*Haliaetus leucocephalus*)
	least Bell's vireo (*Vireo bellii pusillus*)[1]
	peregrine falcon (*Falco peregrinus*)
	southwestern willow flycatcher (*Empidonax traillii extimus*)[1]
	western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)[1]

[1] If suitable habitat for the noted species is identified and those habitats cannot be avoided, focused surveys for those species shall be conducted, and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species found in Section 9 of the MSHCP.

*MSHCP (Section 6.1.2) Species

Volume 1, Section 9.2 and Volume II, Section B, Species Accounts of the MSHCP (Riverside County 2003) also states that the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools policies presented in Section 6.1.2 of the MSHCP, Volume I shall also be implemented for the benefit of the following additional species:

Table 2
Section B Riparian / Riverine Areas & Vernal Pools Species

Species Category	Species
Plants	California muhly (*Muhlenbergia californica*)
	Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)
	Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)
	little mousetail (*Myosurus minimus* ssp. *apus*)
	Parish's brittlescale (*Atriplex parishii*)
	Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*)
Invertebrate	Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*)[1]
Fish	arroyo chub (*Gila orcuttii*)
Amphibians	coast range newt (*Taricha torosa*)
	western spadefoot (*Spea hammondii*)
Reptile	western pond turtle (*Emys marmorata pallida*)
Birds	American bittern (*Botaurus lentiginosus*)
	black-crowned night heron (*Nycticorax nycticorax*)
	black swift (*Cypseloides niger*)
	Cooper's hawk (*Accipiter cooperii*)
	double-crested cormorant (*Phalacrocorax auritus*)
	downy woodpecker (*Picoides pubescens*)
	Lincoln's sparrow (*Melospiza lincolnii*)
	MacGillivray's warbler (*Geothlypis tolmiei*)
	Nashville warbler (*Oreothlypis ruficapilla*)
	osprey (*Pandion haliaetus*)
	purple martin (*Progne subis*)
	tree swallow (*Tachycineta bicolor*)
	tricolored blackbird (*Agelaius tricolor*)
	white-faced ibis (*Plegadis chihi*)
	white-tailed kite (*Elanus leucurus*)
	Wilson's warbler (*Wilsonia pusilla*)
	yellow-breasted chat (*Icteria virens*)
	yellow warbler (*Dendroica petechia brewsteri*)

[1] If suitable habitat for the noted species is identified and those habitats cannot be avoided, focused surveys for those species shall be conducted, and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species found in Section 9 of the MSHCP.

*MSHCP (Volume II) Species

When riparian/riverine areas and vernal pools are identified, they are avoided to the extent feasible. When avoidance is not feasible, the potential direct and indirect impacts are minimized to the extent feasible. Unavoidable impacts are mitigated such that lost functions and values as related to conservation of Covered Species are replaced by equivalent or superior preservation as described in this DBESP.

Assessments of riparian/riverine/vernal pool resources and the results will be discussed below.

2.2.2 DBESP REPORT REQUIREMENTS

A habitat assessment and a jurisdictional delineation were conducted to determine presence of MSHCP defined riparian/riverine areas, vernal pools, and/or conservation areas and covered species identified as being associated with such areas on the project site. The results determined that there would be unavoidable impacts to some of those resources, so this DBESP report was required. This DBESP report will demonstrate how lost functions and values of riparian/riverine and vernal pool habitats will be replaced, as they relate to those MSHCP elements. Requirements for this report set forth in the MSHCP document (Riverside County 2003, Section 6.1.2, pages 6-24 and 6-25) include:

- Definition of the project area.
- A written project description, demonstrating why an avoidance alternative is not possible.
- A written description of biological information available for the project site including the results of resource mapping.
- Quantification of unavoidable impacts to riparian/riverine areas and vernal pools associated with the project, including direct and indirect effects.
- A written description of project design features and mitigation measures that reduce indirect effects, such as edge treatments, landscaping, elevation difference, minimization and/or compensation through restoration or enhancement.
- A finding demonstrating that, although the proposed project would not avoid impacts, with proposed design and compensation measures, the project would be biologically equivalent or superior to that which would occur under an avoidance alternative without these measures, based on one or more of the following factors:

    1. Effects on Conserved Habitats;
    2. Effects on the species listed under “Purpose” in Section 6.1.2; and,
    3. Effects on riparian linkages & functions of the MSHCP Conservation Area.

3.0 EXISTING CONDITIONS (RESULTS)

3.1 Environmental Setting

The project site and associated infrastructure occurs immediately south of existing railroad tracks. The drainage features that flow onto the project site originate from natural run-off and sheet flow from the north, beneath or along the existing rail-road right-of-way. Flows are conveyed beneath the existing railroad tracks through underground box or corrugated metal culverts or flows enter the project site from sheet flows along the southern portion of the Union Pacific Railroad right-of-way. The drainage features, as they begin to flow within the project site are within relatively undisturbed earthen channels and flow off-site within earthen channels or sheet flow.

Surrounding land uses include the Banning Airport to the south, Union Pacific Railroad right-of-way and I-10 to the north, undisturbed natural habitat to the east, and residential and commercial development to the west. There are currently no structures within the project site. It is dominated by desert scrub and non-native grasslands with six relatively unvegetated ephemeral drainages.

3.2 Topography

The project site slopes from northwest to south with gently rolling topography. The highest elevation on the site is approximately 2,240 feet above mean sea level (AMSL) near the west extent of the project site. The lowest elevation is approximately 2,105 feet AMSL at the southeast boundary (see Figure 2).

3.3 Hydrology and Riparian/Riverine Resources

The average rainfall for the area is 15.72 inches per year (Western Regional Climate Center, 2016). Weather data was recorded nearby in the city of Cabazon, approximately three miles east of the project site.

Runoff from the site generally flows southeast for approximately a half mile before entering Smith Creek (Figure 2). Flows continue in Smith Creek for 1.5 miles before flowing into the San Gorgonio River, which then empties into the Whitewater River (11.5 miles to the east). The Whitewater River flows for 50 miles before reaching the Salton Sea.

Storm flows and nuisance flows enter the project site from soft-bottom natural channels that originate from underground culverts that convey flows beneath Interstate-10 and the existing railroad tracks north of the project site. No flowing water, standing water, or any evidence of ponding was observed within any portion of the drainage features within the project site. Flows likely percolate quickly due to the nature of the streambeds (boulders, cobbles, gravel, and sand). Surface flows likely enter the project during and immediately following large storm events. Therefore, the drainage features on-site are considered ephemeral riverine MSHCP features.

The primary drainage, which enters the site near the northwestern portion of the project site, exits at the southeastern corner, is a USGS designated blue-line stream. Four small, ephemeral drainage features, tributary to the blue-line drainage, also cross portions of the project site.

Riverine areas are located within the six on-site drainages (Figure 4). Appendix C, Site Photographs, shows the conditions of the on-site riverine areas. For the purposes of this report, riverine acreage has been considered equivalent to California Department of Fish and Wildlife (CDFW) jurisdictional acreage.

The project site and associated infrastructure affect six drainage features. Photographs of the drainage features are in Appendix C. The Riparian/Riverine Map (Figure 4) identifies the general location of the drainage features within the project site. Table 3 includes a list of drainage features identified in the project area, their area, length, location, and Cowardin classification.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction.

Table 3
Summary of Jurisdictional Areas

Drainage ID	Riparian/ Riverine Area (acres)	Length (feet)	Latitude/ Longitude	Cowardin Class
Drainage 1	1.05	2,480	33.923479/ -116.845137	R4SBJ
Drainage 2	0.01	180	33.924887/ -116.853413	R4SBJ
Drainage 3	0.13	670	33.924304/ -116.848170	R4SBJ
Drainage 4	0.03	350	33.924867/ -116.848537	R4SBJ
Drainage 5	0.07	760	33.926706/ -116.842612	R4SBJ
Drainage 6	0.42	2,100	33.918099/ 116.845239	R4SBJ
Total	1.71	6,540	n/a	n/a

WSC – Waters of the State of California
CDFW – California Department of Fish and Wildlife
R4SBJ – Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

The total estimated area of Riparian/Riverine Habitat within the project site is 1.71 acres. The sections below describes each individual drainage feature identified during the evaluation:

3.4 Drainage 1

Drainage 1 is the largest drainage within the project site and it originates in the western portion of the project site along the off-site improvement John Street and exits the project site in the southeastern corner (See photos 1, and 2). This feature is an ephemeral drainage, relatively unvegetated, and contains boulders and cobbles along the creek bed. This feature temporarily flows off-site before entering the southern portion of the main project site and flows along the southern boundary. The sparse vegetation observed within the channel includes scalebroom (*Lepidospartum squamatum*), catclaw acacia (*Acacia greggii*), western ragweed (*Ambrosia psilostachya*), and tumbleweed (*Salsola tragus*). There is not sufficient vegetation cover to be considered a vegetation community. The drainage ordinary high water mark varies across the project site from 14 to 30 feet in width. The drainage depth varies from 1 to 6 feet. The overall length of Drainage 1 within the project site is approximately 2,480 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. The estimated Riparian/Riverine area is 1.05 acres.

3.5 Drainage 2

Drainage 2 is a small ephemeral swale with intermittent bed and bank features that occurs along the off-site improvement, John Street. The bed and bank features are periodic and is often visible only as a noticeable change in sediment or vegetation. The majority of the drainage contains similar soils as the adjacent uplands. This feature conveys flows from the adjacent railroad right-of-way to Drainage 1. The majority of this drainage contains unknown grass species. There are sparse California buckwheat (*Eriogonum fasciculatum*) and London rocket (*Sisymbrium irio*). This feature is approximately 1 foot in width with no clear evidence of depth. The overall length of Drainage 2 within the project site is approximately 180 feet. There is no evidence of hydric soils or hydrophytic vegetation, therefore, the drainage feature has no associated wetlands. The estimated Riparian/Riverine area is 0.01 acre.

3.6 Drainage 3

Drainage 3 is tributary to Drainage 1 and conveys flows from the adjacent railroad right-of-way that occurs along the off-site improvement, John Street. This feature is an ephemeral drainage, relatively unvegetated, and contains cobbles and sand along the creek bed. This feature temporarily flows off-site before entering the western portion of the main project site and flows within the southwestern corner of the project site before flowing into Drainage 1. The drainage width was consistent throughout the project site at approximately 6 feet. The drainage depth varies from 1 to 3 feet. The overall length of Drainage 3 within the project site is approximately 670 feet. There is no evidence of hydric soils or hydrophytic vegetation

and therefore, the drainage feature has no associated wetlands. The estimated Riparian/Riverine area is 0.13 acre.

3.7 Drainage 4

Drainage 4 is a small tributary to Drainage 3 and about half the size that occurs along the off-site improvement, John Street. This feature is similar to Drainage 3, as it is an ephemeral drainage, unvegetated, and contains cobbles and sand along the creek bed. This feature temporarily flows off-site before entering the western portion of the main project site and flows within the southwestern corner of the project site before flowing into Drainage 3. The drainage width was consistent throughout the project site at approximately 3 feet. The drainage depth varies from 0 to 1 feet. The overall length of Drainage 4 within the project site is approximately 350 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. The estimated Riparian/Riverine area is 0.03 acre.

3.8 Drainage 5

Drainage 5 is an ephemeral drainage that originates in the northeast corner of the project site. It is also an ephemeral drainage, unvegetated, and contains cobbles and sand along the creek bed. This drainage feature terminates as sheet-flow along the eastern edge of the project site. Downstream of the project, the ordinary high water mark is visible and the drainage eventually flows into Smith Creek. Although this drainage feature has a periodic ordinary high water mark, it is hydrologically connected to downstream drainage features. The ordinary high water mark averaged from 0 to 3 feet in width. The drainage depth varies from 0 to 0.5 feet. The overall length of Drainage 5 within the project site is approximately 760 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. The estimated Riparian/Riverine area is 0.07 acre.

3.9 Drainage 6

Drainage 6 is an ephemeral drainage that originates south of the main project site and the Banning Airport at the eastern terminus of Barbour Street. It is also relatively unvegetated and contains cobbles and sand along the creek bed. This drainage feature enters the project site as a 2 to 3 foot wide meandering drainage that conveys urban run-off from the west. The drainage meanders to the southeast, across an existing cow pasture, for approximately 0.25 miles and then parallels Westward Avenue to the east along the off-site wet utility alignment. The drainage meanders to the east for approximately 0.5 miles before heading northeast and then joining Smith Creek. The drainage gradually increases in size from west to east (3 feet to 12 feet). As the drainage flows further to the east from the edge of the proposed project's utility alignment, it widens to approximately 7 to 8 feet and is the widest at the edge of the utility alignment, approximately 12 feet. Downstream of the project, the ordinary high water mark remains visible and the drainage eventually flows into Smith Creek. This drainage feature has a continuous ordinary high water mark, and is

hydrologically connected to downstream drainage features. The ordinary high water mark averaged from 3 to 12 feet in width. The drainage depth varies from 1 to 3 feet. The overall length of Drainage 6 within the project utility alignment is approximately 2,100 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. The estimated Riparian/Riverine area is 0.42 acre.

3.10 Soils

The United States Department of Agriculture, Natural Resources Conservation Service (USDA) maintains an on-line searchable soils database, the Web Soil Survey (USDA, 2017a), which was consulted during the project literature search in order to determine the soil associations and soil types occurring on the project site. The following mapping units occur on the site (Figure 5):

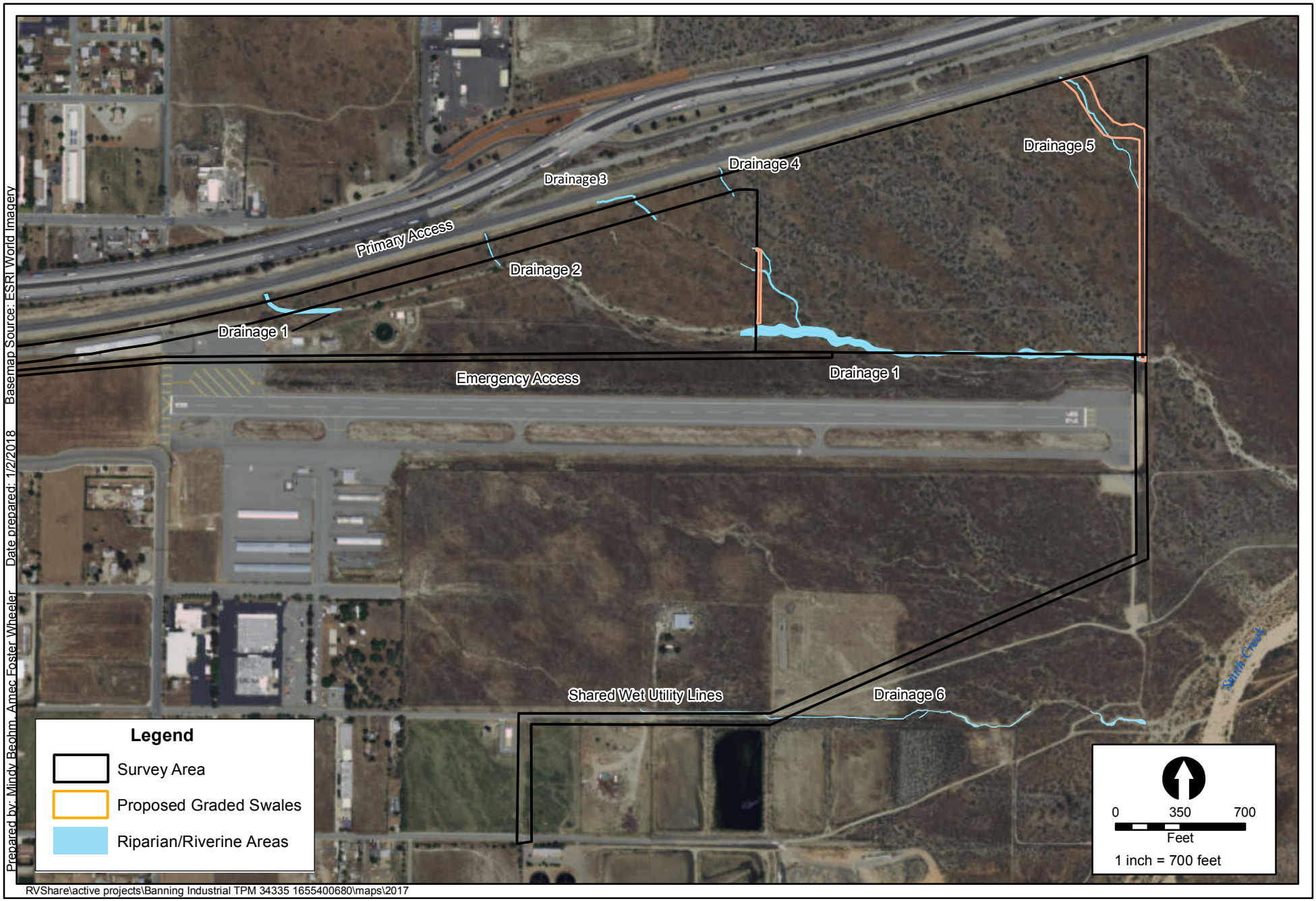
- Gorgonio gravelly loamy fine sand (GmD) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of gravelly loamy fine sand on the surface and the parent material is alluvium derived from granite.
- Gorgonio cobbly loamy fine sand (GnD) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of cobbly loamy fine sand on the surface and the parent material is composed of alluvium derived from granite.
- Hanford cobbly coarse sandy loam (HdD2) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of cobbly coarse sandy loam on the surface and the parent material is composed of alluvium derived from granite.
- Hanford coarse sandy loam, 2 to 8 percent slopes (HcC) – This well drained soil occurs on alluvial fans and alluvial plains with 2 to 8 percent slopes. It is composed of a mix of coarse and sandy loam on the surface and the parent material is composed of alluvium derived from granite.
- Tujunga gravelly loamy sand, 0 to 8 percent slopes (TwC) – This excessively drained soil occurs on flood plains and alluvial fans with 0 to 8 percent slopes. The parent material is composed of sandy alluvium derived from granite.

USDA (2014) lists Hanford Cobbly Coarse Sandy Loam within the project site as hydric soils. None of these soils are known to be specifically associated with sensitive biological resources.

3.11 Vegetation

The vegetation associated with the project site and surrounding areas is dominated by desert scrub and non-native grasslands. Due to the ephemeral nature of these features, there is no riparian habitat (Figure 6) associated with the drainages on-site. All of these features are considered unvegetated ephemeral channels.

Species nomenclature follows The Jepson Manual, Vascular Plants of California, 2nd Edition (Baldwin, 2012). When The Jepson Manual does not list a common name, common name nomenclature follows the USDA Plants Database (USDA, 2017b). None of the riparian/riverine "purpose" plant species listed in Table 1 were found or are expected on-site. Appendix A includes a list of all plant species observed.



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Riparian/Riverine Map

Banning Industrial Park

FIGURE

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Soils Map

Banning Industrial Park

FIGURE

5

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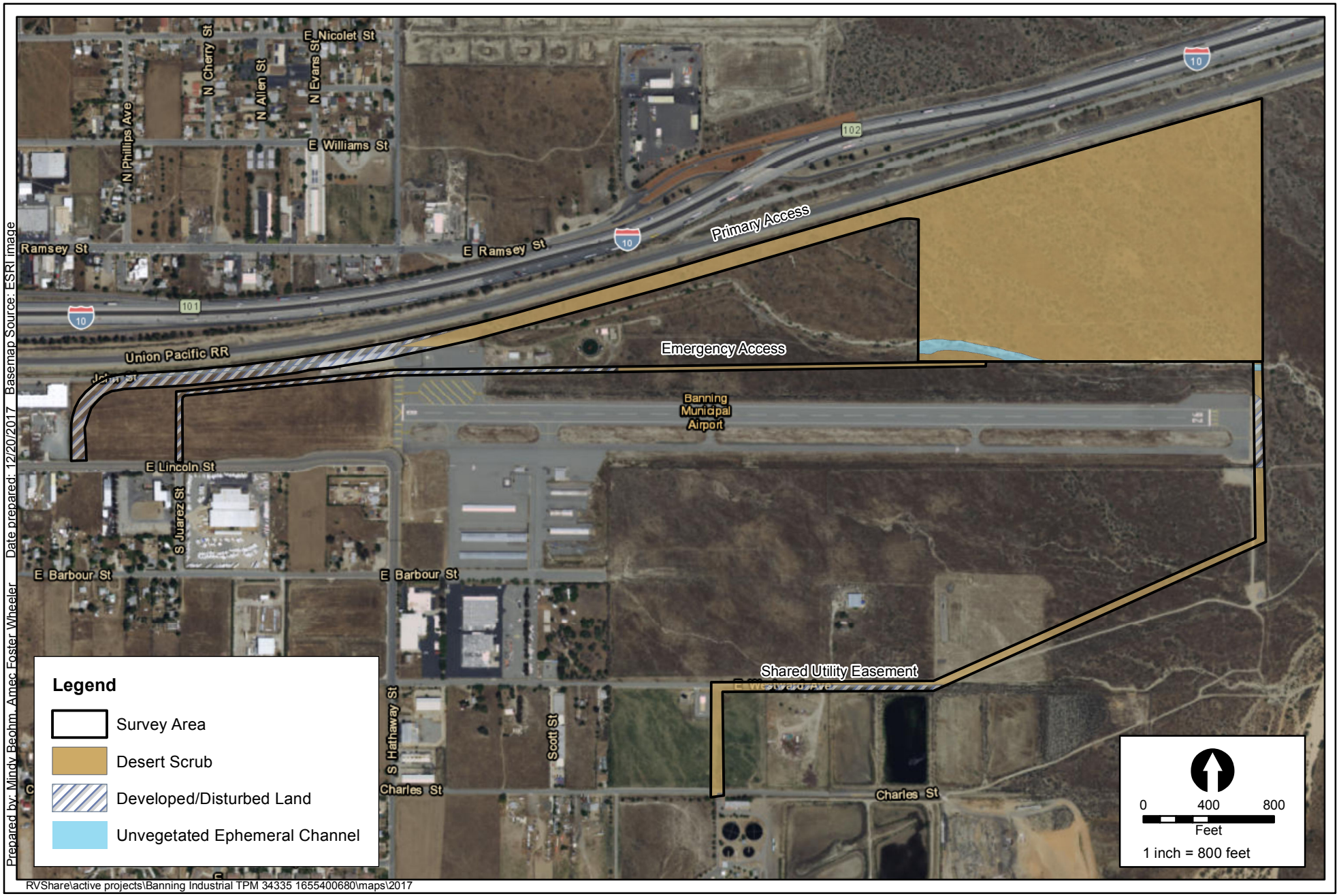

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Vegetation Map

Banning Industrial Park

FIGURE

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3.12 Wildlife Species

Expected wildlife such as common side-blotched lizard (*Uta stansburiana*), red-tailed hawk (*Buteo jamaicensis*), common raven (*Corvus corax*), California ground squirrel (*Spermophilus beecheyi*), and desert cottontail (*Sylvilagus audubonii*) inhabit the site. A single sensitive species (loggerhead shrike) was previously detected during the habitat assessment conducted in 2006 (Rocks Biological Consulting, 2006) and again during the field verification completed in 2017, but none of the “purpose” species listed in Table 1 were observed. No suitable habitat is present for any of the animal species from Table 1.

3.13 MSHCP Conservation Area

The project site is located within Special Linkage Area (SLA) subunit 3 (San Timoteo Creek Portion that connects San Gorgonio River/San Bernardino-San Jacinto Mountain Range). The Rocks Biological Consulting 2006 and 2015 reports, recommends a 50-foot buffer established between the final grading limits of the project and the drainage feature 1. Although this will allow localized wildlife to move from east to west, it should be described as a local travel path. Since the project site is bordered to the north by Interstate 10 and to the south by the Banning Airport, and to the west by residential and commercial development, construction of the project site will not affect wildlife movement on a regional scale. The guidelines in MSHCP Section 6.1.4 "Guidelines Pertaining to the Urban/Wildlands Interface" (Appendix A) will apply to the project as described in the 2017 MSHCP report, but only because it is located within the Special Linkage Area.

4.0 UNAVOIDABLE IMPACTS

The proposed project includes the development of industrial buildings, a parking lot, a detention basin, and associated off-site infrastructure including water and sewer lines. The completed project would also include two access roads; one for general vehicle access and one for emergency vehicles (see Figure 7). Preservation of all riverine/riparian systems, which flows through portions of the project site, is not feasible or compatible with the project. Functional warehouses could not be constructed while also preserving the existing systems in place.

4.1 Quantification of Riparian/Riverine Impacts

The proposed development plan was overlaid on the jurisdictional delineation boundary using GIS to determine the extent of impacts to jurisdictional areas (Figure 8). Albert A. Webb Associates, Inc. provided Amec Foster Wheeler with the development plan. Permanent impacts were assessed for the proposed access road, the warehouse footprint, and the emergency access roads. Temporary impacts are associated with additional construction work areas and the installation of the shared utility lines, which will be completed by trenching. Project related permanent and temporary impacts to Riparian/Riverine areas are listed in Table 4.

Table 4
Summary of Impacts to Riparian/Riverine Areas

Drainage ID	Permanent Impacts to Riparian/Riverine Areas	Temporary Impacts to Riparian/Riverine Areas	Length (feet)
Drainage 1	0.09	0.04	166
Drainage 2	0.01	0.00	94
Drainage 3	0.05	0.01	329
Drainage 4	0.01	0.00	178
Drainage 5	0.07	0.00	760
Drainage 6	0.00	0.02	140
Total	0.23	0.07	1,667

WSC – Waters of the State of California
CDFW – California Department of Fish and Wildlife
R4SBJ – Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

The proposed project will result in the direct, permanent loss of 0.23 acres of riparian/riverine areas (Table 4) under the MHSCP. An additional 0.07 acres will be temporarily impacted as the result of the shared utility line installation. The proposed project will have a total of 0.30 acre of project related impacts.

4.2 Impacts on the MSHCP Conservation Area

The on-site drainages do not provide hydrology, sediment, or biological resources to any downstream conservation areas within the MSHCP. Currently storm flow and nuisance run-off is conveyed within the Pass Special Linkage Area (SLA) and into Smith Creek. Smith Creek flows to the east and may provide some wildlife movement connectivity on a local scale.

The proposed project will redirect and convey these flows within an underground storm drain system where development will be constructed. Portions of Drainage 1 will remain undisturbed along the southern project boundary.

Indirect impacts associated with the loss of the current functions and values could include changes in water quality and increased intensity of stormwater flows; however, the drainage features remaining on-site, as well as on-site storm flow treatment, will clean the stormwater discharged from the site prior to release into any downstream drainage system.

4.3 Protection of Species Associated With Riparian/Riverine Areas and Vernal Pools

4.3.1 Plants

The Riverside County Report Generator identifies two plant species potentially requiring surveys: 1) Marvin's onion (*Allium marvinii*) and 2) many-stemmed dudleya (*Dudleya multicaulis*). Marvin's onion habitat is chaparral in heavy clay soils and the site does not contain suitable habitat. Many-stemmed dudleya habitat is coastal sage scrub, chaparral, and grasslands on clay soils with a cobble layer below or on the soil surface. Since the site does not contain any clay soils, it does not contain suitable habitat for this species either. No further botanical surveys are required on the site. None of the plants listed in Tables 1 and 2 have been found or are expected on the project site.

4.3.2 Vernal Pools / Fairy Shrimp

No natural vernal pool habitats are present within the project site and off-site improvements due to lack of suitable soils. No listed fairy shrimp are expected to occur on-site or within the off-site improvements due to lack of suitable soils.

4.3.3 Fish

There is no fish habitat on-site.

4.3.4 Amphibians

The project is not in any MSHCP designated survey areas for amphibians. There is no potential habitat for any of the species in Tables 1 and 2 above.

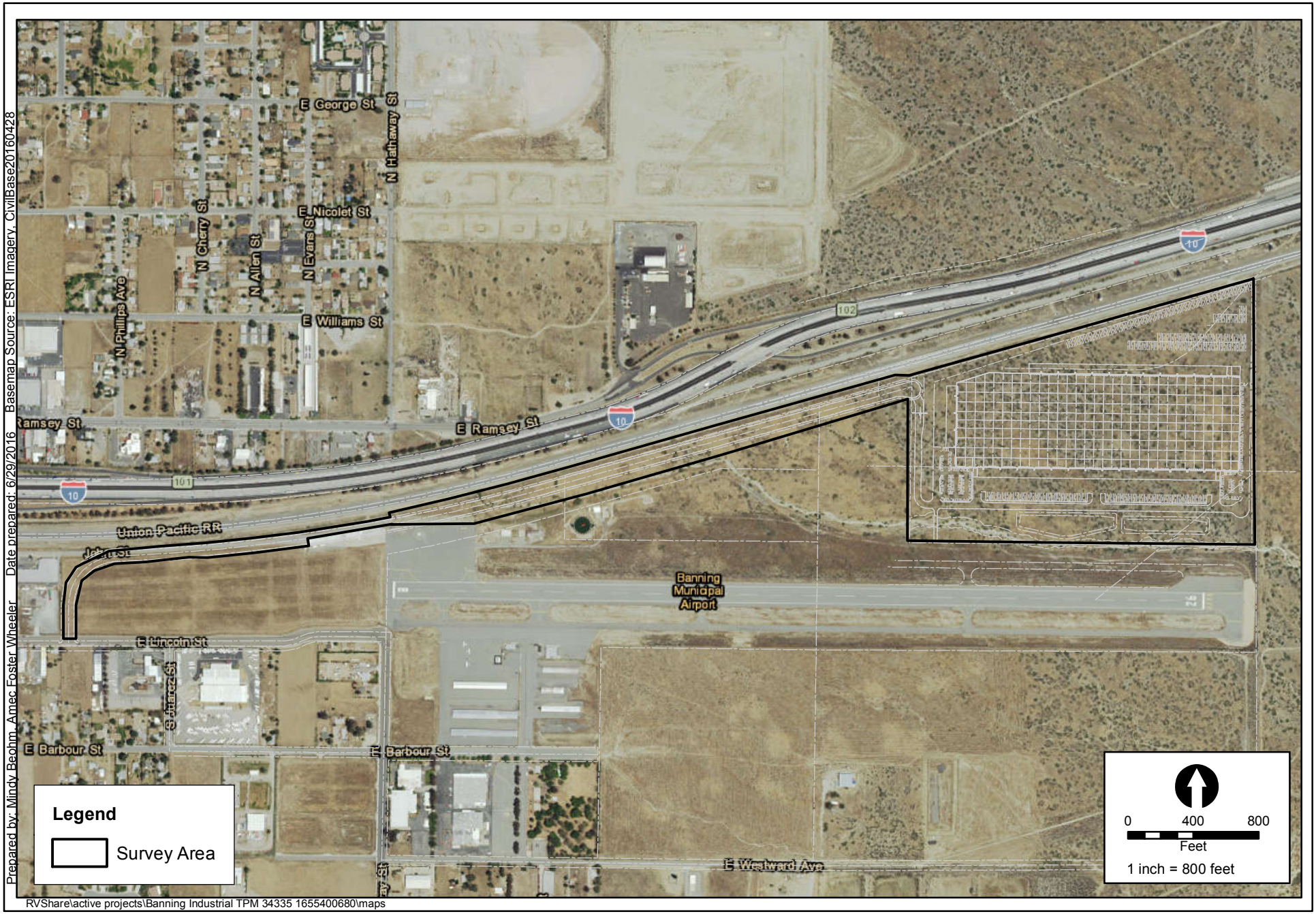
4.3.5 Birds

The Riverside County Report Generator identifies Burrowing owl (*Athene cunicularia*) as a species that should be surveyed. No burrows suitable for use by burrowing owls were detected; however, a pre-construction survey will still be required on the site to insure there is no direct take of burrowing owl as a result of the project.

Potential nesting habitat does not occur for any of the avian species listed in Tables 1 and 2: Therefore, they will not be discussed further as a riverine/riparian issue.

Project construction should be conducted outside of the nesting season for migratory birds (between mid-February and the end of August) protected under the MBTA. Therefore, if construction activities must be conducted within the nesting season, a nesting bird survey will be required to identify. If any bird protected under the MBTA is present on-site, avoidance measures must be taken to avoid any nest failures.

In addition, riparian avian species identified in Section 6.1.2 of the MSHCP, including southwestern willow flycatcher, western yellow-billed cuckoo, and least bell's vireo, require a separate habitat assessment in addition to the Riverside County Report Generator. Based on the MSHCP habitat assessment survey, there are individual trees that are commonly found within suitable habitat for these species, including arroyo willow and mule fat, but do not meet the density requirements or canopy cover to be considered suitable habitat for these species. The presence of one or two individual trees does not constitute a vegetation community, which is the basis for determining suitable habitat. Therefore, the project site does not contain any suitable habitat for southwestern willow flycatcher, western yellow-billed cuckoo, and least bell's vireo.



amec foster wheeler

Site Plan Map

Banning Industrial Park TPM 34335

FIGURE

7

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5.0 PROJECT DESIGN FEATURES/MITIGATION MEASURES

5.1 Direct Impacts

5.1.1 Vegetation Communities

The proposed project will result in 0.23 acre of permanent impacts and 0.07 acre of temporary impacts to the riparian/riverine areas found within the project site. These impacts will be mitigated by on-site habitat creation of 1.20 acre within two separate drainage features, both of which will be constructed in existing upland areas and will convey nuisance flows and natural run-off around the proposed development to minimize erosion and maintain off-site flows. Currently, there are no active mitigation banks or in-lieu fee programs in this area.

The proposed on-site habitat creation/restoration areas will vary from 20 to 50 feet wide with a total combined length of 1,987 linear feet totaling approximately 1.20 acres (Figure 8). Two drainage features will be constructed to contain the on-site mitigation, one along the western edge of the project site, conveying flows from both Drainage 3 and 4 and a second constructed drainage in the north-eastern corner of the site that conveys flows from Drainage 5. Both created features eventually convey flows into Drainage 1. The created drainages will meander within the mitigation area creating a natural looking drainage. The active channels will be approximately 1.20 acres and include in-kind replacement of non-wetland riparian scrub habitat. Drainage restoration will occur along the temporary impacts associate with Drainage 6, just south of the project site. Drainage 6 impacts are temporary in nature and the impacted area will be restored to its pre-construction condition.

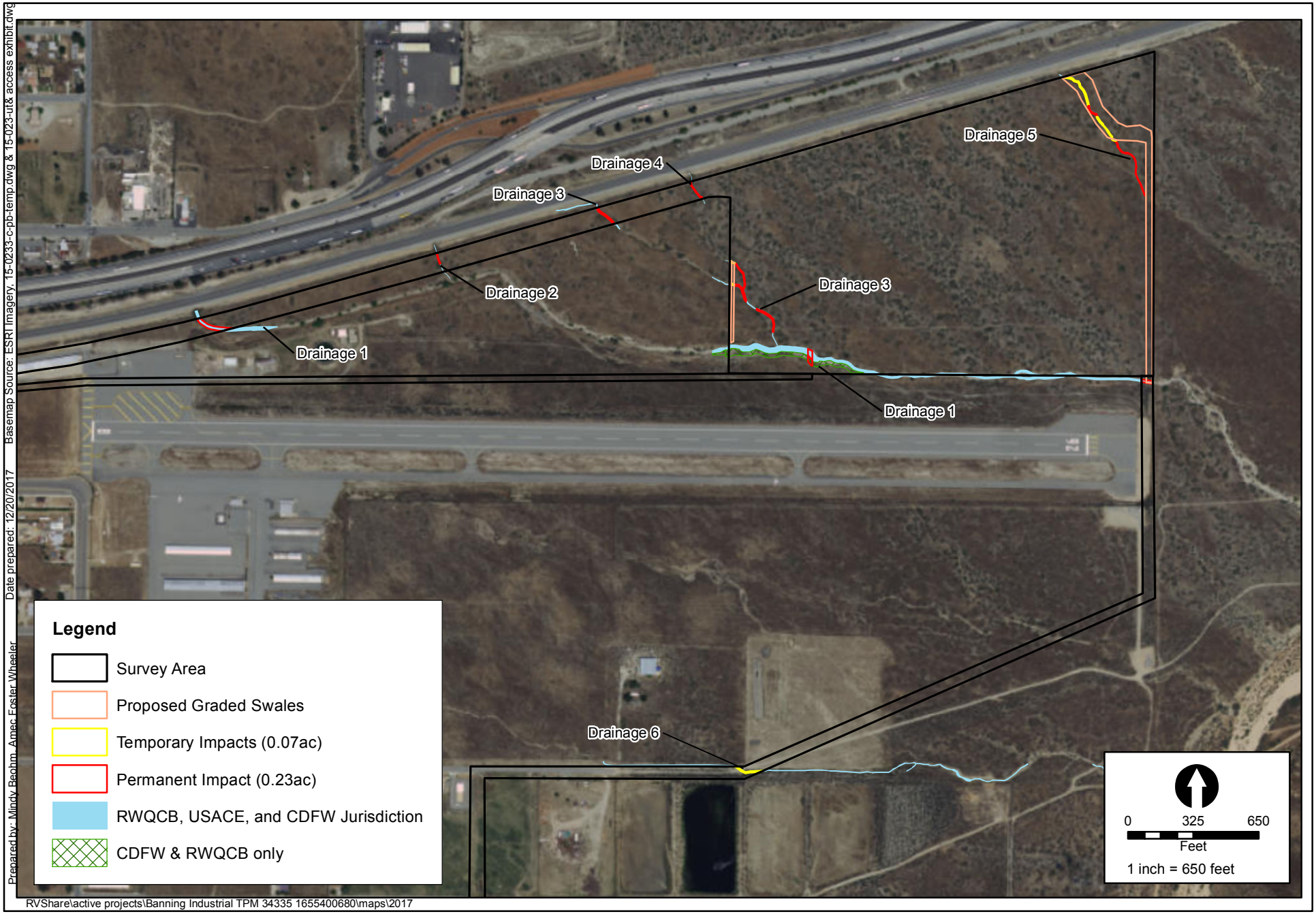
Dominant vegetation within the mitigation area will consist of California encelia (*Encelia farinosa*) and coyote bush (*Baccharis pilularis*). The upland area adjacent to the riparian habitat will consist of California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), interior golden bush (*Ericameria linearifolia*), and deerweed (*Acmispon glaber*).

Under the MSHCP, the created habitat will be monitored by the project proponent for a minimum of 5 years; monitoring reports shall be provided to the City and appropriate regulatory agency on an annual basis. The restoration area must meet standardized success criteria as described in the Habitat Mitigation and Monitoring Plan, which is required as part of the permit process for a Streambed Alteration Agreement with the California Department of Fish and Wildlife. All temporary impact area will be returned to their previous natural state.

Project related mitigation measures associated with the impacts to riparian/riverine areas will not conflict with the mitigation measures required by the United States Army Corps of Engineers, Regional Water Quality Control Board, and CDFW as part of the regulatory permitting process.

Since portion of some drainage features will be relocated along the edge of the project site, it will be maintained as a natural filter for potentially contaminated water flowing from I-10 and the adjacent railroad ROW to the north. The increased amount of flows, due to the impermeable surface associated with the proposed development will be maintained within a channel that is wider than the current channel, which will reduce any significant erosion or scouring caused by an increase in flow volume and velocity. The amount of project related direct and/or indirect impacts is relatively small, will be completely mitigated on-site, and will not have any significant down steam effects on conserved species.

Typically, habitat creation areas established for the purpose of mitigation for impacts to riparian/riverine areas under the MSHCP are conserved in a conservation easement and managed with funds generated from a non-wasting endowment. However, due to the isolated nature of the proposed mitigation, a conservation easement may not be required since it will not contribute lands within or adjacent to an existing conservation area. In this case, a deed restriction would be more appropriate.



amec foster wheeler

Jurisdictional Delineation Impact Map

Banning Industrial Park

FIGURE

8

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5.1.2 Wildlife Species

Four sensitive wildlife species were observed or otherwise detected utilizing some portion of the project site. San Diego black-tailed jackrabbit was observed within the open shrub areas within the project site and immediately adjacent to the project site. A golden eagle was observed soring over the project site, but was not observed on-site. The only sensitive wildlife species observed utilizing the riverine areas within the project site was the loggerheaded shrike. Impacts to this species is covered under the MSHCP and no project design changes or mitigation is proposed.

5.1.3 Riparian/Riverine Linkages

The proposed project does not involve any design features that would discourage or prohibit wildlife from utilizing an Existing or Proposed Linkages and/or Constrained Linkages and no mitigation is proposed.

5.1.4 MSHCP Conservation Area

The proposed project will not directly affect any MSHCP conservation area(s), and is not immediately adjacent to an existing conservation area. The nearest Core (Core I) is approximately 2 miles north of the project site. Core K is located 3 miles south of the project site. Project specific design features associated with Urban/Wildlife Interface Guidelines will be required because the project site is located within Special Linkage Area subunit 3 (San Timoteo Creek Portion that connects San Gorgonio River/San Bernardino-San Jacinto Mountain Range). Thus, the project will require design features from MSHCP Section 6.1.4 "Guidelines Pertaining to the Urban/Wildlands Interface" to minimize potentially significant impacts associated with the Urban/Wildlands interface.

5.1.5 Temporary Indirect Impacts

Noise resulting from project grading and construction activities will not cause indirect adverse effects to sensitive biological resources within the project site or immediate vicinity. There were two sensitive species detected within the project site during the survey, loggerheaded shrike and horned lark. Both of these species are highly mobile and are not likely affected by temporary indirect impacts associated with project construction. During construction activities, these species will likely relocate to the open-space area to the east.

Temporary impacts to nesting birds, sensitive species or not, may be considered significant if the noise impacts indirectly affect nesting birds adjacent to the project site. Both direct and indirect impacts, can be minimized or eliminated by conducting work activities outside of the breeding season. Although some nesting birds can occur year-round in Southern California, typical avian breeding season is from mid-February through the end of August, so it is recommended to schedule work from about early September through the end of January to avoid nesting activity. If work must be done during the nesting season, the project site and adjacent areas (500-foot buffer) should be examined by a qualified biologist prior to any

ground disturbance or vegetation removal activities, especially where there could be any direct impacts to potential nest areas. If active nests are found, the nests should be avoided and a no disturbance buffer zone established and observed until young have fledged. While there is no established protocol for nest avoidance and buffer zones, when consulted the CDFW generally recommends avoidance buffers of 500 feet for raptors and listed species and 100–300 feet for other unlisted birds. Nest avoidance and buffer zones are decided on a case by case basis and can sometimes be reduced depending on a variety of factors including topography, vegetation structure and the species in question. Construction activity may encroach into the buffer area at the discretion of the biological monitor with CDFW concurrence.

5.1.6 Permanent Indirect Impacts

There are no design features of the proposed project that will cause indirect impacts after the project is installed and therefore, no mitigation for permanent indirect impacts is proposed.

6.0 DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION

The proposed project contains ephemeral drainage systems that will be impacted by the project. The existing drainages offer no riparian function or value, that would benefit any downstream Conservation Areas within the Western Riverside County MSHCP, including flood storage and flood flow modification, nutrient retention and transformation, and sediment trapping and transport. The drainage features on-site drain to the east and eventually flow outside of the Western Riverside County MSHCP area. However, the riverine features on-site eventually flow into the Cabazon Conservation Area (sand transport system) as described in the Coachella Valley MSHCP (one mile to the southeast). To mitigate for the loss of these functions and values, an on-site drainage feature will be created along eastern edge of the project site and a second on-site drainage will be created along the western edge of the project site. These would be newly created features that would convey natural run-off and nuisance flow around the proposed development (referenced as "proposed graded swales" on Figure 8). The existing drainage features on-site consist primarily of unvegetated channels with no riparian habitat. The ephemeral drainage features do not provide any suitable habitat for sensitive riparian avian species such as southwestern willow flycatcher, western yellow-billed cuckoo, and least bell's vireo. The newly created feature would be similar in design and function as the existing on-site drainage features, but would be expanded to include the additional mitigation area necessary for compensation for both temporary and permanent impacts.

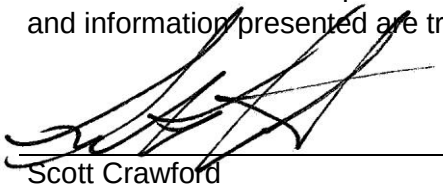
The created drainage features associated with the proposed mitigation will consist of a low-flow channel dominated with desert scrub along the upper banks. The created mitigation habitat is considered superior habitat in comparison to the existing drainage because it will: continue to convey local storm run-off from the north of the project site, it will be planted with native desert scrub habitat, it will meander like a natural occurring drainage, that will allow for continued percolation in the native sandy/cobble soils and it will provide better quality habitat for nesting birds. The proposed drainage will reduce excessive erosion and provide natural biological filtration for upstream pollutants associated with the adjacent roadway and railroad right-of-way. The desert scrub habitat will utilize significantly less irrigation than a more standard riparian habitat. Since the proposed mitigation (1.20 acre) is nearly four times the amount of total project direct and indirect impacts (0.30 acre), this mitigation is considered superior than current existing conditions.

A Habitat Mitigation Management Plan will be prepared by a qualified biologist and submitted to the City, USFWS, and CDFW for review, which will describe the habitat creation and establish success criteria that will extend five years from the start of the habitat creation effort. Success criteria will include 85% coverage of the existing riparian habitat, no more than 10% cover of non-native species, and removal of supplemental watering during the last two years of monitoring. With these measures, the proposed project will be consistent with MSHCP Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), and will result in equivalent or superior preservation of riparian/riverine resources over those that will be impacted by the project. If it is determined that the on-site mitigation is not feasible, additional alternatives could include,

but are not limited to off-site purchase of land already in a conservation area, such as lands owned and maintained by RCA. Currently, there are no active mitigation banks or in-lieu fee programs in this area.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological assessment, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.



12/19/2017

Scott Crawford — Date

Biology Group Manager

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APPENDIX A

PLANT SPECIES LIST

APPENDIX A

PLANT SPECIES LIST

This list reports only plants observed on the site by this study. Other species may have been overlooked or undetectable due to their growing season. Plants were identified from keys, descriptions, and drawings in Baldwin et al (ed.) 2012 and Munz 1974.

MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Amaranthaceae	**Amaranth family**
*Amaranthus albus**	Tumbling (white) pigweed
Anacardiaceae	**Sumac family**
*Schinus molle**	Peruvian pepper tree
Asteraceae	**Sunflower family**
Baccharis salicifolia	Mule fat
*Centaurea solstitialis**	Yellow star-thistle
Conyza canadensis	Canadian horseweed
Deinandra fasciculata	fascicled tarplant
Encelia farinosa	Brittlebush
Filago californica	California filago
Helianthus annuus	Common sunflower
Heterotheca grandiflora	Telegraph weed
Oncosiphon piluliferum	Stinknet
Stephanomeria virgata	Tall wreath-plant
Boraginaceae	**Borage family**
Amsinckia intermedia	Common fiddleneck
Heliotropium curassavicum	Salt heliotrope
Brassicaceae	**Mustard family**
*Hirschfeldia incana**	Shortpod mustard
Cactaceae	**Cactus family**
Cylindropuntia californica var. *parkeri*	Valley cholla
Chenopodiaceae	**Saltbush family**
*Salsola tragus**	Russian thistle
Elaeagnaceae	**Oleaster family**
*Elaeagnus angustifolia**	Russian olive
Euphorbiaceae	**Spurge family**
Chamaesyce albomarginata	Rattlesnake weed
Croton setigerus	Dove weed
Fabaceae	**Pea family**
Acmispon glaber	Common deerweed, California broom
Geraniaceae	**Geranium family**

*Erodium botrys**	Longbeak stork's bill
*Erodium cicutarium**	Redstem stork's bill
Lamiaceae	**Mint family**
Trichostema lanceolatum	Vinegar weed
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum	California buckwheat
Rhamnaceae	**Buckthorn family**
Ceanothus sp.	Ceanothus
Salicaceae	**Willow family**
Populus fremontii	Fremont cottonwood
Salix lasiolepis	Arroyo willow
Simaroubaceae	**Quassia family**
*Ailanthus altissima**	Tree of heaven
Solanaceae	**Nightshade family**
*Nicotiana glauca**	Tree tobacco
Tamaricaceae	**Tamarisk family**
Tamarix sp.*	Tamarisk
MONOCOTYLEDONEAE	**MONOCOT FLOWERING PLANTS**
Poaceae	**Grass family**
*Avena barbata**	Slender wild oat
*Avena fatua**	Wild oat
Avena sp.*	Oat
*Bromus diandrus**	Ripgut brome
Bromus madritensis ssp. *rubens**	Red brome
*Bromus madritensis**	Foxtail chess
Salix gooddingii	Goodding's Black willow

SYMBOLS AND ABBREVIATIONS:

* = Non-native (introduced) species
** = sensitive species
sp. = Plant identified only to genus
ssp. = Subspecies

APPENDIX B

VERTEBRATE ANIMALS SPECIES LIST

APPENDIX B

VERTEBRATE ANIMALS SPECIES LIST

This list reports only animals or their sign observed during AMEC's site visit. Burrows of unidentified small mammals are not included. Other species may have been overlooked or undetectable due to their nocturnal and/or subterranean activity patterns. Nomenclature and taxonomy for fauna observed generally follows the American Ornithologists' Union Checklist and its supplements (2015) for avifauna, CDFG (2006) for mammals, and Center for North American Herpetology (2015) for herpetofauna.

REPTILIA	**REPTILES**
Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis longipes	Great Basin fence lizard
Uta stansburiana	Common side-blotched lizard

AVES	**BIRDS**
Cathartidae	**American Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	Red-tailed hawk
***Aquila chrysaetos*	Golden eagle
Falconidae	**Falcons**
Falco sparverius	American kestrel
Charadriidae	**Plovers and Lapwings**
Charadrius vociferus	Killdeer
Columbidae	**Pigeons and Doves**
Zenaida macroura	Mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	Western kingbird
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Alaudidae	**Larks**
***Eremophila alpestris*	Horned lark
Hirundinidae	**Swallows**
Stelgidopteryx serripennis	Northern rough-winged swallow
Aegithalidae	**Bushtits**
Psaltriparus minimus	Bushtit
Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Fringillidae	**Finches**
Carpodacus mexicanus	House finch
Carduelis psaltria	Lesser goldfinch

MAMMALIA	**MAMMALS**
LAGOMORPHA	***RABBITS, HARES AND PIKA***
Leporidae	**Rabbits and Hares**
***Lepus californicus	San Diego black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
RODENTIA	***RODENTS***
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Heteromyidae	**Pocket Mice and Kangaroo Rats**
Dipodomys sp.	Kangaroo rat
CARNIVORA	***CARNIVORES***
Canidae	**Foxes, Wolves and Dogs**
Canis latrans	Coyote

SYMBOLS AND ABBREVIATIONS:

sp. = Identified only to genus; species unknown plural = spp.
* = Non-native species
** = Sensitive species (State or Federally Listed as Threatened or Endangered, or a CDFW Species of Special Concern, Watch list, or a USFWS Bird of Conservation Concern)

APPENDIX C

PHOTOGRAPHS

Appendix F

December 21, 2017

Albert A. Webb Associates
3788 McCray Street
Riverside, California 92506
Attn: Stephanie Standerfer

Subject: Mature Tree Assessment Letter Report for the Banning Industrial Park Project, located in the City of Banning, Riverside County, California

Dear Mrs. Standerfer;

Amec Foster Wheeler, Environment and Infrastructure, Inc. (Amec Foster Wheeler) has prepared this memo to document project related impacts associated with the City of Banning's Mature Tree Ordinance. The project consists of the development of the Banning Industrial Park, which includes industrial warehouse buildings, associated parking lot, detention basins, and associated off-site infrastructure including an access road, lift station, water and sewer lines. Appendix A shows the Project Site boundary.

This memo details the tree evaluation efforts required to determine whether mature trees occur within the project site. The City of Banning Ordinance is as follows:

> **17.32.060 - Removal or destruction of trees.**
> A.
> Removal of healthy, shade providing, and aesthetically valuable trees shall be strongly discouraged, and shall be in conformance with the policies and programs of the General Plan. A tree removal and replacement plan shall be required for the removal and replacement of all trees in excess of 50 years of age, unless their removal is required to protect the public health and safety.
>
> B.
> Each tree that is removed in a new subdivision is considered a part of the common wealth of the citizens of Banning, is an important component of the habitat of surrounding wildlife, and is of value to the City. Each identified tree removed shall be replaced with at least one 36 inch box specimen tree, in addition to any other required landscaping. Individual single family residential lots of less than one-half acre and commercial tree farms shall be exempt from this provision. (Zoning Ord. dated 1/31/06, § 9108.06.)

Methods

Amec Foster Wheeler biologist Scott Crawford preformed the original biological resource assessment surveys and jurisdictional delineation survey on the Banning Industrial Park project site on 9 and 24 May 2017. During the surveys, all vegetation observed during the surveys was recorded. Trees were among the biological resources identified during the survey, a subsequent analysis was completed to determine if any of the trees on-site were in excess of 50 years. This analysis was completed by comparing a recent aerial photograph from 2016 with a historic aerial photograph taken from 1967. Aerial photographs were compared using the slide tool on the HistoricAerials.com website.

The first step in the process required a printed aerial photograph with the most recent project boundary. HistoricalAerial.com and google earth were utilized to identify the location of existing trees within the project site, both recent and historic. Field notes were referenced from the previous biological resource surveys to verify the species of tree identified during the analysis. A map was created to identify the location of current and previous trees located within the project site; these locations are shown in Appendix A.

Conclusions

Based on the information collected for this analysis, all trees identified within the project site are associated with existing drainage features. This is likely due to the availability of moisture often associated with surface flows. A total of 15 trees were identified within the assessment area between 1967 and 2016, which included the project site, off-site improvements, and a 50-foot buffer. Six of the trees were identified within the project footprint in 2016 (See Figure 1). Eight trees are outside of the project footprint and will not be impacted by project development. One tree was observed in the 1967 aerial photograph but not in the 2016 aerial photograph. There are no trees associated with any of the off-site improvements.

Of the trees observed within the project site during the assessment in 1967 and 2016, one unidentified tree was observed in 1967 and was located in the southwestern corner of the proposed development on the south side of Drainage 1 (as described in the Jurisdictional Delineation Report 2017). This tree was not observed during the 2016 survey or within the 2016 aerial photograph, which means it died or was otherwise removed from the project site prior to 2016.

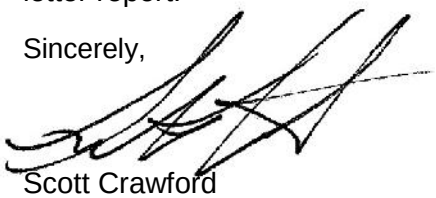
The six trees that are within the project site include three peppertrees (*Schinus molle*), one arroyo willow (*Salix lasiolepis*), one black willow (*Salix goodingii*), and one Freemont's cottonwood (*Populus fremontii)* (Figure 2). All six of these trees began growing on the site sometime after the 1967 photograph and therefore do not meet the minimum criteria to be considered a Mature Tree under the City of Banning Municipal Code.

Based on the information collected for this analysis, four trees meet the minimum requirement to be considered 'Mature Trees', since they were identified in both the 1967 and 2016 aerial photographs. However, these four trees are located outside of the project site and/or off-site improvements and will not be impacted by the project. There are two trees within the northern portion of the project site and are associated with the proposed access road. One Black Willow and one Cottonwood will be removed prior to grading, but are not considered mature trees under the City of Banning Municipal Code.

Based on these findings, no Mature Trees occur within the project site and no Mature Trees will be impacted by project development.

Please do not hesitate to contact me at (951) 369-8060 if you have any questions regarding this letter report.

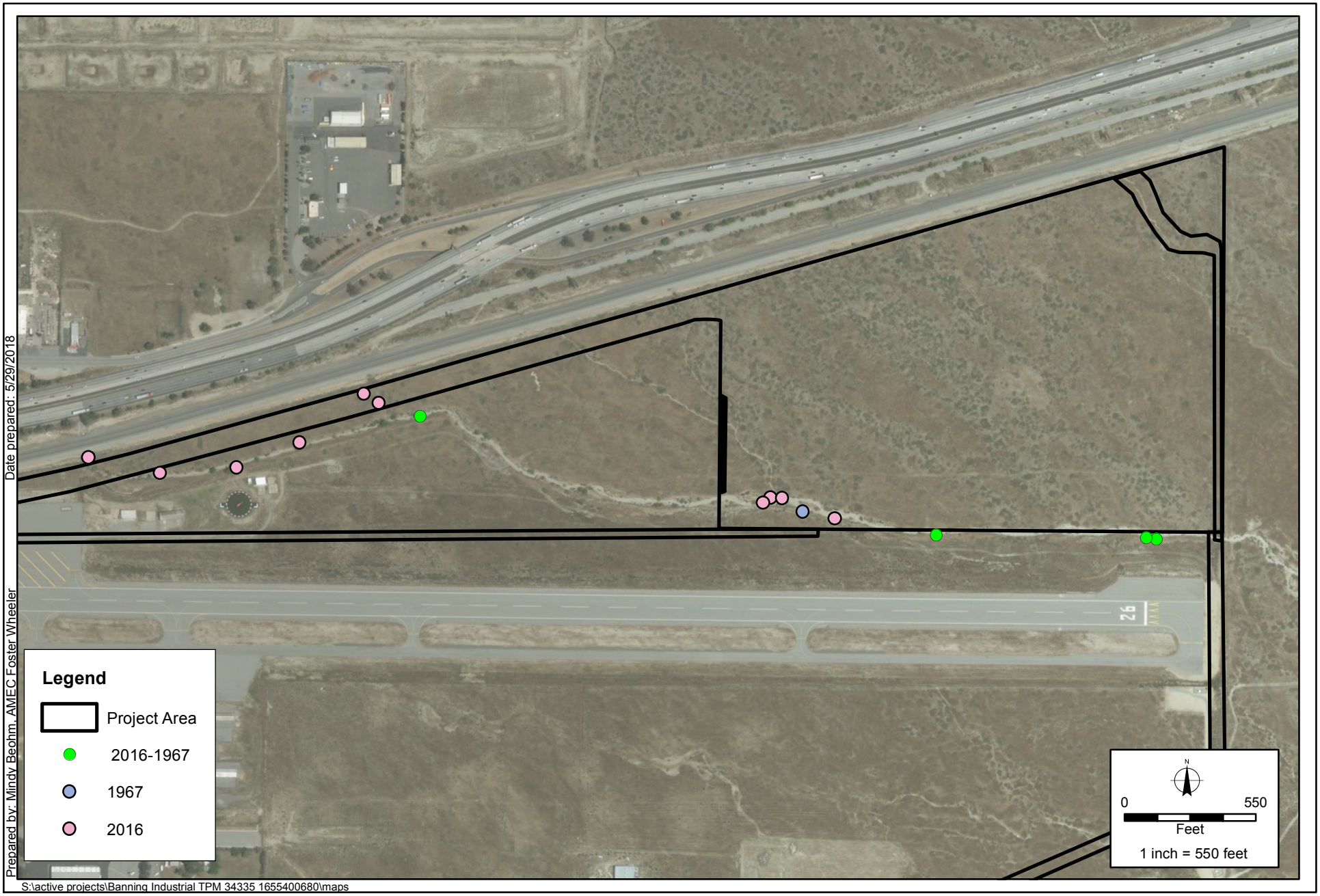
Sincerely,



Scott Crawford
Biology Group Manager

Attachments:
Appendix A – Tree Location Map

Appendix A –Figures



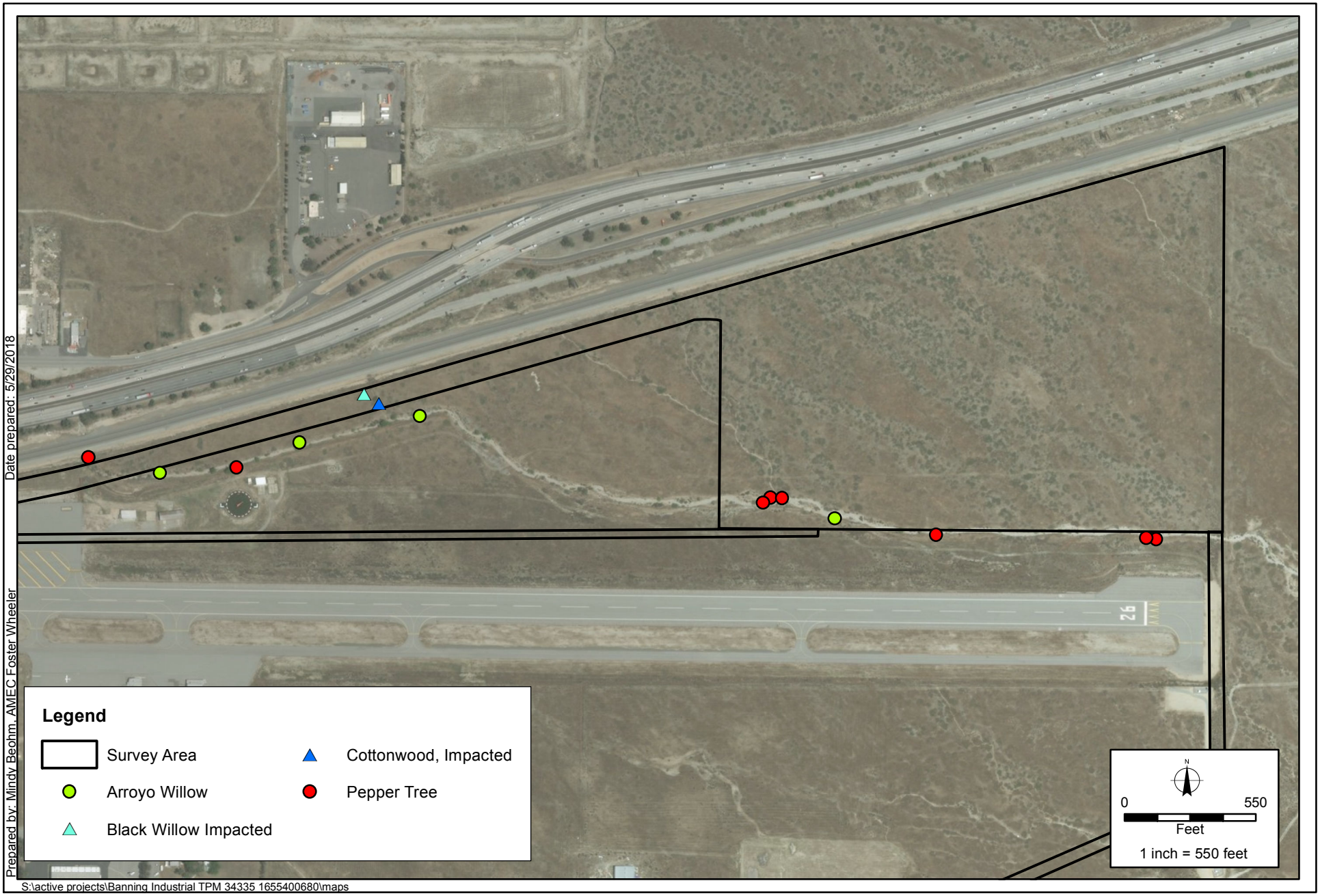
amec foster wheeler

Tree Location Map

Banning Industrial Park

FIGURE

1



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Impact & Type of Tree Map

Banning Industrial Park

FIGURE

2

Appendix G

JURISDICTIONAL DELINEATION REPORT

BANNING INDUSTRIAL PARK
CITY OF BANNING, RIVERSIDE COUNTY, CALIFORNIA



Prepared for:
Albert A. Webb Associates Inc.
3788 McCray Street
Riverside, California 92506
Office: (951) 686-1070
Fax: (951) 788-1256

Contact: Stephanie Standerfer

Prepared by:
Amec Foster Wheeler Environment & Infrastructure, Inc.
3120 Chicago Avenue, Suite 110
Riverside, California 92507

Principal Investigator:
Scott Crawford

June 2016
Revised December 2017

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ACRONYMS AND ABBREVIATIONS

Amec Foster Wheeler	Amec Foster Wheeler Environment and Infrastructure, Inc.
APN	assessor parcel number
AMSL	above mean sea level
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GIS	Geographic Information System
I	Interstate
IP	Individual Permit
NEPA	National Environmental Policy Act
NL	not listed
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	obligate
OHWM	ordinary high water mark
Rapanos	Rapanos v. U.S. and Carabell v. U.S.
RPW	relatively permanent waterway
RWQCB	Regional Water Quality Control Board
SR	State Route
SWANCC	Solid Waste Agency of Northern Cook County v. USACE
TNW	traditionally navigable waterway
UPL	upland
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WSC	Waters of the State of California
WUS	Waters of the United States

1.0 INTRODUCTION

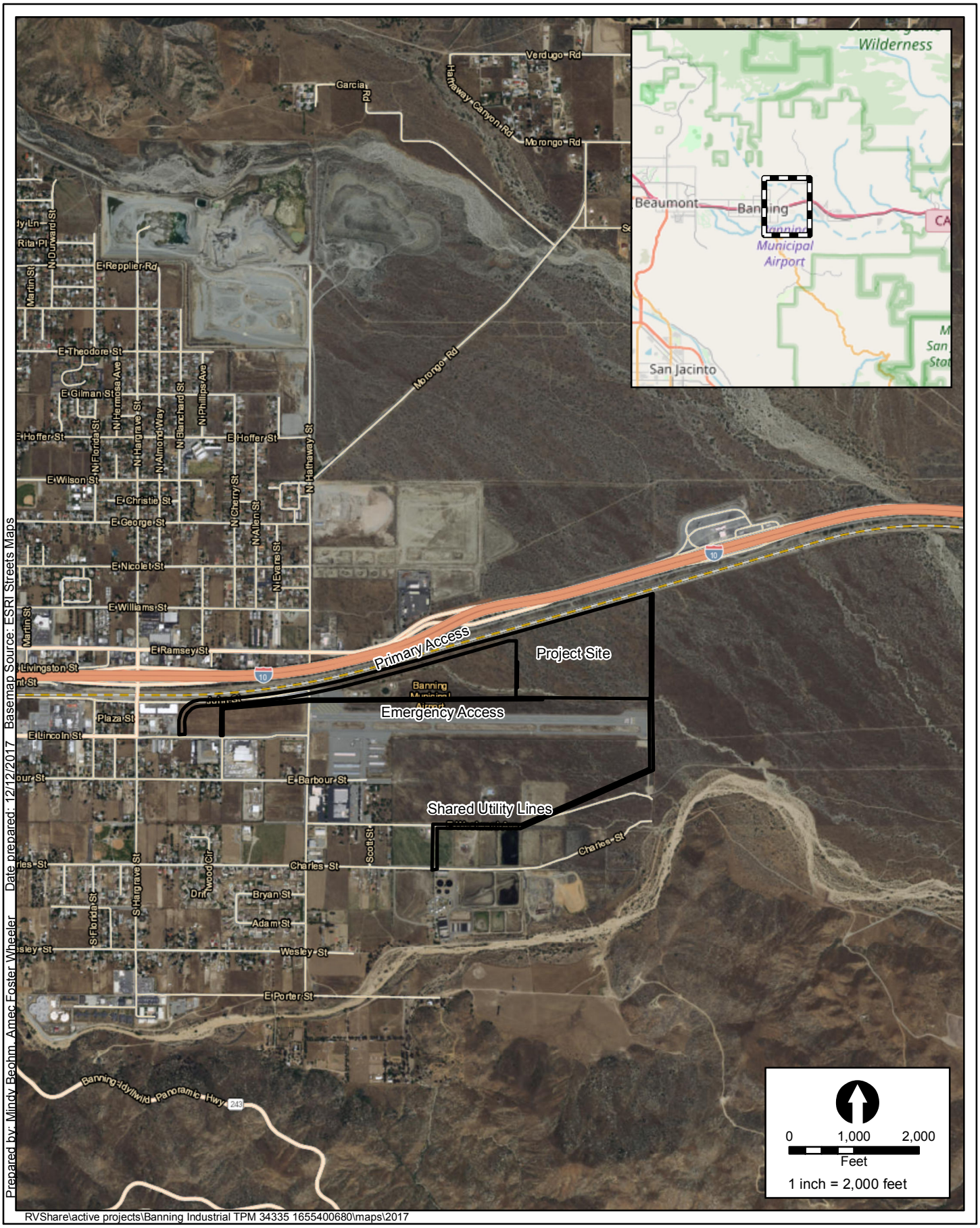
This report presents regulatory framework, methods, and results of a delineation of jurisdictional waters, wetlands, and associated riparian habitat potentially impacted by construction of the Banning Industrial Park (hereafter referred to as project or project site). The purpose of the delineation is to determine the extent of state and federal jurisdiction within the project site potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

1.1 Project Description

The proposed project includes the development of industrial buildings, a parking lot, a detention basin, and associated infrastructure (Figure 1). The completed project would also include two off-site access roads; one for general vehicle access and one for emergency vehicles. It also includes installation of sewer lines and water lines south of the project site.

1.2 Project Location

The project site is generally located north of State Route (SR) 74, south of Interstate (I) 10, east of SR 243, and west of SR 111 (Figure 1). The project is located in Section 11 of Township 3 South, Range 1 East on the Cabazon, California United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2). The project is specifically located north of the Banning Municipal Airport, south of I-10, east of Hargrave Street, and west of the San Gorgonio River. The study area boundary was provided to Amec Foster Wheeler Environment and Infrastructure, Inc. (Amec Foster Wheeler) by Albert A. Webb Associates, Inc. The geographic coordinates near the middle of the project site are 33.925300° North latitude and -116.845199° West longitude.



Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: ESRI Streets Maps

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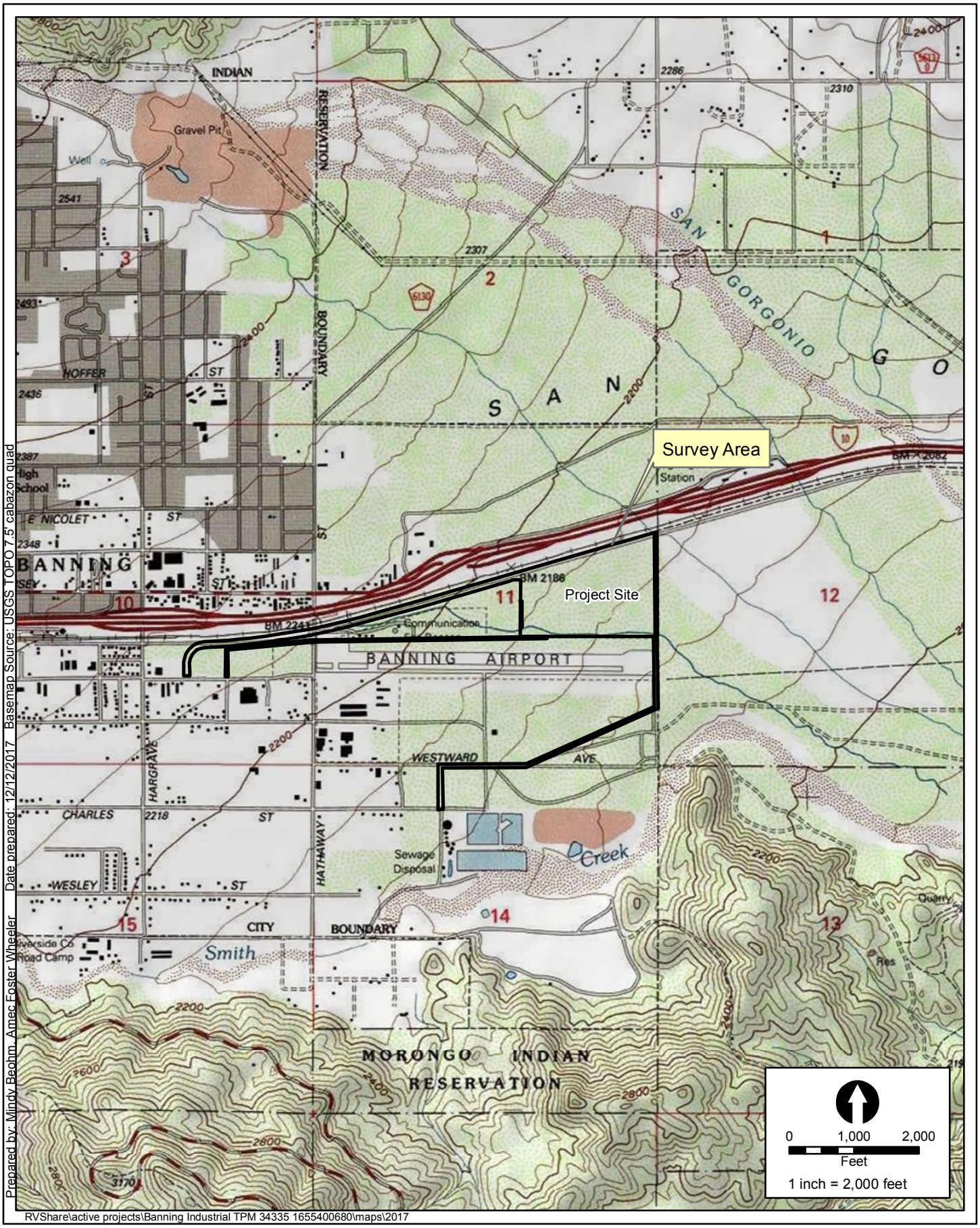
amec foster wheeler

Regional and Vicinity Map

Banning Industrial Park

FIGURE

1



Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/12/2017 Basemap Source: USGS TOPO 7.5' cabazon quad

RVShare\active projects\Banning Industrial TPM 34335 1655400680\maps\2017

amec foster wheeler

Topographic Map

Banning Industrial Park

FIGURE

2

2.0 REGULATORY FRAMEWORK

2.1 U.S. Army Corps of Engineers

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the CWA.

2.1.1 Waters of the U.S.

CWA regulations (33 CFR 328.3(a)) define WUS as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as WUS under the definition;
5. Tributaries of WUS;
6. The territorial seas;
7. Wetlands adjacent to WUS (other than waters that are themselves wetlands).

The USACE delineates non-wetland waters in the Arid West Region by identifying the ordinary high water mark (OHWM) in ephemeral and intermittent channels (USACE 2008a). The OHWM is defined in 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Identification of OHWM involves assessments of stream geomorphology and vegetation response to the dominant stream discharge. Determining whether any non-wetland water is a jurisdictional WUS involves further assessment in accordance with the regulations, case law, and clarifying guidance as discussed below.

2.1.2 Wetlands and Other Special Aquatic Sites

Wetlands are defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. They are defined in 40 CFR 230 Subpart E.

2.1.3 Supreme Court Decisions

2.1.3.1 Solid Waste Agency of Northern Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al. with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

2.1.3.2 Rapanos/Carabell

In the Supreme Court cases of Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the Rapanos decision, the USACE will assert jurisdiction over a traditional navigable waterway (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a non-navigable RPW.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of

hydrological factors includes volume, duration, and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

2.2 Regional Water Quality Control Board

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WUS, but may also include isolated waterbodies. The Porter Cologne Act defines WSC as “surface water or ground water, including saline waters, within the boundaries of the state”.

2.3 California Department of Fish and Wildlife

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

> “An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (CDFW, 2015).”

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and A Review of Stream Processes and Forms in Dryland Watersheds. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW, 2010). It has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in a channel which water currently flows, or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg, 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW's practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

3.0 METHODS

Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- Aerial photographs of the project site at a scale of 1:1500 to determine the potential locations of jurisdictional waters or wetlands;
- USGS topographic map (Figure 2) to determine the presence of any "blue line" drainages or other mapped water features;
- USDA soil mapping data; and
- USFWS NWI map to identify areas mapped as wetland features.

Field surveys of the project site were conducted by Amec Foster Wheeler delineator Scott Crawford on 24 May 2016 and 9 May 2017. Surveys consisted of walking the entire survey area and identifying potentially jurisdictional water features. Visual observations of vegetation types and changes in hydrology and culvert locations were used to locate areas for evaluation. Weather conditions during delineation fieldwork were conducive for surveying with generally cloudy skies with winds ranging from 5 to 10 miles per hour and a temperature of 55 degrees Fahrenheit.

USACE WUS, including wetlands, and RWQCB WSC were delineated according to the methods outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a). The extent of WUS was determined based on indicators of an OHWM. The OHWM width was measured at points wherever clear changes in width occurred.

Federally regulated wetlands were identified based on the *Wetlands Delineation Manual* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008b). Additional data was recorded to determine if an area fulfilled the wetland criteria parameters. Three criteria must be fulfilled in order to classify an area as a wetland under the jurisdiction of the USACE: 1) a predominance of hydrophytic vegetation, 2) the presence of hydric soils, and 3) the presence of wetland hydrology. Details of these criteria are described below:

- **Hydrophytic Vegetation.** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (USACE, 2008b). An OBL indicator status refers to plants that almost always occur in wetlands. A FACW indicator status refers to plants that usually occur in wetlands, but may occur in non-wetlands. A FAC indicator status refers to plants that occur in wetlands and non-wetlands. Other wetland indicator statuses include facultative upland (FACU) which refers to plants that usually occur in non-wetlands, but may occur in wetlands, upland (UPL) for species that almost never occur in wetlands, and NL for plants that are not listed on the *National Wetland Plant List*. The wetland

indicator status used for this report follows the 2013 National Wetland Plant List (Arid West Region) (Lichvar, 2014).

- **Hydric Soils**. The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the *Munsell Soil Color Charts* (Gretag/Macbeth, 2000).
- **Wetland Hydrology.** The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE, 1987 and 2008b).

CDFW jurisdiction was delineated by measuring the elevations of land that confine a stream to a definite course when its waters rise to their highest level and to the extent of associated riparian vegetation.

To determine jurisdictional boundaries, the surveyor walked the length of the drainage within the project area and recorded the centerline with a Trimble GeoXH global positioning system. The width of the drainage was determined by the OHWM and bankfull width measurements at locations where transitions were apparent. Other data recorded included bank height and morphology, substrate type, and all vegetation within the streambed and riparian vegetation adjacent to the streambed. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional waters.

4.0 ENVIRONMENTAL SETTING

4.1 Existing Conditions

The project site and associated infrastructure occurs immediately south of existing railroad tracks. The drainage features that flow onto the project site originate from natural run-off and nuisance flow from the north. Flows are conveyed beneath the existing railroad tracks through underground box or corrugated metal culverts and sheet flow along the southern edge of the railroad right-of-way. This features is not contained within an active channel and has been routinely disturbed as part of the efforts to minimize erosion for run-off. The drainage features begin along the northern project site as erosion features associated with relatively undisturbed earthen channels and proceed to flow off-site within similar earthen channels or sheet flow.

Surrounding land uses include the Banning Airport to the south, undisturbed natural habitat to the north and east, and residential and commercial development to the west.

Elevations within the project site are generally flat and range from a high of 2,265 feet above mean sea level (AMSL) at the western extent of the project site to a low of 2,105 feet AMSL at the southeastern corner of the project site.

4.2 Hydrology

The average rainfall for the area is 15.72 inches per year (Western Regional Climate Center, 2016). Weather data was recorded nearby in the city of Cabazon, approximately three miles east of the project site.

Runoff from the site generally flows southeast for approximately a half mile before entering Smith Creek. Flows continue in Smith Creek for 1.5 miles before flowing into the San Gorgonio River, which then empties into the Whitewater River (11.5 miles to the east). The Whitewater River flows for 50 miles before reaching the Salton Sea.

4.3 Vegetation

Vegetation nomenclature follows The Jepson Manual, Vascular Plants of California, 2nd Edition (Baldwin, 2012). When The Jepson Manual does not list a common name, common name nomenclature follows the United States Department of Agriculture, Natural Resources Conservation Service (USDA) Plants Database (USDA, 2016a).

The vegetation associated with the project site and surrounding areas is dominated by Catclaw Acacia Thorn Scrub *Acacia greggii* Shrubland Alliance (Figure 3). This community contains small to large catclaw acacia as the dominate plant species. Vegetation within the majority of the project site is 3 to 6 feet in height and has a relatively open canopy. Other common species include desert encelina (*Encelia farinosa*), California buckwheat (*Eriogonum fasciculatum*), and deer weed (*Acmispon glaber*). Understory species observed on-site include Russian

thistle (*Salsola tragus*), wild mustard (*Hirschfeldia incana*), rip-gut grass (*Bromus diandrus*), and red-stemmed filaree (*Erodium cicutarium*).

The majority of the drainage features are un-vegetated and do not contain enough vegetation coverage to be considered an independent vegetation community. Plant species observed with the drainages and not within the rest of the project site include scalebroom (Lepidospartum squamatum),

4.4 Soils

The USDA online Web Soil Survey (based on the *Soil Survey of Coachella Valley Area, Riverside County, California*) (Soil Survey Staff, 2016) was reviewed to determine the soil types mapped as occurring within the study area. The study area crosses five individual soil types within three different soil series (Figure 4) including:

- **Gorgonio gravelly loamy fine sand** (GmD) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of gravelly loamy fine sand on the surface and the parent material is alluvium derived from granite.
- **Gorgonio cobbly loamy fine sand** (GnD) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of cobbly loamy fine sand on the surface and the parent material is composed of alluvium derived from granite.
- **Handford cobbly coarse sandy loam** (HdD2) – This somewhat excessively drained soil occurs on alluvial fans with 2 to 15 percent slopes. It is composed of cobbly coarse sandy loam on the surface and the parent material is composed of alluvium derived from granite.
- **Hanford coarse sandy loam**, 2 to 8 percent slopes (HcC) – This well drained soil occurs on alluvial fans and alluvial plains with 2 to 8 percent slopes. It is composed of a mix of coarse and sandy loam on the surface and the parent material is composed of alluvium derived from granite.
- **Tujunga gravelly loamy sand**, 0 to 8 percent slopes (TwC) – This excessively drained soil occurs on flood plains and alluvial fans with 0 to 8 percent slopes. The parent material is composed of sandy alluvium derived from granite.

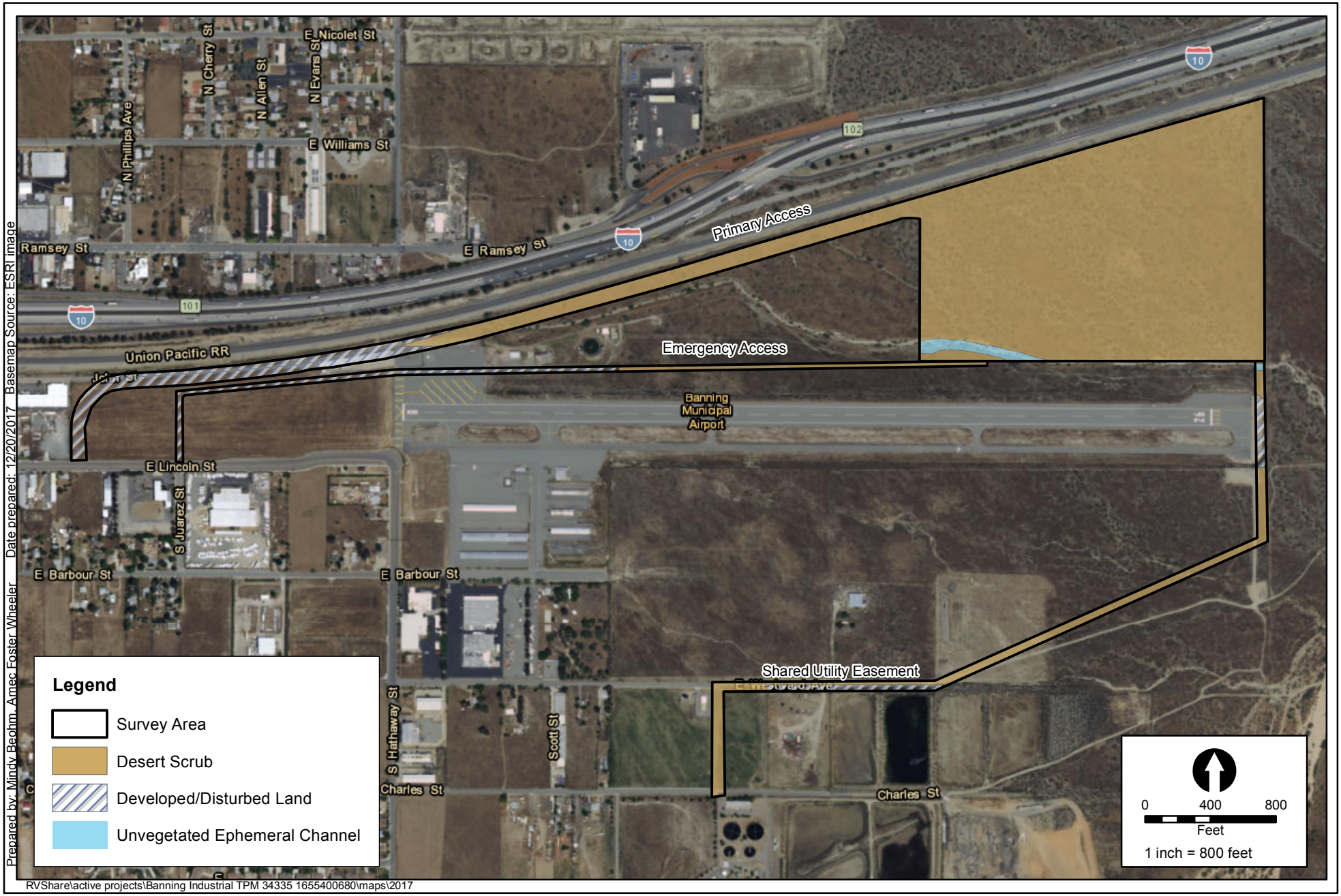
USDA (2014) lists Hanford Cobbly Coarse Sandy Loam within the project site as hydric soils. None of these soils are known to be specifically associated with sensitive biological resources.

4.5 National Wetlands Inventory

The United States Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetlands Inventory (NWI) to show wetlands and deep-water habitat. This geospatial information is used by Federal, State, and local agencies, academic institutions, and private industry for management, research,

policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

The NWI Mapper (USFWS, 2017) was accessed on-line to review mapped wetlands within the project study area. There is one NWI feature mapped within the project site. This feature is associated with Drainage 1 and consists of an ephemeral riverine area with no evidence of wetlands. The next closest NWI feature has a Riverine Wetland Type and is located about a half mile southeast of the project site (Smith Creek). It is categorized as an intermittent riverine system with a temporary flooded water regime.



amec foster wheeler

Vegetation Map

Banning Industrial Park

FIGURE

3



Prepared by: Mindy Beohm, Amec Foster Wheeler Date prepared: 12/18/2017 Basemap Source: soils mart ca 679

RVShare\active projects\Banning Industrial TPM 34335 1655400680\maps

amec foster wheeler

Soils Map

Banning Industrial Park

FIGURE

4

5.0 RESULTS

The project site and off-sites affect a total of six jurisdictional drainage features. Photographs of the drainage features are shown in Appendix A. The Jurisdictional Delineation Maps (Figure 4) identifies the general location of the jurisdictional resources. Table 1 includes a list of drainage features identified in the project area, their jurisdictional status and area of jurisdiction, Cowardin classification, and length of waterway within the project study area.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction.

Table 1
Summary of Jurisdictional Areas

Drainage ID	USACE/RWQCB Jurisdiction	WSC and CDFW Jurisdiction (acres)	Length (feet)	Latitude/ Longitude	Cowardin Class	Class of Aquatic Resource
Drainage 1	0.71	1.05	2,480	33.923479/ 116.845137	R4SBJ	non-section10-non wetland
Drainage 2	0.01	0.01	180	33.924887/ 116.853413	R4SBJ	non-section10-non wetland
Drainage 3	0.13	0.13	670	33.924304/ 116.848170	R4SBJ	non-section10-non wetland
Drainage 4	0.03	0.03	350	33.924867/ 116.848537	R4SBJ	non-section10-non wetland
Drainage 5	0.07	0.07	760	33.926706/ 116.842612	R4SBJ	non-section10-non wetland
Drainage 6	0.42	0.42	2,100	33.918099/ 116.845239	R4SBJ	non-section10-non wetland
Total	1.37	1.71	6,540	n/a	n/a	n/a

WSC – Waters of the State of California
CDFW – California Department of Fish and Wildlife
R4SBJ – Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

The total estimated area of USACE/RWQCB jurisdiction within the project site is 1.37 acre. The total estimated area of CDFW jurisdiction is 1.71 acres. The sections below describe each individual drainage feature identified during the wetland delineation:

5.1 Drainage 1

Drainage 1 is the largest drainage within the project site and it originates in the western portion of the project site along the off-site improvement John Street and exits the project site in the southeastern corner (See photos 1, 2, and 3). This feature is an ephemeral drainage, relatively unvegetated, and contains boulders and cobbles along the creek bed. This feature temporarily flows off-site before entering the southern portion of the main project site and flows along the southern boundary. The sparse vegetation observed within the channel includes scalebroom, catclaw acacia (*Acacia greggii*), western ragweed (*Ambrosia psilostachya*), and tumbleweed (*Salsola tragus*). There is not sufficient vegetation cover to be considered a vegetation community. The drainage ordinary high water mark varies across the project site from 14 to 30 feet in width. The drainage depth varies from 1 to 6 feet. The overall length of Drainage 1 within the project site is approximately 2,480 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. Wetland datasheets were not completed for this drainage. The estimated area for USACE jurisdiction is 0.71 acre. The estimated area for RWQCB/CDFW jurisdiction is 1.05 acres.

5.2 Drainage 2

Drainage 2 is a small ephemeral swale with intermittent bed and bank features that occurs along the off-site improvement, John Street. The OHWM is periodic and is often only visible as a noticeable change in sediment or vegetation. The majority of the drainage contains similar soils as the adjacent uplands. This feature conveys flows from the adjacent railroad right-of-way into Drainage 1. The majority of this drainage contains unknown grass species. There are sparse California buckwheat (*Eriogonum fasciculatum*) and London rocket (*Sisymbrium irio*). This feature is approximately 1 foot in width with no evidence of depth. The overall length of Drainage 2 within the project site is approximately 180 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. Wetland datasheets were not completed for this drainage. The estimated area for USACE/RWQCB/CDFW jurisdiction is 0.01 acre.

5.3 Drainage 3

Drainage 3 is tributary to Drainage 1 and also conveys flows from the adjacent railroad right-of-way that occurs along the off-site improvement, John Street. This feature is an ephemeral drainage, relatively unvegetated, and contains cobbles and sand along the creek bed. This feature temporarily flows off-site before entering the western portion of the main project site and flows within the southwestern corner of the project site before flowing into Drainage 1. The ordinary high water mark was consistent throughout the project site at approximately 6 feet in width. The drainage depth varies from 1 to 3 feet. The overall length of Drainage 3 within the project site is approximately 670 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. Wetland datasheets were not completed for this drainage. The estimated area for USACE/RWQCB/CDFW jurisdiction is 0.13 acre.

5.4 Drainage 4

Drainage 4 is a small tributary to Drainage 3 and about half the size that occurs along the off-site improvement, John Street. This feature is similar to Drainage 3. It is an ephemeral drainage, unvegetated, and contains cobbles and sand along the creek bed. This feature temporarily flows off-site before entering the western portion of the main project site and flows within the southwestern corner of the project site before flowing into Drainage 3. The ordinary high water mark was consistent throughout the project site at approximately 3 feet in width. The drainage depth varies from 0 to 1 feet. The overall length of Drainage 4 within the project site is approximately 350 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. Wetland datasheets were not completed for this drainage. The estimated area for USACE/RWQCB/CDFW jurisdiction is 0.03 acre.

5.5 Drainage 5

Drainage 5 is an ephemeral drainage that originates in the northeast corner of the project site. It is also an ephemeral drainage, unvegetated, and contains cobbles and sand along the creek bed. This drainage feature terminates as sheet-flow along the eastern edge of the project site. Downstream of the project, the ordinary high water mark is visible and the drainage eventually flows into Smith Creek. Although this drainage feature has a periodic ordinary high water mark, it is hydrologically connected to downstream drainage features. The ordinary high water mark averaged from 0 to 3 feet in width. The drainage depth varies from 0 to 0.5 feet. The overall length of Drainage 5 within the project site is approximately 760 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. Wetland datasheets were not completed for this drainage. The estimated area for USACE/RWQCB/CDFW jurisdiction is 0.07 acre.

5.6 Drainage 6

Drainage 6 is an ephemeral drainage that originates at the eastern terminus of Barbour Street, south of the project site. It is an ephemeral drainage, unvegetated, and contains cobbles and sand along the creek bed. This drainage feature originates as sheet-flow along the eastern edge of a paved road and flows into a soft-bottom channel. The drainage meanders to the southeast for 1,500 feet before heading east along the north side of Westward Avenue and occurs along the off-site wet utility alignment. The drainage flows due east for approximately 700 linear feet before flowing over Westward Avenue and continuing east for approximately 2,000 linear feet before entering Smith Creek. This drainage feature has a noticeable bed and bank feature ordinary high water mark, it is hydrologically connected to downstream drainage features. The ordinary high water mark averaged from 0 to 3 feet in width on the western extent and approximately 12 to 17 feet on the eastern end. The drainage depth varies from 0 to 4 feet. The overall length of Drainage 6 within the project site is approximately 2,100 feet. There is no evidence of hydric soils or hydrophytic vegetation and therefore, the drainage feature has no associated wetlands. Wetland datasheets were not completed for this drainage. The estimated area for USACE/RWQCB/CDFW jurisdiction is 0.42 acre.

5.7 Jurisdictional Determination

All 6 drainage features are ephemeral washes that likely flow for less than 3 months per year. Therefore, the USACE will likely classify these features as non-RPW. All six features eventually flow into the Whitewater River. The USACE will likely classify the Whitewater River as an RPW. The Whitewater River flows into the Salton Sea approximately 50 river miles from the study area and exhibits both physical surface channel connectivity and hydrologic connectivity with the Salton Sea. The Salton Sea is classified as a TNW as a result of a Supreme Court decision (Colvin v. United States). Therefore, the USACE will likely consider these features to be jurisdictional under the CWA.

The USACE is ultimately responsible for jurisdictional determinations, and this report has been prepared to provide the necessary information to assist the USACE with that determination. An Approved Jurisdictional Determination could be requested of the USACE to provide an analysis to determine if the subject reach of these features has a “significant nexus” to the Salton Sea, and are therefore jurisdictional WUS. Otherwise, the project proponent can request a Preliminary Jurisdictional Determination in which the USACE assumes jurisdiction over these features, and process permits accordingly.



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Jurisdictional Delineation Map

Banning Industrial Park

FIGURE

5

6.0 IMPACTS TO JURISDICTIONAL AREAS

The proposed development plan was overlaid on the jurisdictional delineation boundary using GIS to determine the extent of impacts (limits of grading) to jurisdictional areas (Figure 5). Albert A. Webb Associates, Inc. provided Amec Foster Wheeler with the development plan. Permanent impacts were assessed for the proposed access road, the warehouse footprint, and the emergency access roads for a total of 0.23 acres. There will be approximately 0.07 acre of temporary impacts to jurisdictional resources associated with construction work areas and utility line right-of-way. The temporary impact area will be returned to its previous impact conditions. Permanent and temporary impacts are listed in Table 2.

Table 2
Summary of Impacts to Jurisdictional Areas

Drainage ID	USACE/WSC Permanent Impacts	USACE/WSC Temporary Impacts	CDFW Permanent Impacts	CDFW Temporary Impacts	Length (feet)
Drainage 1	0.09	0.04	0.09	0.04	166
Drainage 2	0.01	0.00	0.01	0.00	94
Drainage 3	0.05	0.01	0.05	0.01	329
Drainage 4	0.01	0.00	0.01	0.00	178
Drainage 5	0.07	0.00	0.07	0.00	760
Drainage 6*	0.00	0.02	0.00	0.42	140
Total	0.23	0.07	0.23	0.47	1,667

*Temporary Impacts
WSC – Waters of the State of California
CDFW – California Department of Fish and Wildlife
R4SBJ – Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

6.1 Permitting Requirements

Since all six drainage features will be impacted by project development, authorizations from the USACE, RWQCB, and CDFW will be required as described below. At this point, all mitigation is designed to be on-site mitigation associated with habitat creation along the western and eastern project site boundary. However, if additional area is needed to comply with regulatory agency requirements, additional off-site mitigation credits may be purchased from an in-lieu fee program/mitigation bank or from the RCA.

6.1.1 U.S. Army Corps of Engineers

The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WUS are: a nation-wide permit (NWP) or an individual permit (IP).

NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources.

NWP 39 can be used for Commercial and Institutional Developments. The discharge cannot cause the loss of greater than ½ acre of WUS and no more than 300 linear feet of streambed. The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. The proposed project would likely qualify under NWP 39 and could likely wave the 300-linear foot requirements to the USACE, due to the low quality habitat associated with the drainage feature.

For project impacts that do not meet the provisions of an existing NWP, the USACE would require an IP. An IP requires detailed analysis and compliance with the USACE formal review process. This process includes preparation of an alternatives analysis as required by EPA Section 404(b)(1) Guidelines and the National Environmental Policy Act (NEPA), and requires compliance with NEPA's environmental review process. This process provides opportunities for public notice and comment.

The USACE must comply with the federal Endangered Species Act and Section 106 of the National Historic Preservation Act when issuing a NWP or IP.

6.1.2 Regional Water Quality Control Board

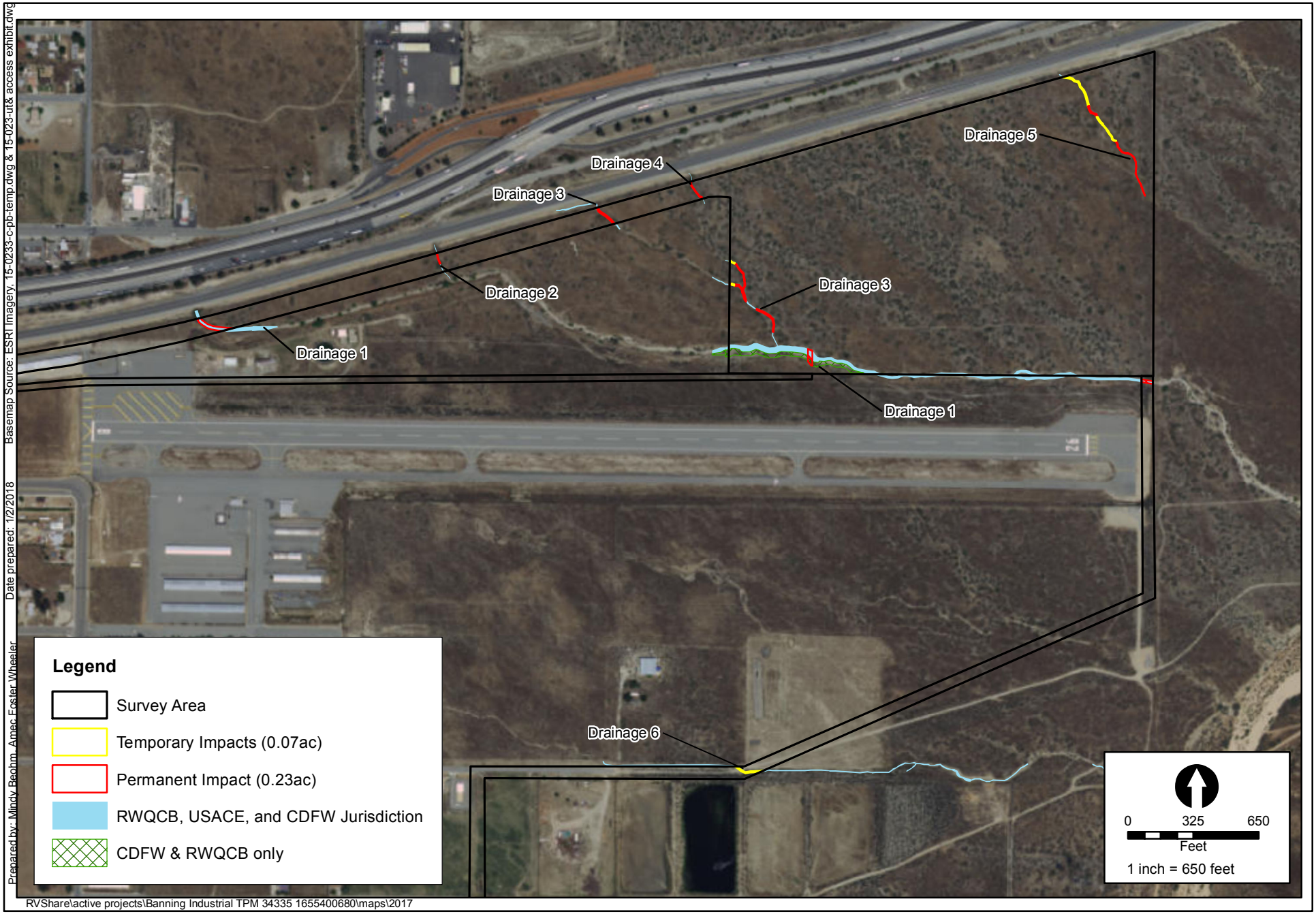
The project area occurs in the Colorado River RWQCB (Region 7). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WUS does not violate state water quality standards.

The RWQCB also regulates impacts to WSC under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and the properties of the waterway.

The project proponent would need to obtain a Water Quality Certification. In addition to the formal application materials and fee (based on area of impact), a copy of the appropriate California Environmental Quality Act (CEQA) documentation must be included with the application.

6.1.3 California Department of Fish and Wildlife

A 1602 Streambed Alteration Agreement is required for all activities that alter streams and lakes and their associated riparian habitat. In addition to the formal application materials and fee (based on cost of the project), a copy of the appropriate CEQA documentation must be included with the application.



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Jurisdictional Delineation Impact Map

Banning Industrial Park

FIGURE

6

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APPENDIX A

SITE PHOTOGRAPHS



Photo 1 – Looking west at Drainage 1 (off-site) from the western boundary of the project site.



Photo 2 – Looking east at Drainage 1 from the southwestern corner of the main project site.



Photo 3 – Looking north at Drainage 2. Railroad tracks are in the background.



Photo 4 – Looking south at Drainage 3 from the northern portion of the Project Site.



Photo 5 – Looking north at Drainage 3. Fence line marks the western property boundary.



Photo 6 – Looking north at Drainage 4 from the western portion of the main Project Site.



Photo 7 – Looking southeast at Drainage 5 near the northeastern corner of the project site.



Photo 8 – Looking north at Drainage 5 from the eastern portion of the Project Site.



Photo 9 – Looking west at Drainage 6 from the southeastern corner of the utility line.



Photo 10 – Looking east at Drainage 6 from the western extent of the utility line.

APPENDIX B

PLANT COMPENDIUM

Flora Compendia

Amaranthaceae		**Amaranth Family**
Amaranthus	*albus*	tumbling pigweed
Anacardiaceae		**Sumac or Cashew Family**
Schinus	*molle*	Peruvian pepper tree
Asteraceae		**Sunflower Family**
Ambrosia	*acanthicarpa*	annual bursage
Ambrosia	*psilostachya*	western ragweed
Ambrosia	*salsola*	cheese bush
Artemisia	*californica*	California sagebrush
Baccharis	*salicifolia*	mule fat
Centaurea	*solstitialis*	yellow star-thistle
Chaenactis	*sp.*	unknown pincushion species
Conyza	*canadensis*	horseweed
Corethrogyne	*filaginifolia*	California aster
Cotula	*coronopifolia*	brass-buttons
Encelia	*farinosa*	brittlebush
Ericameria	*linearifolia*	interior goldenbush
Gnaphalium	*californicum*	California everlasting
Helianthus	*annuus*	common sunflower
Hemizonia	*paniculata*	San Diego tarweed
Heterotheca	*grandiflora*	telegraphweed
Logfia	*californica*	California cottonrose
Senecio	*flaccidus*	threadleaf ragwort
Senecio	*vulgaris*	common groundsel
Stephanomeria	*virgata*	twiggy wreathplant
Tetradymia	*comosa*	hairy horsebrush
Boraginaceae		**Borage Family**
Amsinckia	*menziesii*	Menzies' fiddleneck
Heliotropium	*curassivicum*	saltmarsh heliotrope
Brassicaceae		**Mustard Family**
Brassica	*tournefortii*	Asian mustard
Hirschfeldia	*incana*	short-podded mustard
Cactaceae		**Cactus Family**
Cylindropuntia	*california var. parkeri*	cane cholla
Opuntia	*basilaris*	beavertail cactus
Chenopodiaceae		**Goosefoot Family**
Salsola	*tragus*	Russian thistle
Cucurbitaceae		**Gourd Family**
Cucurbita	*foetidissima*	calabazilla
Cucurbita	*palmata*	coyote gourd

Flora Compendia

Marah	*macrocarpus*	wild cucumber
Elaeagnaceae		**Oleaster Family**
Elaeagnus	*angustifolia*	oleaster
Euphorbiaceae		**Spurge Family**
Chamaesyce	*albomarginata*	rattlesnake weed
Croton	*californicus*	California croton
Fabaceae		**Legume Family**
Acacia	*greggii*	catclaw acacia
Lotus	*scoparius*	common deerweed
Lupinus	*hirsutissimus*	stinging lupine
Lupinus	*succulentus*	arroyo lupine
Geraniaceae		**Geranium Family**
Erodium	*botrys*	broadleaf filaree
Erodium	*cicutarium*	red-stemmed stork's bill
Lamiaceae		**Mint Family**
Salvia	*columbariae*	chia
Trichostema	*lanatum*	woolly bluecurls
Nyctaginaceae		**Four O'Clock Family**
Mirabilis	*laevis var. crassifolia*	California wishbone bush
Polygonaceae		**Buckwheat Family**
Eriogonum	*fasciculatum*	California buckwheat
Rhamnaceae		**Buckthorn Family**
Ceanothus	*sp.*	unknown ceanothus sp.
Salicaceae		**Willow Family**
Populus	*fremontii ssp. fremontii*	Fremont cottonwood
Salix	*gooddingii*	Goodding's willow
Salix	*lasiolepis*	arroyo willow
Simaroubaceae		**Quassia Family**
Ailanthus	*altissima*	tree of heaven
Solanaceae		**Nightshade Family**
Datura	*wrightii*	jimson weed
Nicotiana	*glauca*	tree tobacco
Tamaricaceae		**Tamarisk Family**
Tamarix	*sp.*	unknown tamarisk sp.
Agavaceae		**Agave Family**
Yucca	*schidigera*	Mohave yucca
Poaceae		**Grass Family**
Avena	*barbata*	slender oat
Avena	*fatua*	wild oat

Flora Compendia

Bromus	*diandrus*	ripgut brome
Bromus	*rubens*	red brome
Lamarckia	*aurea*	golden top grass
Themidaceae		**Brodiaea Family**
Dichelostemma	*capitatum*	blue dicks

APPENDIX C

OHWM DATASHEETS

Project: Banning Industrial Project	**Date:** May 24, 2017	**Time:** 0800
Project Number: 1655400680	**Town:** Banning	**State:** CA
Stream: unnamed Tributary Drainage 1	**Photo begin file#:** 1	**Photo end file#:** 2
Investigator(s): Scrawford		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:** southern extent of project site.
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** LAT/LON **Datum:** NAD 83
Type: N/A	**Coordinates:** 33.923479/-116.845137

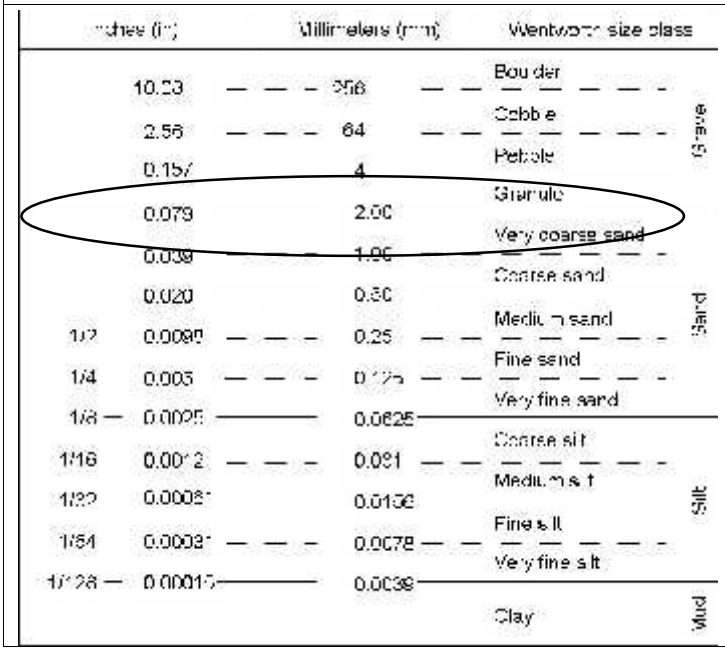
Notes:

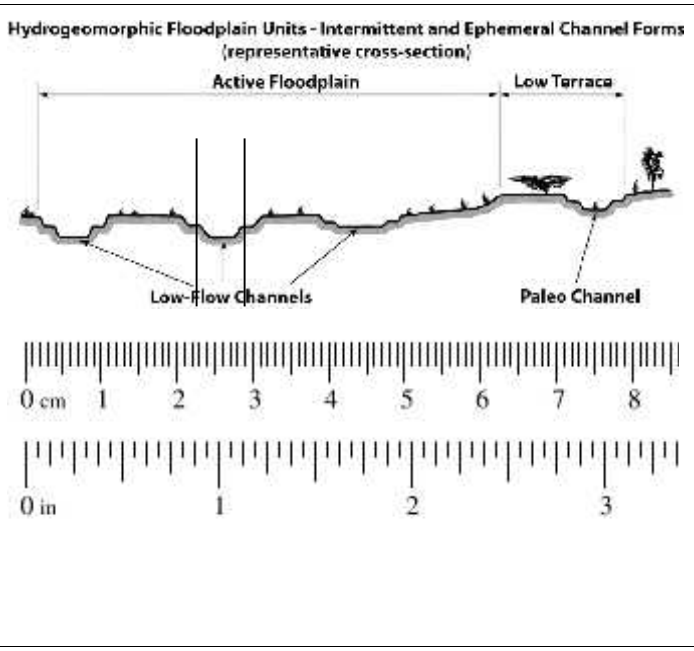
Brief site description: project contains catclaw acacia thorn scrub with ephemeral un-vegetated channels.

Checklist of resources (if available):

- ☒ Aerial Photography: (Dates: 2016)
- ☒ Topographic maps: (Scale: 1:2400)
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☐ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other Studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2- ,5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.





☒	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
☒	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sandy and Gravel with cobbles and boulders Total veg cover: 0 % Tree: 0 % Shrub: 0% Herb: 0% Community successional stage: ☒ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Acacia greggii Other: ☐ Eriogonum fasciculatum ☐ Lepidospartum squamatum ☐ Salsola tragus ☐ Ambrosia psilostachya
☒	**Walk away from the low-flow channel along cross-section. Record characteristics of the low flow/ active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: ☒ Change in total veg cover ☐ Tree ☐ Shrub ☒ Herb ☒ Change in overall vegetation maturity ☒ Change in dominant species present ☒ Other ☒ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☒	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: silty loam Total veg cover: 75 % Tree: 0% Shrub: 30 % Herb: 45% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Eriogonum fasciculatum Other: ☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Project: Banning Industrial Project	**Date:** May 24, 2017	**Time:** 0900
Project Number: 1655400680	**Town:** Banning	**State:** CA
Stream: unnamed Tributary Drainage 2	**Photo begin file#:** 3	**Photo end file#:** 3
Investigator(s): Scrawford		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:** Northwestern portion of the project site.
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** LAT/LON **Datum:** NAD 83
Type: N/A	**Coordinates:** 33.924887/-116.853413

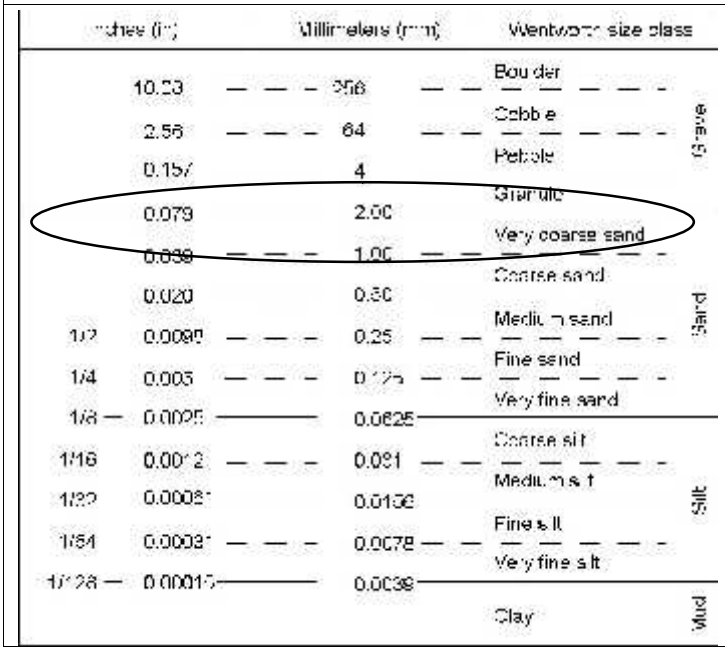
Notes:

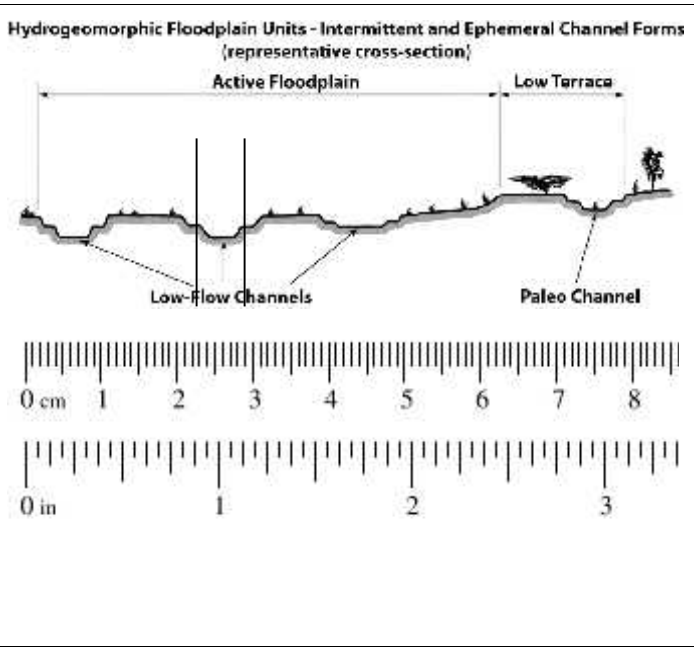
Brief site description: project contains catclaw acacia thorn scrub with ephemeral un-vegetated channels.

Checklist of resources (if available):

- ☒ Aerial Photography: (Dates: 2016)
- ☒ Topographic maps: (Scale: 1:2400)
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☐ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other Studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2- ,5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.





☒	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
☒	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sandy and Gravel with cobbles and boulders Total veg cover: 0 % Tree: 0 % Shrub: 0% Herb: 0% Community successional stage: ☒ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Acacia greggii Other: ☐ Hirschfeldia incana ☐ Datura wrightii ☐ _____ ☐ _____
☒	**Walk away from the low-flow channel along cross-section. Record characteristics of the low flow/ active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: ☒ Change in total veg cover ☐ Tree ☐ Shrub ☒ Herb ☒ Change in overall vegetation maturity ☒ Change in dominant species present ☒ Other ☒ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☒	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: silty loam Total veg cover: 75 % Tree: 0% Shrub: 30 % Herb: 45% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Eriogonum fasciculatum Other: ☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Project: Banning Industrial Project	**Date:** May 24, 2017	**Time:** 01000
Project Number: 1655400680	**Town:** Banning	**State:** CA
Stream: unnamed Tributary Drainage 3	**Photo begin file#:** 4	**Photo end file#:** 5
Investigator(s): Scrawford		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:** Northwestern portion of the project site.
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** LAT/LON **Datum:** NAD 83
Type: N/A	**Coordinates:** 33.924304/-116.848170

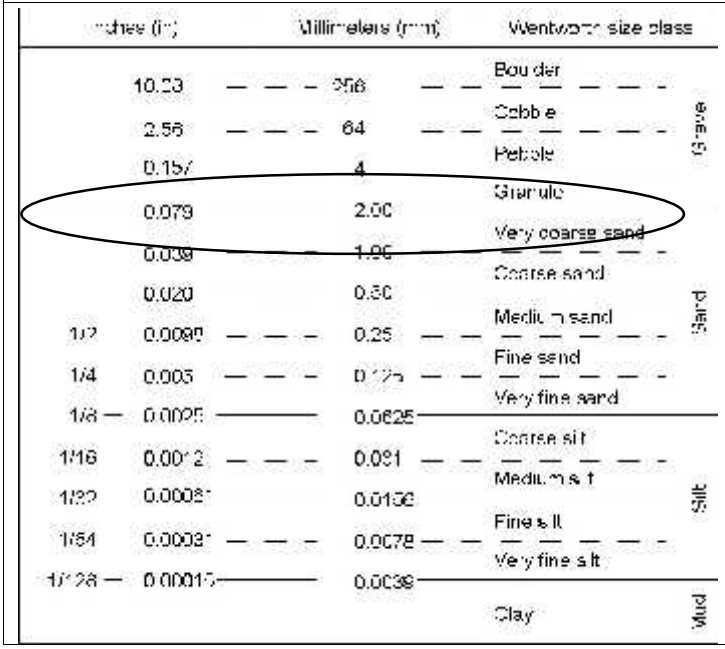
Notes:

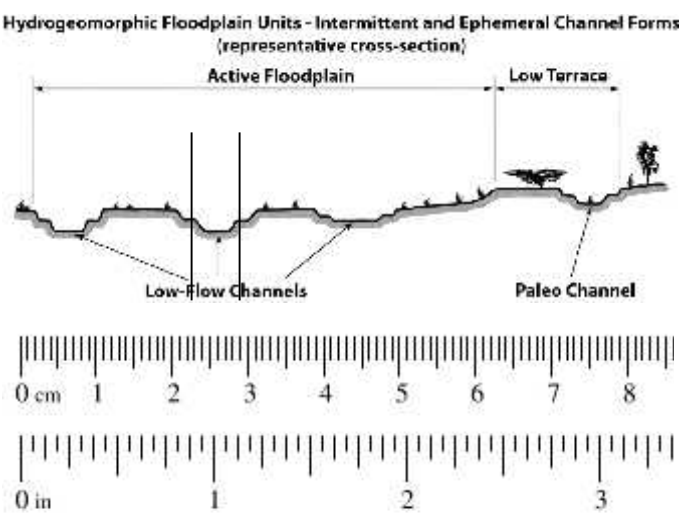
Brief site description: project contains catclaw acacia thorn scrub with ephemeral un-vegetated channels.

Checklist of resources (if available):

- ☒ Aerial Photography: (Dates: 2016)
- ☒ Topographic maps: (Scale: 1:2400)
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☐ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other Studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2- ,5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.





☒	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
☒	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sandy and Gravel with cobbles and boulders Total veg cover: 0 % Tree: 0 % Shrub: 0% Herb: 0% Community successional stage: ☒ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: no plants in low-flow channel Other: ☐ ☐ _____ ☐ _____ ☐ _____
☒	**Walk away from the low-flow channel along cross-section. Record characteristics of the low flow/ active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: ☒ Change in total veg cover ☐ Tree ☐ Shrub ☒ Herb ☒ Change in overall vegetation maturity ☒ Change in dominant species present ☒ Other ☒ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☒	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: silty loam Total veg cover: 60 % Tree: 0% Shrub: 10 % Herb: 50% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Schismus barbatus Other: ☐ Hirschfeldia incana ☐ _____ ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Project: Banning Industrial Project	**Date:** May 24, 2017	**Time:** 1100
Project Number: 1655400680	**Town:** Banning	**State:** CA
Stream: unnamed Tributary Drainage 4	**Photo begin file#:** 6	**Photo end file#:** 6
Investigator(s): Scrawford		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:** Northwestern portion of the project site.
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** LAT/LON **Datum:** NAD 83
Type: N/A	**Coordinates:** 33.924867/-116.848537

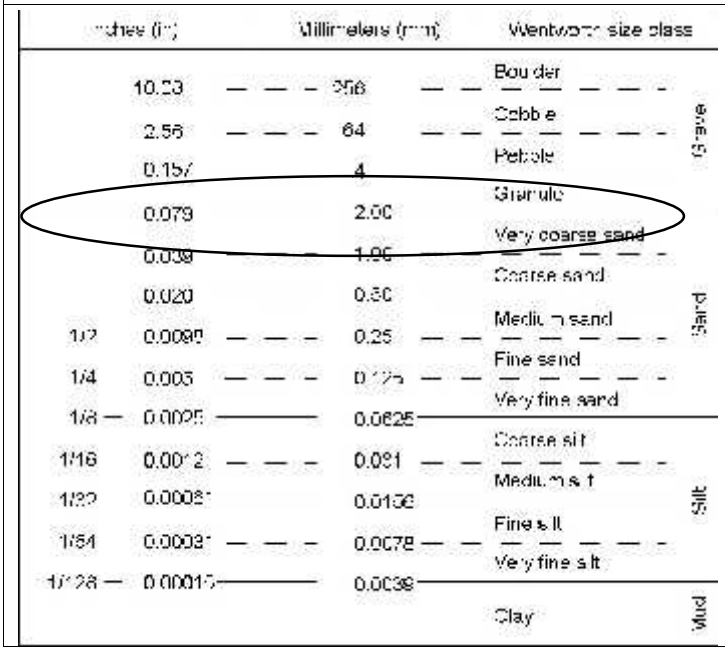
Notes:

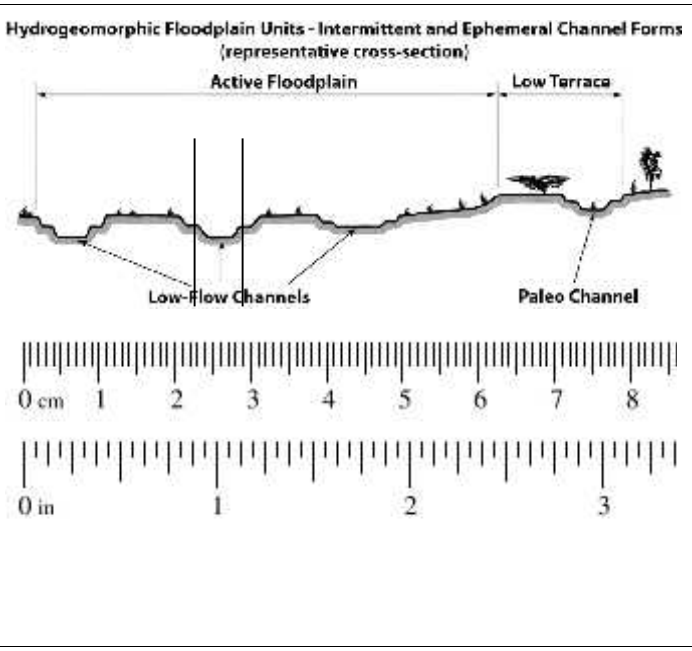
Brief site description: project contains catclaw acacia thorn scrub with ephemeral un-vegetated channels.

Checklist of resources (if available):

- ☒ Aerial Photography: (Dates: 2016)
- ☒ Topographic maps: (Scale: 1:2400)
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☐ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other Studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2- ,5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.





☒	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
☒	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sandy and Gravel with cobbles and boulders Total veg cover: 0 % Tree: 0 % Shrub: 0% Herb: 0% Community successional stage: ☒ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Unvegetated channel Other: ☐ ☐ _____ ☐ _____ ☐ _____
☒	**Walk away from the low-flow channel along cross-section. Record characteristics of the low flow/ active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: ☒ Change in total veg cover ☐ Tree ☐ Shrub ☒ Herb ☒ Change in overall vegetation maturity ☒ Change in dominant species present ☒ Other ☒ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☒	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: silty loam Total veg cover: 75 % Tree: 0% Shrub: 50 % Herb: 25% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Eriogonum fasciculatum Other: ☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Project: Banning Industrial Project	**Date:** May 24, 2017	**Time:** 1200
Project Number: 1655400680	**Town:** Banning	**State:** CA
Stream: unnamed Tributary Drainage 5	**Photo begin file#:** 7	**Photo end file#:** 8
Investigator(s): Scrawford		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:** Northeastern portion of the project site.
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** LAT/LON **Datum:** NAD 83
Type: N/A	**Coordinates:** 33.926706/-116.842612

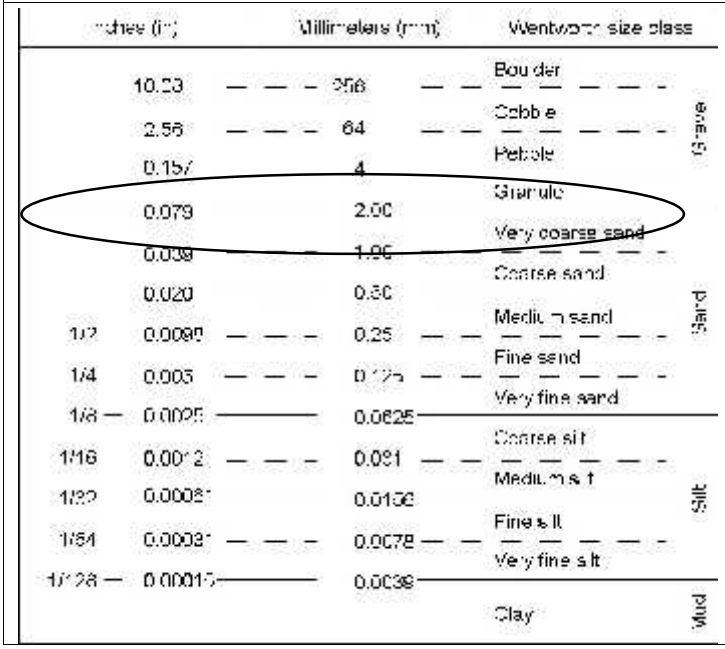
Notes:

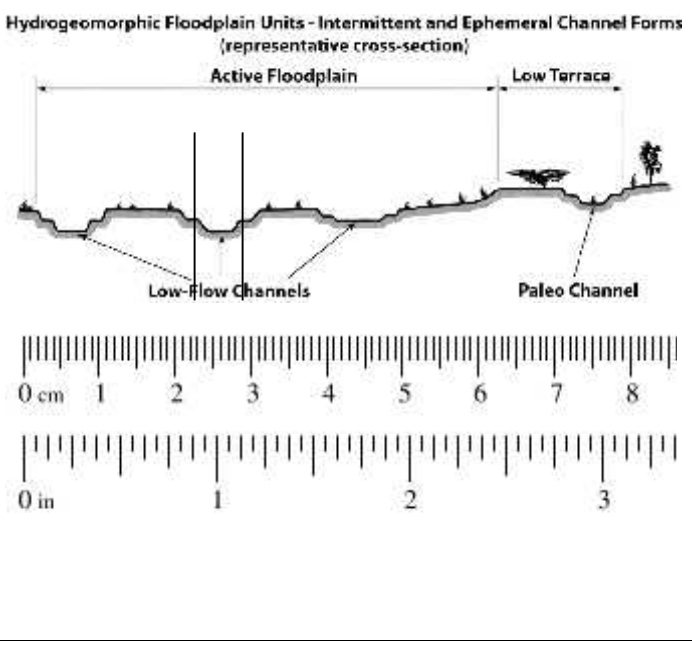
Brief site description: project contains catclaw acacia thorn scrub with ephemeral un-vegetated channels.

Checklist of resources (if available):

- ☒ Aerial Photography: (Dates: 2016)
- ☒ Topographic maps: (Scale: 1:2400)
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☐ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other Studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2- ,5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.





☒	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
☒	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sandy and Gravel with cobbles and boulders Total veg cover: 0 % Tree: 0 % Shrub: 0% Herb: 0% Community successional stage: ☒ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: unvegetated channel Other: ☐ ☐ _____ ☐ _____ ☐ _____
☒	**Walk away from the low-flow channel along cross-section. Record characteristics of the low flow/ active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: ☒ Change in total veg cover ☐ Tree ☐ Shrub ☒ Herb ☒ Change in overall vegetation maturity ☒ Change in dominant species present ☒ Other ☒ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☒	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: silty loam Total veg cover: 75 % Tree: 0% Shrub: 30 % Herb: 45% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Eriogonum fasciculatum Other: ☐ acacia greggii ☐ Short-podded mustard ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Project: Banning Industrial Project	**Date:** May 24, 2017	**Time:** 1300
Project Number: 1655400680	**Town:** Banning	**State:** CA
Stream: unnamed Tributary Drainage 6	**Photo begin file#:** 9	**Photo end file#:** 10
Investigator(s): Scrawford		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:** Northwestern portion of the project site.
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** LAT/LON **Datum:** NAD 83
Type: N/A	**Coordinates:** 33.918099/-116.845239

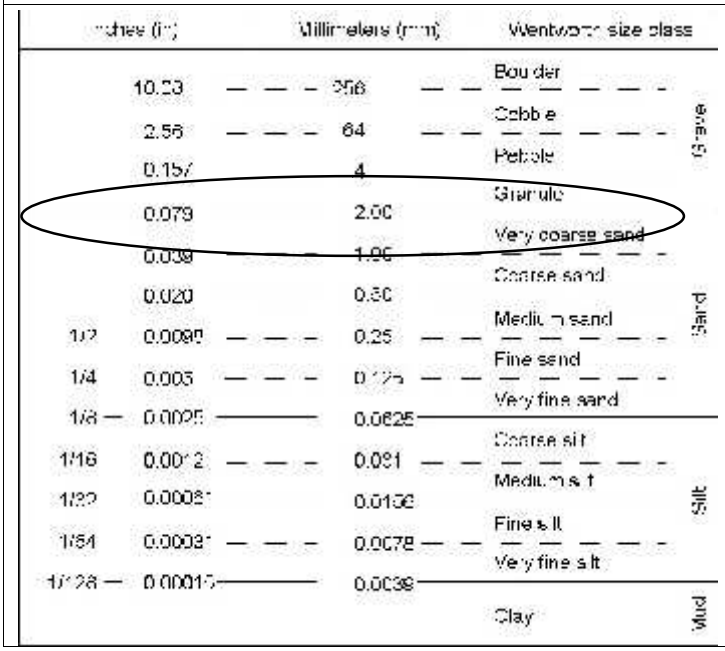
Notes:

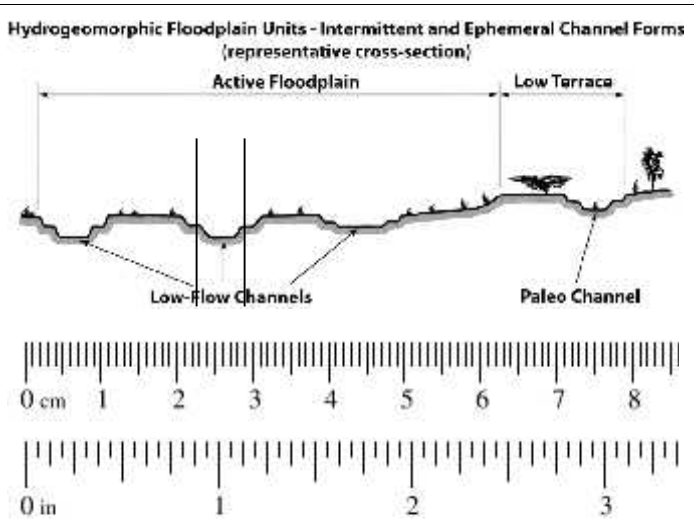
Brief site description: project contains catclaw acacia thorn scrub with ephemeral un-vegetated channels.

Checklist of resources (if available):

- ☒ Aerial Photography: (Dates: 2016)
- ☒ Topographic maps: (Scale: 1:2400)
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☐ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other Studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2- ,5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.





☒	**Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**
☒	**Locate the low-flow channel (lowest part of the channel). Record observations.** Characteristics of the low-flow channel: Average sediment texture: Sandy and Gravel with cobbles and boulders Total veg cover: 0 % Tree: 0 % Shrub: 0% Herb: 0% Community successional stage: ☒ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Eriogonum fasciculatum Other: ☐ Acacia greggii ☐ _____ ☐ _____ ☐ _____
☒	**Walk away from the low-flow channel along cross-section. Record characteristics of the low flow/ active floodplain boundary.** Characteristics used to delineate the low-flow/active floodplain boundary: ☒ Change in total veg cover ☐ Tree ☐ Shrub ☒ Herb ☒ Change in overall vegetation maturity ☒ Change in dominant species present ☒ Other ☒ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☒	**Continue walking the channel cross-section. Record observations below.** Characteristics of the active floodplain: Average sediment texture: silty loam Total veg cover: 75 % Tree: 0% Shrub: 30 % Herb: 45% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☒ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: Eriogonum fasciculatum Other: ☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Appendix H

CULTURAL RESOURCE ASSESSMENT OF 108 ACRES FOR THE BANNING DISTRIBUTION CENTER PROJECT, CITY OF BANNING, RIVERSIDE COUNTY, CALIFORNIA

USGS Cabazon 7.5' Quadrangle; Township 3S, Range 1E, Sections 10, 11 and 14

Prepared for:
Albert A. Webb Associates
Riverside, California 92506

For Submittal to:
City of Banning
99 East Ramsey
Banning, CA 92220

and

U.S. Army Corp of Engineers
Los Angeles District
915 Wilshire Blvd.
Los Angeles, CA 90017

Prepared by:
Joan George, Tiffany Clark, and Dennis McDougall
Applied EarthWorks, Inc.
3550 East Florida Avenue, Suite H
Hemet, CA 92544-4937

November 2017

Keywords: ~108 acres surveyed; City of Banning; Riverside County; six cultural resources: historical refuse scatters (CA-RIV-3443H / 33-000344, CA-RIV-8364H/ 33-016208); the Banning Airport (33-024895); East Westward Avenue (33-026821); John Street (33-026822); and historical transmission line (33-026820)

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MANAGEMENT SUMMARY

The Banning Distribution Center Project (Project) proposes to construct a high-cube warehouse and road on approximately 108 acres (ac) located just south of Interstate 10 (I-10) and the Southern Pacific Railroad in the City of Banning, Riverside County, California. Applied EarthWorks, Inc. (*Æ*) was retained by Albert A. Webb Associates to conduct a cultural resource investigation of the Project's Area of Potential Effects (APE) in accordance with Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA).

A cultural resource literature and records search indicates that 197 cultural resources are present within a one-mile radius of the Project area. One resource, a historical refuse scatter (CA-RIV-3443H/33-003443), has been previously documented within the Project APE. *Æ* also requested a search of the *Sacred Lands File* (SLF) from the Native American Heritage Commission (NAHC), which was completed with negative results. The NAHC requested that Native American individuals and organizations be contacted to elicit information and/or concerns regarding cultural resource issues related to the Project. A letter describing the Project and asking these individuals and organizations for their input was sent on May 25, 2016. A second attempt at correspondence was made on June 8, 2016. Additional Native American outreach was conducted as part of the supplemental cultural resource investigation. A letter describing the off-site improvement areas associated with the Project was sent to the Morongo Band of Mission Indians on May 12, 2017. A second attempt at correspondence was made on May 26, 2017. No response to the supplemental Native American outreach has been received as of June 2, 2017.

An intensive cultural resource pedestrian survey of the Project APE was performed by *Æ* personnel on May 24, 2016 with supplemental surveys completed on May 9, May 24, and September 28, 2017. In total, six cultural resources were identified within the Project APE. Archaeological resources identified within the Project APE include two previously recorded historical refuse scatters (CA-RIV-3443H and CA-RIV-8364H). Four built-environment resources were also documented in the Project APE including the Banning Municipal Airport (33-024895), two historical road segments (East Westward Avenue [33-026821] and John Street [33-026822]), and a portion of a historical transmission line (33-026820). All six resources were researched and evaluated for historical significance as part of the cultural assessment. None of the resources appears eligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) and therefore they are not considered "historic properties" under Section 106 of the NHPA or "historical resources" under CEQA.

Results of the cultural resource study indicate that the Project APE is unlikely to contain significant buried archaeological remains. Information obtained from the records search indicates that most the known prehistoric sites in the Project vicinity are concentrated almost a mile to the south along the foothills of the San Jacinto Mountains. Furthermore, the pedestrian survey found that the terrain throughout much of the Project APE has been disturbed extensively by mechanical grading activities. Taken together, the data suggest that is unlikely that any intact subsurface archaeological deposits will be encountered during construction. Therefore, no further cultural resource management of the Project APE is recommended at this time.

Field notes documenting the current investigation are on file at Æ's Hemet office. A copy of this report will be placed on file at the Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS), housed at the University of California, Riverside.

1
INTRODUCTION

On behalf of Albert A. Webb Associates (WEBB), Applied EarthWorks, Inc. (Æ) conducted a cultural resource investigation of approximately 108 acres (ac) of land for the Banning Distribution Center Project ("Project") in the City of Banning, Riverside County, California (Figure 1). The proposed Project is subject to Section 106 of the National Historic Preservation Act of 1966 (NHPA, 36 CFR, 63, and 800) and the California Environmental Quality Act (CEQA). The U.S. Army Corps of Engineers (USACE) is responsible for compliance with Section 106 of the NHPA; the City of Banning (City) is the lead agency for the purposes of CEQA. Tiffany Clark, Ph.D., RPA, served as Æ's Principal Investigator, Joan George served as Project Manager, and Dennis McDougall and Ken Moslak directed the field investigations.

1.1 PROJECT LOCATION AND DESCRIPTION

The proposed Project is situated south of Interstate 10 (I-10) and the Southern Pacific Railroad and north of the Banning Municipal Airport at the eastern edge of the City of Banning (Figure 2). Specifically, the Project is located in Sections 10, 11, and 14 (Township 3S / Range 1E; San Bernardino Baseline and Meridian [S.B.B.M.]) as depicted on the Cabazon 7.5' Series USGS topographic quadrangle. The Project areas slopes in the southeasterly direction with elevations ranging from 628 meters (m) (2,061 feet [ft]) to 691m (2,270 ft) above mean sea level (amsl).

The proposed Project involves development of a high-cube warehouse and offsite improvements. The Project property encompasses 64.1 ac. The offsite improvements to the Project include a road, fire access road, sewer and water lines. The proposed Project offsite roadways include a 5,688 linear ft extension of John Street from the Project's west property line to Lincoln Street and a 3,871 linear ft emergency fire access roadway at the southwestern corner of the property, cross a creek that flows to Smith Creek, and onto Banning Airport property. The offsite utility improvements include sewer line and associated lift station; the lift station is approximately 0.4 miles (mi) from the southern edge of the Project. A water line will start where the line will tie into the existing water line at the intersection of South Hathaway Street and East Barbour Street, then north on Hathaway and east on the extension of John Street. The remaining water line will be located east and south of the Project site, terminating at the intersection of Scott Street and East Westward Avenue. The offsite improvements encompass a total of 43.9 ac.

1.2 REGULATORY CONTEXT

This section discusses the relevant federal and state regulations that must be considered during the decision-making process for projects that have the potential to impact cultural resources. As previously stated, this report is prepared to manage historic properties as defined by the NHPA and historical resources consistent with CEQA Guidelines.

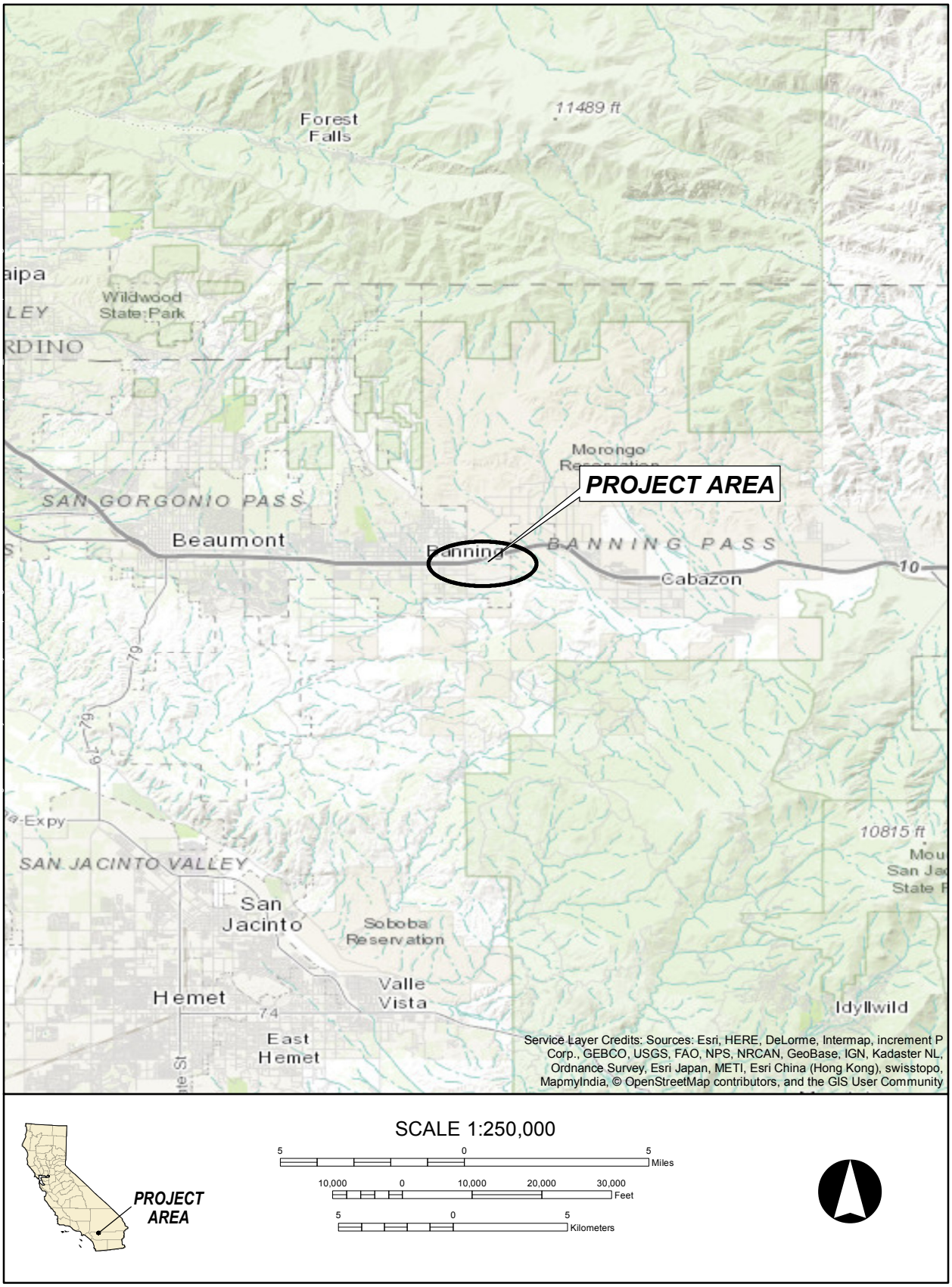

Figure 1 Project vicinity map.

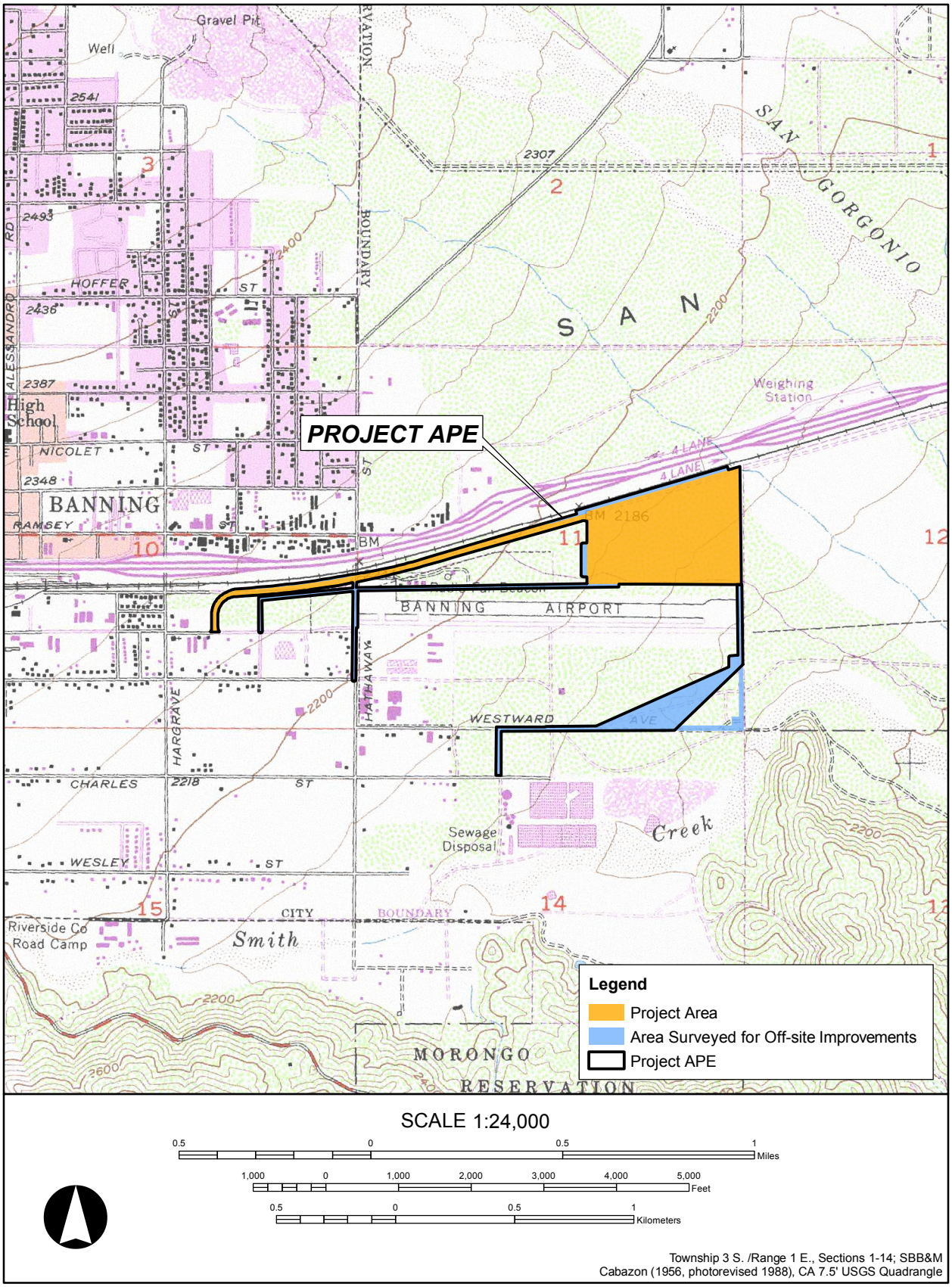

Figure 2 Project location map.

1.2.1 Federal

National Historic Preservation Act (NHPA)

It is anticipated that this Project will be considered a federally licensed "undertaking" per 36 CFR § 800.2 (o) and subject to compliance with Section 106 of the NHPA of 1966, as amended. Under these guidelines, federal agencies are required to identify cultural resources that may be affected by project actions, assess the significance of these resources and their eligibility for inclusion on the National Register of Historic Places (NRHP) as per 16 USC 470w (5), and consult with the Advisory Council on Historic Preservation (ACHP) regarding project effects on significant resources. Eligibility is based on criteria defined by the Department of the Interior. Generally, districts, archaeological sites, buildings, structures, and objects that possess integrity are potentially eligible for inclusion on the NRHP under the following criteria:

A) that are associated with events that have made a significant contribution to the broad patterns of our history; or

B) that are associated with the lives of persons significant in our past; or

C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) that have yielded, or may be likely to yield, information important in prehistory or history. [36 CFR § 60.4]

If a cultural resource is determined to be an eligible historic property under 36 CFR § 60.4, then Section 106 requires that the effects of the proposed undertaking be assessed and considered in planning the undertaking.

1.2.2 State

California Environmental Quality Act (CEQA)

As currently proposed, this Project was subject to compliance with CEQA, as amended. Therefore, cultural resource management work conducted as part of the proposed Project shall comply with the CEQA Statutes and Guidelines (California 2015), which directs lead agencies to first determine whether cultural resources are "historically significant" resources. A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (California Code of Regulations [CCR], § 15064.5[b]). Generally, a cultural resource shall be considered "historically significant" if the resource is 45 years old or older, possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and meets the requirements for listing on the California Register of Historical Resources (CRHR) under any one of the following criteria (Title 14 CCR, § 15064.5):

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,

4) Has yielded, or may be likely to yield, information important in prehistory or history [Title 14 CCR, § 15064.5].

The cited statutes and guidelines specify how cultural resources are to be managed in the context of CEQA-approved projects such as the Banning Distribution Center Project. Briefly, archival and field surveys must be conducted, and identified cultural resources must be inventoried and evaluated in prescribed ways. Prehistoric and historical archaeological resources, as well as built-environment features, such as standing structures deemed "historically significant" must be considered in project planning and development.

California Assembly Bill 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) created a new class of resources— tribal cultural resources—for consideration under CEQA. Tribal cultural resources may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are included or determined to be eligible for inclusion in the California Register of Historical Resources, included in a local register of historical resources, or a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the California Register of Historical Resources. AB 52 requires that the lead CEQA agency consult in good faith with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to impact a tribal cultural resource such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

1.2.3 Local

City of Banning General Plan

The City of Banning General Plan (2006) includes the following goals, policies, and programs related to cultural resources.

Goal: Documentation, maintenance, preservation, conservation and enhancement of archaeological and historic sites, artifacts, traditions and other elements of the City's cultural heritage.

Policy 1 The City shall exercise its responsibility to identify, document and evaluate archaeological, historical and cultural resources that may be affected by proposed development projects and other activities.

Program 1.A All new development proposals, except single family dwelling on existing lots of record, shall submit a records search for historic and cultural resources as part of the planning process. Responsible Agency: Planning Department Schedule: 2005-2006, Ongoing

Program 1.B Development or land use proposals which have the potential to disturb or destroy sensitive cultural resources shall be evaluated by a qualified professional and, if necessary, comprehensive Phase I studies and appropriate mitigation measures shall be incorporated into project approvals.

Program 1.C The City shall implement the requirements of state law relating to cultural resources, including Government Code 65352.3, and any subsequent amendments or additions. Responsible Agency: Planning Department Schedule: Ongoing

Policy 2 The City shall expand and enhance its historic preservation efforts.

Program 2.A Prepare a historic preservation plan, which outlines the goals and objectives of the City's preservation programs and serves as an official historic context statement for the evaluation of cultural resources within the City boundaries. Responsible Agency: Planning Department Schedule: 2006-2007

Program 2.B The City shall consider participating in the Certified Local Government program so that it may benefit from historic preservation expertise, technical assistance, special grants, information exchange, and statewide preservation programs coordinated by the State Office of Historic Preservation. The evaluation of participation in the program shall be part of the historic preservation plan. Responsible Agency: Planning Department, Historical Society, City Council Schedule: 2006-2007

Program 2.C Encourage property owners and residents to nominate qualified properties to the City's inventory system and/or any federal and state registers. Responsible Agency: Planning Department, Morongo Band of Cahuilla Indians Schedule: Ongoing

Program 2.D Should the Saint Boniface School site be proposed for development, extensive analysis of the site shall be conducted, and mitigation proposed, to document its historic significance. Responsible Agency: Planning Department Schedule: 2005-2006, Ongoing

Policy 3 Establish and maintain a confidential inventory of archaeological and historical resources within the City, including those identified by the Eastern Information Center (EIC) at the University of California, Riverside and in focused cultural resources studies.

Policy 4 Sensitive archaeological and historic resources shall be protected from vandalism and illegal collection, to the greatest extent possible.

Program 4.A Mapping and similar information, which identifies specific locations of sensitive cultural resources, shall be maintained in a confidential manner, and access to such information shall be provided only to those with appropriate professional or organizational ties. Responsible Agency: Planning Department Schedule: Immediate; continuous

Policy 5 Encourage public participation in and appreciation of the City's cultural heritage.

Program 5.A Implement a systematic program to enhance public awareness of the City's heritage, generate broad support for its preservation, and enhance community pride. Responsible Agency: Planning Department, Historical Society, City Council, Morongo Band of Mission Indians Schedule: 2005-2006, Ongoing

Program 5.B Support the efforts of local cultural associations to acquire historical materials and artifacts, and to educate the public about the City's and region's cultural heritage.

Policy 6 Support the listing of eligible structures or sites as potential historic landmarks and their inclusion in the National Register of Historic Places.

Program 6.A Develop procedures for the designation of local landmarks and historic districts. Responsible Agency: Planning Department, Historical Society, Morongo Band of Mission Indians Schedule: 2005-2006

Policy 7 The City shall consider offering economic or other incentives, such as direct subsidies or application/permitting fee reductions or waivers, to property owners to encourage the maintenance and enhancement of significant cultural buildings and sites.

Program 7.A Develop an application process for City-sponsored incentives to maintain and enhance significant buildings and sites, and provide property owners with information and guidance on eligibility requirements.

1.3 AREA OF POTENTIAL EFFECTS (APE)

The Area of Potential Effects (APE) is defined as the geographic area within which the Project has the potential to directly or indirectly cause alterations to historic properties, per 36 CFR § 800.16(d). In defining the APE, both direct and indirect impacts anticipated by the proposed Project were considered. As the Project entails construction of a high-cube warehouse and access road within an area bounded by industrial development, indirect effects, such as visual intrusion or noise, are considered temporary. Thus, the APE for this Project is defined as the area of direct impacts, which encompasses approximately 108 ac (see Figure 2). In regard to the vertical limits of the Project APE, ground disturbance may reach a maximum depth of 33 ft below the current grade.

1.4 REPORT ORGANIZATION

This report documents the results of the cultural resource investigation of the Project area for the proposed Banning Distribution Center Project. Chapter 1 has introduced the scope of the work, stated regulatory context, and defined an APE. Chapter 2 synthesizes the natural and cultural setting of the Project area and surrounding region. Chapter 3 presents the results of the archaeological literature and records search conducted at the Eastern Information Center (EIC) of the California Historical Resource Information System (CHRIS), housed at the University of California, Riverside. Chapter 4 summarizes the *Sacred Lands File* (SLF) search with the Native American Heritage Commission (NAHC) and Native American communications. The archaeological survey methods employed during this investigation, as well as findings are outlined in Chapter 5. Resource evaluations are provided in Chapter 6. A summary of the findings and management recommendations are included in Chapter 7, followed by bibliographic references and appendices.

2
SETTING

This chapter describes the prehistoric, ethnographic, and historical cultural setting of the Project area to provide a context for understanding the nature and significance of cultural properties identified within the Project area. Prior to a discussion of the cultural setting, the environmental setting of the area is summarized below, as the nature and distribution of human activities in the region have been affected by such factors as topography and the availability of water and biological resources.

2.1 ENVIRONMENTAL SETTING

The Project area is situated on the interfluvial plain immediately north of Smith Creek. Annual precipitation in the area ranges from 18 to 20 inches (in.). Surrounding sediments are composed of older Quaternary Alluvium deposits, derived as fan deposits from the San Bernardino Mountains to the north and possibly from the San Jacinto Mountains to the south. The Project lies within the South Coast Bioregion, and is sparsely vegetated with scrub brush and grasses. A variety of reptiles, small mammals, birds, and insects coexist within the Project area.

The natural setting of the Project area has been summarized by McLean et al. (2006). The Project is located in the San Gorgonio Pass (elevation 2,616 ft), which forms a natural break between the San Bernardino Mountains to the north and the San Jacinto Mountains to the south. It is an east-west trending lowland between the two mountain ranges. The surface of the lowland is composed of alluvial fan deposits, mainly from the San Bernardino Mountains. The northern foothills are underlain by upper Cenozoic nonmarine and marine sedimentary deposits (Morton 1999).

The San Bernardino Mountains are in the Transverse Ranges geomorphic province (Norris and Webb 1990:330). The Transverse Ranges are an east-west trending mountain range at the northeast end of the Los Angeles Basin. This range has some of the highest peaks south of the Sierra Nevada range (Norris and Webb 1990:330). The San Bernardino Mountains are about 65 mi (105 kilometers [km]) long and 30 mi (48 km) wide at their widest point. The San Jacinto Mountains are the northernmost of the Peninsular Ranges, which run 900 mi (1,500 km) from southern California to the southern tip of the Baja California Peninsula. At an elevation of 10,834 ft, San Jacinto Peak is the highest peak in the range (California State Parks 2017).

2.2 PREHISTORIC SETTING

This section describes the prehistoric cultural setting of the Project study area to provide a context for understanding the types, nature, and significance of the prehistoric cultural resources identified within the study area. The data presented herein regarding the sequence of prehistoric use, adaptation, and occupation of the interior valleys and mountain localities that include the Project study area, are summarized from a synthesis of more than 10 years of archaeological research conducted as part of the ESRP (now known as Diamond Valley Lake), located approximately 15 mi southwest of the Project area (Goldberg et al. 2001). To further understand the types and nature of the prehistoric cultural deposits identified within the Project study area within the frame of a wider geographical context, a review of the coastal (Wallace 1955, 1978; Warren 1968) and desert (Warren

1980; Warren and Crabtree 1986) regional chronologies to which most researchers have subscribed is also provided.

The prehistory of inland southern California has been less thoroughly understood than that of the adjacent desert and coastal regions. Prior to the ESRP studies, no comprehensive synthesis had been developed specifically for the interior valley and mountain localities of cismontane southern California that include the Project study area. The lack of an adequate culture history for this portion of California can be attributed to at least three major factors: (1) the nature and scope of investigations in the region, where research has been concentrated for the most part at single sites or on specific problems; (2) the complex historical sequence of investigations and discoveries, combined with a tendency on the part of many authors to explain similarities in assemblages to cultural diffusion; and (3) the confusion of typological and chronological terminology, which has led to ill-defined units that alternately describe time periods, tool morphology, social groupings, or technological adaptations (see Goldberg and Arnold 1988).

Two regional chronologies are widely cited in the archaeological literature for the prehistory of the coastal regions of southern California (Wallace 1955, 1978; Warren 1968). These chronologies are generalized temporal schemes based on the presence or absence of certain artifact types; both chronologies span the known prehistoric occupation of coastal southern California. The units used by Wallace are "horizons" or "periods," which are extensive in space but restricted in time. The units employed by Warren are "traditions," which may be spatially restricted but display temporal continuity. A more recent chronological synthesis for coastal southern California has been provided by Koerper and Drover (1983). This synthesis employs Wallace's (1955) horizon terminology, but uses radiometric data to order stylistic changes observed in the artifact assemblages, which are interpreted as temporal indications of cultural change over time.

In the absence of absolute chronological indicators for most inland sites, researchers have generally employed typological cross dating of artifact types from either coastal or desert sequences, often as the sole means for assigning age to archaeological sites within the interior valleys, including the Project area. However, two large reservoir projects, first the Perris Reservoir Project (O'Connell et al. 1974), and then most recently, the Eastside Reservoir Project (Goldberg et al. 2001), generated large data sets that have built upon one another to provide a basis for resolving some of these regional discrepancies. Thus, the following discussion of the prehistoric cultural setting for the Project study region is drawn from the cultural sequence developed for the ESRP study area. This chronology was based first on artifact cross dating and geomorphological interpretations, and then refined with radiocarbon and obsidian hydration dates (Onken and Horne 2001; Robinson 1998, 2001). The resultant chronology draws heavily on a cultural sequence defined by Warren (1984) that is based largely on archaeological work conducted in the Colorado and Mojave deserts. However, because Warren's chronology used temporal period names that suggest links to the Mojave, these were replaced in the ESRP chronology by value neutral terms.

For purposes of this report, the discussion will begin at 9500 B.P., because no evidence of the earlier Paleo-Indian Period (ca. 12,000–9500 B.P.) has been found within the vicinity of the Project study area. It should be noted however, that an isolated burial, CA-RIV-5786, was found during excavation of a portion of Salt Creek Channel near ESRP; a single radiocarbon date from this burial yielded an uncalibrated date of 7380 ± 300 B.P. (McDougall 1995).

2.2.1 Early Archaic Period (ca. 9500 to 7000 B.P.)

The Early Archaic period saw a continuation of the interior deserts having considerably higher levels of effective moisture than present (Van Devender et al. 1987). Thus, the desert interior was apparently less arid than cismontane southern California during this period, and possessed an abundance of water sources and relatively productive ecosystems and the desert interior was apparently much more favorable for human occupation than the cismontane valleys of southern California. It has been postulated that small, highly mobile groups still traveled over a wide home range utilizing highly portable tool kits to procure and process critical resources, with brief and anticipated intervals of seasonal sedentism. However, because of the arid conditions within the interior valley areas, prehistoric use of the general study area would still have been negligible; populations would still have favored the coastal or interior desert regions. Nonetheless, those populations exploiting the interior valleys would still have been tethered to the few reliable, drought-resistant water sources such as Lake Elsinore, Mystic Lake, and possibly the Cajalco Basin (Goldberg et al. 2001).

Archaeological sites documented within the vicinity of the Project study area dating to the Early Archaic or containing meager evidence suggestive of sporadic use during this time period are rare, supporting the hypothesis of negligible prehistoric use of the inland valley areas of western Riverside County during this period. Within the ESRP study area, only two site components are firmly dated to the Early Archaic. One component includes a single human burial at CA-RIV-5786 dating to 7380 ± 300 B.P. and capped by several large, highly shaped metates (McDougall 1995). The second is the lower cultural component at CA-RIV-5086, a small temporary camp dated with obsidian hydration data and stratigraphic information to the Early Archaic; this component contained a relatively sparse scatter of flaked and ground stone artifacts and faunal remains, but no cultural features, suggesting that CA-RIV-5086 was initially utilized as a resource extraction locale, possibly situated adjacent to a wetlands environment during the Early Archaic period.

Although much of the data gathered during the ESRP studies seem to corroborate the notion of sporadic use of the study region by small, highly mobile bands utilizing highly portable tool kits during the Early Archaic, the data from CA-RIV-5786, and one other site (CA-RIV-6069) investigated recently, seem to contradict this theory. Identified during the Metropolitan Water District's Inland Feeder Pipeline Project, CA-RIV-6069 is situated on an alluvial fan emanating north from the Lakeview Mountains in western Riverside County, just above the floor of the San Jacinto Valley and south of Mystic Lake; numerous springs are present along the mountain front overlooking the embayment (Horne and McDougall 2008). The cultural deposits at CA-RIV-6069 were encountered at depths ranging from 1.5 m (5 ft) to 3.9 m (13 ft) below the modern ground surface; the vertical distribution of cultural materials and features documented indicates that two distinct cultural strata representing two periods of cultural occupation are present. A more intensive cultural occupation was encountered between approximately 2.7 m (9 ft) to 3.9 m (13 ft) below the modern ground surface; eight radiocarbon assays from cultural features identified in this lower component range from 7940 to 8370 B.P. A less intensive period of site use is represented by materials and features encountered between 1.5 (5 ft) to 2.4 m (8 ft) below the ground surface; charcoal recovered from an intact fire hearth within the upper component was assayed to 2230 B.P., or to the Late Archaic Period. These data suggest that the lower component at CA-RIV-6069 is the oldest prehistoric cultural deposit ever investigated in the greater San Jacinto Valley, and among the oldest deposits ever investigated in inland southern California.

Emergency data-recovery excavations in a portion of CA-RIV-6069 yielded an extensive assemblage of flaked and ground stone tools, marine and terrestrial faunal remains, and bone and shell tools and ornaments. Additionally, 15 discrete cultural features were identified, including intact fire hearths, ground stone artifact caches, and concentrations of artifacts, fire-altered rock, and unmodified manuported cobbles representing remnants of former activity areas; 12 of these cultural features were encountered within the lower cultural component. It should also be noted that the lower component identified at CA-RIV-6069 yielded 37 intentionally molded and fired ceramic objects, possibly the oldest ceramic industry identified to date in the Western Hemisphere (Horne and McDougall 2008). As well, the presence of numerous cultural features at CA-RIV-6069, and the extreme degree of fragmentation, fire alteration, and reuse/recycling of large, highly shaped ground stone implements suggests fairly intensive residential use (either repeated or long term) of CA-RIV-6069 during the Early Archaic. The presence of several artifact caches suggests that site reuse was anticipated. Thus, CA-RIV-6069 may have been a destination point with a predictable resource base that was located on a scheduled, seasonal collecting round. Resource predictability, and the planning depth and organizational characteristics necessary to take full advantage of it, fosters expectations of site reoccupation and longer-term residential occupations.

One other site containing an Early Archaic component worthy of note is CA-RIV-2798/H, or the Lake Elsinore Site. CA-RIV-2798/H is situated at the mouth of the outlet channel of Lake Elsinore, one of the only natural lakes in southern California. Data-recovery excavations at the site, conducted in 1993 by Statistical Research, Inc., revealed stratified cultural deposits attaining depths of nearly 3 m (10 ft) and containing a fairly large assemblage of flaked stone tools (bifaces, unifaces, projectile points, small flake tools, and crescents); a variety of ground stone implements were also collected (Grenda 1997). Documented features include several fire hearths and hearth clean-out refuse deposits, rock clusters, and ground stone caches. Of the eight radiometric assays available for the site, one assay of 8400 ± 60 B.P. from marine shell, coupled with the crescents, suggests that the initial occupation of the Lake Elsinore site may have occurred during the later portion of the Early Holocene (Grenda 1997:279). Two additional radiometric assays (4800 ± 60 B.P. and 4530 ± 80 B.P.) and six dart points, as well as several cultural features indicate that the site occupation intensified during the Middle Holocene; during subsequent periods of the Late Holocene, site occupation apparently became more sporadic and less intensive (Grenda 1997:279–284).

In summary, few sites dating to the Early Archaic have been documented within the regional study area, supporting the theory of negligible use of the inland areas of southern California at this time because of arid conditions. Many of these sites contain only scant evidence of Early Archaic use in the form of obsidian hydration rind measurements, suggesting ephemeral site use by small, highly mobile groups. However, some sites dating to this time period (e.g., CA-RIV-2798/H and the lower cultural component at CA-RIV-6069) do contain evidence of fairly sedentary residential occupations, and evidence that site reuse was anticipated, suggesting a predictable availability of water and other critical resources. These sites have been found invariably near large, drought-resistant, inland water sources, and may have been destination points on a scheduled, seasonal round.

2.2.2 Middle Archaic Period (ca. 7000 to 4000 B.P.)

The Middle Archaic saw a reversal of the weather patterns which had prevailed throughout much of cismontane southern California for several millennia. By about 6000 B.P., local environmental conditions ameliorated while conditions in the deserts deteriorated, reaching maximum aridity of the postglacial period (Antevs 1955; Hall 1985; Haynes 1967; Mehringer and Warren 1976; Spaulding

1991, 1995). Spaulding (2001) proposes that a westerly air flow pattern returned to southern California, while the monsoonal weather patterns in the deserts retreated. As a result, the inland areas may have seen increased effective moisture, while the interior deserts, no longer receiving moist monsoonal flow and now in the rainshadow of the Transverse and Peninsular ranges, became quite arid. This suggests that cismontane southern California, including the Project study region, may have been a relatively more hospitable environment than the interior deserts during the middle Holocene.

Due to both the amelioration of the local environmental conditions and the deterioration of the conditions in the interior deserts, it was postulated that the inland areas of cismontane southern California would see an increase in prehistoric use and occupation after about 6000 B.P. as compared to the earlier periods (Goldberg et al. 2001). This hypothesis appears to have been validated by the ESRP studies, where at least 19 archaeological localities were dated to the Middle Archaic. These Middle Archaic components include several intensively used residential bases and/or temporary camps containing abundant cultural debris including temporally diagnostic artifacts (Pinto and Silver Lake projectile points, crescents), at least nine complex lithic scatters which appear to have functioned as resource extraction and processing sites, and one human burial covered with large rocks and ground stone artifacts. In addition, evidence of ephemeral Middle Archaic use is present at several sites in the form of isolated radiocarbon-dated features and/or sparse scatters of obsidian debitage dated by obsidian hydration methods. The more intensively used residential locations occur along alluvial fan margins, while less intensively used areas tend to be situated on arroyo bottoms or upland benches (Goldberg et al. 2001).

In coastal southern California, the early traditions gave way to what Warren refers to as the "Encinitas Tradition" by about 7000 to 8000 B.P.; Wallace's "Period II: Food Collecting" also would be subsumed under this tradition. Inland San Diego County sites dating to this period have been assigned to the "La Jolla/Pauma Complex" by True (1958). This interval has been described frequently as the "Milling Stone Horizon" because of the preponderance of milling tools in the archaeological assemblages of sites dated to this era (Basgall and True 1985; Kowta 1969; Wallace 1955).

In the coastal and inland regions of southern California, this period of cultural development is marked by the technological advancements of seed grinding for flour and possibly the first use of marine resources, such as shellfish and marine mammals. The artifact inventory of this period is similar to that of the previous period and includes crude hammerstones, scraper planes, choppers, large drills, crescents, and large flake tools. This assemblage also includes large leaf-shaped projectile points and knives; manos and milling stones used for hard-seed grinding; and likely nonutilitarian artifacts, such as beads, pendants, charmstones, discoidals, spherical stones, and cogged stones (Kowta 1969; True 1958; Warren et al. 1961).

Although sites assigned to this stage of cultural development are similar in many respects, their content, structure, and age can vary. This variability is largely due to geographical differences between the coast and interior; the primary difference between the archaeological assemblages of coastal and inland sites appears to be related to subsistence. Coastal occupants gathered fish and plant resources, while hunting was generally less important (projectile points are rare). The inland occupants primarily collected hard seeds and hunted small mammals; therefore, projectile points are more common in inland assemblages. King (1967:66–67) suggests that the coastal sites probably

represent more permanent occupations than are found in the interior, since coastal inhabitants were sustained by more reliable and abundant food resources. A more mobile subsistence round was likely necessary for inland inhabitants. It is possible, too, that inland and coastal sites of this period represent seasonal movement by the same groups of people.

These inconsistencies in content, structure, and age of sites assignable to the "Milling Stone Horizon" have been reviewed by Goldberg and Arnold (1988:12–13, 46–50). In their discussion, the presence of a single technology (the milling stone and mano) to define a temporally meaningful analytic unit of cultural development is seen to be problematic and does not explain the variability in site assemblages and dates of this period. They argue that to assign all sites that contain milling stones and manos to the period from 8000 to 2000 B.P. implies a "cultural unity" among the peoples who deposited these artifacts. However, decades of research have documented significant variability in subsistence emphasis, mortuary practices, and nonutilitarian artifacts (e.g., cogged stones, discoidals, beads), notwithstanding great similarities in one element of the tool kit—the milling stone and the mano.

In the desert regions of southern California, the "Pinto Period" succeeded the "Lake Mojave Period," beginning at approximately 7000 B.P. and lasting to 4000 or 3500 B.P. Relatively recent paleoecological and paleohydrological evidence suggests maximum aridity in the desert regions between ca. 7000 and 5000 B.P., with amelioration beginning at approximately 5500 B.P. and continuing through 4000 B.P. (Spaulding 1991, 1995). As an adaptive response to these changing climatic conditions, the Pinto Period is characterized by necessary shifts in prehistoric subsistence practices and adaptations, with greater emphasis placed on the exploitation of plants and small animals than the preceding Lake Mojave Period, as well as a continued focus on artiodactyls (Warren 1980, 1984).

The distinctive characteristics of the "Pinto Basin Complex" as defined by Campbell and Campbell (1935) are projectile points of the Pinto series, described by Amsden (1935) as weakly shouldered, indented-base projectile points that are coarse in manufacture as well as form. Other diagnostic artifact types of this period include: large and small leaf-shaped bifaces; domed and heavy-keeled scrapers; numerous core/cobble tools; large blocky metates evincing minimal wear and small, thin, extensively used milling slabs; and shaped and unshaped manos. Throughout most of the California desert region, sites containing elements of the Pinto Basin Complex (e.g., those in the Pinto Basin, Tiefort Basin, Salt Springs, and Death Valley) are small and usually limited to surface deposits suggestive of temporary and perhaps seasonal occupation by small groups of people (Warren 1984:413).

Interestingly, one site discovered during the ESRP studies evinces purely Lake Mojave and Pinto period materials. This site, CA-RIV-5045, also known as the Diamond Valley Pinto Site, is very unique in that Pinto and Lake Mojave materials are found within well-stratified, radiometrically defined cultural deposits. In addition to the numerous dart projectile points recovered indicative of the Pinto period (i.e., Pinto-series and Silver Lake-series), these deposits contain abundant and diverse faunal assemblages, an extensive array of flaked stone tools and ground stone implements, as well as intact cultural features ascribable to specific periods of occupation. Radiometric data, feature types, and artifact/ecofact assemblage characteristics indicate that CA-RIV-5045 was occupied most intensively between 6200–5600 B.P., and functioned as a winter-time residential base during this period (McDougall 2001).

As was noted earlier, it was posited that cismontane southern California would see an increase in human activity after about 6000 B.P. in response to changing environmental conditions. At this time, local environmental conditions ameliorated and conditions in the interior deserts reached the maximum aridity of the postglacial period. The number of sites dating to the Middle Archaic documented at the ESRP certainly increased during this period, and it is plausible that the apparent increase in human use and occupation of the ESRP study area during the Middle Archaic is related to both the amelioration of the local environment and the deterioration of the desert interior (Goldberg et al. 2001).

The distribution of sites and variety of site types (i.e., residential bases, temporary camps, and a variety of ephemeral resource extraction and processing sites) dating to the Middle Archaic at the ESRP suggest that overall use of the study area likely conformed to a rest-rotation collecting strategy involving relatively brief intervals of sedentism during the midwinter ebb of yearly productivity, followed by warm-season residential movements through a series of resource procurement camps in a seasonal round (Goldberg and Horne 2001). A key feature of rest-rotation collecting is a reliance on stored foods during the interval of winter sedentism. Logistic mobility, or the collection and transport of critical resources to the home residential base, also played an important role in resource procurement, especially during the interval of seasonal sedentism and consumption of stored foods. Another key feature of this strategy is the regular rotation of settlements on a yearly or multi-yearly basis to new areas to avoid the declining rates of return associated with continuous exploitation of the same areas.

It is of interest that although the indices used to measure residential mobility for the Early and Middle Archaic components documented at the ESRP study area indicate that these early components evince a more mobile land-use strategy than later periods, and that the Middle Archaic strategy registers more mobile than the Early Archaic strategy, most data convincingly show that neither of these early periods can be characterized as fully mobile. The fragmentation of bottom grinding stones (i.e., metates, milling slabs), ranging between 80 and 100 percent for nearly all ESRP components throughout prehistory, clearly indicates that occupations were fairly sedentary or that sites were consistently reused, with ground stone being cached and reused until it was no longer functional (Klink 2001a). In addition, the occurrence of artifact and toolstone caches at several Middle Archaic sites suggests that site reuse was anticipated (Horne 2001).

While most chronometric data from the ESRP Middle Archaic components are too gross to confirm whether intensified use of the ESRP study area began after the posited ca. 6000 B.P. termination of the postglacial thermal maximum, some reliable radiocarbon assays support that proposition. Dates from three separate residential components, CA-RIV-4628/H Locus A, CA-RIV-4629/H Locus B, and CA-RIV-5045 Locus B, all postdate 6000 B.P. when tree-ring calibrations are taken into account. No reliable radiocarbon samples date Middle Archaic occupation to the postglacial thermal maximum in the ESRP study area (Goldberg 2001:570).

2.2.3 Late Archaic Period (ca. 4000 to 1500 B.P.)

The Late Archaic Period was one of cultural intensification in southern California. The beginning of the Late Archaic coincides with the Little Pluvial, a period of increased moisture in the region. Effective moisture continued to increase in the desert interior by approximately 3600 B.P., and lasted throughout most of the Late Archaic. This ameliorated climate allowed for more extensive

occupation of the region. By approximately 2100 B.P., however, drying and warming increased, perhaps causing resource intensification.

At the ESRP study area, 23 archaeological localities show evidence that their primary use was during the Late Archaic, while eight others yielded evidence of some activity during the period. Late Archaic site types documented within the ESRP study area include residential bases with large, diverse artifact assemblages, abundant faunal remains, and cultural features, as well as temporary bases, temporary camps, and task-specific activity areas. In general, sites showing evidence of the most intensive use tend to be on range-front benches adjacent to permanent water sources such as perennial springs or larger streams, while less intensively used locales occur either on upland benches or on the margins of active alluvial fans (Goldberg 2001).

Evidence from the ESRP also suggests increased sedentism during this period, with a change to a semi-sedentary land-use and collection strategy. The profusion of features, and especially refuse deposits in Late Archaic components, suggests that seasonal encampments saw longer use and more frequent reuse than during the latter part of the Middle Archaic, with increasing moisture improving the conditions of southern California after ca. 3100 B.P. (Horne 2001). Drying and warming after ca. 2100 B.P. likely exacted a toll on expanding populations, influencing changes in resource procurement strategies, promoting economic diversification and resource intensification, and perhaps resulting in a permanent shift towards greater sedentism (Goldberg 2001).

Technologically, the artifact assemblage of this period was similar to that of the preceding Middle Archaic; new tools were added either as innovations or as "borrowed" cultural items. Diagnostic projectile points of this period are still fairly large (dart point size), but also include more refined notched (Elko), concave base (Humboldt), and small stemmed (Gypsum) forms (Warren 1984). Late in the period, Rose Spring arrow points appeared in the archaeological record in the deserts, reflecting the spread of the bow and arrow technology from the Great Basin and the Colorado River region. However, this projectile point type was not found at the ESRP study area, and there is no evidence suggesting that the bow and arrow had come into use at this time in the inland regions of southern California.

Concerning the cultural sequences for Late Archaic coastal sites, for the period after about 5000 B.P., Warren (1968) and Wallace (1978) diverge in their chronological sequences for the coastal regions of southern California. Warren's "Encinitas Tradition" includes all areas outside the Chumash territory of the Santa Barbara coastal zone and continues until approximately 1250 B.P. Wallace, on the other hand, identifies a transition beginning approximately 5000 B.P., marking the onset of "Period III: Diversified Subsistence." In his original 1955 sequence, Wallace said this period, generally referred to as the "Intermediate Horizon," was largely based on changes in the archaeological assemblages of sites from the Santa Barbara coastal region. This horizon is characterized by a greater variety of artifacts, suggesting a greater variety of utilized food resources. Although this interval of human occupation in coastal southern California is poorly defined and dated because of the paucity of representative sites, many researchers in southern California have retained Wallace's original "Intermediate Horizon" as a classification for sites dating between 5000 and 1500 B.P.

The subsistence base during this period broadened. The technological advancement of the mortar and pestle may indicate the use of acorns, an important storable subsistence resource. Hunting also

presumably gained importance. An abundance of broad, leaf-shaped blades and heavy, often stemmed or notched projectile points have been found in association with large numbers of terrestrial and aquatic mammal bones. Other characteristic features of this period include the appearance of bone and antler implements and the occasional use of asphaltum and steatite. Most chronological sequences for southern California recognize the introduction of the bow and arrow by 1500 B.P., marked by the appearance of small arrow points and arrow shaft straighteners.

Some archaeologists have suggested that the changes in the coastal artifact assemblages dating to this period were the result of an influx or incursion of "Shoshonean" people from interior desert areas to the coastal regions (Rogers 1929; Wallace 1978). However, there is virtually no agreement among researchers as to the timing of the initial Shoshonean incursion into the study region; estimates generally range from 1,000 to more than 6,000 years ago, and few researchers acknowledge or question the assumption that Shoshoneans arrived to the study region and replaced some other cultural group (Goldberg and Arnold 1988:50–56). Other archaeologists suggest that cultural transition from the earlier "Milling Stone Horizon" to the succeeding "Intermediate Horizon" coastal and inland assemblages reflects progressive economic changes (e.g., trade) rather than population replacement (King 1982; Koerper 1981; Moratto 1984:164).

In general, cultural patterns remained similar in character to those of the preceding horizon. However, the material culture at many coastal sites became more elaborate, reflecting an increase in sociopolitical complexity and increased efficiency in subsistence strategies (e.g., the introduction of the bow and arrow for hunting). The settlement-subsistence patterns and cultural development during this period are not well understood because of a lack of data; however, the limited data do suggest that the duration and intensity of occupation at the base camps increased, especially toward the latter part of this period.

In the eastern desert regions of southern California, the "Gypsum Period" (ca. 4000 to 1500 B.P.) is generally coeval with Wallace's "Intermediate Horizon." A trend toward increasing effective moisture, which began in the late middle Holocene, culminated in a pronounced pluvial episode between approximately 3700 and 3500 B.P. At that time, a number of basins in the Mojave and Owens river drainages supported perennial lakes (Enzel et al. 1992). No comparable events are evident earlier in the paleohydrological record, developed largely since Warren's (1984) work, that date to 5000 to 4500 B.P., the dates that encompass Warren's so-called "Little Pluvial." After the end of pluvial conditions (ca. 3500 B.P.), conditions typified by greater effective moisture appear to have persisted until approximately 3,000 years ago. An episode of aridity exceeding that of the present may have occurred about 2500 B.P., but there is evidence for increased effective moisture again between approximately 2000 and 1400 years B.P. (Spaulding 1991, 1995).

In addition to diagnostic projectile points, Gypsum Period sites include leaf-shaped points, rectangular-based knives, flake scrapers, T-shaped drills and, occasionally, large scraper planes, choppers, and hammerstones (Warren 1984:416). Manos and milling stones are also common. A technological innovation introduced during this period was the mortar and pestle, used for processing acorns and hard seeds, such as those derived from the hollyleaf cherry and mesquite pod. This correlates with a warming and drying trend that began around 2100 B.P., which appears to have resulted in resource intensification. In addition, the frequencies of grinding tools show increasing importance of plant foods throughout the Late Archaic, with a substantially greater emphasis after 2000 B.P. (Goldberg 2001). Other artifacts include arrow shaft smoothers, incised slate and

sandstone tablets and pendants, bone awls, *Olivella* shell beads, and *Haliotis* beads and ornaments. A wide range of perishable items dating to this period was recovered from Newberry Cave, including atlatl hooks, dart shafts and foreshafts, sandals and S-twist cordage, tortoise-shell bowls, and split-twig animal figurines. The presence of both *Haliotis* and *Olivella* shell beads and ornaments and split-twig animal figurines indicates that the California desert occupants were in contact with populations from the southern California coast, as well as the southern Great Basin (e.g., Arizona, Utah, and Nevada).

Technologically, the artifact assemblage of this period is similar to that of the preceding Pinto Period; new tools also were added either as innovations or as "borrowed" cultural items. Included are the mortar and pestle, used for processing hard seeds (e.g., mesquite pods), and the bow and arrow, as evidenced by the presence of Rose Spring projectile points late in this period. Ritual activities became important, as evidenced by split-twig figurines (likely originating from northern Arizona) and petroglyphs depicting hunting scenes. Finally, increased contact with neighboring groups likely provided the desert occupants important storable foodstuffs during less productive seasons or years, in exchange for valuable lithic materials such as obsidian, chalcedonies, and cherts. The increased carrying capacity and intensification of resources suggests higher populations in the desert with a greater ability to adapt to arid conditions (Warren 1984:420).

2.2.4 Saratoga Springs Period (ca. 1500 B.P. to 750 B.P.)

Because paleoenvironmental conditions were little changed from the preceding period, cultural trends in the early portion of the Saratoga Springs Period were, in large part, a continuation of the developments begun during the end of the Late Archaic Period. However, the Medieval Warm, a period of even more persistent drought, began by 1060 B.P., and conditions became significantly warmer and drier. These climatic changes were experienced throughout the western United States (Jones et al. 1999; Kennett and Kennett 2000), although the inland areas of cismontane southern California may have been less affected than the desert interior. The Medieval Warm continued through the first 200 years of the Late Prehistoric Period until approximately 550 B.P. (Spaulding 2001).

Firm evidence of Saratoga Springs Period occupation was documented at seven site components within the ESRP study area, while three other sites exhibit evidence of ephemeral use at this time. Six other localities within the ESRP study area yielded either obsidian with hydration bands suggesting Saratoga Springs age or Saratoga Springs projectile points (a large triangular form associated with use of the bow and arrow which began to appear in the ESRP study area at this time) but without evidence of sustained site use during this period. The focal shift of prehistoric activity from alluvial fan margins to mountain-front benches adjacent to permanent water sources, which was initiated during the Late Archaic, is also evidenced in the Saratoga Springs site locations (Goldberg 2001).

Within the ESRP study area, the Saratoga Springs Period is seemingly marked by a reduction in the number of refuse deposits and, to a slightly lesser extent, hearths. Interestingly, when accounting for sample size, the frequency of artifact and toolstone caches was more than doubled during the Saratoga Springs Period from the preceding Late Archaic, while the frequency of human remains reached the highest point of any time in the archaeological record. Midden-altered sediments also appear for the first time during this period (Horne 2001).

However, it is of interest that most Saratoga Springs components identified within the ESRP study area actually date to the Medieval Warm Interval; only one component did not. When components dating to the Medieval Warm segment of the Saratoga Springs Period are segregated and combined with Medieval Warm components from the Late Prehistoric Period, it reveals that the frequency of refuse deposits and artifact and toolstone caches during the Medieval Warm is slightly higher than during the Late Archaic and much higher than during the latter portion of the Late Prehistoric Period. The frequency of human remains (all of which are unburned) during the Medieval Warm is also much higher than during the Late Archaic and Protohistoric Period; no human remains were found in components of the Late Prehistoric Period after the Medieval Warm Interval (Horne 2001).

During the ESRP studies, it was anticipated that intensive use of the inland areas of cismontane southern California during the Medieval Warm may have been curtailed altogether owing to inhospitable climate and concomitant decline in water and food sources. However, while land-use and procurement strategies experienced profound changes at this time, the response to deteriorating conditions was not abandonment of the inland areas, but rather intensification. Apparently, climatic conditions of warming and drying that may have begun ca. 2100 B.P., toward the end of the Late Archaic, had already triggered an intensification process that established productive strategies for dealing with resource stress. With the onset of the Medieval Warm, those strategies were further refined and intensified (Goldberg 2001).

Not only did the data indicate that the ESRP study area was used on at least a semi-permanent basis during the Medieval Warm Interval, but that residential bases show evidence (e.g., refuse deposits, midden development) that activities intensified at those settlements. People were also intentionally caching toolstone and ground stone tools, suggesting that they anticipated returning to the same locations. Characteristics of the ESRP ground stone assemblages from the Medieval Warm demonstrate that plant foods were more important than in any other period; plant processing intensified and acorns apparently became an important staple (Klink 2001a). The faunal assemblages also show that resource stress was accommodated with similar strategies by intensifying the use of lagomorphs and by further expanding diet breadth, adding animals (i.e. medium-sized carnivores) to the diet that were rarely consumed during other periods (McKim 2001). The most abundant evidence of trade also occurs in the Medieval Warm components identified at the ESRP, suggesting that this was another mechanism for dealing with resource stress (Goldberg 2001).

However, two factors identified during the ESRP studies indicate that these adaption strategies may not have been completely successful in dealing with the resource stress brought about by the Medieval Warm. First, the indices which differentiate degrees between planned and actual mobility indicate that occupations were considerably shorter than had been anticipated during the Saratoga Springs Period. Substantially long-term occupation at any given location may have been difficult given the presumably low levels of environmental productivity at this time. This suggests that not only were conditions harsh, they may also have been unpredictable. This may account for a larger number of residential locations than had been anticipated, a pattern in response to arid conditions that has also been identified on the central California coast (Lebow 2000). Second, while the burial population discovered throughout the ESRP study area was surprisingly small, the relative proportion of those from the Medieval Warm Interval is higher than any other time period (Horne 2001).

Throughout much of the California desert regions to the east, the Saratoga Springs Period saw essentially a continuation of the Gypsum Period subsistence adaptation. Unlike the preceding period, however, the Saratoga Springs Period is marked by strong regional cultural developments, especially in the southern California desert regions, which were heavily influenced by the Hakataya (Patayan) culture of the lower Colorado River area (Warren 1984:421–422). Specifically, turquoise mining and long distance trade networks appear to have attracted both the Anasazi and Hakataya peoples into the California deserts from the east and southeast, respectively, as evidenced by the introduction of Buff and Brown Ware pottery and Cottonwood and Desert Side-notched projectile points. The initial date for the first Hakataya influence on the southern Mojave Desert remains unknown; however, it does appear that by about 1000 to 1100 B.P. the Mojave Sink was heavily influenced, if not occupied by, lower Colorado River peoples.

Lake Cahuilla is believed to have refilled the Coachella Valley around 1450 B.P., and was the focus of cultural activities such as exploitation of fish, water fowl, and other lacustrine resources during this period. Desert people, speaking Shoshonean languages, may have moved into southern California at this time; the so-called "Shoshonean Intrusion." Brown and Buff Ware pottery first appeared on the lower Colorado River at about 1200 B.P., and started to diffuse across the California deserts by about 1100 B.P. (Moratto 1984:425). Associated with the diffusion of this pottery were Desert Side-notched and Cottonwood Triangular arrow projectile points dating to about 800 to 850 B.P., suggesting a continued spread of Hakataya influences.

However, about 1060 B.P., environmental conditions became notably warmer and drier. This period of intense drought, the Medieval Warm, extended throughout the Southwest, and led to the withdrawal of Native American populations from marginal desert areas to more reliable, drought-resistant water sources such as the Colorado River and Lake Cahuilla, the episodic presence of which was not climatically controlled but dependent upon natural discharges from the Colorado River, and which experienced two, if not three, high stands during the Medieval Warm Interval (Waters 1983).

Along the southern California coastal regions, reliance on the bow and arrow for hunting, along with the use of bedrock mortars and milling slicks, mark the beginning of the tradition denoted as the "Late Prehistoric Horizon" by Wallace (1955) and the "Shoshonean Tradition" by Warren (1968), dating from about 1500 B.P. to the time of Spanish settlement (approximately A.D. 1769). Late prehistoric coastal sites are numerous. Diagnostic artifacts include small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, and numerous and varied bone tools, as well as bone and shell ornamentation. Elaborate mortuary customs, as well as generous use of asphaltum and the development of extensive trade networks, are also characteristic of this period.

In the Santa Barbara coastal region, the Late Prehistoric Horizon appears to represent increases in population size, economic complexity, social complexity, and the appearance of social ranking. King (1990) posits that the mortuary practices of the Intermediate and Late Horizons throughout Chumash territories evince social ranking and that beads were used to confer status. Similarly, craft specialization on the northern Channel Islands has been linked to expanding economic capacities and emerging social ranking during the Late Period (Arnold 1987). Although the motivating forces for such trends have yet to be identified with certainty, some researchers have suggested that economies controlled by social elites spurred increasing economic productivity and resultant population growth (Clewlow et al. 1978; King 1990). More recently, archaeologists have linked past changes in

subsistence, population, exchange, health, and violence to periods of drought and resource stress that occurred during the Medieval Warm Interval (Arnold 1992a, 1992b; Arnold et al. 1997; Jones et al. 1999; Larson 1987; Moratto et al. 1978).

2.2.5 Late Prehistoric Period (ca. 750 B.P. to 400 B.P.)

The Medieval Warm extended into the Late Prehistoric Period, ending about 550 B.P. The cultural trends and patterns of land use that characterized the Medieval Warm Interval, including that portion which extends into the earlier part of the Late Prehistoric Period, were discussed above. At the end of the Medieval Warm, however, and lasting throughout the ensuing Protohistoric Period (410–150 B.P.), a period of cooler temperatures and greater precipitation ushered in the Little Ice Age during which time ecosystem productivity greatly increased along with the availability and predictability of water (Spaulding 2001).

Also during this period, Lake Cahuilla began to recede (Waters 1983), and the large Patayan populations occupying its shores began moving eastward to the Colorado River basin or westward into areas such as Anza Borrego, Coyote Canyon, the Upper Coachella Valley, the Little San Bernardino Mountains, and the San Jacinto Plain (Wilke 1976: 172–183). The desiccation of Lake Cahuilla that occurred approximately 370 B.P. (A.D. 1580) resulted in a population shift away from the lakebed into the Peninsular Ranges and inland valleys to the west, and the Colorado River regions to the east.

With the return of more mesic conditions after approximately 550 B.P., resulting in less resource stress, the ESRP studies show that people returned to a less intensive, semi-sedentary land-use strategy similar to that identified for the Late Archaic Period. Within the ESRP study area, evidence of intensive occupation dating to the Late Prehistoric Period occurs at five residential sites comprising 16 separate components; all of these coincide with sites that were occupied during earlier periods, and all are situated on elevated bedrock benches near active springs and overlook the valley floor (Goldberg 2001).

By segregating those components dating to the Medieval Warm Interval from other Late Prehistoric components, the differences between land-use strategies for these periods can be demonstrated. The ESRP studies show that after the Medieval Warm Interval there was a quite unexpected reduction in the number and frequency of refuse deposits, as well as fire-altered rock weight and midden development. The number and frequency of artifact and toolstone caches were also reduced, while hearth features were slightly more common. Rock art also first appeared in association with Late Prehistoric components which post-date the Medieval Warm Interval. The decrease in the number of artifact and toolstone caches and the first appearance of rock art during this period suggests that residential sites may have been occupied year-round (Horne 2001).

Mortars and pestles and other grinding tools also declined in importance after the Medieval Warm in the ESRP site components, suggesting that the intensive procurement and processing of acorns and other plant foods was no longer as critical as previously; this pattern is further supported by a decline in the effort expended in shaping grinding tools (Klink 2001a). A reduction in emphasis on plant foods, and especially acorns, which require intensive preparation, likely accounts for the reduction in refuse deposits, fire-altered rock weights, and midden development at the end of the Late Prehistoric. It is possible that the portable milling toolkit was supplemented substantially by bedrock milling features which are ubiquitous throughout the study area; however, since bedrock features cannot be

dated, they cannot be assigned to any particular time period(s). Percentages of projectile points also increased somewhat after the Medieval Warm (Cottonwood Triangular points began to appear in inland assemblages at this time, and Obsidian Butte obsidian became much more common), suggesting increased focus on large mammals, but the lower ratio of late-stage bifaces indicates that hunting methods returned to random-encounter strategies, rather than the logistical forays of the preceding period (Klink 2001b). Of particular note, faunal assemblages produced an anomalously high lagomorph index after the Medieval Warm, suggesting a very wet climatic regime with dense undergrowth well suited to cottontails (McKim 2001). Finally, the percentage of nonutilitarian artifacts declined considerably, suggesting that trade was no longer critical for assuring food supplies (Klink 2001c).

2.2.6 Protohistoric Period (ca. 400 to 150 B.P.)

The ameliorated, productive conditions of the Little Ice Age continued throughout the Protohistoric Period. Generally speaking, sedentism intensified during the Protohistoric Period, with small, but apparently fully sedentary villages forming. Increased hunting efficiency (through use of the bow and arrow) and widespread exploitation of acorns and other hard nuts and berries (indicated by the abundance of mortars and pestles) provided reliable and storable food resources. This, in turn, promoted greater sedentism. Related to this increase in resource utilization and sedentism are sites with deeper middens, suggesting central-based wandering or permanent habitation. These would have been the villages, or *rancherias*, noted by the early nonnative explorers (True 1966, 1970).

Within the ESRP study region, the most striking change in material cultural in this period was the local manufacture of ceramic vessels and ceramic smoking pipes. Although pottery was known in the Colorado Desert as long ago as 800 B.P., ceramic technology in the Project region appears to date to around 350 B.P. Also during this interval, abundant amounts of obsidian were imported into the region from the Obsidian Butte source which was exposed by the dessication of Lake Cahuilla. In addition, Cottonwood Triangular points were supplemented by Desert Side-notched points during this period. Late in this period, some European trade goods (i.e., glass trade beads) were added to the previous cultural assemblages (Meighan 1954).

Based on work in the San Luis Rey River Basin in northern San Diego County, Meighan (1954), True (1970), and True et al. (1974, 1991) have defined two Late Prehistoric/Protohistoric Period complexes that are worthy of mention. The "San Luis Rey I Complex" existed from approximately 600 to 250 B.P., and is typified by grinding implements, small (Cottonwood) triangular projectile points with concave bases, stone pendants, *Olivella* shell beads, quartz crystals, and bone tools. The "San Luis Rey II Complex," lasting from about 250 to 150 B.P., is very similar, but with the addition of ceramic vessels (including cremation urns), red and black pictographs, glass beads, metal knives, and steatite arrow straighteners. True et al. (1974) believe that the San Luis Rey complexes developed out of the earlier La Jolla/Pauma cultural substratum, and are the prehistoric antecedents to the historically known Luiseño Indians.

The Hakataya influence in coastal and inland southern California regions appears to have diminished during the late Protohistoric Period when the extensive trade networks along the Mojave River and in Antelope Valley appear to have broken down, and large village sites were abandoned (Warren 1984:427). Warren (1984:428) suggests that the apparent disruption in trade networks may have been caused by the movement of the Colorado River basin Chemehuevi populations southward across the trade routes during late Protohistoric Period.

Within the ESRP study area, all five village clusters located on elevated bedrock surfaces near active springs and overlooking the valley floor that were occupied during the Late Prehistoric saw continued occupation in the Protohistoric Period. Most archaeological data from the ESRP Protohistoric site components indicate that a fully sedentary land-use strategy was adopted during this period. Given the spatial coincidence of the Protohistoric villages with residential sites of the Late Prehistoric Period, this sedentism appears to have been a further intensification of patterns established in the earlier period. At that time, resource stress did not appear to have been an issue; resource niche widths were expanded, and intensive resource processing that had been required during the Medieval Warm Interval appeared not to have been necessary. However, even though the climatic conditions of the Little Ice Age afforded a very productive environment during both the Late Prehistoric and Protohistoric periods, land-use strategies intensified during the later period. The use of plant food increased, as did the intensity of the processing effort. The Protohistoric Period exhibited the highest ranks for fire-altered rock and midden development, as well as rock ring foundations for brush dwellings, storage facilities, and ceremonial areas with rock art and rock enclosures; overall, there was a fluorescence of feature types and numbers at this time (Horne 2001). The faunal data for this period indicate a decrease in faunal diversity, and signify a reduction in diet breadth as well as greater intensification (McKim 2001).

The intensification in land use during the Protohistoric Period seen in the ESRP assemblages mirrors changes that occurred at the end of the Late Archaic when it is hypothesized that the collecting strategy evolved from rest-rotation to semi-sedentary. Climatic degradation causing resource stress beginning about 2100 B.P. is thought to have triggered that shift. If the environment during the Protohistoric Period was just as productive as during the earlier portion of the Little Ice Age (Late Prehistoric Period), what then accounts for land-use intensification at this time? Apparently resources were stressed again, but not by deteriorating productivity of the environment. Rather, population growth probably led to competition for food, and possibly water and fuel resources. While preceding periods of stress could have been relieved by expansion of territory and diet breadth, increasing populations would have precluded the opportunity for territory expansion. Therefore, it is hypothesized that the shift to a fully sedentary strategy was brought about by population stress, which itself was initiated during the Late Prehistoric Period when the environment was productive and populations were very successful at exploiting that productivity (Goldberg 2001).

Other archaeological patterns exhibited by the ESRP Protohistoric components were likely a result of sedentism and protection of territories. As it is today, logistical mobility would have become essential for provisioning fully sedentary communities. With lower temperatures during the Little Ice Age but no source of fuel wood in or near the ESRP study area, procurement of fuel may have become an increasingly important element of logistical provisioning. Although there was a fluorescence of feature types and numbers at the ESRP sites dating to the Protohistoric Period, the number of artifact and toolstone caches reached an all-time low; toolstone and artifact caches would no longer have been required because there were year-round occupants at residential bases. Due to increased territoriality, resource intensification would have been required because territorial and resource niche-width expansion was no longer viable. Likewise, along with increasing territorial circumscription would have come the inevitable fact that residential bases were occupied longer than the inhabitants had originally anticipated; moving the residential base may no longer have been an option. As well, trade and ceremonial gatherings with other groups would have helped maintain social relationships and ensure food resources. Finally, sedentism and the need to protect critical resources from competitors may have eventually led to conflict. Protohistoric patterns of raw

material procurement indicate that desert materials (obsidian and chert) gained prominence, while other relatively closer sources of exotic raw materials from the west (basalt, andesite, rhyolite, metavolcanic rock, and Piedra de Lumbre "chert") were little used, suggesting that territorial boundaries, at least to the west, had become established. While there was no direct evidence of physical conflict at any of the ESRP sites, the locations of villages on elevated bedrock surfaces overlooking the valley may have been designed to afford views of intruders; an increase in projectile points may reflect a need for defensive weapons (Goldberg et al. 2001).

2.3 ETHNOGRAPHIC SETTING

The Project area lies immediately west and north of the Morongo Indian Reservation. The Morongo Band of Mission Indians are a mixture of several different groups of California Native Americans, including Cahuilla, Serrano, and Cupeño. The native languages spoken by these groups are all part of the larger Takic family of Uto-Aztecan languages. An ethnographic overview of each of these groups if provided below.

2.3.1 Cahuilla

Ethnographically, the Project area lies within the traditional territory of the Pass (or *Wanakik*) Cahuilla. A wealth of information exists regarding traditional and historic Cahuilla society and culture (Bean 1978; Bean and Toenjes 2011). The Cahuilla language, divided into Desert, Pass, and Mountain dialects, has been assigned to the Cupan subfamily of the Takic branch of the Uto-Aztecan linguistic family. Territory traditionally claimed by the Cahuilla was topographically complex, including mountain ranges, passes, canyons, valleys, and desert. Bean (1978:375) described it as, "…from the summit of the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, a portion of the Colorado Desert west of Orocopia Mountain to the east, and the San Jacinto Plain near Riverside and the eastern slopes of Palomar Mountain to the west."

The Cahuilla in precontact times had nonpolitical, nonterritorial patrimoieties that governed marriage patterns, as well as patrilineal clans and lineages. The Cahuilla words for these moieties mean "Coyote" and "Wildcat." The Cahuilla had "political-ritual-corporate units (clans) composed of 3 to 10 lineages, dialectically different, named, claiming a common genitor, with one lineage recognized as the founding one" (Bean 1978:580). Clans owned a large territory in which each lineage owned a village site with specific resource areas. Clan lineages cooperated in defense, in large communal subsistence activities, and in performing rituals. Founding lineages often owned the office of ceremonial leader, the ceremonial house, and a ceremonial bundle (Bean 1978:580). Settlements, occupied by one or more lineages, could be politically autonomous or allied with several villages under one chief. The hereditary chiefs had religious, economic, and military power and were role models for their people. They were aided in their duties by one or more assistants. The chiefs and their families, along with the very wealthy, were the elites of the society. The acquisition of wealth was important, but the acquisition of extreme material wealth was prevented by the custom of burning or burying the possessions of the deceased.

The Cahuilla were, for the most part, hunting, collecting, harvesting, and protoagricultural peoples. Clans were apt to own land in valley, foothill, and mountain areas, providing them with the resources of many different ecological niches. Individual lineages or families owned specific resource areas within the clan territory. Although any given village had access to a wide array of necessary

resources, briskly flourishing systems of trade and exchange gave them access to the resources of their neighboring villages and of distant peoples. Rules that forbade marriage to anyone related within five generations or belonging to the same moiety ensured that everyone had relatives living in many ecozones, an important arrangement because relatives were invited to ceremonies. The ceremonial exchange of gifts between hosts and guests under the direction of the chiefs and shamans at such events provided a way for drought-stricken groups to get food in exchange for treasure goods. Thus, oscillations in the subsistence goods supply were dampened by "banking" human effort in the production of treasure goods.

As in most of California, acorns were a major staple, but the roots, leaves, seeds, and fruit of many other plants also were used. Fish, birds, insects, and large and small mammals were available. Mountain sheep, deer, and antelope were some of the large mammals hunted. When filled, Lake Cahuilla was on the Pacific Flyway for migratory birds; hence, ducks, geese, and other migratory birds would have been caught. Mountain lion, black bear, grizzly bear, deer, and wild boar also were hunted in historic times.

To gather and prepare various food resources, the Cahuilla had an extensive inventory of equipment. Bows and arrows were the most important hunting tools, but traps, nets, disguises, blinds, throwing sticks, and slings were also part of the hunting technology. For fishing; nets, traps, spears, hooks and lines, and fish poisons were used. Gathering required few tools: poles for shaking down pine nuts and acorns, cactus pickers, chia hooks, seed beaters, digging sticks, weights for digging sticks, and pry bars. Materials associated with transportation mainly were used to move food and include burden baskets, carrying nets, game bags, and saddle pads. Some food was stored in large baskets. Pottery ollas and baskets treated with asphaltum were used to store and carry water and seeds. Wood, clay, and steatite were used to make jars, bowls, and trays. Skin and woven grass were used to make bags. Food processing required hammers and anvils for cracking nuts; mortars and pestles for grinding acorns; manos and metates for grinding seeds and berries; winnowing shells and baskets; strainers; leaching baskets and bowls; knives of stone, bone, wood, and carrizo cane; bone saws; and drying racks made of wooden poles to dry fish. Basket mortars, with asphaltum or pine pitch used to attach an open-bottomed basket to a mortar, were important for food processing. Food was served in wooden and gourd dishes and cups and in basket bowls that were sometimes tarred. Wood, shell, and horn were used for spoons.

Cahuilla shelters were often made of brush, fan palm fronds, or arrowweed. In prehistoric times they were dome-shaped; later they tended to be rectangular. Near such dwellings usually stood brush-covered ramadas under which domestic chores were done. Earth-covered sweathouses for purification and curing rituals and ceremonial houses with fenced areas for ceremonial use were found in most villages. The chief's house was the largest and was usually next to the ceremonial house. Each village also had several granaries (Bean 1978:578).

The Cahuilla, like other California Indians, understand the universe in terms of power. They assume power to be the principal causative agent for all phenomena. Power is believed to be sentient and to have will. Unusual natural phenomena are viewed as especially sacred, being the repositories of concentrations of power. Mountaintops, and especially particular mountaintops, are held sacred, as are unusual rock formations, springs, and streams. Rock art sites are sacred, having been the sites of ceremonies. Burial and cremation sites are also sacred, as are many other places of residual power. Various birds, especially eagles, condors, hawks, and other birds of prey are revered as sacred beings

of great power and sometimes were killed ritually and mourned in mortuary ceremonies similar to those for important individuals. For this reason, bird cremation sites are sacred.

As part of his doctoral research, Wilke (1976) examined Cahuilla oral tradition as it related to the prehistoric lakeside adaptation of Lake Cahuilla. Ethnographic sources indicate that during the 1853 Pacific Railroad Survey expedition, W. P. Blake, while encamped at a Cahuilla village about 10 mi south of the present City of Indio, inquired if the Indians had any knowledge of the lake that formerly stood in the Salton Basin. The head man of the village related to Blake a tradition of a great water which filled the basin and abounded in fish and waterfowl (Wilke 1976:7). The head man stated that his people's ancestors then lived in the mountains (presumably the Santa Rosa Mountains to the west) and came down to the lake to fish and hunt. After a time the water receded, and they moved their villages down from the mountains onto the exposed lakebed (Wilke 1976:8). Later the Cahuillas told ethnographer Stephen Bowers that their ancestors had formerly caught fish in the lake with "stone fish traps" along the foot of the San Jacinto and Santa Rosa mountains (Wilke 1976:8). As well, Bowers was informed that when the lake receded, Coyote (a mythical character to many Native American groups) came down from the mountains and planted mesquite beans on the lakebed so that mesquite thickets would grow and help feed the people (Wilke 1976:9). These fragments of oral literature, coupled with archaeological data collected over the years, attest to the economically rich resource base that Lake Cahuilla offered to the local inhabitants of the region.

European contact with the Cahuilla was by the Juan Bautista de Anza expedition, which passed through the region in 1774. Initially, the Indians were hostile to the Europeans. Subsequently, the Europeans used sea routes to populate California because the land route had been closed by the Quechan Indians in 1781. The Cahuilla, therefore, had little direct contact with Europeans except for those baptized at missions in San Gabriel, San Luis Rey, and San Diego and, thus, integrated into the mission system. In 1819, several *asistencias* were established near the Cahuilla area; Cahuillas became partially involved with the Spanish and adopted some Spanish economic practices such as cattle raising, agriculture, trade, and wage labor, as well as cultural traits such as clothing styles, language, and religion. Some Cahuilla worked seasonally for the Spaniards and lived for the remainder of the year in their villages. At the time of the American invasion of California, the Cahuilla still maintained their political and economic autonomy.

2.3.2 Serrano

The Project area lies within the ethnographic territory of the Serrano. The name Serrano comes from a Spanish word meaning "mountaineer" or "highlander." The Serrano language is considered part of the Takic subfamily of the larger Uto-Aztecan language family that includes a number of language groups. Other Takic speakers include the Gabrielino, Luiseño, and Cahuilla, whose territories share borders with the Serrano. The Serrano culture area extends from the San Bernardino Mountains, south to Yucaipa Valley, east to the Mojave River watershed, and north to the Twentynine Palms region (Bean and Smith 1978:570). Most Serrano village sites were located in the foothills of the upper Sonoran zone with a few outliers located near permanent water sources on the desert floor, or in the forest transition zone.

Traditional Serrano territory includes areas occupied by three clan groups, the Kitanemuk, Allikik and the Vanyume. The Kitanemuk were located on the upper Tejon and Paso creeks near the Tehachapis and extended into the western portion of the Mojave Desert. The Allikik were located on the upper Santa Clara River and the Vanyume were located along the Mojave River (Johnston

1965:1). These politically independent clan groups also belonged to one of two basic subdivisions or exogamous moieties, the Coyotes and Wildcats. The clans were divided into land holding lineages. Each of these lineages had a chief determined by heredity called the *kika*. The chief's assistant was the *paha*, who assisted him in ceremonial, political and economic affairs (Bean and Smith 1978:572).

The Serrano traded with the Mojave to the east and the Gabrielino to the west. They also traded with their close neighbors, the Cahuilla and Chemehuevi. Obsidian source analysis has shown that traders traveled from the California coast to Arizona, probably reaching Nevada, and areas north of the Mojave Desert. Family members usually exchanged goods at trade feasts, social events, and ceremonial occasions (Bean and Vane 2002:14).

Prior to European contact, the Serrano were primarily hunters and gatherers. Women were responsible for most of the gathering and acorns, piñon nuts, and mesquite beans were collected as staple foods. Other resources included roots, bulbs, shoots, and seeds. Digging sticks were frequently used to dig for plants and roots for subsistence and medicinal purposes (Johnston 1965:8). One main seed resource was chia. Stands of chia were periodically burned in order to increase yield. Desert groups moved seasonally from the desert into the foothills to collect nuts and trade for resources that were not available in the desert (Bean and Smith 1978:570; Bean and Vane 2002:13). The Serrano also hunted large game animals such as deer, mountain sheep and antelope. Hunting was usually done by men using bows and arrows, although smaller game like rabbits, rodents, and various birds, were hunted with throwing sticks, nets, and snares.

When the Spanish arrived in 1769, Serrano population levels were fairly high. By 1790, the westernmost Serrano groups began to enter Mission San Gabriel. After an attempted revolt in 1810, most of the San Bernardino Mountains and the western Mojave Desert Native groups were brought into the mission. The Serrano in the easternmost desert, beyond the San Bernardino Mountains and Little San Bernardino Mountains, were beyond the reach of the mission, and absorbed a number of those who fled the missions (Bean and Vane 2002:18). It has been suggested that the Serrano left the area in the early 1860s when a smallpox epidemic struck the Indians of southern California, although the isolation of the area should have protected them.

The Maringa were the most important Serrano clan and they occupied a large area in the Morongo Valley. The Maringa exerted a powerful ceremonial influence in the region (Johnston 1965:4). The Maringa were presumably living in the Mission Creek area before the 1870s. According to Cahuilla traditions, the Maringa replaced the Cahuilla who had been living there. Members of the Maringa clan intermarried with the Gabriel family (the ceremonial leader of the Wanikik Cahuilla), and had moved to the Potrero, or Malki, by the 1870s. John Morongo, a leader of the group, played a leading role in the affairs of the newly established Morongo Indian Reservation. It is believed that the Serrano left the Mara (Twentynine Palms) area because of pressure from settlers and miners. Many Serrano settled in Mission Creek and Potrero, on what is now the Morongo Indian Reservation. These areas were relatively richer in plant and animal resources than areas farther east in the desert. They were also closer to job opportunities with Anglo employers (Bean and Vane 2002:18).

2.3.3 Cupeño

The Cupeño are considered one of the smallest linguistic groups in southern California (Bean and Smith 1978). The traditional territory of the Cupeño is located near the headwaters of the San Luis

Rey River in northern San Diego County. Today, there are several Native American groups (Pala Band of Luiseño Indians, the Morongo Band of Mission Indians, and the Los Coyotes Band of Cahuilla and Cupeño Indians) that include Cupeño members.

As discussed by Bean and Smith (1978:588), Cupeño social organization reflects an amalgamation of several different groups that dates back at least 800 years. Cahuilla elements of social organization found among the Cupeño include exogamous moieties, patrilineal clans, and ceremonial exchange parties. The Cupeño also practice some Chingichngish religious rituals that were acquired from the Luiseño, with additional ceremonies adopted from the Ipai.

Ethnographic information on the Cupeño indicates that clans owned the most productive food-gathering spots with communal ownership of intervening areas for hunting and gathering. The head of each clan lived in the clan's ceremonial dance house and was responsible for keeping the clan bundle. A hereditary office that usually passed from father to eldest son, the duties of the clan leader included controlling trade with non-Cupeño groups, overseeing the production and distribution of goods, regulating intra- and interclan relationships, and organizing ceremonies (Bean and Smith 1978:588-589). Clan leaders could also be shamans.

In terms of ritual, the most significant ceremonies for the Cupeño were those held in connection with deaths in the clan. Immediately following the death of an individual, the body was burned. This was followed by the burning of the deceased's possession a few weeks to several months later. An annual or biannual image-burning ceremony was held at a later point in which images of all those who had died since the last ceremony were burned (Bean and Smith 1978:589). Another ceremony held in memory of the dead was the eagle-killing ritual, which was held once a year.

2.4 HISTORICAL SETTING

This historic context focuses on the exploration, settlement, and development of the region since the Spanish period of occupation in Southern California beginning in 1769 and continuing through the American Period which began in 1848. From there, the discussion turns to a more localized historical background focused specifically on the Banning area where the Project is located. The following discussion is primarily based on Brackett (1939), Dallas (1955), Gunther (1984), Holtzclaw and Fox (2007), Rawls and Bean (1998), Robinson (1957), and Rolle (1978).

2.4.1 Spanish Period, 1769 to 1822

The Historical Period in California formally began in 1769 with the Spanish occupation of Alta California and the founding of the San Diego de Alcala mission in San Diego when written records began to be compiled. The years 1769 to 1822 represent the Spanish Period in California.

Exploration of the California coastline by ship during the sixteenth and seventeenth centuries was the basis for the Spanish claim to most of Alta and Baja California at that time. While a number of explorers and their men came ashore periodically, they did not venture a great distance inland. In the eighteenth century, Spain recognized that to strengthen its claim to the region, it would have to establish settlements along the northern coastline of Alta California to preclude encroachment by the Russian and British fur-traders entering the region from the north. Therefore, in the latter half of the eighteenth century, Spain and the Franciscan Order founded a series of presidios, or military camps, and missions along the California coast, beginning with the founding of Mission San Diego de

Alcala in 1769. They proceeded to establish a military presidio at Monte Rey (present-day Monterey) in northern California in 1770, their fourth mission at San Gabriel in 1771, and a fifth mission at San Luis Obispo by 1772. However, providing supplies, animals, and colonists to the Spanish missions and presidios by way of ship was difficult, time-consuming, expensive, and dangerous. Thus, an overland route was necessary to initiate a strong colonizing effort in Alta California.

In 1774, Captain Juan Bautista de Anza crossed the San Jacinto plains with a small party of soldiers and servants. Anza's expeditionary force crossed the Cahuilla Valley, skirted the Santa Rosa Mountains, made their way up through Coyote Canyon, descended into the San Jacinto Valley via Bautista Creek, and trekked northwest across the San Jacinto Valley into Moreno Valley. From there, the expedition passed through the Riverside area and crossed the Santa Ana River near present-day Jurupa, then continued on northwest to reach the mission at San Gabriel.

Riverside County lacked a mission proper, but remained connected to the California presidio and mission system through Franciscan outposts known as ranchos and *asistencias*. The Riverside area was considered to be a part of the San Diego District, a military designation associated with the San Diego presidio; most of the territory fell under the authority of the Mission San Luis Rey. Founded in 1798, Mission San Luis Rey was the 18th of California's 21 missions. During much of the Spanish Period, European settlement in Riverside County was slow and sporadic. By the end of the Spanish Period, few Europeans had settled permanently within the region. The cattle grazing lands associated with Mission San Luis Rey encompassed most of the San Jacinto Valley. The broad grasslands of these areas were used to graze the Mission's livestock.

The San Timoteo Canyon and San Gorgonio Pass were once under the jurisdiction of the Mission San Gabriel's San Bernardino Rancho (Gunther 1984:458, 487–488). The Canyon and Pass areas provided fresh water and grassland ideal for cattle grazing. An outpost, or *estancia*, for cattle grazing activities was established near the mouth of San Timoteo Canyon in 1819. Native American labor was used to dig an irrigation ditch, or *zanja*, to divert water from Mill Creek to the outpost to support farming and horticulture. The majordomo Juan Alvarado relocated the *estancia* to a new site approximately one mile to the east in 1830, where he constructed a 14 room complex of adobe and timber.

2.4.2 Mexican Period, 1822 to 1848

In 1821, after 10 years of intermittent rebellion and warfare, Mexico and the territory of California won independence from Spain. On December 15 of that same year, the Mexican *Cortes* (the legislative body of the Mexican government) ended the older regime's strict isolationist policies that were designed to protect the traditional Spanish monopoly on trade and decreed that California ports (namely San Diego and Monterey) be open to foreign merchants (Dallas 1955:14).

Following the Secularization Act of 1833, which called for the immediate privatization of Franciscan lands, the Mexican government secularized all of the California missions. During the two-year period of 1834 to 1836, this radical process quickly and effectively reduced the missions to parish churches. Although the original secularization schemes called for redistribution of mission lands to those Native Americans who were responsible for the physical construction of the mission empire, the vast mission land and livestock holdings were redistributed by the Mexican government into several hundred land grants privately owned by Mexican citizens (Langum 1987:15–18). These

landowners subsequently released their neophyte Native American "workers" to fend for themselves. During the resultant Mexican Rancho Period (1834–1848), livestock and horticulture dominated the economics of Southern California. Ranchos were predominately devoted to the cattle industry and large tracts of land were used for grazing.

The City of Banning was never part of any Mexican Rancho; the nearest occurrence of these Rancho lands was at nearby San Timoteo Canyon and in the San Jacinto Valley; the San Gorgonio Pass area was never claimed under Mexican rule. The vast grazing lands of the Mission San Luis Rey, comprising over 133,000 ac covering the San Jacinto Valley and beyond, were divided among members of the Estudillo family into three Mexican Ranchos: Rancho San Jacinto Viejo was granted to José Antonio Estudillo in 1842; Rancho San Jacinto Sobrante to his daughter, María del Rosario Estudillo, in 1846; and Rancho San Jacinto Nuevo y Potrero to his son-in-law, Miguel Pedrorena, in 1846 (Robinson 1997:143–161).

Jose del Carmen Lugo, Jose Maria Lugo, Vincente Lugo, and Diego Sepulveda were granted title to the Mission San Gabriel's San Bernardino Rancho by the Mexican Governor of California in 1842. Jose del Carmen Lugo repaired the abandoned *estancia* near Redlands, which included the adobe and timber residence, a grist mill, a tile kiln, and a lime kiln, and resided there until 1851 (San Bernardino County Museum 2014). James "Santiago" Johnson, an Englishman, requested and received the grant of the lands in San Timoteo Canyon from Mexican Governor Manuel Micheltorena in 1843 (Gunther 1984:488). The 4,440-ac area was known as the Rancho San Timoteo or "Rancho San Jacinto y San Gorgonio." Johnson sold the land two years later to Louis Rubidoux, although local cattle ranchers Isaac "Julian" Williams and Powell "Paulino" Weaver applied to the grant themselves in 1845, arguing to Governor Pio Pico that Johnson was not making proper use of the land; never occupying it and never improving it (Gunther 1984:459).

2.4.3 American Period, 1848 to Present

With the signing of the Treaty of Guadalupe Hidalgo in 1848, which ended the Mexican-American War, California entered into the American Period and, in 1850, became a recognized state in the United States. During the late 1840s, there began the decline of old California's cattle ranching industry, which for over half a century represented the currency and staple of the rancho system. By the 1850s to 1860s, cattle ranching in the general region had greatly declined, and ranchos changed ownership regularly. Through the years, settlement continued to develop across the inland valleys of what would eventually become western Riverside County. With the influx of new settlers and decline of the cattle industry, some of the larger ranchos were subsequently subdivided into smaller parcels. In 1852, San Diego organized into a county; in 1853, San Bernardino followed suit. Riverside County would be formed in 1893, carved out of portions of San Bernardino and San Diego counties.

The completion of the Southern Pacific (SP) Railway's transcontinental railroad in 1869 opened California to agricultural settlement and brought the previous era of large-scale ranching to a close. The arrival of the SP across the San Gorgonio Pass and into the San Bernardino Valley resulted in a dramatic influx of new settlers into what is now western Riverside County. The Riverside Colony was founded in 1870, and agricultural lands in the region quickly began to be settled by homesteaders. The Riverside Land and Irrigating Company soon established a series of canal systems, tapping water from the Santa Ana River. With this much-needed water supply, the settlers could focus on irrigation and agriculture. Perhaps one of the most influential early settlers in western

Riverside County during this period was Eliza Tibbets who planted the first two navel orange trees, acquired from Brazil, in the Riverside Colony. Mrs. Tibbets' oranges flourished and provided the bud grafts for the Washington Navel Orange, setting the foundation for western Riverside County's highly successful citrus industry.

During the 1880s and 1890s, similar to the phenomena occurring in the area surrounding the Riverside Colony, irrigation canals were built and the regional citrus industry took root in the fertile valleys of the surrounding region. The arrival of reliable water sources coincided with the arrival of a second transcontinental railroad; in 1882, construction of a competing rail line into Southern California was underway, financed by the Atchison, Topeka, and Santa Fe Railway Company. The line of a Santa Fe subsidiary, the California Southern, was built from San Diego to the site of Perris and on to Riverside and San Bernardino in 1882. A second Santa Fe subsidiary, the Atlantic and Pacific Railroad, extended a line west from Albuquerque, then connected San Bernardino and Los Angeles; this connection was opened as of May 1887. The eastern United States was now readily accessible via Los Angeles. The establishment of a second competing railway line from the Midwest to Los Angeles in 1886 triggered a land boom in southern California during the late 1880s, which finally brought substantial settlement to the region.

Population rose dramatically as railroads, citriculture, ranching, and readily available land enticed more Americans and Europeans to settle in southern California. By the late 1880s and early 1890s, conflicts and discontent between the cities of Riverside and San Bernardino led to the establishment of a new county. Portions of the Temecula and San Jacinto valleys, then in San Diego County, joined with the residents of Riverside to form a new county seat in May 1893, leading to the formation of Riverside County.

During the years from about 1908 through American entry into World War I in 1917, there was renewed interest in farm settlement and farming in California and elsewhere in the western U.S. This was reflected in a sharp surge in Homestead filings on remaining public lands in rural California at that time. There was an increase in the turnover of property during that time, including the purchase of farms by individuals making a move from the city to the country. Two factors that helped contribute to this kind of move were the increased use of the automobile, which decreased the isolation of rural living, and the brighter financial prospects for farming during the World War I years. The outbreak of war in Europe in 1914 drove international commodity prices sharply upward, providing a bonanza for grain farmers.

The decade of the 1920s offered regional urban growth in southern California that was helpful to many farmers in the region. However, it also brought sustained national declines in the prices of many agricultural commodities due to major increases in agricultural production in the U.S. and elsewhere. Turnover in land ownership during the 1930s and the eventual recovery of agricultural prices by the eve of World War II (WWII) was followed by the disruptions of the exodus of younger people into military service or leaving to work in urban areas. Water from the Colorado River Aqueduct was piped to the region beginning in the early 1940s. Alfalfa, potatoes, watermelons, and sugar beets soon after became the mainstay of farming in many parts of the region.

The post-WWII era ushered in a boom in commercial, industrial, and residential development in and near the region's urban centers, followed by the construction of several freeways linking urban areas to one another. As urban areas were spread outward by development, once-rural areas took on a

more semi-rural character, dotted by small "mini-ranch" subdivisions. In more recent years, housing and urban development have spread outward from urban areas and swallowed up former agricultural land at an exponential rate, forever changing the character of the region. Substantial growth over the last few decades has necessitated the construction of numerous artificial lakes, reservoirs, and other forms of municipal water storage. During the first decade of 2000, inexpensive land and housing transformed many of the towns in southwestern Riverside County into "bedroom" communities for those working in Los Angeles and San Diego Counties. Increased population and automobile traffic has resulted in the need for construction of new roads, as well as expansion and improved safety of many of the pre-existing roads throughout the region. The over-expansion of the housing market, and ultimate crash in 2007, led to a shift in the region's development trend in recent years to increase infrastructure projects to support the population growth.

2.4.4 City of Banning

Banning is located in the San Gorgonio Pass, the principle opening in the Coast Range (between the San Bernardino Mountains to the north and the San Jacinto Mountains to the south) that allows east/west travel between the coast and desert regions. As such, it was the route of early trails and stage roads, as well as the Southern Pacific Railroad and US Interstate Highway 10.

The Land Office survey map from 1855 depicts no settlement in the area, but a wagon road is shown traversing Sections 9 and 10 and joins an "Old Indian Trail" in the southwest corner of Section 12, just north of what is now Smith Creek. One habitation, labeled as Holt's House, was located to the northwest of the area where Banning would later be located (GLO 1880).

In the 1870s, the construction of the Southern Pacific Railroad through the San Gorgonio Pass drew further settlement to the area (see Section 2.4.5). In 1875, Milton Sanders Hall contracted with the Southern Pacific to grade the railroad route through the San Gorgonio Pass. In the same year, he agreed to provide the wood needed for the railroad ties, and also to power the steam engines used by the construction crews. Timber was available in the San Jacinto Mountains. Hall found a location for a lumber camp (Hall's Camp) near what is now called Hurley Flats. He laid out a road from the camp to the base of the mountain, which became Hall's Grade. It was a steep, narrow road with several switchbacks. A small town, Hall's City, was established at the base of the road. The lumber operation was initially successful, but the road was extremely dangerous for the men and teams hauling the logs down the mountain:

> Several teamsters hauled lumber down the grade to the railroad. This was rather a daredevil job, for besides the regular brakes and roughlocks they had to tie logs and trees on behind loads to drag in the dirt and thus keep the loads off the rumps of the horses. Yet even then there were accidents. At least two men lost their lives on the downward trip, and several teams and wagons were dashed to destruction [Hughes, in Lech 2004:252].

Ultimately the operation failed. The costs to harvest and transport the timber were too high for any profits to be made. Hall then began a second venture, the San Gorgonio Fluming Company, to bring lumber to the railroad from Moore Canyon, approximately 12 mi north of the railroad grade. A "massive, eighteen-inch V-shaped flume" was constructed to bring the lumber to the railroad (Lech 2004:253).

Banning, originally Moore City, was founded in early 1877, near the "confluence" of the railroad and the flume (Lech 2004:254). By July of the same year, the name was changed to Banning. In 1884,

the Banning Water Company was formed; it constructed a flume along San Gorgonio Street from Water Canyon to Banning (Hughes 1938:203).

The 1886 Land Office map clearly shows Banning located north of the Southern Pacific Railroad, as a town of about four blocks east/west and three blocks north/south. The Banning Land and Water Company flume is depicted traveling north from town along what is now San Gorgonio Avenue. Grain fields and isolated cabins and houses are depicted around Banning, particularly southwest of town. The Bradshaw Stage Route, which was located north of Banning, is no longer shown on the map (GLO 1886). The first commercial grain crop was barley; subsequently both oats and wheat were also successful cash crops (Hughes 1938:205). At the same time that farmers and ranchers settled in Banning, it also became known as a health resort. In 1888, the town was described as "unsurpassed" as a resort, with water "as pure as ever flowed from Nature's fountain" (quoted in Lech 2004:259). In 1890, the Sisters of St. Joseph founded the St. Boniface Indian School near Banning (Deferrari 1942:541).

Incorporated in 1913, Banning was similar to many other small towns throughout California and the country, proud of every achievement, eager for further growth and development in a positive way, and full of hope for the future. Banning continued to grow both as an agricultural area and as a resort. In the 1920s, Banning population was around 3,000 (Banning Chamber of Commerce 1927:np). In that decade, almond trees, at the peak of their success in California, were grown on approximately 1,000 ac in and around Banning; the area was considered the largest almond-growing region in southern California (Holtzclaw 2005:25, 41). At the same time, Banning had maintained its reputation as a "health haven…as attested by the sanitariums and private rest homes in and near the city" (Hughes 1938:205).

The news of the construction of the Colorado River Aqueduct by the Metropolitan Water District (MWD) was well received in Banning. In anticipation of the economic boost the city would receive, "Banning staged a victory jubilee in celebration of the voting of bonds for aqueduct construction" (Hughes 1938:59). The MWD field headquarters were located at the intersection of San Gorgonio Avenue and the Union Pacific Railroad. Construction work for MWD headquarters began in 1932.

Through the years of the Great Depression, Banning was home to the MWD engineer's field office. In addition the concrete testing laboratory was located in Banning. Boring the San Jacinto Tunnel began in 1933 and continued until the "holing through" on November 18, 1938. The tunnel was then lined with concrete; on October 14, 1939, a ceremony marking the official completion of the aqueduct was held at the West Portal of the San Jacinto Tunnel (Gruen 1998). During these seven years, the headquarters provided a boost to the local economy, as did the construction workers who lived in the town and commuted to work.

At the beginning of WWII, General George C. Patton established a Desert Training Center in the Mojave Desert in eastern Riverside and San Bernardino counties. In Banning, a 1,000-bed hospital, aid station, and artillery range contributed to the training effort. During the war, 1.6 million people moved to California to work in war industries, and many of the servicemen trained in the state settled here after the war was over (Starr 2005:237). By 1962, California had the highest population of any state. The region experienced a boom in housing subdivisions, commerce, and industry. The city of Banning, positioned along the Southern Pacific Railroad and U.S. Highway 60/70/99, grew substantially during the post-war boom period (USGS 1956). Banning also appealed to the elderly

and became known as a retirement community during the 1960s. Sun Lakes Country Club, a large retirement village, is home to about 6,000 residents (Holtzclaw 2005:8).

2.4.5 Rail Line Development and the Southern Pacific Railroad

As industry began to boom in southern California, transportation needs to ship the products to consumer markets also grew. In conjunction with a few backers, Theodore Judah formed the Central Pacific Railroad Company in 1860 in an effort to establish a shorter railroad from Sacramento to the mines in Nevada through the Sierra Nevada (Orsi 2005). Collis P. Huntington, Mark Hopkins, Charles Crocker, and Leland Stanford, known as the "Big Four," joined forces with Judah in 1861 to finance and establish the company (Orsi 2005). The Big Four eventually ousted Judah from the Board of Directors of the Central Pacific Railroad, and successfully completed the construction of the Central Pacific Railroad. The Union Pacific Railroad was constructing tracks from the east at that time, with the intent to join the Central Pacific Railroad in the Great Basin. On May 10, 1869, Stanford drove the "golden spike" in the railroad, which successfully completed the first transcontinental railroad (Orsi 2005). Other companies were formed and other routes were sought in an effort to break up the monopoly established by the Big Four.

Through acquisition and mergers of several small local railroads, the Central Pacific Railroad allowed for comprehensive travel within the state. The Big Four acquired the rights to the Southern Pacific Railroad in 1868, thus securing a southern transcontinental railroad and eliminating a competing route. The proposed Southern Pacific Railroad line would run from Los Angeles to Yuma, through Colton, Indio and the San Gorgonio Pass, eventually meeting with a line coming from the eastern seaboard (Orsi 2005). Construction of the railroad in the Banning area began in 1875. Much of the workforce on the railroad was composed of men of Chinese and Mexican descent, many of whom were housed in Banning. The influx of laborers spurred the development of commercial ventures of the downtown Banning area.

Although the Southern Pacific Railroad did not initially establish a depot at Banning, small stations and telegraph offices were built in the nearby communities of San Gorgonio (Beaumont) and Cabazon. In 1878, the railroad built a station southwest of downtown Banning and installed an agent and telegraph operator. Around 1890, the Southern Pacific Railroad began running a local train between Los Angeles and Banning called the "Banning Flyer." The Banning Southern Pacific Railroad depot burned down in 1963.

2.4.6 Banning Municipal Airport

In 1927, the Banning Kiwanis Club established an airport for Banning on approximately 70 ac of land purchased from the Southern Pacific Railroad (Bitetti and Bitetti 2013:27). The airport was named Rodgers Airport after Cal Rodgers, who landed his plane in Banning during the first transcontinental flight in 1911 (Bitetti and Bitetti 2013:27). Tickets for the dedication held on July 4, 1928, advertised an air circus and auto races (Williams 2007:np). Events included "a non-stop race from Los Angeles to Banning, a 50-mi race around the airport, balloon fighting, [and] parachute spot landing" (Hughes 1938:202). Following its annexation by the City of Banning in the mid-1930s, the airport was improved and enlarged to 127 ac.

During WWII, the Army Air Forces controlled the airport (http://www.militarymuseum.org/BanningAP.html). While under military control, the facility was known as Banning Landing Strip. In 1943, the U.S. Army conducted a training program in airport construction at the Banning Landing Strip for Army engineers. Known as *Project X: How to Build an Air Field in Italy*, the program

resulted in improvements to the runway with the extension of the paved landing strip to 5,200 ft. Aside from the landing area, no other facilities appear to have been present at the airport at this time. Following the end of WWII, control of the airport reverted back to the municipal government. In the following decade, the City of Banning made a number of infrastructural improvements to the airport. The 1956 USGS topographic quadrangle map for Cabazon, California (1:24,000) depicts an aircraft parking apron, communication fan beacon, two buildings, and a road in the northwest corner of the airport. A historical aerial photograph indicates that by 1967, taxiways, the terminal building, and four aircraft hangars were constructed on the property south of the runway (NETR Online 2016). Several additional hangars appear to have been built at the airport in the late 1980s and early 1990s.

3
SOURCES CONSULTED

Various sources were consulted as part of cultural resource study. A detailed discussion of the sources consulted and results of these investigations are provided below, as well as in subsequent sections of this report that discuss the historical development of the Project APE.

3.1 CULTURAL RESOURCES LITERATURE AND RECORDS SEARCH

Prior to implementing the cultural resources survey of the Project APE, a cultural resources literature and records search of the CHRIS was conducted on May 4, 2016, at the EIC, housed at the University of California, Riverside. The objective of the records search was to determine whether any prehistoric or historic-period resources had been previously recorded within or near the Project APE. The scope of the records search included the Project APE and all the land within a one-mile radius of the Project APE. Results of this search indicate that no less than 40 cultural resource investigations have been conducted within a one-mile radius of the Project APE between 1978 and 2015 (Table 1). Five of these previous studies encompass portions of the Project APE, and one of these studies (RI-08449) included the entire Project APE, accounting for 100 percent of the APE being previously surveyed (Table 1).

Table 1
Previous Cultural Studies within One-Mile of Project APE

Author(s)	Date	EIC Reference #	Title	Summary of Work
Brown, Mary A.	1978	RI-00339	Archaeological Assessment of Tentative Parcel Map 10436, Gavilan Hills, Riverside County, California	No resources
Napton, L. Kyle and E. A. Greathouse	1982	RI-01476	Cultural Resource Investigations – Morongo Indian Reservation, California	One resource
Yohe, Robert M.	1985	RI-01964	Environmental Impact Evaluation: An archaeological Assessment of 320 acres of Land Located in the San Gorgonio Pass Area of Riverside County, California	One resource
LSA Associates, Inc.	1991	RI-01965	Cultural Resource Report for Section 106 Compliance: Cobblestone Resort and Fairways Project, Tract No. 26460, Riverside County, California	No resources
Underwood, J.; J. Cleland; C.M. Wood; R. Apple	1986	RI-02210	Preliminary Cultural Resources Survey Report for the US Telecom Fiber Optic Cable Project, From San Timoteo Canyon to Socorro, Texas; The California Segment	No acres surveyed, 13 resources
Apple, R.M.; J.E. Wooley	1988	RI-02350	MCI Rialto to El Paso Fiber Optics Project - Intensive Cultural Resource Survey - San Bernardino and Riverside Counties, California	400 acres surveyed, 11 resources
Duffield, Anne Q.	1989	RI-02590	Archaeological Reconnaissance of the 200 Acre Morongo Valley Sand and Gravel, Inc. Lease Area on the Morongo Indian Reservation, Riverside County, California	No resources

Table 1 (continued)

Author(s)	Date	EIC Reference #	Title	Summary of Work
Hogan, Michael	1992	RI-03014	Cultural Resources Assessment: Pipeline Right-Of-Way, Morongo Indian Reservation, Cabazon Area of Riverside County, California	No acres surveyed, no resources
McDonald, Meg; Michael Rodarte; Daniel McCarthy	1996	RI-03999	An Intensive Survey of Smith Creek Park, City of Banning, California	120 acres surveyed, 2 resources
Dillon, Brian D.	1998	RI-04077	Cultural Resource Assessment, Banning Wastewater Treatment Facility Improvement Project, City of Banning, Riverside County, California	25 acres surveyed, no resources
Mason, Roger; Philippe Lapin; Brant A. Brechbiel	1998	RI-04119	Cultural Resources Records Search and Survey Report for a Pacific Bell Mobile Services Telecommunications Facility: CM426-05, City of Banning, California	No acres surveyed, no resources
Self, William	2000	RI-04427	Inspection of Pipeline Relocation Areas in Union Pacific Railroad Corridor, Riverside and San Bernardino Counties, CA.	1,360 acres surveyed, 2 resources
Drover, Christopher E.	1990	RI-04428	An Archaeological Assessment in Sections 2 and 12 of the Morongo Indian Reservation Riverside County, Banning, California.	900 acres surveyed, no resources
Jones and Stokes Associates, Inc.	1999	RI-04430	Cultural Resources Inventory Report for Williams Communications, Inc. Fiber Optic Cable System Installation Project, Riverside, CA to the CA/AZ Border, Riverside, San Bernardino, & Imperial Counties, CA, Vol I-III	25 acres surveyed, 10 resources
Padon, Beth	2003	RI-04777	Archaeological Survey of 6-Acre Parcel, Smith Correctional Facility, Riverside County	No resources
Dice, Michael	2005	RI-06098	Phase I Cultural Resources Survey Report for Parcel #532-025 Located at Hathaway and Wesley, City of Banning, California	~5 acres surveyed, one resource
Taniguchi, Christeen	2004	RI-06099	Letter Report: Records Search Results and Site Visit for Sprint Telecommunications Facility Candidate RV60XC847A (Creeken Property) 60 South Aola Street, Banning, Riverside County, California	No resources
Pollock, Katherine H.; Michael K. Lerch	2005	RI-06853*	Archaeological Survey of the Stubby and Townhall Transmission Lines, Banning to Desert Hot Springs, Riverside County, California	No acres surveyed, 9 resources
Patterson, Joshua	2007	RI-07101	Archaeological Survey Report for, Southern California Edison Company, Deteriorated Poles #1780186E and #1780188E on the , Devers-Banning-Windpark-Zanja 115kV Circuit Project, Riverside County, California, (WO#4570-0081, JO#2155 & #2156).	~1 acre surveyed, no resources
Holmes, Amy; Marcey Rockman	2007	RI-07215	Results of Cultural and Paleontological Resources Due Diligence Constraints Analysis for the Approximately 115-Acre Banning Property, City of Banning, Riverside County, California	115 acres surveyed, no resources

Table 1 (continued)

Author(s)	Date	EIC Reference #	Title	Summary of Work
Tang, Bai "Tom"; Josh Smallwood; Melissa Hernandez	2007	RI-07339*	Identification and Evaluation of Historic Properties: Wastewater Treatment Plant Expansion and Recycled Water System, City of Banning, Riverside County, California	~16 acres surveyed, 2 resources
Beedle, Peggy	2008	RI-07751	Historic Structures Evaluation for the El Casco to Banning Substation Area of the CPUC's Northerly Route, Segment 2 of the El Casco System Project	68 resources
McLean, Roderic, Shannon Carmack, Jay Michalsky, and Judith Marvin	2008	RI-08011	Final Cultural Resource Assessment, A Study of the Past in San Timoteo Canyon and San Gorgonio Pass: Oak Valley Substation Project, Riverside County	No resources
McLean, Roderic, Shannon Carmack, Phil Fulton, Maria Aron, Jay Michalsky, Daniel Ewers, Casey Tibbet, and Brook Smith	2008	RI-08012	Supplemental Cultural Resource Assessment, Oak Valley Substation Project, San Bernardino and Riverside Counties	58 resources
Jacquemain, Terri, Daniel Ballester, and Laura H. Shaker	2009	RI-08246	Identification and Evaluation of Historical Properties: Assessor's Parcel Nos. 541-200-009, -010, -015, and -016, US Department of Health and Human Services Grant No. C76HF09417, City of Banning, Riverside County, California	No resources
Shaver, Noelle C., Theodore G. Cooley, and Stacey Jordan	2009	RI-08249	Cultural Resources Survey and Evaluation for the Granite Construction Liberty Quarry Project, Riverside County, California (Addendum Report)	5 resources
Eckhardt, William T., Kristen E. Walker, and Richard Carrico	2004	RI-08409	Draft Cultural Resources Inventory of the Proposed Vista to Devers Transmission Line, Riverside and San Bernardino Counties, CA	1518 acres surveyed, 11 resources
Tang, Bai "Tom", Michael Hogan, Josh Smallwood, and Terri Jacquemain	2004	RI-08449*	Cultural Resources Technical Report, City of Banning General Plan	2 resources
Tang, Bai "Tom"	2011	RI-08531	Letter Report: Historic Building Evaluation, 280 E. Ramsey Street, Assessor's Parcel No. 541-183-004, City of Banning, Riverside County, California	No resources
Eckhardt, William T., Stacie Wilson, Carol Serr, and Karolina Chmiel	2009	RI-08574	Final Cultural Resources Inventory of the Proposed SCE Devers to Valley Substation Project, Riverside County, California	5 resources
Crawford, Kathleen A.	2010	RI-08578	Letter Report: Cultural Resource Records Search and Site Visit Results for T-Mobile Candidate IE24909-F (Repplier Park), 201 West George Street, Banning, Riverside County, California	No resources
Bonner, Wayne H. and Arabesque Said	2011	RI-08668	Letter Report: Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidates IE24909-H	No resources
Bonner, Wayne H. and Sarah A. Williams	2012	RI-08839*	Letter Report: Cultural Resources Records Search and Site Visit Results for Sitemaster, Inc. Candidate CA201 (Banning Eon)	No resources

Table 1 (continued)

Author(s)	Date	EIC Reference #	Title	Summary of Work
Williams, Sarah and Wayne H. Bonner	2012	RI-08852*	Letter Report: Cultural Resources Records Search and Site Visit Results for Sitemaster, Inc. Candidate CA201 (Banning Eon)	No resources
Gust, Sheri, Amy Glover, Melinda Horn, and Kim Scott	2011	RI-08890	Cultural Resources Monitoring Compliance Report Morongo Geotechnical Testing Project	No resources
DeCarlo, Matthew M., Scott C. Justus, and William T. Eckhardt	2013	RI-08981	Summary Class III Cultural Resource Inventory, Proposed Southern California Edison Devers-Palo Verde II 500 kV Transmission Line Project, Riverside County, California	6,673 acres surveyed, 22 resources
McLean, Roderic, Natalie Brodie, Jacqueline Hall, Shannon Carmack, Phil Fulton, Ingri Quon, Erin Martinelli, Richard Erickson, and Jay Michalski	2013	RI-09167	Cultural Resources Assessment and Class III Inventory Volume I West of Devers Project, San Bernardino and Riverside Counties, California	49 resources
Hoffman, Laura	2014	RI-09303	Archaeological Survey Report for the Southern California Gas Company Line 5000 Exposure Repair Project, Morongo Indian Reservation, Riverside County, California	No resources
DeCarlo, Matthew M. and Diane L. Winslow	2015	RI-09385	Engineering Refinement Survey and Recommendation of Eligibility for Cultural Resources with Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California	No resources
Morgan, Christopher	2014	RI-09403	Archaeological Survey Report for the Southern California Edison Company Replacement of Two Deteriorated Power Poles on the El Casco-Banning-Bottle Windfarm 115kV Circuit TD826055 TL, Riverside County, California	No resources

*Studies within the Project APE

As a result of these and other similar studies, no less than 197 cultural resources have been documented within a one-mile radius of the Project APE (Table 2). The vast majority of these (n = 150) are built-environment resources that consist of historical residences and other standing buildings in the City of Banning. Additional historical built-environment resources include power transmission and telecommunications lines, the Southern Pacific & Union Pacific Railroad, and the old Banning-Idyllwild Road. A total of 34 historical archaeological resources has been recorded within the record search area and include refuse scatters, USGS survey markers, building foundations, water conveyance features, corrals and fence lines, roads, and quarries.

Twelve prehistoric archaeological resources have been documented within a one-mile radius. These resources include two "Indian Villages" that were documented in 1966 southwest of the current Project area; recorders noted that the resource was probably destroyed by residential development in the area (Johnstons 1966a; Johnstons 1966b). Other known prehistoric resources include five

isolated bedrock milling sites, one bedrock milling site with petroglyphs, one rockshelter with an associated isolated mano, and three isolated artifacts (olla, metate, and mano). One multi-component site consisting of a prehistoric bedrock milling slick and historical refuse scatter was also documented within the one-mile radius. Most of the prehistoric sites are located south of the Project area along the foothills of the San Jacinto Mountains, where bedrock outcrops are abundant, suggesting that the larger village site was surrounded by specialized resource procurement sites.

Table 2
Cultural Resources within One-Mile of the Project APE

Primary	Trinomial	Resource	Description
P-33-000254	CA-RIV-254	Prehistoric Archaeology	Isolated artifact - olla
P-33-000372	CA-RIV-372	Prehistoric Archaeology	"Indian Village"
P-33-000373	CA-RIV-373	Prehistoric Archaeology	"Indian Village"
P-33-001401	CA-RIV-1401	Prehistoric Archaeology	Bedrock milling slick
P-33-001403	CA-RIV-1403	Prehistoric Archaeology	Bedrock milling site with 2 basins and 11 slicks
P-33-007885	CA-RIV-5847	Prehistoric Archaeology	Bedrock milling site with milling features and petroglyph
P-33-015104	CA-RIV-9191	Prehistoric Archaeology	Bedrock outcrop with one milling slick
P-33-015655	—	Prehistoric Archaeology	Bedrock milling slick
P-33-015760	—	Prehistoric Archaeology	Isolated artifact – metate
P-33-016964	—	Prehistoric Archaeology	Rockshelter with mano
P-33-017592	CA-RIV-9120	Prehistoric Archaeology	Bedrock milling site with three slicks
P-33-020324	—	Prehistoric Archaeology	Isolated artifact – granitic mano
P-33-015102	CA-RIV-9192	Prehistoric & Historical Archaeology	Multicomponent site with prehistoric bedrock milling slick and historic refuse scatter
P-33-003443	CA-RIV-3443	Historical Archaeology	Refuse scatter
P-33-003444	CA-RIV-3444H	Historical Archaeology	Refuse scatter, foundation, grove; possible Banning Station
P-33-012626	—	Historical Archaeology	Isolated artifact – scatter of amethyst glass
P-33-015293	—	Historical Archaeology	Isolated artifact – 11 pieces of amethyst glass
P-33-015294	—	Historical Archaeology	Isolated artifact – 5 pieces of amethyst glass
P-33-015847	CA-RIV-8227	Historical Archaeology	Building foundations
P-33-015848	CA-RIV-8228	Historical Archaeology	Building foundations
P-33-016025	—	Historical Archaeology	Rock and cement-lined flood control channel

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-016026	—	Historical Archaeology	1950s concrete and brick outdoor oven
P-33-016207	—	Historical Archaeology	Building foundations and landscape features
P-33-016208	CA-RIV-8364	Historical Archaeology	Refuse scatter
P-33-018645	—	Historical Archaeology	Isolated artifact – cobalt medicinal bottle
P-33-018646	—	Historical Archaeology	Isolated artifact – brown bottle base
P-33-018647	—	Historical Archaeology	Isolated artifact – porcelain plate fragment
P-33-022289	—	Historical Archaeology	Isolated artifact – metal can
P-33-022292	—	Historical Archaeology	Isolated artifact – clear medicinal bottle
P-33-022293	—	Historical Archaeology	Isolated artifact – clear perfume bottle and metal tricycle wheel
P-33-022294	—	Historical Archaeology	Isolated artifact – 1917 USGS survey marker
P-33-022295	—	Historical Archaeology	Isolated artifact – 1917 USGS survey marker
P-33-022296	—	Historical Archaeology	Isolated artifact – 1917 USGS survey marker
P-33-022297	—	Historical Archaeology	Isolated artifact – 1917 USGS survey marker
P-33-022305	—	Historical Archaeology	Isolated artifact – 1917 USGS survey marker
P-33-022342	—	Historical Archaeology	Isolated artifact – metal rectangular can
P-33-022346	CA-RIV-11396	Historical Archaeology	ditch/irrigation system
P-33-022370	CA-RIV-11421	Historical Archaeology	Refuse scatter
P-33-022371	CA-RIV-11422	Historical Archaeology	Refuse scatter
P-33-022376	CA-RIV-11428	Historical Archaeology	Paved road and structural debris associated with 1950s sand quarry
P-33-022387	CA-RIV-11439	Historical Archaeology	Refuse scatter
P-33-022388	CA-RIV-11440	Historical Archaeology	Refuse scatter
P-33-023917	—	Historical Archaeology	Isolated artifact – ceramic insulator
P-33-024005	CA-RIV-11798	Historical Archaeology	Corrals and fencelines
P-33-024006	CA-RIV-11799	Historical Archaeology	Rock and concrete drainage structure
P-33-024008	CA-RIV-11800	Historical Archaeology	Ranch and refuse scatters
P-33-024009	CA-RIV-11801	Historical Archaeology	Refuse scatter

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-007879	—	Historical Built Environment	Henderson Building; Reid Building
P-33-007880	—	Historical Built Environment	Coplin House/Spokane Hotel
P-33-008332	—	Historical Built Environment	70 East Barbour Street
P-33-008333	—	Historical Built Environment	225 East Barbour Street
P-33-008334	—	Historical Built Environment	391 East Barbour Street; Russell Jones House
P-33-008335	—	Historical Built Environment	434 East Barbour Street; Russell Jones House
P-33-008336	—	Historical Built Environment	451 East Barbour Street
P-33-008337	—	Historical Built Environment	933 East Barbour Street; Davis Home
P-33-008338	—	Historical Built Environment	1487 East Barbour Street; D. Frank Southworth House
P-33-008345	—	Historical Built Environment	215 East George Street
P-33-008346	—	Historical Built Environment	272 East George Street; Karl Brown Home
P-33-008347	—	Historical Built Environment	779 East George Street; Rose House
P-33-008350	—	Historical Built Environment	1228 South Hargrave Street; George Parker House
P-33-008351	—	Historical Built Environment	175 West Hays Street; Banning Women's Club
P-33-008352	—	Historical Built Environment	322 East John Street
P-33-008356	—	Historical Built Environment	150 East Ramsey Street; The San Gorgonio Inn; The Bryant House
P-33-008357	—	Historical Built Environment	84 West Ramsey Street; Fox Theater; Corety Building
P-33-008358	—	Historical Built Environment	225 West Ramsey Street; Hotel Banning
P-33-008360	—	Historical Built Environment	Banning High School
P-33-008362	—	Historical Built Environment	40 South San Gorgonio Avenue; Holcomb Building
P-33-008363	—	Historical Built Environment	717 South San Gorgonio Avenue; Conrad Graf House
P-33-008399	—	Historical Built Environment	132 East Wesley Street; building no longer exists
P-33-008400	—	Historical Built Environment	270 East Wesley Street, J.R. Fountain Residence
P-33-009096	—	Historical Built Environment	170 West Williams Street; Mary Ellis Home
P-33-009097	—	Historical Built Environment	161 West Williams Street; Banning Unified School District Offices
P-33-009098	—	Historical Built Environment	486 West Williams Street; Charlie Morris House

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-009099		Historical Built Environment	Williams Street
P-33-009105	—	Historical Built Environment	125 North 1st Street
P-33-009106	—	Historical Built Environment	144 North 1st Street
P-33-009107	—	Historical Built Environment	157 North 1st Street
P-33-009108	—	Historical Built Environment	160 North 1st Street
P-33-009109	—	Historical Built Environment	111 North 2nd Street; Saint Agnes Church; Grace Lutheran Church
P-33-009111	—	Historical Built Environment	235 North 2nd Street; United Methodist Church
P-33-009112	—	Historical Built Environment	115 North 3rd Street; Dr. Ryan Home
P-33-009113	—	Historical Built Environment	180 North 3rd Street; Methodist Parsonage
P-33-009115	—	Historical Built Environment	384 North 3rd Street; Samuels home
P-33-009116	—	Historical Built Environment	524 North 3rd Street
P-33-009117	—	Historical Built Environment	181 North 4th Street; F. F. Lemon Home
P-33-009118	—	Historical Built Environment	416 North 4th Street; Osborne House
P-33-009124	—	Historical Built Environment	94 King Street
P-33-009125	—	Historical Built Environment	58 West King Street
P-33-009126	—	Historical Built Environment	943 Linda Vista Drive
P-33-009127	—	Historical Built Environment	946 Linda Vista Drive
P-33-009129	—	Historical Built Environment	160 West Ramsey Street
P-33-009130	—	Historical Built Environment	170 West Ramsey Street
P-33-009131	—	Historical Built Environment	185 West Ramsey Street; Mason Moore Building
P-33-009132	—	Historical Built Environment	141 North San Gorgonio Avenue; Tri City Stationary; Hendrick's Market
P-33-009133	—	Historical Built Environment	375 North San Gorgonio Avenue; American Legion Hall
P-33-009134	—	Historical Built Environment	25 South San Gorgonio Avenue; Odd Fellows Building
P-33-009135	—	Historical Built Environment	873 North 1st Street
P-33-009136	—	Historical Built Environment	889 North 1st Street
P-33-009137	—	Historical Built Environment	901 North 1st Street

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-009138	—	Historical Built Environment	933 North 1st Street
P-33-009139	—	Historical Built Environment	961 North 1st Street
P-33-009140	—	Historical Built Environment	978 North 1st Street
P-33-009141	—	Historical Built Environment	1051 North 1st Street
P-33-009142	—	Historical Built Environment	1119 North 1st Street
P-33-009154	—	Historical Built Environment	169 West Ramsey Street; Banning City Hall
P-33-009155	—	Historical Built Environment	260 West Ramsey Street
P-33-009156	—	Historical Built Environment	330 West Ramsey Street; Banning Medical Clinic
P-33-009163	—	Historical Built Environment	65 North San Gorgonio Avenue; Berlin Building
P-33-009164	—	Historical Built Environment	125 North San Gorgonio Avenue; Hazel's Thrift Shop; U. S. Post Office
P-33-009165	—	Historical Built Environment	137 North San Gorgonio Avenue; Stagecoach Press Building; B. D. Wilson Building
P-33-009166	—	Historical Built Environment	1023 North San Gorgonio Avenue; John Moore House
P-33-009167	—	Historical Built Environment	1111 North San Gorgonio Avenue
P-33-009177	—	Historical Built Environment	185 West Westward Avenue
P-33-009178	—	Historical Built Environment	116 North 4th Street
P-33-009179	—	Historical Built Environment	141 North 4th Street
P-33-009498	CA-RIV-6381H	Historical Built Environment	Southern Pacific & Union Pacific Railroad
P-33-011280	CA-RIV-6727	Historical Built Environment	Old Banning-Idyllwild Road
P-33-015035	—	Historical Built Environment	Devers-San Bernardino 220kV; Chino-Hayfield 220kV transmission line
P-33-015183	—	Historical Built Environment	371 East Wesley Place; Boyd Residence
P-33-015184	—	Historical Built Environment	315 East Wesley Street; Meriwether Residence
P-33-015185	—	Historical Built Environment	291 East Wesley Street; Elverdahl Residence
P-33-015186	—	Historical Built Environment	243 East Wesley Street; Peterson Residence
P-33-015187	—	Historical Built Environment	185 East Wesley Street; Nicosia Residence
P-33-015189	—	Historical Built Environment	390 East Barbour Street; Sauer Residence
P-33-015190	—	Historical Built Environment	410 East Barbour Street

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-015191	—	Historical Built Environment	421 East Barbour Street; Jackson Residence
P-33-015192	—	Historical Built Environment	390 East Ramsey Street; Primera Iglesia Bautista Hispana
P-33-015193	—	Historical Built Environment	402 East Ramsey Street; Bonilla Residence
P-33-015194	—	Historical Built Environment	381 East Williams Street; Cooper Residence
P-33-015195	—	Historical Built Environment	403-411 East Williams Street; Cortez Residence
P-33-015196	—	Historical Built Environment	380 East Nicolet Street; Cannavo Residence
P-33-015197	—	Historical Built Environment	416 Drury Lane; Thomas Residence
P-33-015198	—	Historical Built Environment	436 Drury Lane; Viner Residence
P-33-015199	—	Historical Built Environment	464 Drury Lane; Miller Residence
P-33-015200	—	Historical Built Environment	494 Drury Lane; Hearick Residence
P-33-015209	—	Historical Built Environment	355 East George Street; Germain Residence
P-33-015210	—	Historical Built Environment	418 East George Street; Kendall Residence
P-33-015211	—	Historical Built Environment	417 East George Street; Hurley Residence
P-33-015212	—	Historical Built Environment	388 East Hoffer Street; Velez Residence
P-33-015213	—	Historical Built Environment	385 East Hoffer Street; Cowell Residence
P-33-015214	—	Historical Built Environment	1250 North Alessandro Street; Wages Residence
P-33-015215	—	Historical Built Environment	1190 North San Gorgonio Avenue; Wells Residence
P-33-015217	—	Historical Built Environment	56 West Gilman; Weber Residence
P-33-015219	—	Historical Built Environment	130 West Gilman; Bonnell Residence
P-33-015222	—	Historical Built Environment	190 West Gilman; Bell Residence
P-33-015230	—	Historical Built Environment	73 West Gilman; Nesbit Residence
P-33-015802	—	Historical Built Environment	176 West Lincoln Street; City of Banning Public Works Department
P-33-015843	—	Historical Built Environment	Banning Substation
P-33-016881	—	Historical Built Environment	1188 North Cherry; Jaramillo Property
P-33-016882	—	Historical Built Environment	1189 North Evans; Preza/Rivas Property
P-33-016884	—	Historical Built Environment	1182 East Gilman; Shiloh Baptist Church

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-016888	—	Historical Built Environment	447 North Hathaway; Gates Property
P-33-016891	—	Historical Built Environment	1577 East Nicolet Street; Cardenas Property
P-33-016913	—	Historical Built Environment	985 East Williams; Flores Property
P-33-016965	—	Historical Built Environment	1114 North Alessandro Street
P-33-022389	—	Historical Built Environment	Devers-Vista #1 220kV transmission line
P-33-023484	—	Historical Built Environment	Telecommunications line
P-33-023524	—	Historical Built Environment	451 East Livingston Street
P-33-023532	—	Historical Built Environment	489 East Livingston Street
P-33-023533	—	Historical Built Environment	521 East Ramsey Street
P-33-023534	—	Historical Built Environment	553 East Ramsey Street
P-33-023535	—	Historical Built Environment	635 East Ramsey Street
P-33-023536	—	Historical Built Environment	685 East Ramsey Street
P-33-023537	—	Historical Built Environment	719 East Ramsey Street
P-33-023538	—	Historical Built Environment	257 North Hargrave Street
P-33-023539	—	Historical Built Environment	281 North Hargrave Street
P-33-023540	—	Historical Built Environment	541 North Hargrave Street
P-33-023541	—	Historical Built Environment	477 North Hargrave Street
P-33-023542	—	Historical Built Environment	531 North Hargrave Street
P-33-023543	—	Historical Built Environment	535 North Hargrave Street
P-33-023544	—	Historical Built Environment	565 North Hargrave Street
P-33-023545	—	Historical Built Environment	583 North Hargrave Street
P-33-023546	—	Historical Built Environment	673 North Hargrave Street
P-33-023547	—	Historical Built Environment	725 North Hargrave Street
P-33-023548	—	Historical Built Environment	777 North Hargrave Street
P-33-023549	—	Historical Built Environment	853, 883 North Hargrave Street
P-33-023550	—	Historical Built Environment	425 East Livingston Street

Table 2 (Continued)

Primary	Trinomial	Resource	Description
P-33-023551	—	Historical Built Environment	923 North Hargrave Street
P-33-023552	—	Historical Built Environment	929, 953 North Hargrave Street
P-33-023553	—	Historical Built Environment	765 East Williams Street
P-33-023554	—	Historical Built Environment	1061 North Hargrave Street
P-33-023555	—	Historical Built Environment	1085 North Hargrave Street
P-33-023556	—	Historical Built Environment	1161 North Hargrave Street
P-33-023557	—	Historical Built Environment	1185 North Hargrave Street
P-33-023558	—	Historical Built Environment	1233 North Hargrave Street
P-33-023559	—	Historical Built Environment	1277, 1293 North Hargrave Street
P-33-023560	—	Historical Built Environment	771 East Hoffer Street
P-33-023561	—	Historical Built Environment	1307 North Hargrave Street
P-33-023562	—	Historical Built Environment	1323 North Hargrave Street
P-33-023563	—	Historical Built Environment	1331 North Hargrave Street
P-33-023564	—	Historical Built Environment	1353 North Hargrave Street
P-33-023565	—	Historical Built Environment	1205 East Gilman Street
P-33-023571	—	Historical Built Environment	790 East Hoffer Street
P-33-023587	—	Historical Built Environment	779 East Wilson Street
P-33-023590	—	Historical Built Environment	444 East Theodore Street
P-33-023591	—	Historical Built Environment	656 East Theodore Street
P-33-023592	—	Historical Built Environment	686 East Theodore Street

Of the resources noted above, only one historical archaeological site (CA-RIV-3443H/33-003443) has been recorded within the Project APE. The site was originally described in 1988 as a diffuse scatter of historical refuse measuring 100 by 60 m (328 x 197 ft) located along both sides of the railroad tracks and within the alignment of a dirt frontage road (Apple and Wooley 1988). Cultural materials recorded in the scatter include 10 pieces of ceramics, three pieces of sun-colored amethyst glass dating between ca. 1880s to the 1920s, two pieces of olive-colored glass, and two or more pieces of thick colorless glass. Apple et al. (1988) noted that ceramics on the site exhibit the same dish pattern as artifacts recovered from archaeological deposits at the Cabazon Station (CA-RIV-3442H/33-003442). Based on this finding, they concluded that the refuse deposits composing

CA-RIV-3443H are likely associated with the Southern Pacific Railroad. A high degree of disturbance was observed within the site boundaries including the grading of a dirt road and bulldozer activities. Due to the site's poor integrity, Apple et al. (1988) recommended no further cultural resource management work at CA-RIV-3443H.

Additional sources consulted during the cultural resource literature and records search include: the *National Register of Historic Places* (NRHP); the *Office of Historic Preservation Archaeological Determinations of Eligibility* (ADOE); and the *Office of Historic Preservation Historic Property Directory* (HPD*)*. No eligible historic properties or significant historical resources have been recorded or listed within the Project APE.

3.2 ARCHIVAL RESEARCH

Historical maps consulted during the cultural resource literature and records search include: the General Lands Office plat survey maps for Township 3 South, Range 1 East which date to 1856, 1880, and 1886; the 1901 USGS San Jacinto, CA 30' quadrangle; the 1942 U. S. Army Corp of Engineers Banning, CA 15' quadrangle (1:62,500); the 1956 USGS Banning CA 15' quadrangle (1:62,500); and the 1956 USGS Cabazon, CA 7.5' quadrangle (1:24,000).

The GLO plat survey maps dating to 1856 and 1880 both depict two parallel "Road" systems crossing the Project APE through Sections 10 and 11 from west-northwest to east-southeast. The latter map labels one of these roads as a "Wagon Road." In addition, the 1880 GLO plat survey maps depicts an "Indian Trail" crossing through Sections 15, 14, and 11 from the west-southwest to east. The GLO plat survey map dating to 1886 shows the Southern Pacific Railroad north of the Project APE with the two early road alignments replaced by several east-to-west running roads. Farther to the south in Section 14, the map depicts a forked road that leads to two houses located south of Smith Creek.

The 1901 USGS San Jacinto, CA 30' quadrangle shows the railroad alignment and east-west road systems in Sections 10 and 11. In Section 14, only one house is depicted south of the Smith Creek. An east-west oriented road is shown running from the western section line to the house; a second road runs from the house in a northeasterly direction along the base of the San Jacinto Mountains.

The U. S. Army Corp of Engineers Banning, CA 15' quadrangle (1942) depicts the same railroad alignment, but the east-west road systems in Sections 10 and11 are absent suggesting these roads are no longer in use. The map also shows several east-west running dirt roads in Section 14; these roads roughly follow the modern alignments of East Westward Avenue, Charles Street, and Westley Street. Finally, the 1956 USGS Banning, CA 15' quadrangle and the 1956 USGS Cabazon, CA 7.5' quadrangle maps depict both the railroad and the Banning Airport. The maps indicate that although portions of East Westward Avenue, Charles Street, and Westley Street have been improved, the section of East Westward Avenue located within the Project APE remains an unimproved dirt road.

4
NATIVE AMERICAN COMMUNICATION

As part of the cultural resource investigation, Æ contacted the NAHC on March 27, 2016 for a review of the SLF, to determine if any known Native American cultural properties (e.g., traditional use or gathering areas, places of religious or sacred activity, etc.) are present within or adjacent to the Project APE. The NAHC responded on May 2, 2016 stating that the SLF search was completed with negative results. The NAHC requested that Native American individuals and organizations be contacted to elicit information and/or concerns regarding cultural resource issues related to the proposed Project. A letter describing the Project and asking these individuals and organizations for their input was sent via United States Postal Service (USPS) and electronic mail on May 25, 2016. A copy of the letters sent, the list of contacts, and responses received are included in Appendix B. A second attempt at correspondence was made on June 8, 2016. It should be noted that this outreach was not related to AB 52 or Section 106 consultation. Rather, these efforts were part of the inventory process to identify and document all cultural resources within the Project APE.

Individuals/organizations contacted include: Joseph Ontiveros, Cultural Resource Department with the Soboba Band of Luiseño Indians; Patricia Garcia-Plotkin, Tribal Historic Preservation Office Director for the Agua Caliente Band of Cahuilla Indians; Amanda Vance, Chairperson of the Augustine Band of Cahuilla Indians; Michael Mirelez, Cultural Resource Coordinator for the Torres-Martinez Desert Cahuilla Indians; Judy Stapp, Director of Cultural Affairs for the Cabazon Band of Mission Indians; Denisa Torres, Cultural Resource Manager for the Morongo Band of Mission Indians; Shane Chapparosa, Chairman of the Los Coyotes Band of Mission Indians; Terry Hughes, Tribal Administrator of the Santa Rosa Band of Mission Indians; John Gomez, Environmental Coordinator for the Ramona Band of Cahuilla Mission Indians; Luther Salgado, Chairperson of the Cahuilla Band of Indians; Goldie Walker, Chairperson of the Serrano Nation of Mission Indians; and Daniel McCarthy, CRM Department Director for the San Manuel Band of Mission Indians.

As of June 14, 2016, three responses were received. The Cabazon Band of Mission Indians stated that the Project is located outside of the Tribe's current reservation boundaries, but within an area that may be considered a traditional use area. The Tribe has no specific archival information indicating that the Project area may be a sacred/religious site or other site of Native American traditional cultural value. However, the Cabazon Band suggests there be an archaeologist on site during all ground-disturbing activities to monitor for the discovery of unknown cultural resources. The San Manuel Band of Mission Indians noted that the Project is outside of the boundaries of the Tribe's ancestral territory. The Tribe deferred to the Morongo Band of Mission Indians for review and comment on the Project. The Agua Caliente Band of Cahuilla Indians had no concerns regarding the Project area, and deferred further consultation to the Morongo Band of Mission Indians. The Morongo Band of Mission Indians was contacted as part of the initial and follow-up effort; however, to date, no response has been received from the Morongo Band.

Additional Native American outreach was conducted as part of the supplemental cultural resource investigation. A letter describing the Project's off-site improvement areas was sent to Raymond Huaute, Cultural Resource Specialist for the Morongo Band of Mission Indians and Denisa Torres, Cultural Resource Manager for the Morongo Band of Mission Indians via electronic mail on May 12,

2017. A second attempt at correspondence was made on May 26, 2017. No response was received from the additional Native American outreach with the Morongo Band as of June 2, 2017.

5
CULTURAL RESOURCE SURVEY METHODS AND RESULTS

5.1 SURVEY METHODS

An intensive cultural resources pedestrian survey of the Project property was completed on May 24, 2016 by Æ's Field Supervisor Dennis McDougall with the assistance of Field Technician Evan Mills. The pedestrian survey of this area was conducted by the surveyors walking parallel transect spaced at 15 m (50 ft) intervals oriented north-to-south. The survey of the offsite improvement areas was undertaken on May 9, May 24, and September 28, 2017 by Æ's Field Archaeologists Ken Moslak and Patrick Moloney. The offsite areas were carefully inspected by the archaeologists walking parallel transects spaced no more than 15 m (50 ft) apart. All areas likely to contain or exhibit archaeologically or historically sensitive cultural resources were inspected carefully to ensure that visible, potentially significant cultural resources were discovered and documented. Additionally, surveyors investigated any unusual landforms, contours, soil changes, features (e.g., drainages), and other potential cultural site markers. A Daily Work Record was completed that documented survey personnel, hours worked, ground surface visibility, and any cultural resources identified.

For purposes of this Project, one or more cultural feature or three or more artifacts greater than 45 years of age within a 30 m (100 ft) radius was considered to constitute a cultural resource (or site). Cultural features or clusters of artifacts more than 30 m away from the nearest known cultural resource were generally considered a separate site area. Less than three prehistoric or historical artifacts within a 30 m radius, but outside of a known site, were considered an isolated find.

When encountered, newly identified cultural resources were recorded on State of California Department of Parks and Recreation Primary Records and Archaeological Site Forms (DPR 523 [1995]). Systematic efforts were made to characterize and define the boundaries of the cultural resource, as well as any discrete activity loci and features. Site locations were plotted on the Cabazon CA 1:24,000 scale USGS 7.5' quadrangle using a Trimble GeoXH hand-held GPS unit using real-time satellite based augmentation system (SBAS) corrections achieving sub-meter accuracy. No artifacts were collected during survey.

Æ personnel also attempted to re-identify the one cultural resource (CA-RIV-3443H /33-003443) that had been previously recorded within the Project APE. Given that the archaeological site had been recorded more than 10 years ago, the site record for the resource was updated appropriately using the methods described above.

5.2 SURVEY RESULTS

Ground visibility ranged from good to excellent (60–75 percent of ground surface was visible) throughout the Project APE. Soils consisted of sandy-silt alluvial deposits with subrounded to rounded gravels and cobbles of granite and schist. Vegetation observed during the pedestrian survey of the APE included creosote, mesquite, brittle bush, rabbit brush, ephedra, buckwheat, datura, pencil cholla, beavertail cactus, fiddle neck, foxtail, mustard, and widely scattered yucca. The northern portion of the APE exhibits extensive mechanized disturbance with introduced gravel piles

observed throughout the survey area. The southern portion of the APE is also extensively disturbed by road construction and maintenance, the installation of an underground gas pipeline, and agricultural pursuits to the south and east.

No prehistoric archaeological resources were identified during the pedestrian survey. However, two historical archaeological sites and four historical built-environment resources were identified within the Project APE. The historical archaeological resources include portions of two previously recorded refuse scatters (CA-RIV-3443H/33-003443 and CA-RIV-8364H/P-33-016208). Historical built-environment resources include the Banning Municipal Airport (33-024895), two road segments (East Westward Avenue [33-026821] and John Street [33-026822]), and a portion of a historical transmission line (33-026820). The locations of the identified resources are shown in Figure 3. It should be noted that due to access issues, only the portions of the cultural resources situated within the Project APE were subject to the intensive pedestrian survey and documentation. DPR 523 recording forms were completed for the six identified cultural resources (see Appendix A); a description of each resource is provided below.

5.2.1 CA-RIV-3343H (33-003343)

As previously discussed, CA-RIV-3443H was originally recorded by Apple et al. (1988) as a sparse scatter of historical railroad-related refuse measuring approximately 100 x 60 m (E-W x N-S). A revisit to CA-RIV-3443H found that the portion of the site located within the Project APE measures approximately 45 x 27 m (E-W x N-S). In this area, CA-RIV-3443H is bounded to the south and west by an ephemeral creek drainage and to the north by the fenceline that delineates the southern edge of the railroad right-of-way (Figure 4); the site extends an unknown distance to the north. CA-RIV-3343H consists of a diffuse scatter of historical domestic refuse that includes highly fragmented ceramics, bottle glass, highly-eroded ferrous metal cans, and other ferrous metal objects. The artifacts appear to date from ca. post-1904 into the 1920s. An extensive level of disturbance was noted within the portion of CA-RIV-3343H in the Project APE; these disturbances include mechanical activities, disturbances from grazing cattle, and what appears to be one "pot-hole" dug by illicit artifact collectors. Examination of sediments exposed in the pot-hole suggests that site is limited to a surface scatter with little potential for buried cultural deposits.

5.2.2 CA-RIV-8364H (33-016208)

This site was originally documented in July 2007 as a low-density scatter of historical refuse that measured 70 x 50 m (230 x164 ft) located on both sides of Charles Street (Smallwood 2007) approximately 200 ft south of East Westward Avenue. The site was described as consisting of domestic household refuse that included consumer and kitchen items such as glass, ceramic, and tin canister fragments. Based on the presence of sun-colored amethyst glass and diagnostic markers' marks, Smallwood (2007) dated the site to the 1920s and/or 1930s.

In November 2007, George (2007) revisited CA-RIV-8364H and found that the refuse scatter was significantly larger than originally recorded by Smallwood (2007). As a result of the revisit, the site boundaries were expanded to 176 x 79 m (580 x 260 ft) (N-S x E-W) with the northern boundary located approximately 50 ft south of Westward Avenue. Examination of the surface artifacts confirmed Smallwood's (2007) earlier observations that the bulk of the remains consisted of domestic refuse that included fragmented bottles, ceramics, tableware, and metal cans. George

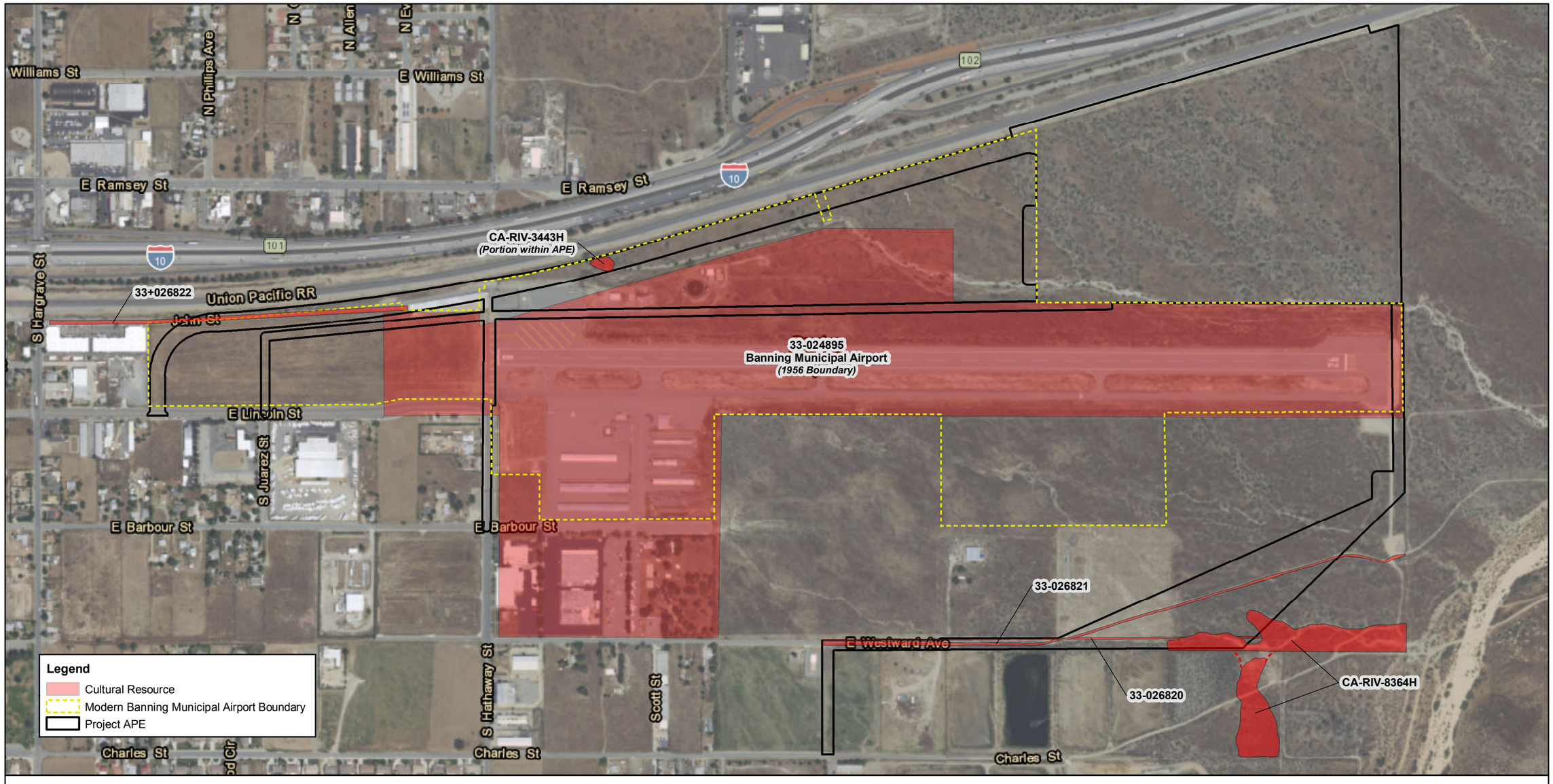

Figure 3 Cultural resources within the Project APE.



Figure 4 Overview of CA-RIV-3443H showing ephemeral creek on the south and Southern Pacific fenceline to the north (view to the west).

(2007) noted that the site appeared to be limited to surficial deposits with no evidence of buried refuse or potential for subsurface deposits.

During the survey of the offsite improvement areas, historical refuse was observed in the Project APE that appears to represent an extension of CA-RIV-8364H (Figure 5). While access to the south of the Project APE was restricted, artifacts within the APE were located less than 30 m from CA-RIV-8364, and therefore were considered to be part of the previously documented site. During the current recordation, the character of the site proved to be a continuation of the previous records with similar artifacts and ages.

Within the Project APE, the eastern extent of the site is dominated by post-World War II (WWII) debris which consists of dumps of bulky items and construction/demolition debris including milled lumber, concrete, asphalt, tires, clay and cinder bricks, plumbing fixtures, stucco, ceramic drain pipes, and sheep fencing. The majority of artifacts in this area appear to date to the 1960s–1980s. The remainder of the site is heavily disturbed with pre-WWII artifacts in secondary contexts due to grading, erosion, and pipeline installation. Pre-WWII items include domestic household refuse and consumer/kitchen items dating to ca. 1920s–1930s.

The expanded portion of the site shows a high level of disturbance. Originally, the site was likely a series of trash dumps and scatters along the side of East Westward Avenue which ran east-west along the section line. By the late 1960s, this segment of East Westward Avenue was abandoned and



Figure 5 Overview of the portion of CA-RIV-8364H located within the Project APE (view to the west).

destroyed by grading, pipeline installation, and erosion. Many artifacts appear in secondary context due to disturbances and washing down recent arroyos. Disturbance is less evident in the portion of CA-RIV-8364H located north of the former East Westward Avenue alignment although artifacts in this area are also highly fragmented. After abandonment of East Westward Avenue, the eastern portions of the site were apparently being used as an illicit dump site of bulky items and construction demolition debris.

5.2.3 Banning Municipal Airport (33-024895)

A portion of the Banning Municipal Airport (33-024895) is located within the Project APE (see Figure 3). The airport encompasses approximately 295 ac, of which approximately 145 ac is developed. In addition to runways and taxiways, several facilities are located within the airport boundaries including a terminal building, one facility capable of housing a fixed base operator, nine hangars, a helipad, and fuel facilities (C&S Engineers, Inc. 2007) (Figure 6).

Much of the Banning Municipal Airport located within the Project APE is undeveloped. However, portions of a paved area of asphalt measuring 500 ft (E-W) by 55 ft (N-S) were found to extend into the APE. The asphalt is in relatively poor condition with grasses and weeds growing between cracks in the paved surface. Examination of historical aerials suggests that the paved area was part of an old aircraft parking apron or possible road that ran along the northern edge of the airport. The paved area is located immediately north of the helipad and is restricted from the rest of the airport by a chain-link fence.



Figure 6 Overview of the Banning Municipal Airport from the northern edge of property showing the runway and hangars (view to the southwest).

5.2.4 East Westward Avenue (33-026821)

The Project APE also includes an approximately 3,500-ft-long section of the historical East Westward Avenue (Figure 7). The western 690-ft-long section of the roadway is a well-maintained asphalt-concrete paved road; the width of the roadbed in this area is 22 ft. The eastern extent of the original road alignment (2,810 ft) is much narrower (12 ft) and is constructed of a rudimentary pavement of coarse gravels and asphalt. No historic-period signage, guardrails, or other historical roadway features were observed along this road segment.

Historic maps indicate that the section of East Westward Avenue located east of South Hathaway Street has been in use since at least the early 1940s (U.S. Army Corp of Engineers 1942). As originally constructed, the east-west oriented road ran for one mile between Sections 11 and 14, Township 3S / Range 1E. Historic aerial photographs suggest that by the late 1960s, the easternmost portion of the road, which measured approximately 0.4 mi (2,100 ft) in length, had been realigned farther to the north (NETROnline 2017). The only evidence of the eastern portion of the original road observed in the Project APE was a faint two track in the western portion of old alignment. Erosion from the nearby Smith Creek appears to have destroyed the remaining portions of the road alignment.



Figure 7 Overview of East Westward Avenue (view to the west).

5.2.5 John Street (33-026822)

The Project APE includes a portion of John Street, a historic-period road that parallels I-10 and the Southern Pacific Railroad (Figure 8). The segment of John Street within the Project APE is paved with a width of approximately 20 ft. From its intersection with South Hargrave Street, the roadway runs in an east to northeast direction for approximately 2,620 ft at which point it terminates at the western end of the Banning Airport. The road appears to be regularly maintained. No historic-period signage, guardrails, or other historical roadway features were observed along this road segment.

Historical maps indicate that the section of John Street that ran between South Hargrave and South Hathaway streets has been in use since the mid-1950s (USGS 1956). Historic aerial photographs suggest that this segment of road was paved by at least 1967 (NETROnline 2017). The eastern extent of the roadway appears to have been realigned following the construction of an airport hanger sometime in the 1970s or 1980s.



Figure 8 Overview of John Street (view to the west).

5.2.6 Transmission Line (33-026820)

An approximate 1,253-ft-long segment of a local power transmission line was documented along the southern portion of the Project APE (Figure 9). The transmission line runs in an east-west direction north of the original alignment of East Westward Avenue. The subject segment of the transmission line consists of seven wooden utility poles. Date nails showing pole construction dates range from 1958–1971 for the main transmission line with a 1929 date on an accessory pole (guy-line support). The wide range of manufacture dates suggests that the line may have been constructed of reused poles in the early 1970s. A metal tag labeled "City of Banning 4040" was observed on one of the poles. The easternmost pole has been cut and the line rerouted to the north. Inspection tags show the line is still in use.

Archival research found little information on the construction date of the transmission line. However, an aerial image dating to the late 1960s shows a series of recently cleared areas in the location of the utility poles along the southern boundary of Section 11, Township 3S / Range 1E. This finding, along with the 1971 date nail, suggests that the transmission line may have been constructed in the early 1970s. Although the historical aerial also depicts a series of cleared areas along the eastern boundary of Section 11, no evidence of a transmission line was found during the pedestrian survey of this area. Based on the fact that the easternmost pole at 33-026820 has been cut with the line rerouted to the north, it is possible that this section of the transmission line has been removed. No evidence of the transmission line was observed on any of the USGS topographic quadrangle maps of the area.



Figure 9 Overview of transmission line (view to the west).

6
RESOURCE EVALUATION

This chapter provides an assessment of the historical significance of the six cultural resources identified within the Project APE in order to evaluate the eligibility of these resources for listing on the NRHP and CRHR.

6.1 CA-RIV-3343H (33-003343)

The artifacts comprised by the refuse scatter at CA-RIV-3343H appear to date from ca. post-1904 into the 1920s. An examination of historical maps indicates that aside from the Southern Pacific Railroad and a parallel-running road, no buildings or other structures are present in the vicinity of CA-RIV-3443 during this time. This finding, along with data obtained from previous investigations at CA-RIV-3343H, indicates that the refuse scatter is most likely associated with the Southern Pacific Railroad (Apple et al. 1988).

While the artifacts that compose this site may be associated with railroad history and development of the region, there is no indication that this association is significant. Mere association of the refuse scatter with historic events is not enough to meet NRHP Criterion A/CRHR Criterion 1, in and of itself; the property's specific association must be considered important as well. No evidence was found to indicate that the refuse scatter is an important physical expression of specific events or periods of significance in the railroad's history. As such, CA-RIV-3343H does not appear to meet NRHP Criterion A or CRHR Criterion 1. In addition, there is no indication that the remains are directly associated with the productive life of an important historical person (NRHP Criterion B/CRHR Criterion 2) or embody distinctive characteristics of a type, period, or method of construction, are an important work of a master architect, or possess high artistic value (NRHP Criterion C/CRHR Criterion 3). Finally, the historic artifact scatter does not appear to contain subsurface remains and has limited research potential. Because CA-RIV-3343H does not have the potential to yield important historical information, it is not recommended eligible under NRHP Criterion D/CRHR Criterion 4.

6.2 CA-RIV-8364H (33-016208)

The artifacts that compose CA-RIV-8364H represent domestic refuse that dates to the 1920s and 1930s with later use indicated by post-WWII dumps of bulky items and construction/demolition debris. The site appears to represent a series of secondary refuse scatters located in the vicinity of an abandoned segment of East Westward Avenue. A high level of disturbance is observed at CA-RIV-8364H with evidence of artifact redeposition as a result of grading, pipeline installation, and erosion.

Previous archival research conducted by George (2008) found no clear association between the refuse scatter and documented historical land use practices. An examination of assessor's records and historical maps indicates that there were no dwellings or structures in the immediate area surrounding CA-RIV-8364H in the 1920s or 1930s. The nearest building was a homestead that was established in the late 1800s approximately 0.5 mi to the south (George 2008: Appendix D). As previously discussed, the 1901 San Jacinto 30-Minute Quadrangle map (U.S. Geological Survey

1901) depicts a road running eastward along Smith Creek to the homestead; a second road runs in a northeasterly direction from the homestead to Westward Avenue. This latter road is located approximately 500 ft east of the CA-RIV-8364H. Based on these findings, George (2008:17) concluded that the refuse scatter is likely the result of periodic dumping, with no apparent association other than its proximity to the road. Because CA-RIV-8364H cannot be associated with a specific property or individuals, the site was recommended as ineligible for listing on the CRHR (George 2008).

Results of the current cultural resource assessment confirm the earlier findings and indicate that the site does not meet any of the four criteria for listing on the NRHP or the CRHR. The portion of the site within the Project APE consists of a series of trash dumps and scatters along an abandoned section of East Westward Avenue that cannot be clearly associated with a particular property. No additional data were obtained from CA-RIV-8364H that link the refuse scatter to events that have made a significant contribution to the broad patterns of history or to the lives of persons significant in the past. Therefore, the site is not recommended as eligible for listing under NRHP Criterion A/CRHR Criterion or NRHP Criterion B/CRHR Criterion 2, respectively. CA-RIV-8364H does not embody the distinctive characteristics of a type, period, or method of construction, and thus is not recommended eligible under NRHP Criterion C/CRHR Criterion 3. Finally, the historical artifact scatter does not appear to contain subsurface remains and has limited research potential. Because CA-RIV-8364H does not have the potential to yield important historical information, it is not recommended eligible under NRHP Criterion D/CRHR Criterion 4.

6.3 BANNING MUNICIPAL AIRPORT (33-024895)

The Banning Municipal Airport is one of a number of municipal airports built in Riverside County in the early decades of the twentieth century. Although the airport is broadly associated with the regional development of aviation-related transportation networks, it is not directly associated with any pattern of events or historical trends in local, state, or national history. The Banning Landing Strip was used as a training facility during WWII. However, it did not play a pivotal role in any historical events in U.S. Army or WWII history and there is no indication that this association is significant. As such, the Banning Municipal Airport does not appear to meet NRHP Criterion A or CRHR Criterion 1.

The airport was originally named Rodgers Airport after Cal Rodgers, who landed his plane in the Banning area during the first transcontinental flight in 1911. As the establishment of the Banning Municipal Airport postdates Rodger's flight by 16 years, the construction of the landing strip has no direct association with this aviation pioneer. No other information has been found to suggest that the Banning Municipal Airport directly associated with the productive life of an historical person of importance in local, state, or national history under NRHP Criterion B or CRHR Criterion 2. Furthermore, the airport does not exhibit any architectural or engineering merits that would set it apart from other municipal airports in the region. The landing strip and associated buildings are of standard design and construction. As such, the Banning Municipal Airport does not meet the criteria for listing under NRHP Criterion C or CRHR Criterion 3.

Finally, the Banning Municipal Airport does not appear to meet NRHP Criterion D /CRHR Criterion 4 for any potential to provide information important to the study of municipal airport development or

WWII-era U.S. Army landing strips. This criteria is typically reserved for archaeological resources, ruins, or rare built-environment resources of which little is already known, and that are considered to be the sole source of historical data. The Banning Municipal Airport is unable to yield any information important to the study of municipal airports of similar vintage in local, state, or national history. The Banning Municipal Airport is not the primary source of information, but rather, the physical manifestation of the knowledge and practice of a construction technique, which has been widely applied to airports throughout southern California and the nation. Thus, Banning Municipal Airport does not provide any important information or data potential that would meet NHRP Criterion D or CRHR Criterion 4.

6.4 EAST WESTWARD AVENUE (33-026821)

Historical maps indicate that the section of East Westward Avenue located east of South Hathaway Street has been in use since at least the early 1940s. Within the Project APE, the western portion of the structure (690-ft-long segment) consists of a 22-ft-wide asphalt-concrete paved road. The eastern extent (2,810-ft-long segment) of the roadway is 12 ft in width and is constructed of a rudimentary pavement of coarse gravels and asphalt. Both sections of the road are completely modern in appearance, design, and construction, and lack any historical features. Only the alignment itself appears historic in age based upon its depiction on historical maps. The road is one of several that were built in the area in the 1940s. Although the road is broadly associated with the development of the city of Banning, it is not directly associated with any pattern of events or historical trends in local, state, or national history. Thus, there is no evidence that it is directly associated with any events of recognized historical significance (NRHP Criterion A/CRHR Criterion 1). The road was likely built by the City of Banning, and not a specific individual. Therefore, the structure is not directly associated with the productive life of an important historical figure (NRHP Criterion B/CRHR Criterion 2). The road does not represent the work of a prominent architect, designer, or builder, nor does it qualify as an important example of its type, period, region, or method of construction (NRHP Criterion C/CRHR Criterion 3). Finally, the East Westward Avenue does not have the potential to yield any information important to the study of our local, state, or national history and is thus not eligible for listing under NRHP Criterion D/CRHR Criterion 4.

6.5 JOHN STREET (33-026822)

Historical maps indicate that John Street has existed as a local road since at least the mid-1950s. The subject segment is a 20-ft-wide asphalt-concrete paved road that is completely modern in appearance, design, and construction, and lacks any historical features. Only the alignment itself appears historic in age based upon its depiction on historical maps. The road was likely built to access the Banning Municipal Airport and may have been part of the infrastructure improvements made by the City to the airport in the 1950s. Although the road is broadly associated with the development of the City of Banning, and the airport in particular, it is not directly associated with any pattern of events or historical trends in local, state, or national history. Thus, there is no evidence that it is directly associated with any events of recognized historical significance (NRHP Criterion A/CRHR Criterion 1). The road was built by the City of Banning, and not a specific individual. Therefore, the structure is not directly associated with the productive life of an important historical figure (NRHP Criterion B/CRHR Criterion 2). The road does not represent the work of a prominent architect, designer, or builder, nor does it qualify as an important example of its type, period, region, or method of construction (NRHP Criterion C/CRHR Criterion 3). Finally, John

Street does not have the potential to yield any information important to the study of our local, state, or national history (NRHP Criterion D/CRHR Criterion 4).

6.6 TRANSMISSION LINE (33-026820)

The segment of the wooden pole transmission line located within the Project APE was constructed of reused wooden poles by the City of Banning in the early 1970s. It does not appear to be eligible for inclusion in the NRHP or the CRHR. It is among numerous transmission lines located within the City of Banning, and it has never achieved any recognition as an important electric utility line. In addition, it does not exhibit any architectural or engineering merits that would set it apart from the many similar transmission lines in the region. The electrical transmission line was likely constructed to meet the electricity demands of customers at a time when the City of Banning's population and development was beginning to expand. The transmission line itself is not responsible for the growth and development of the City of Banning, but merely the attempt to electrify the city and keep up with consumer demand. Thus, there is no evidence that it is directly associated with any events of recognized historical significance (NRHP Criterion A/CRHR Criterion 1). The transmission line was built by the City of Banning, a municipality, and not individuals. Therefore, the structure is not directly associated with the productive life of an important historical figure (NRHP Criterion B/CRHR Criterion 2). The transmission line does not represent the work of a prominent architect, designer, or builder, nor does it qualify as an important example of its type, period, region, or method of construction (NRHP Criterion C/CRHR Criterion 3). Finally, the transmission line does not have the potential to yield any information important to the study of our local, state, or national history (NRHP Criterion D/CRHR Criterion 4).

7
MANAGEMENT RECOMMENDATIONS

As the result of the intensive-level cultural resource survey, two historical archaeological sites (CA-RIV-3443H/33-003443, CA-RIV-8364H/33-016208) and four built-environment resources (Banning Municipal Airport [33-024895], East Westward Avenue [33-026821], John Street [33-026822], and a portion of a transmission line [33-026820]), were identified within the Project APE. The historical significance of these six resources was assessed within the contexts of the development of the City of Banning and regional transportation networks in Riverside County. None of the resources appears to meet any criteria for listing on the NRHP or CRHR. As such, there are no historic properties or historical resources in the Project APE for the purposes of NHPA or CRHR, respectively. No further management of the six resources is recommended.

No prehistoric archaeological remains were encountered within the Project APE during the pedestrian survey. Furthermore, information obtained from the records searches indicates that most of the known prehistoric sites in the Project vicinity are concentrated farther south along the foothills of the San Jacinto Mountains. While the lack of surface evidence of prehistoric archaeological resources does not preclude their subsurface existence, the extant data suggest that this area is characterized by a relatively low level of cultural sensitivity. Results of the cultural resource survey also found that the sediments throughout much of the Project APE are highly disturbed and as such, it is unlikely that any intact prehistoric subsurface archaeological deposits will be encountered during construction. No further cultural resource management of the Project APE is recommended at this time.

In the unlikely event that potentially significant archaeological materials are encountered during Project-related ground-disturbing activities, all work must be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological site. Additionally, Health and Safety Code section 7050.5, CEQA Guidelines section 15064.5(e), and Public Resources Code section 5097.98 mandate the process to be followed in the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Finally, if the Project area is expanded to include areas not covered by this survey or other recent cultural resource studies, additional cultural resource studies may be required.

8
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APPENDIX A

DPR 523 RECORDING FORMS

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	**Primary #** 33-003443 **HRI #** **Trinomial** CA-RIV-3443; Update **NRHP Status Code**
Other Listings **Review Code**	**Reviewer** **Date**

***Resource Name or #:**

P1. Other Identifier:

P2. Location: a. County Riverside, CA ☒ Not for Publication □ Unrestricted

b. USGS 7.5′ Quad Cabazon, CA **Date** 1956; Photorevised 1988

T 3 S**; R** 1 E; NW ¼ **of** SW ¼ **of Sec** 11; **S.B.B.M.**

c. Address: **City** **Zip**

d. Zone 11, NAD 83, 513206 **mE/** 3753752 **mN** (central point)

e. Other Locational Data (e.g., parcel #, legal description, directions to resource, additional UTMs, etc., when appropriate): Access: From the intersection of Hargrave Street and John Street in the City of Banning, go east on John Street 0.5 m to the entrance gate for the Banning Airport. After obtaining access through the gate, proceed approximately 0.25 mi further east to the airport's Radio Fan Beacon. There will be a minor drainage just to the north (across a fence) from the parking spot. The site is located approximately 100 m back to the west between the drainage and the fence delineating the Railroad right-of-way a short distance further to the north from the drainage.

P3a. Description (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries): CA-RIV-3443H was originally recorded in 1988. At that time, the site was described as a sparse scatter of historical debris measuring approximately 100 x 60 m (E-W x N-S) along both sides of the railroad tracks and within the alignment of a dirt frontage road. Cultural materials noted include 10+ pieces of ceramics (at least 3 different patterns represented), three pieces of sun-colored amethyst glass, two pieces of olive colored glass, and two pieces of thick, clear glass. Site integrity is described as "minimal" based on surface evidence (site area impacted by dirt road and bulldozing of materials into berms).

In May 2016, personnel from Applied EarthWorks, Inc. (Æ) re-identified a portion of CA-RIV-3443H within an approximate 30 m wide (N-S) linear Area of Potential Effects (APE) for the proposed Banning Industrial Project. This update for CA-RIV-3443H describes that portion of the site area found within the Project APE; other portions of the site originally recorded outside of the Project APE were not inspected, and could not be verified during the current survey.

Within the Project APE, CA-RIV-3443H measures approximately 45 x 27 m (E-W x N-S). The portion of the site examined is bound to the south and west by an ephemeral creek drainage, and to the north by the fenceline delineating the southern edge of the railroad right-of-way. The eastern boundary was defined by the horizontal extent of the cultural materials found within the APE. The site consists of a diffuse scatter of historical domestic refuse (fragments of various types of ceramics, glass bottles and bottle fragments, highly-eroded fragments of ferrous metal cans, and other ferrous metal objects) that appear to date from ca. post-1904 into the 1920s (see A5). Disturbances noted within the site area include mechanical activities, disturbances from grazing cattle, and what appears to be one "pot-hole" dug by illicit artifact collectors.

P3b. Resource Attributes (List all attributes and codes): AH 4: Refuse Scatter.

P4. Resources Present: □ Building □ Structure □ Object ☒ Site □ District □ Element of District □ Other:

P5. Photograph or Drawing: (Photograph required for buildings, structures, and objects.) Roll AE3477-1-dm, image 005. Overview of CA-RIV-3443H from western site boundary looking east (see Page 2 of Primary Record).

P6. Date Constructed/Age and Source: □ Prehistoric ☒ Historic □ Both

P7. Owner and Address: Unknown

P8. Recorded by (Name, affiliation, address): D. McDougall, E. Mills, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

P9. Date Recorded: May 24, 2016.

P10. Type of Survey: ☒ Intensive □ Reconnaissance □ Other
Describe: Maximum of 15-m pedestrian transects.

P11. Report Citation (Provide full citation or enter "none"): Tiffany Clark, Dennis McDougall, Joan George (2017): Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California. Applied EarthWorks, Inc., Hemet, CA.

Attachments: □ None ☒ Location Map □ Site Map ☒ Continuation Sheet □ Building, Structure, and Object Record ☒ Archaeological Record □ District Record □ Linear Feature Record □ Milling Station Record □ Rock Art Record □ Artifact Record ☒ Photograph Record Other:

A1. **Dimensions: a. Length:** 45 m (E-W) **x** **b. Width:** 27 m (N-S) (Portion of Site located in Project Area)
Method of Measurement: □ Paced □ Taped □ Visual estimate ☒ Other Trimble GPS

Method of Determination (Check any that apply): ☒ Artifacts □ Features □ Soil □ Vegetation □ Topography □ Cut bank □ Animal burrow □ Excavation ☒ Property boundary □ Other (explain):

Reliability of Determination: ☒ High □ Medium □ Low Explain: Reliability of Determination is high within the Project APE (see discussion within P3a, and Limitations below); ground visibility is approximately 70–80 percent.

Limitations (Check any that apply): ☒ Restricted access □ Paved/built over □ Disturbances ☒ Site limits incompletely defined □ Other (Explain): Æ only inspected that portion of CA-RIV-3443H within the approximate 30 m wide (N-S) linear Area of Potential Effects (APE) for the proposed Banning Industrial Project. Other portions of the site originally recorded outside of the current Project APE were not inspected, and could not be verified during the current survey.

A2. **Depth:** ☒ None □ Unknown Method of Determination: Examination of exposed sediments in looter's pot-hole suggests that CA-RIV-3443H is surface scatter is a low potential for containing buried archaeological deposits.

A3. **Human Remains:** □ Present ☒ Absent □ Possible □ Unknown (Explain): None noted and presence is unlikely.

A4. **Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map): None observed.

A5. **Cultural Constituents** (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with feature): The site consists of a diffuse scatter of historical domestic refuse (fragments of various types of ceramics, glass bottles and bottle fragments, highly-eroded fragments of ferrous metal cans, and other ferrous metal objects) that appear to date from ca. post-1904 into the 1920s. Two complete bottles (Artifacts 1 and 2 [A1 and A2]) were point-provenienced during the current survey. A1 is a small, Automatic Bottle Machine (ABM) made (post 1904) clear glass patent medicine bottle with "17" embossed on the base located at UTMs 513211/3753748. A2 is a small ABM (post 104) brown glass patent medicine bottle with "C" embossed on the base at UTMs 513213/3753745. Other materials noted on site include: 7 fragments of porcelaineous stoneware (white w/ black interior; all white; and white with green floral transfer pattern); 2 pieces of white porcelain; 7 fragments of terra cotta; 15 fragments of sun-colored amethyst (ca. 1880s-1920s) bottle glass (including 2 fragments of a "barrel" mustard jar); 1 clear glass patent medicine bottle finish; 25+ pieces of aqua bottle glass (including 1 canning jar fragment and 1 "Coca Cola" bottle fragment); 11 pieces of purple glass; 13 fragments of cobalt glass; 13 fragments of brown glass;17 fragments of clear glass; 35 small fragments of highly-eroded ferrous metal (likely deteriorated can fragments); 1 ferrous metal band 3-in. wide; and 1 ferrous metal pipe segment.

A6. **Were Specimens Collected?** ☒ No □ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

A7. **Site Condition:** □ Good □ Fair ☒ Poor (Describe disturbances): Site integrity appears to be impaired. Most glass and ceramic items are highly fragmented; cans are highly degraded. Other disturbances include mechanized activities, cattle grazing, and what appears to be one "pot-hole" dug by illicit artifact collectors.

A8. **Nearest Water** (Type, distance, and direction): A small interment creek drainage defines the southern and western site boundary.

A9. **Elevation:** 2,240 ft amsl.

A10. Environmental Setting (Describe vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc., as appropriate): The site is situated on a narrow, relatively flat, east-west trending terrace bordered to the south and west by an interment creek channel, and to the north by railroad tracks. Soils consist of sandy-silt alluvium. Exposure is open, 360 degrees. Vegetation consists of sparse creosote, brittle bush, rabbit brush, and buckwheat.

A11. Historical Information (Note sources and provide full citations in Field A15 below): None.

A12. Age: □ Prehistoric □ Pre-Colonial (1500–1769) □ Spanish/Mexican (1769–1848) □ Early American (1848–1880) ☒ Turn of century (1880–1914) ☒ Early 20th century (1914–1945) □ Post WWII (1945+) □ Undetermined Factual or estimated dates of occupation (explain): Refuse appears to date from approximately ca. post 1904 (based on ABM bottles) to the 1920s (based on sun-colored amethyst glass).

A13. Interpretations (Discuss scientific, interpretive, ethnic, and other values of site, if known): The site appears to represent a single, random event of the disposal of domestic debris dating from ca. post 1904 to the 1920s. Given its proximity to the Southern California Railroad tracks, it is likely that the scatter is related to the operation or maintenance of the railway.

A14. Remarks: None.

A15. References (Give full citations including the names and addresses of persons interviewed, if possible): None.

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record): See Photograph Record attached.

A17. Form Prepared by: D. McDougall **Date:** May 25, 2016
Affiliation and Address: Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

PHOTOGRAPH RECORD

Temporary Number/Resource Name:
Project Name: Webb Associates – Banning Industrial #3477 **Photographer:** D. McDougall
Image Type: □ (bw) 35mm B&W film □ (cp) 35mm Color Print film □ (cs) 35mm Color Slide film
□ (df) Digital-Floppy disk ☒ (dm) Digital-Memory flash card
Camera Type and Model: Panasonic Lumix
Film Type and Speed: SD card **Roll Number:** AE3477-1-dm
Year: 2016

Mo.	Day	Time	Frame/ File Name	Subject/Description	Facing
5	24	0900	002	CA-RIV-3443H; overview of east end looking west.	W
5	24	0900	003	CA-RIV-3443H; Artifact 1 (scale in cm).	Down
5	24	0900	004	CA-RIV-3443H; Artifact 2 (scale in cm).	Down
5	24	0902	005	CA-RIV-3443H; overview of west end looking east.	E



Overview of historical refuse scatter at CA-RIV-3443/H, looking east.

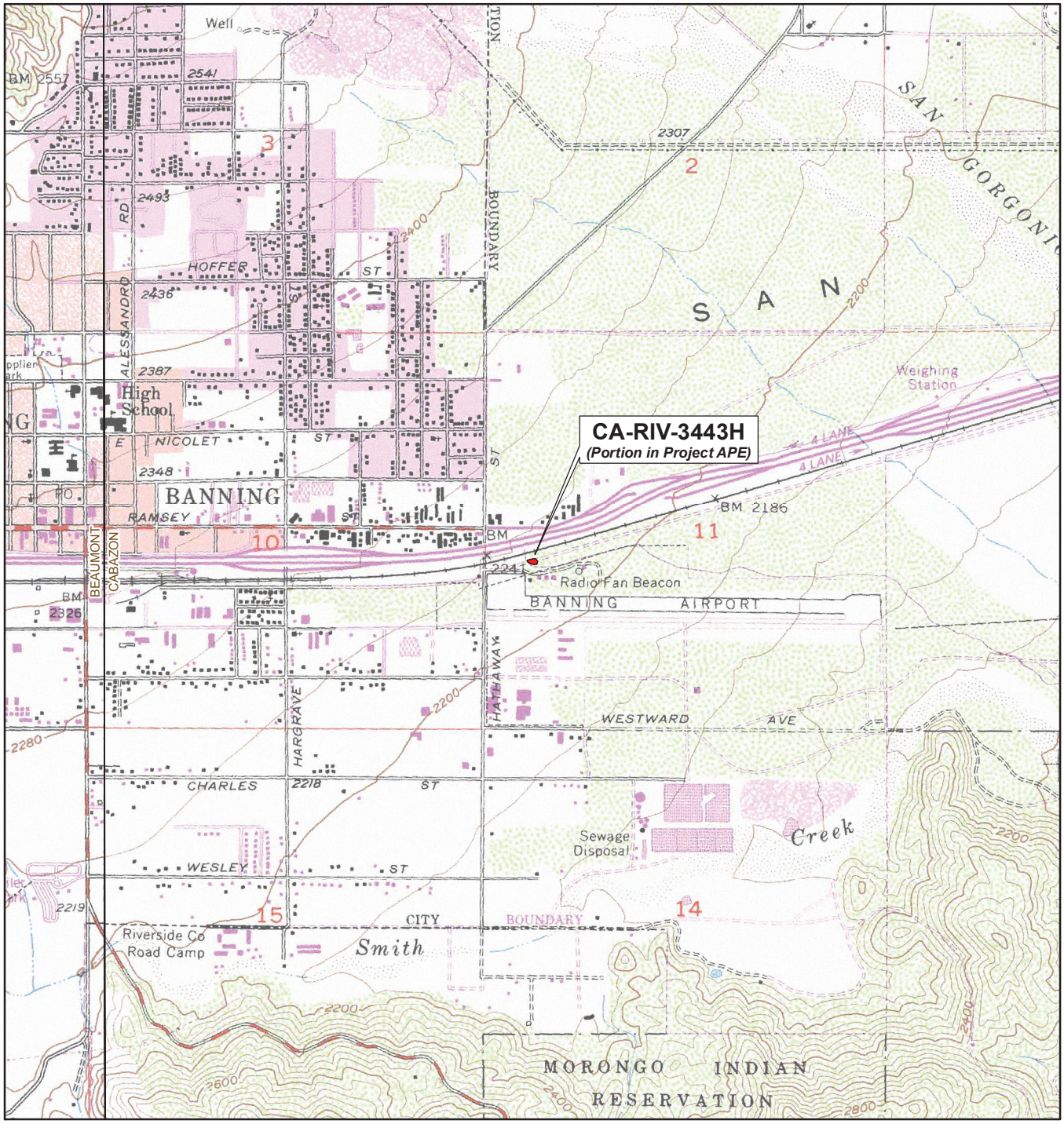
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 33-003443
HRI#
Trinomial CA-RIV-3443H; Update

Page 7 **of** 7 **Resource Name or #:** **Scale:** 1:24,000

Map Name: Beaumont (1953, photorevised 1988) and Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangles **Date:** 2016



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

Dames & Moore ARCHAEOLOGICAL SITE RECORD

Temp. Site No:

Permanent Trinomial: CA-RIV-3443-H
Other Designations: MCI Site #7

1. State: California County: Riverside

2. USGS Quad: Cabazon (7.5') 1956 (15') (Photorevised) 1972

3. UTM Coordinates: Zone 11 513320 Easting 3753580 Northing

4. Township 3S Range 1E : 1/4 of 1/4 of NW 1/4 of SW 1/4 of Section 11 Base Mer. SBM

5. Map Coordinates: 348 mmS 78 mmE (from NW corner of map) 6. Elevation 2240 ft

7. Location: Eastern end of San Gorgonio Pass, east of Banning./In Banning exit I-10 at Hargrave Street. Go south on Hargrave approximately 100m to frontage road (south of railroad). Turn left (east) and go .5 mile to Hathaway street. At Hathaway, leave pavement and take dirt access road (south of railroad). Go east on dirt access road for about 200 meters. You should be at approximately the northwest corner of the Banning airport. The site is on both sides of the tracks, although the majority of material was noted in the road.

8. Prehistoric ___ Historic X Protohistoric ___

9. Site Description: Sparse scatter of historic debris along railroad tracks.

10. Area 100 m(length) x 60 m(width) 4710 M^2

Method of Determination: Scaled from project map

11. Depth: UNK cm. Method of Determination:

12. Features: Railroad tracks

13. Artifacts: 10+ pieces of ceramics - at least three different patterns represented; three pieces of amethyst glass, two pieces of olive glass and 2+ pieces of very thick clear glass.

14. Non-Artifactual Constituents and Faunal Remains: Modern trash

15. Date Recorded: 7/28/88 16. Recorded By: R.M. Apple, T. Wahoff, K. Norwood

17. Affiliation and Address: Dames & Moore, 9665 Chesapeake Drive, Suite 360, San Diego, CA 92123

RECEIVED IN ARU
OCT 03 1988

18. Human Remains: None

19. Site Integrity: Minimal based on surface evidence; area impacted by dirt road, as well as bulldozing of material into berms.

20. Nearest water (type, distance, and direction): Smith Creek, a seasonal drainage is 1.4 km south

Dames & Moore ARCHAEOLOGICAL SITE RECORD

Temp. Site No:

Permanent Trinomial: CA-RIV-3443-H
Other Designations: MCI Site #7

21. Vegetation Community (site vicinity): Grasses

22. Vegetation (on site): Grasses, beavertail cactus

23. Site Soil: Decomposing granite

24. Surrounding Soil: Decomposing granite

25. Geology: Alluvial

26. Landform: Valley/Pass

27. Slope: 0

28. Exposure: Open

29. Landowner(s) (and/or tenants) and Address: Southern Pacific Railroad

30. Remarks: MCI Map Sheet #87; one of the dish patterns was noted at Cabazon Station (MCI Site 6).

31. References: Dames & Moore, 1988, MCI Rialto to El Paso Fiber Optic Project Intensive Cultural Resource Survey, San Bernardino and Riverside Counties, California

32. Name of Project: MCI Rialto to El Paso Fiber Optic Cable Project

33. Type of Investigation: Survey

34. Site Accession Number: N/A

Curated At: N/A

35. Photos: One 35mm B&W

Dames & Moore ARCHAEOLOGICAL SITE RECORD

Temp. Site No:

Permanent Trinomial: CA-RIV-3443-H
Other Designations: MCI Site #7

ARCHAEOLOGICAL PHOTOGRAPHIC RECORD

Camera and Lens Types: **Canon AE1 (Canon FD 35 MM 1:28)**
Film Type and Speed: **ASA 125 B&W on file at:**

Dames & Moore
9665 Chesapeake Dr., Suite 360
San Diego, CA 92123

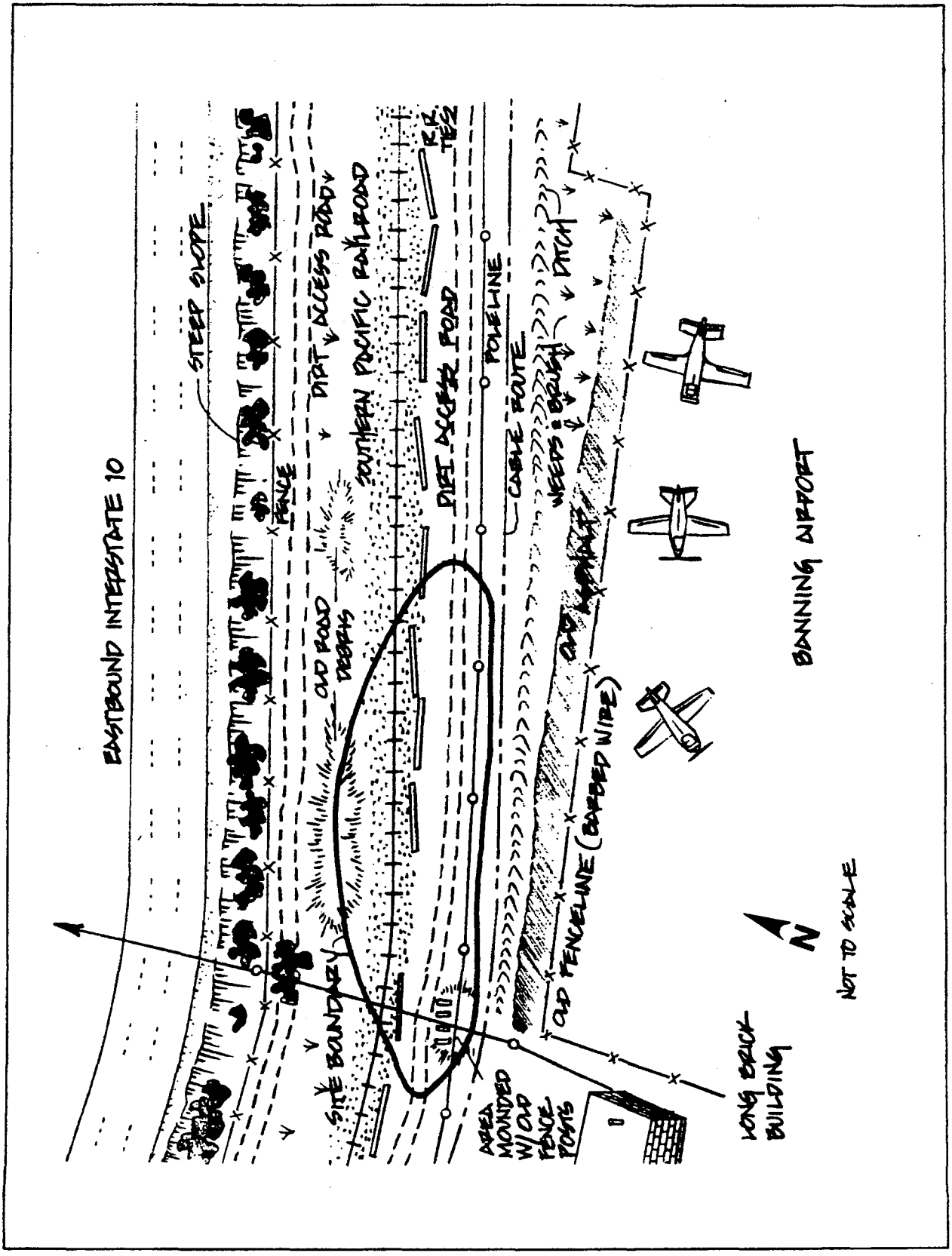
Mo.	Day	Time	Exposure Frame	Subject/Description	View Toward	Accession Number
7	28	AM	10	Site Overview	Northwest	Roll II

Dames & Moore ARCHAEOLOGICAL SITE RECORD

Temp. Site No:

Permanent Trinomial: CA-RIV-3443-H

Other Designations: MCI Site #7

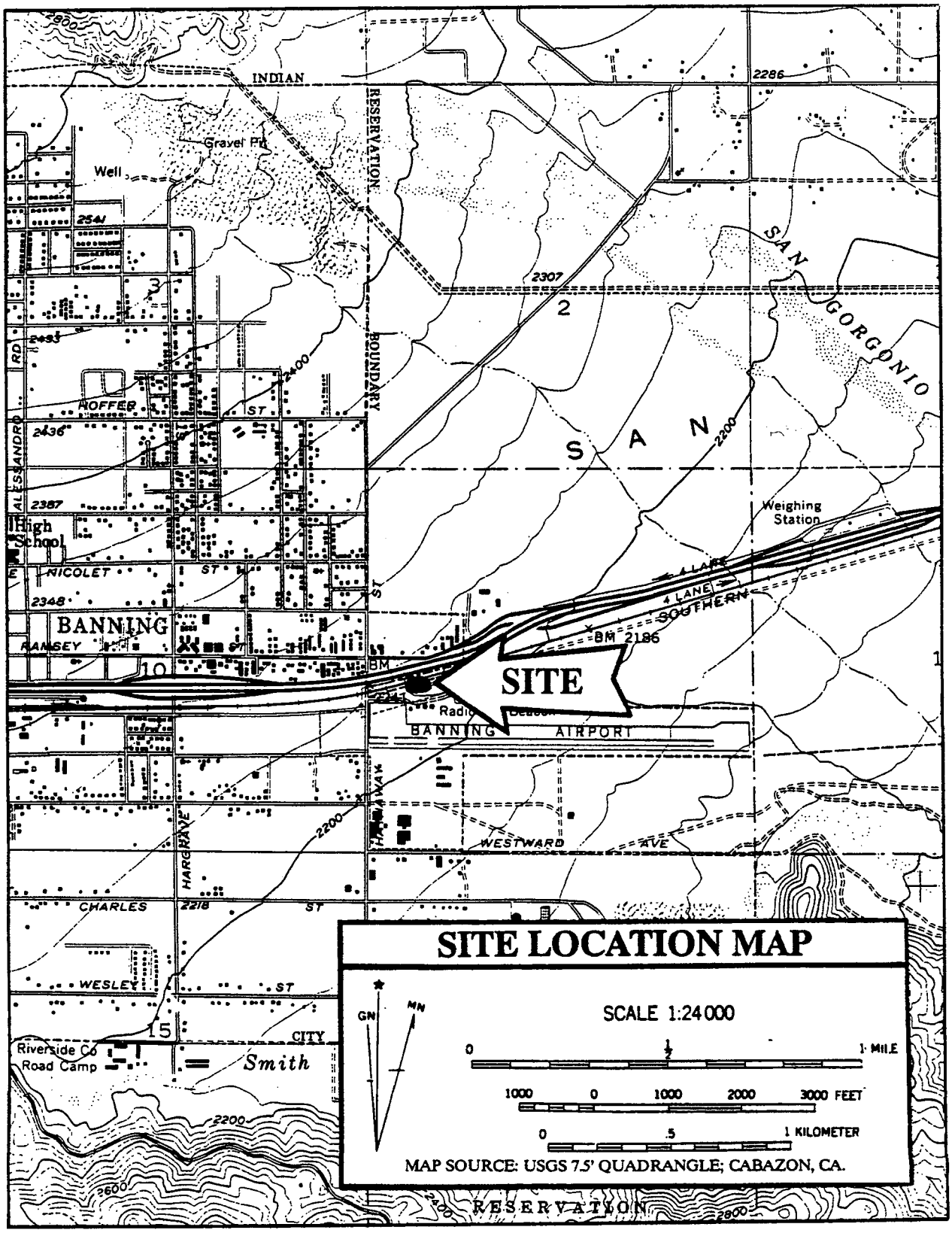


Dames & Moore ARCHAEOLOGICAL SITE RECORD

Temp. Site No:

Permanent Trinomial: CA-RIV-3443-H

Other Designations: MCI Site #7



State of California — The Resources Agency	Primary #	33-016208
DEPARTMENT OF PARKS AND RECREATION	HRI #	
PRIMARY RECORD	Trinomial	CA-RIV-8364H; Update
	NRHP Status Code	
Other Listings		
Review Code	Reviewer	Date

***Resource Name or #:** (Assigned by recorder)

P1. Other Identifier:

***P2. Location:** ***a. County** Riverside, CA ☒ Not for Publication □ Unrestricted

*__b. USGS 7.5′ Quad__ Cabazon, CA **Date** 1988

T 3 S; **R** 1 E; NE ¼ **of** NE ¼ **of** **Sec** 14; **S.B.B.M.**

T 3 S; **R** 1 E; S ½ **of** S ½ **of** SW ¼ **of** **Sec** 11; **S.B.B.M.**

c. Address: **City** Banning, CA **Zip** 92220

d. Zone 11, NAD83 514374 **mE/** 3753062 **mN**

e. Other Locational Data (e.g., parcel #, legal description, directions to resource, additional UTMs, etc., when appropriate): This site is bisected by Charles Street (dirt) within the Banning Wastewater Treatment Plant property within Section 14. It extends northward into Southeast ¼ of Section 11

***P3a. Description** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries): This site was originally recorded in July 2007 as a historic-period refuse scatter. It was then updated in November 2007. These earlier recordings were limited to Section 14, T3S, R1E. The current update extends the site to the north, into Section 11 and includes two items recorded as isolated historical artifacts (33-015293 & 33-015293) within Section 11 which were recorded in April 2006. Previously recorded artifacts were described as domestic household refuse, including consumer, kitchen items and demolition debris.

During the current recordation, the character of the site proved to be a continuation of the previous records with similar artifacts and ages. The expanded portion of the site is heavily disturbed by several agents. Originally, the site was likely a series of trash dumps and scatters along the side of East Westward Avenue which ran east-west along the south edge of Section 11. In the late 1960s, this segment of East Westward Avenue was abandoned and destroyed by grading, pipeline installation and erosion. Many artifacts appear in secondary context due to disturbances and washing down recent arroyos up to 10 ft deep. North of former East Westward Avenue disturbances are less evident although artifacts are also highly fragmented. After abandonment of East Westward Avenue, the eastern portions of the site were apparently being used as an illicit dump site of bulky items and construction demolition debris.

***P3b. Resource Attributes** (List all attributes and codes): AH 4: Trash Scatter

***P4. Resources Present:** □ Building □ Structure □ Object ☒ Site □ District □ Element of District □ Other:

P5. Photograph or Drawing: (Photograph required for buildings, structures, and objects.)

***P6. Date Constructed/Age and Source:** □ Prehistoric ☒ Historic □ Both

***P7. Owner and Address:** City of Banning Water/Wastewater Utilities Department, 176 East Lincoln Street, Banning, CA 92220

***P8. Recorded by** (Name, affiliation, address): K. Moslak, P. Moloney, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

P9. Date Recorded: May 24, 2017.

***P10. Type of Survey:** ☒ Intensive □ Reconnaissance □ Other

Describe: For CEQA compliance purposes.

***P11. Report Citation** (Provide full citation or enter "none"): Joan George, Tiffany Clark, and Dennis McDougall May 2017. *Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California.* Applied EarthWorks, Inc., Hemet, California.

Attachments: □ None ☒ Location Map ☒ Site Map □ Continuation Sheet □ Building, Structure, and Object Record ☒ Archaeological Site Record □ District Record □ Linear Feature Record □ Milling Station Record □ Rock Art Record □ Artifact Record ☒ Photograph Record Other:

ARCHAEOLOGICAL SITE RECORD

***A1. Dimensions: a. Length:** 1,410 ft (E-W) **b. Width:** 583 ft (N-S) (at widest point)
Method of Measurement: □ Paced □ Taped □ Visual estimate ☒ Other: GPS mapping
Method of Determination (Check any that apply): ☒ Artifacts □ Features □ Soil □ Vegetation □ Topography □ Cut bank □ Animal burrow □ Excavation □ Property boundary □ Other (explain):
Reliability of Determination: ☒ High □ Medium □ Low Explain:
Limitations (Check any that apply): ☒ Restricted access □ Paved/built over □ Disturbances ☒ Site limits incompletely defined □ Other (Explain): Access to parcels to the south and east was restricted during the current update.

A2. Depth: □ None ☒ Unknown Method of Determination: Surface examination only. Artifacts have been redeposited by erosion and/or grading disturbance.

***A3. Human Remains:** □ Present ☒ Absent □ Possible □ Unknown (Explain):

***A4. Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map): None observed.

***A5. Cultural Constituents** (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with feature): See artifact descriptions in the original site record and first update.
The current update recorded one discrete concentration of artifacts measuring 82 x 36 ft (E-W x N-S). Artifacts are highly fragmented, likely by trampling by cows. Concentration 1 artifacts include: one aqua canning jar base (A1), a small cobalt jar base (A2), one frosted aqua jar base embossed "A S Hinds, Portland, Me" (1890–1930), one rectangular clear glass base (Illinois Glass Company, 1916–1929), one quart jar aqua base embossed "WEBER," one amethyst milk bottle rim, one clear condiment jar base with faceted sides, one rectangular clear bottle base with maker mark (ca. 1910–1935), one unmarked clear quart bottle base, one clear pressed glass serving bowl (fragmentary), one fragmentary pressed clear drinking glass, and approximately 30 fragments of 1/8 in. clear window glass. Ceramic items include fragments of an 8-in. diameter stoneware crock with gray interior and brown exterior glazes and a 10-in. diameter stoneware crock with interior and exterior glaze. Fragments of a white earthenware wash basin are also present. Metal items include: seven sanitary-seam food cans, one hole-in-cap can, one gallon hole-in-cap can lid, and one vent-hole milk can. All cans are smashed. Other metal items five 10 in. diameter wooden cask hoops, auto seat springs, five scraps of sheet metal, one piece of ¼ in. hardware mesh, a smashed one gallon pale, and one 3/8 in. diameter carbon battery rod.

The east end of the site is dominated by post-World War II (WWII) debris which includes dumps of bulky items and construction/demolition debris including milled lumber, concrete, asphalt, tires, clay and cinder bricks, plumbing fixtures, stucco, ceramic drain pipes, and sheep fencing. The majority of dumping appears to have occurred ca. 1960s–1980s.

The remainder of the site is heavily disturbed with most pre-WWII artifacts in secondary contexts due to grading, erosion, and pipeline installation. Items include: one clear bottle base with Sierra Club makers mark (A4, 1930–1950), one aqua bottle base showing a standing figure with "PLUTO" embossed below (A5), one brown bottle base (A6) with Parke Davis & Co. maker mark (since 1875), one ca. 1940s–1950s Packard Bell record player (A7), one aqua bottle base base (Illinois Glass Company, 1900–1916), one clear octagonal bottle base with embossed chess piece or monument (A9). The central and western portions of the site are similar to Concentration 1, dominated by ca. 1920s–1930s domestic household refuse and consumer/kitchen items. These include aqua canning jar fragments, white earthenware tableware, milk glass canning jar inserts and cosmetic jars, stoneware crockery fragments, Pacific Coast Glassworks bottle base (ca.1902–1924), amethyst milk bottle fragments, brown jar and bottle fragments, small rectangular medicinal bottle fragments in clear, brown, cobalt, and aqua glass, condiment bottles and jars in various colors.

Metal and other items include a black and gray enameled cooking pot and frying pan, barrel hoops, auto seat spring sets, unidentified furniture machinery hardware, a trowel blade, metal frame to a handbag or satchel, auto leaf spring, 10-in. diameter wooden cask hoops, 5-gallon steel bucket, assorted scraps of sheet metal and a variety of smashed cans, primarily sanitary seam food cans but also present are a few hole-in-cap cans, 5-gallon rectangular liquid can, and upright pocket tobacco tins.

ARCHAEOLOGICAL SITE RECORD

***A6. Were Specimens Collected?** ☒ No □ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

***A7. Site Condition:** □ Good ☒ Fair ☒ Poor (Describe disturbances): The site is heavily disturbed by several agents. Originally, the site was likely a series of trash dumps and scatters along the side of East Westward Avenue which ran east-west along the south edge of Section 11. Between 1956 and1971, this segment of East Westward Avenue was abandoned and destroyed by grading, pipeline installation and erosion. Grading has fragmented and crushed most artifacts. Many artifacts appear in secondary context due to disturbances and washing down recent arroyos up to 10 ft deep. North of the power lines, grading disturbances are less evident although artifacts are also highly fragmented. After abandonment of East Westward Avenue, the eastern portions of the site were apparently being used as an illicit dump site of bulky items and construction demolition debris. The site has also been subject to cattle grazing.

***A8. Nearest Water** (Type, distance, and direction): Smith Creek is located approximately 1/8 mi to the south.

***A9. Elevation:** ~2,080 ft amsl.

A10. Environmental Setting (Describe vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc., as appropriate): The site is situated at the toe of a southeast sloping alluvial fan. Slope is 2º and aspect is to the southeast. Sediments are poorly sorted coarse sand loams with ca. 30% poorly sorted rounded to subangular granite and gneiss gravels and cobbles. Vegetation is Riversidian Sage Scrub with California buckwheat, catclaw acacia, fiddleneck, foxtail grass, Datura, mustard and unidentified annual grasses and weeds.

A11. Historical Information (Note sources and provide full citations in Field A15 below): None known.

***A12. Age:** □ Prehistoric □ Pre-Colonial (1500–1769) □ Spanish/Mexican (1769–1848) □ Early American (1848–1880) □ Turn of century (1880–1914) ☒ Early 20th century (1914–1945) ☒ Post WWII (1945+) □ Undetermined Factual or estimated dates of occupation (explain): Diagnostic artifacts suggest the site dates to the 1920s–1930s for most of the household consumer and kitchen waste. Demolition debris (lumber, concrete, asphalt, bricks) appears to date mostly to a later period, ca1950s–1980s

A13. Interpretations (Discuss scientific, interpretive, ethnic, and other values of site, if known): CA-RIV-8364H appears to contain largely surficial deposits with no evidence of buried refuse (privy) and limited potential for subsurface deposits. Due to lack of historical ownership information, no association can be made between the artifacts and a homestead. Therefore, it is very likely that CA-RIV-8364H is a random historical refuse scatter with items dumped to the side of former East Westward Avenue and current Charles Street. The site likely represents the opportunistic disposal of residential refuse by local residents.

A14. Remarks: None.

A15. References (Give full citations including the names and addresses of persons interviewed, if possible):

Toulouse, J. H.
1971 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

.

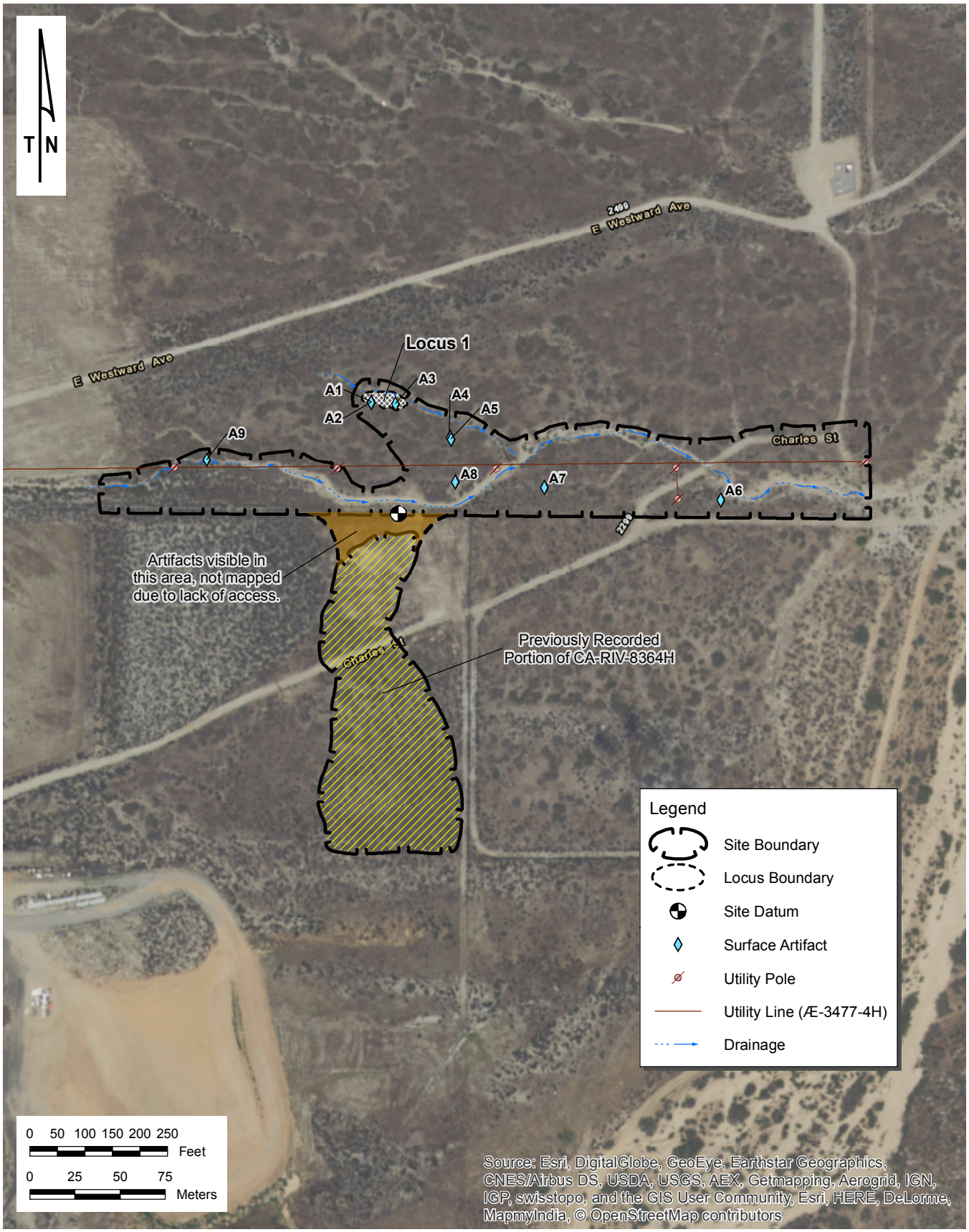
A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record): Roll 3477-2-dm; Frames 9–20

***A17. Form Prepared by:** K. Moslak **Date:** May 2017
Affiliation and Address: Applied EarthWorks, Inc., 3292 E. Florida Ave., Suite A, Hemet, CA 92544.

PHOTOGRAPH RECORD

Temporary Number/Resource Name:
Project Name: Webb Associates – Banning Industrial #3477 **Photographer:** P. Moloney
Image Type: □ (bw) 35mm B&W film □ (cp) 35mm Color Print film □ (cs) 35mm Color Slide film
□ (df) Digital-Floppy disk ☒ (dm) Digital-Memory flash card
Camera Type and Model: Panasonic Lumix
Film Type and Speed: SD card **Roll Number:** 3477-2-dm
Year: 2017

Mo.	Day	Time	Frame/ File Name	Subject/Description	Facing
5	24	1132	009	CA-RIV-8364H update; overview.	W
5	24	1135	010	CA-RIV-8364H update; A1, aqua glass.	Down
5	24	1145	011	CA-RIV-8364H update; A2, cobalt “44” glass.	Down
5	24	1150	012	CA-RIV-8364H update; A3, “Portland Maine” glass.	Down
5	24	1153	013	CA-RIV-8364H update; A4, clear glass with maker’s mark.	Down
5	24	1154	014	CA-RIV-8364H update; A5, “Pluto” glass base.	Down
5	24	1205	015	CA-RIV-8364H update; A6, “PD&CO” brown glass base.	Down
5	24	1212	016	CA-RIV-8364H update; A7, Packard Bell turntable.	Down
5	24	1217	017	CA-RIV-8364H update; A8, glass base.	Down
5	24	1225	018 & 019	CA-RIV-8364H update; A9, shot glass base, chess piece.	Down
5	24	1230	020	CA-RIV-8364H update; overview.	E


T N
E Westward Ave
2499
E Westward Ave
Locus 1
A1
A2
A3
A4
A5
A6
A7
A8
A9
Charles St
2299
Artifacts visible in this area, not mapped due to lack of access.
Previously Recorded Portion of CA-RIV-8364H
Legend
Site Boundary
Locus Boundary
Site Datum
Surface Artifact
Utility Pole
Utility Line (Æ-3477-4H)
Drainage
0 50 100 150 200 250
Feet
0 25 50 75
Meters
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

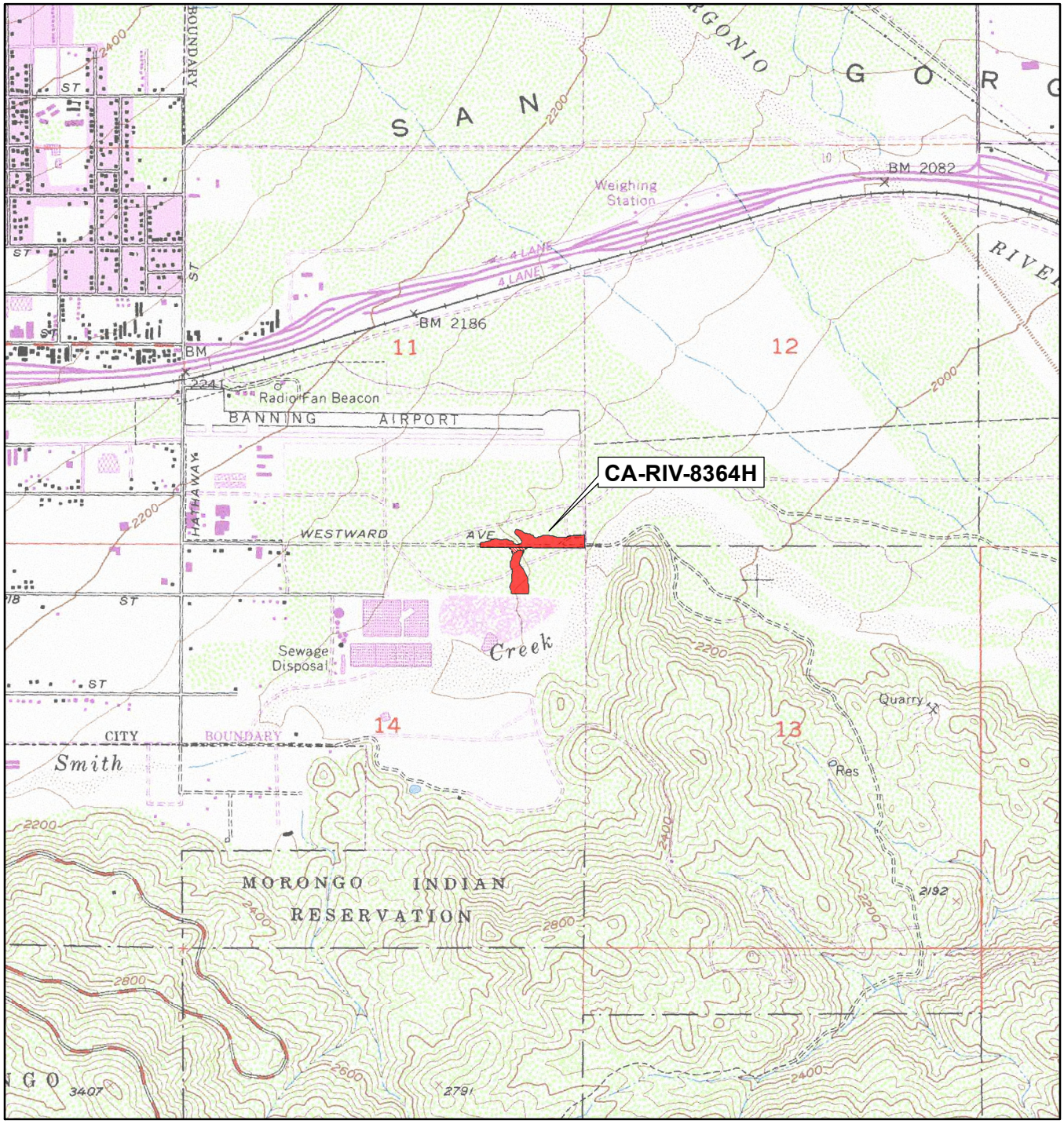
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 33-016208
HRI#
Trinomial CA-RIV-8364H; Update

Page 7 **of** 7 **Resource Name or #:** **Scale:** 1:24,000

Map Name: Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangle **Date:** 2017



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California--The Resources Agency **Primary #** 33-024895
DEPARTMENT OF PARKS AND RECREATION **HRI #**

PRIMARY RECORD

Trinomial
NRHP Status Code 6Z
Other Listings
Review Code **Reviewer** **Date**

 Resource Name or # Banning Municipal Airport

P1. **Other Identifier:** AE-3477-1H

P2. **Location:** **a. County** Riverside, CA ☐ Not for Publication ☒ Unrestricted

b. USGS 7.5′ Quad Cabazon, CA **Date** 1956; Photorevised 1988

T 3 S; **R** 1 E; SW ¼ **of Sec** 11; **S.B.B.M.**

c. Address: 200 S Hathaway St **City** Banning **Zip** 92220

d. Zone **mE/** **mN**

e. Other Locational Data (e.g., parcel #, legal description, directions to resource, additional UTMs, etc., when appropriate): From the intersection of Hargrave Street and John Street in the City of Banning, go east on John Street 0.5 miles to the entrance gate for the Banning Airport.

P3a. **Description:** Located east of downtown Banning, the Banning Municipal Airport is situated immediately south of the Southern Pacific Railroad and Interstate 10. The airport was established by the Banning Kiwanis Club in 1927 on approximately 70 acres of land purchased from the Southern Pacific Railroad (Bitetti and Bitetti 2013:27). The facility was originally named Rodgers Airport in memory of Cal Rodgers who had landed in Banning in the first transcontinental flight in 1911. Following its annexation by the City of Banning in the mid-1930s, the airport was improved and enlarged to 127 acres.

During World War II, the Army Air Forces controlled the airport (http://www.militarymuseum.org/BanningAP.html). While under military control, the facility was known as Banning Landing Strip. In 1943, the U.S. Army conducted a training program in airport construction at the Banning Landing Strip for Army engineers. Known as *Project X: How to Build an Air Field in Italy*, the program resulted in improvements to the runway with the extension of the paved landing strip to 5,200 feet. Aside from the landing area, no other facilities appear to have been present at the airport at this time.

Following the end of World War II, control of the airport reverted back to the municipal government. In the following decade, the City of Banning made a number of infrastructural improvements to the airport. The 1956 USGS topographic quadrangle map for Cabazon, California (1:24,000) depicts an aircraft parking apron, communication fan beacon, two buildings, and a road in the northwest corner of the airport. A historical aerial photograph indicates that by 1967, taxiways, the terminal building, and four aircraft hangars were constructed on the property south of the runway (NETR Online 2016). Several additional hangars appear to have been built at the airport in the late 1980s and early 1990s.

Today the airport encompasses approximately 295 acres of which 145 acres are developed (C&S Engineers, Inc. 2007). In addition to runways and taxiways, several facilities are located within the airport boundaries including the terminal building, one facility capable of housing a fixed base operator, nine hangars, and fuel facilities. Photographs of the current condition of the airport were taken on May 24, 2016 to document their appearance, design, and construction (see Figures 1 through 7 on the attached Continuation Sheets). Satellite imagery was used to create a Sketch Map of the air field.

P3b. **Resource Attributes:** HP11. Engineering structure; HP4. Ancillary building; HP14. Government building

P4. **Resources Present:** ☒ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

P5a. **Photograph or Drawing** See attached Continuation sheets for photographs

P5b. **Description of Photo:** Photographs taken on May 24, 2016.

P6. **Date Constructed/Age of Sources:** ☐ Prehistoric ☒ Historic ☐ Both

P7. **Owner and Address:** City of Banning

P8. Recorded by: Applied EarthWorks, Inc., 3550 E. Florida Avenue, Suite H, Hemet, CA 92544

P9. Date Recorded: June 9, 2016

P10. Survey Type: Reconnaissance and intensive level survey for compliance with CEQA and Section 106 of the NHPA

P11. Report Citation: Tiffany Clark, Dennis McDougall, Joan George (2017): Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California. Applied EarthWorks, Inc., Hemet, CA.

Attachments: □ None ☒ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record □ Archaeological Record □ District Record □ Linear Feature Record □ Milling Station Record □ Rock Art Record □ Artifact Record □ Photograph Record Other:

BUILDING, STRUCTURE, AND OBJECT RECORD

B1. **Historic Name:** Banning Municipal Airport
B2. **Common Name:** Banning Municipal Airport
B3. **Original Use:** municipal airport
B4. **Present Use:** municipal airport

B5. **Architectural Style:** One 5,200-ft-long by 500-ft-wide asphalt runway with associated metal siding and concrete block buildings.

B6. **Construction History:** The Banning Kiwanis Club established a landing strip east of downtown Banning in 1927. The U.S. Army controlled the airport in World War II and extended the landing strip to 5,200 feet. Control of the airport reverted back to the City of Banning at the end of the war. The City made a number of infrastructural improvements to the airport in the 1950s and 1960s including the construction of taxiways, aircraft parking aprons, a communication fan beacon, a terminal building, and aircraft hangars.

B7. **Moved?** ☒ No □ Yes □ Unknown **Date:** **Original Location:**

B8. **Related Features:** None

B9a. **Architect:** Unknown **b. Builder:** City of Banning

B10. **Significance:** **Theme** Aviation and the Banning Municipal Airport
Area Banning, Riverside County **Period of Significance** none
Property Type municipal airport **Applicable Criteria** none

Aviation and the Banning Municipal Airport

Located east of downtown Banning, the Banning Municipal Airport is situated immediately south of the Southern Pacific Railroad and Interstate 10. The airport was established by the Banning Kiwanis Club in 1927 on approximately 70 acres of land purchased from the Southern Pacific Railroad (Bitetti and Bitetti 2013:27). The facility was originally named Rodgers Airport in memory of Cal Rodgers who had landed in Banning in the first transcontinental flight in 1911. Following its annexation by the City of Banning in the mid-1930s, the airport was improved and enlarged to 127 acres.

During World War II, the Army Air Forces controlled the airport (http://www.militarymuseum.org/BanningAP.html). While under military control, the facility was referred to as the Banning Landing Strip. In 1943, the U.S. Army conducted a training program in airport construction at the Banning Landing Strip for Army engineers. Known as *Project X: How to Build an Air Field in Italy*, the program resulted in improvements to the runway with the extension of the paved landing strip to 5,200 feet. Aside from the landing area, no other facilities appear to have been present at the airport at this time.

Following the end of World War II, control of the airport reverted back to the municipal government. In the following decade, the City of Banning made a number of infrastructural improvements to the airport. The 1956 USGS topographic quadrangle map for Cabazon, California (1:24,000) depicts an aircraft parking apron, communication fan beacon, two buildings, and a road in the northwest corner of the airport. A historical aerial photograph indicates that by 1967, taxiways, the terminal building, and four aircraft hangars were constructed on the property south of the runway (NETR Online 2016). Several additional hangars appear to have been built at the airport in the late 1980s and early 1990s.

The Banning Municipal Airport is one of a number of municipal airports located in Riverside County. Historical background research indicates that the Banning Municipal Airport never achieved any prominence as a municipal or military airport throughout the historic period. As such, it does not appear to meet any of the criteria of the NRHP or the CRHR. It is not directly associated with an important historical event (NRHP/CRHR Criterion A/1), or directly associated with the productive life of an important historical person (NRHP/CRHR Criterion B/2); it does not embody distinctive characteristics of a type, period, or method of construction, is not an important work of a

(This space reserved for official comments.)

master architect, or possess high artistic value (NRHP/CRHR Criterion C/3); and it does not possess data potential important to the study of our local, state, or national history (NRHP/CRHR Criterion D/4), as explained in further detail below.

NRHP/CRHR Criterion A/1: No information has been found to suggest that the Banning Municipal Airport is directly associated with any historical events of importance in local, state, or national history under NRHP/CRHR Criterion A/1. Although Cal Rodgers landed his plane in the Banning area during the first transcontinental flight in 1911, the airport was not established until 1927. As such, the Banning Municipal Airport is not associated with this important event. The airport was converted to a military landing strip during World War II and used to train Army engineers in airport construction. However, the airport does not appear to have played a pivotal role in any historical events in the U.S. Army or WWII history. While the Banning Municipal Airport is associated with the development of the region and WWII era history, there is no indication that association is significant. Mere association with historic events is not enough to meet NRHP/CRHR Criterion A/1, in and of itself; the property's specific association must be considered important as well.

NRHP/CRHR Criterion B/2: The airport was originally named Rodgers Airport after Cal Rodgers, who landed his plane in the Banning area during the first transcontinental flight in 1911. As the airport had not yet been constructed at the time of his historic flight, there is no direct association with the aviation pioneer. No information has been found to suggest that the Banning Municipal Airport is directly associated with the productive life of an historical person of importance in local, state, or national history under NRHP/CRHR Criterion B/2.

NRHP/CRHR Criterion C/3: No information has been found to suggest that the Banning Municipal Airport exhibits any architectural or engineering merits that would set it apart from other airports in the region. The landing strip and associated buildings are of standard design and construction. The airport runway and associated facilities do not embody the distinctive characteristics of a type, period, or method of construction important in aviation history. Further, the airport is not the work of a master and does not display high artistic value. As such, the Banning Municipal Airport does not meet the criteria for listing under NRHP/CRHR Criterion C/3.

NRHP/CRHR Criterion D/4: The Banning Municipal Airport does not appear to meet NRHP/CRHR Criterion D/4 for any potential to provide information important to the study of aviation and municipal airport development. This criteria is typically reserved for archaeological resources, ruins, or rare built environment resources of which little is already known, and that are considered to be the sole source of historical data. The Banning Municipal Airport is unable to yield any information important to the study of municipal airports of similar vintage in local, state, or national history. The Banning Municipal Airport is not the primary source of information, but rather, the physical manifestation of the knowledge and practice of a construction technique, which has been widely applied to airports throughout southern California and the nation. Thus, Banning Municipal Airport does not provide any important information or data potential that would meet NHRP/CRHR Criterion D/4.

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B11. Additional Resource Attributes: (List attributes and codes)

B12. References:

Bitetti, Marge and Tony Bitetti
1999 *The Aviation History of Greater Riverside*. Copyright 2013 by Marge Bitetti and Tony Bitetti. Published by The History Press, Charleston, SC.

C&S Engineers, Inc.
2007 *Banning Municipal Airport, Airport Master Plan Update*. C&S Engineers, Inc., San Diego, California. Submitted to the City of Banning, Riverside County, California.

NETR Online
2016 Historical Aerial Photographs. http://www.netronline.com. Website accessed on June 3, 2016.



Figure 1. Radio antennae located in the northwest corner of the airport (view to the east).



Figure 2. Landing strip with airport terminal and hangars (view to the south southeast).



Figure 3. Beacon and lighted wind sock in northwest corner of airport (view to the west).



Figure 4. Hanger and electrical buildings next beacon in northwest corner of airport (view to the northwest).



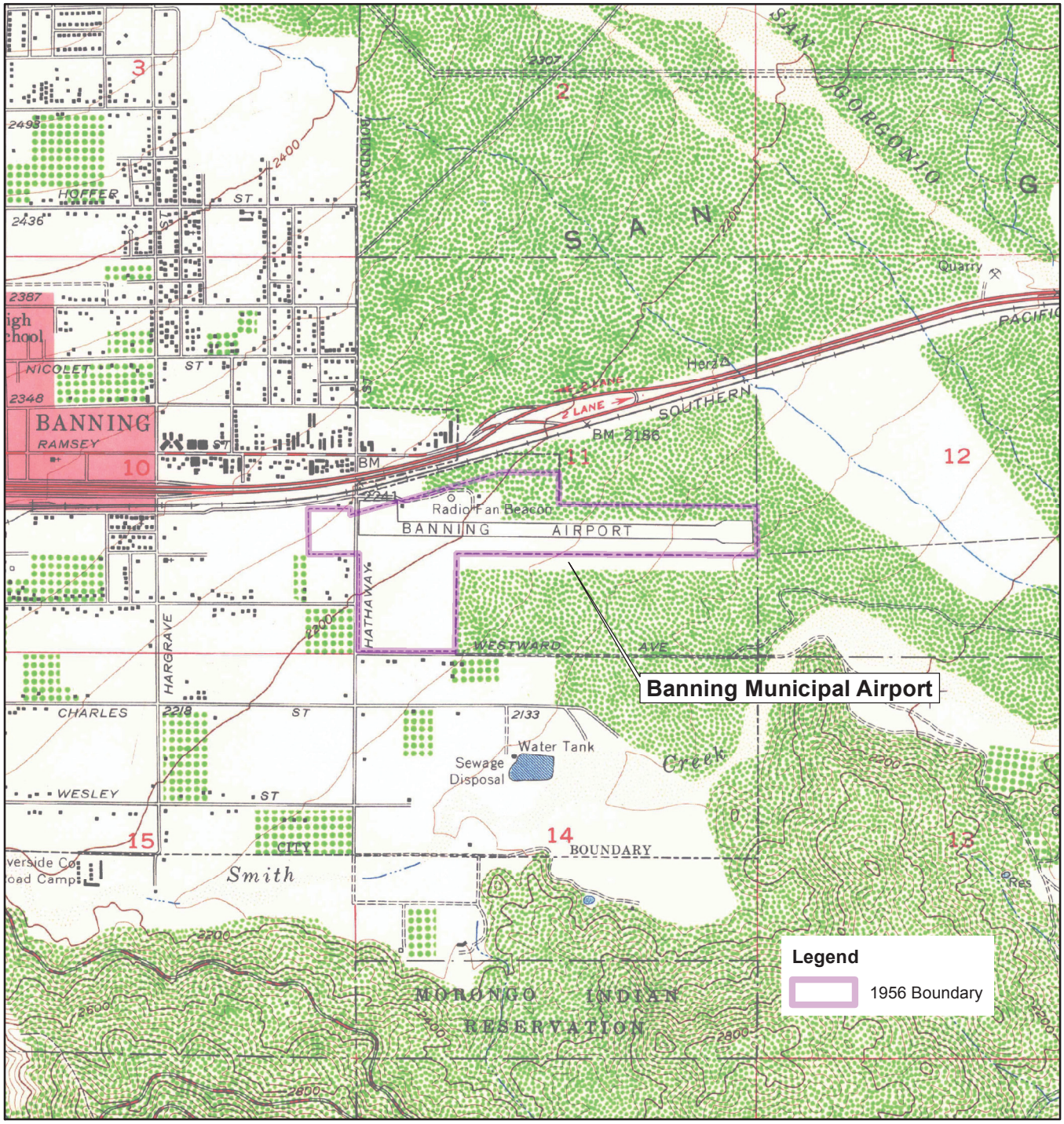
Figure 5. Paved runway, facing east (taken from C&S Engineers, Inc., 2007: Figure 2.5)



Figure 6. Example of hanger building, facing southeast (taken from C&S Engineers, Inc., 2007: Figure 2.9)



Figure 7. Terminal Building, facing southwest (taken from C&S Engineers, Inc., 2007: Figure 2-10)



SCALE 1:24,000

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1 0.5 0 1 Kilometers

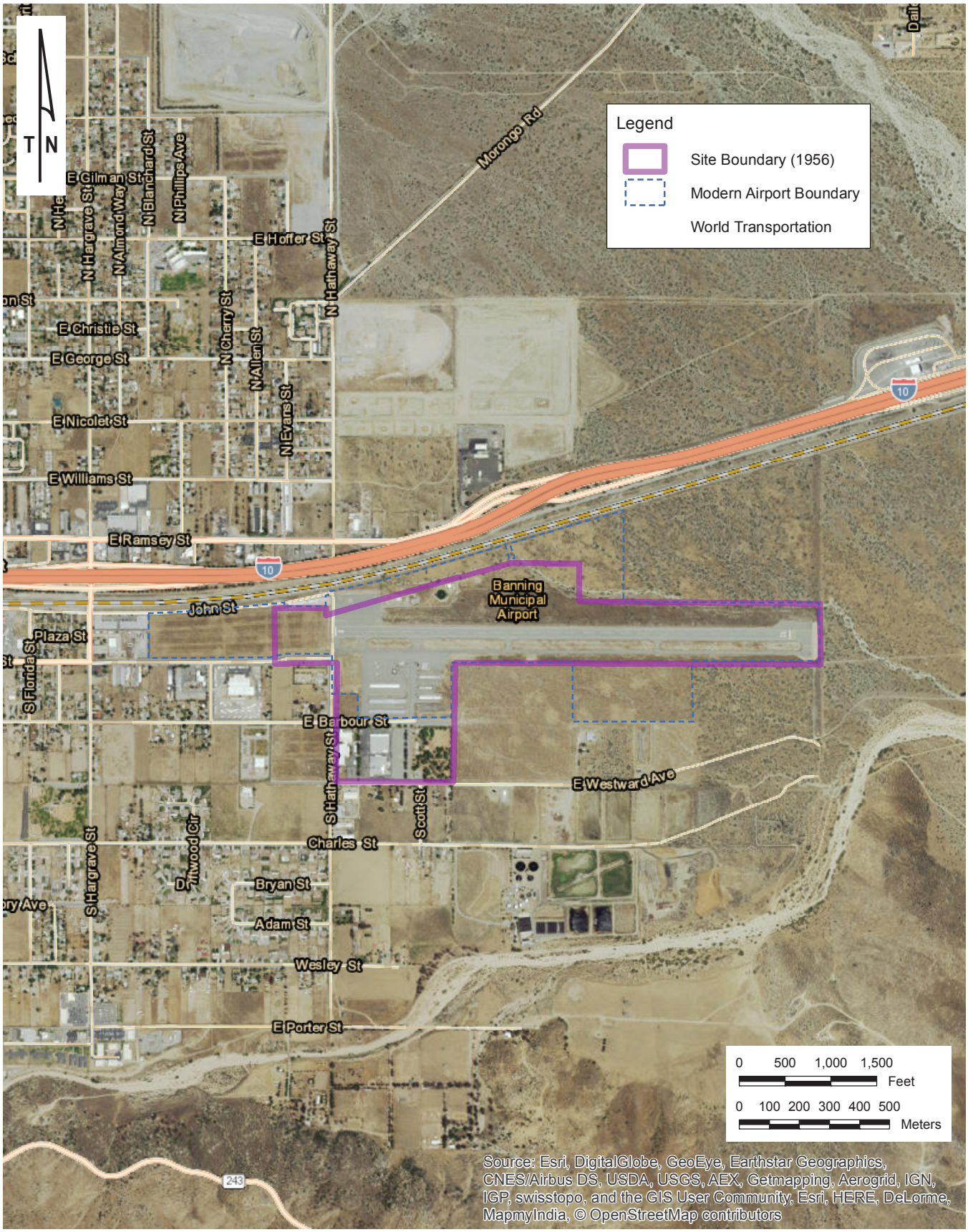
TRUE NORTH

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # 33-024895
HRI#
Trinomial

Page 10 **of** 11 ***Resource Name or #:** (Assigned by recorder) Æ-3477-1H

***Drawn by:** C. Inoway ***Scale:** 1 inch equals 1,500 feet ***Date of map:** yMay 2016



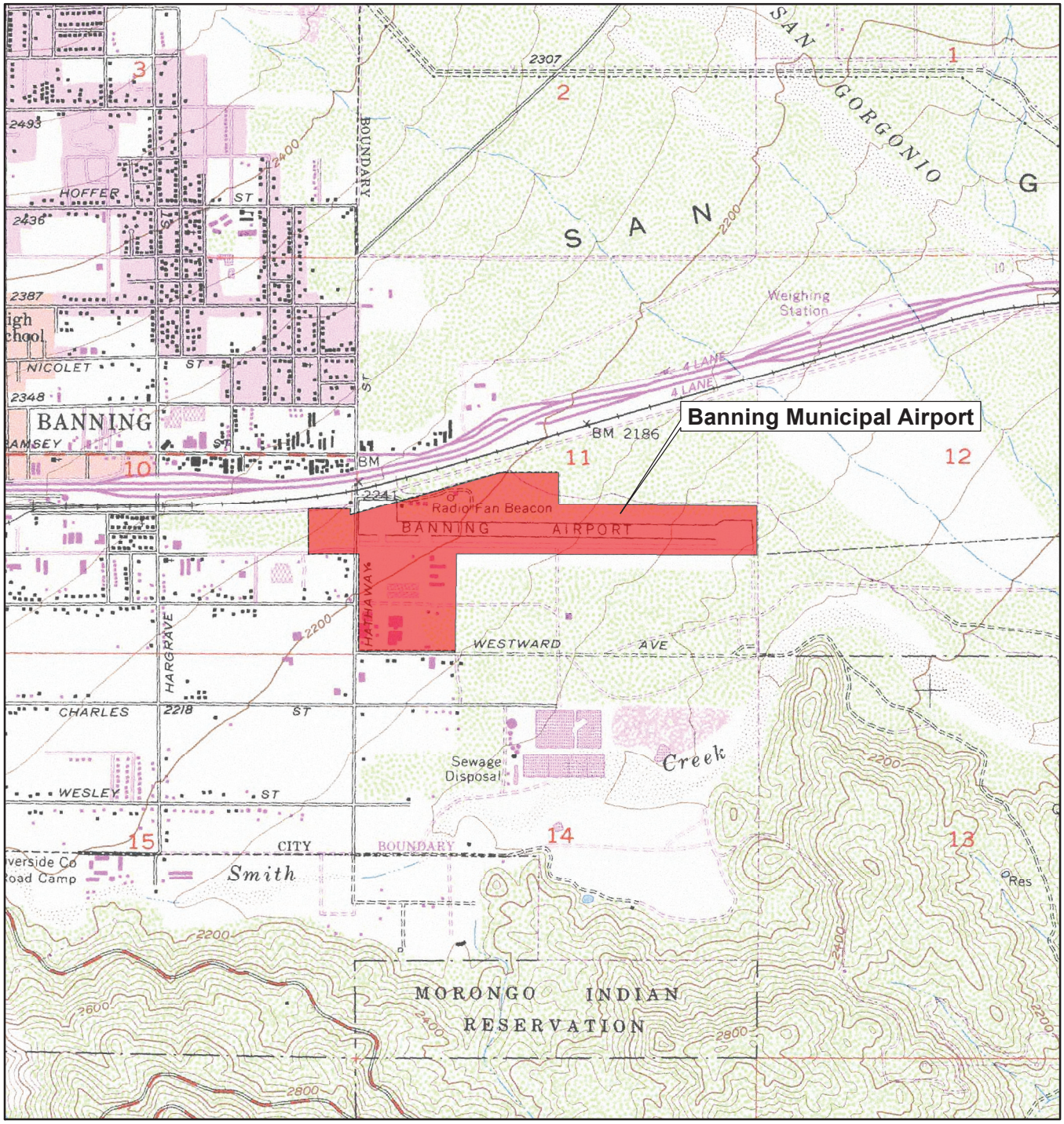
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 33-024895
HRI#
Trinomial

Page 11 **of** 11 **Resource Name or #:** Banning Municipal Airport (Æ-3477-1H) **Scale:** 1:24,000

Map Name: Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangle **Date:** 2016



SCALE 1:24,000

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1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency **Primary #** 33-026821; Update
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Resource Name or #: Æ-3477-2H, segment of East Westward Ave

P1. Other Identifier:

P2. Location: a. County Riverside, CA □ **Not for Publication** ☒ **Unrestricted**
b. USGS 7.5′ Quad Cabazon, CA **Date** 1988
T 3 S, **R** 1 E; **Section** 34; **S.B.B.M.**
c. Address: None **City** Banning **Zip** 92220
d. Zone 11; NAD83 West end of recorded segment: 513621 **mE /** 3753077 **mN**
East end of recorded segment: 514634 **mE /** 3753234 **mN**
e. Other Locational Data: This segment of East Westward Ave is situated along the extreme south edge of Section 11, extending eastward to the corner of that Section.

P3a. Description: This update includes an additional 2,200 ft long segment of East Westward Avenue that extends east from the previously documented segment. This segment is within the eastern half of East Westward Avenue and consists of a narrower road constructed of a rudimentary pavement of coarse gravels and asphalt mixed and roughly spread in a 12 ft wide path.

P3b. Resource Attributes: HP 37: Highway/trail, road

P4. Resources Present: □ Building ☒ Structure □ Object □ Site □ District □ Element of District □ Other:

P5. Photograph or Drawing: Roll 3477-3-dm; Frame 4

P6. Date Constructed/Age and Source: □ Prehistoric ☒ Historic □ Both

P7. Owner and Address: Unknown

P8. Recorded by: Ken Moslak and Pat Moloney, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

P9. Date Recorded: September 28, 2017

P10. Type of Survey: ☒ Intensive □ Reconnaissance □ Other
Describe: Intensive-level survey for Section 106 and CEQA compliance purposes

P11. Report Citation: Joan George, Tiffany Clark, and Dennis McDougall September 2017. *Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California.* Applied EarthWorks, Inc., Hemet, California.

Attachments: □ None ☒ Location Map □ Site Map □ Continuation Sheet □ Building, Structure, and Object Record □ Archaeological Site Record □ District Record □ Linear Feature Record □ Milling Station Record □ Rock Art Record □ Artifact Record □ Photograph Record Other:

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

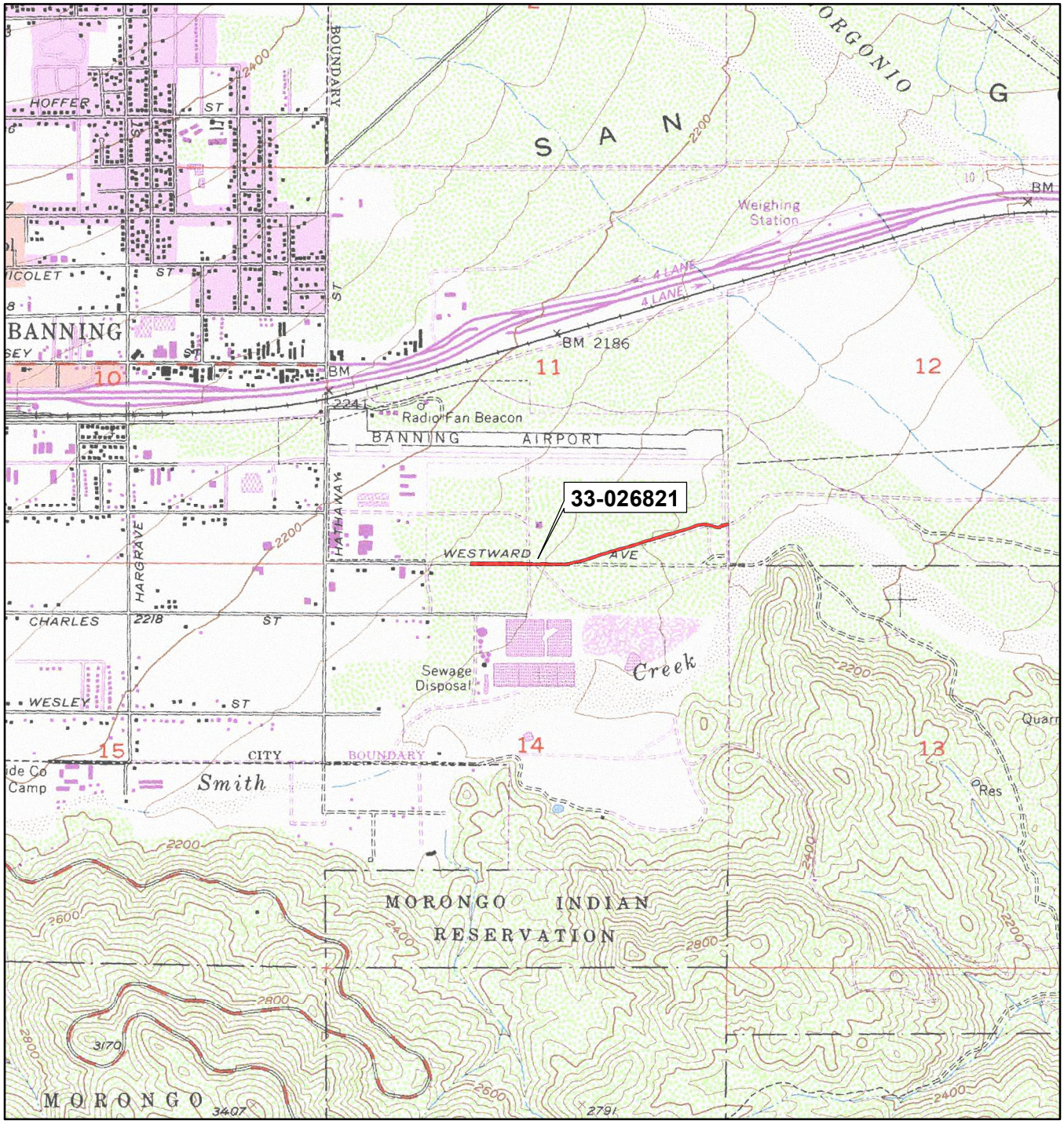
Primary # 33-026821 (Update)
HRI#
Trinomial

Resource Name or #: Æ-3477-2H

Scale: 1:24,000

Map Name: Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangle

Date: 2017



SCALE 1:24,000

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1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency **Primary #** 33-026821
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Resource Name or #: Æ-3477-2H, segment of East Westward Ave

P1. Other Identifier:

P2. Location: a. County Riverside, CA ☐ **Not for Publication** ☒ **Unrestricted**
b. USGS 7.5′ Quad Cabazon, CA **Date** 1988
T 3 S, **R** 1 E; **Section** 34; **S.B.B.M.**
c. Address: None **City** Banning **Zip** 92220
d. Zone 11; NAD83 West end of recorded segment: 513621 **mE /** 3753077 **mN**
East end of recorded segment: 514066 **mE /** 3753095 **mN**
e. Other Locational Data: This 1,460 ft long segment of East Westward Ave is situated along the extreme south edge of Section 11, extending eastward to the corner of that Section.

P3a. Description: The recorded segment is a wide paved modern paved road measuring 12–22 ft. The western half of the recorded segment is a well-maintained modern local road while the eastern half, east of a restricted access gate, consists of a narrower road constructed of a rudimentary pavement of coarse gravels and asphalt mixed and roughly spread in a 12 ft wide path. On 1943 and 1956 quadrangle maps (USGS 1943, 1956), East Westward Avenue is shown as an east-west oriented road that ran for one mile between Sections 11 and 14, Township 3S / Range 1E. Historic aerial photographs suggest that by the late 1960s, the easternmost portion of the road, which measured approximately 0.4 mi (2,100 ft) in length, had been realigned further to the north (NETROnline 2017). The only evidence of the eastern portion of the original road observed in the Project APE was a faint two track in the western portion of old alignment. Erosion from the nearby Smith Creek appears to have destroyed the remaining portions of the road alignment.

P3b. Resource Attributes: HP 37: Highway/trail, road

P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

P5. Photograph or Drawing: Roll 3477-2-dm; Frames 26–30

P6. Date Constructed/Age and Source: ☐ Prehistoric ☒ Historic ☐ Both

P7. Owner and Address: Unknown

P8. Recorded by: Ken Moslak and Pat Moloney, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

P9. Date Recorded: May 24, 2017

P10. Type of Survey: ☒ Intensive ☐ Reconnaissance ☐ Other
Describe: Intensive-level survey for Section 106 and CEQA compliance purposes

P11. Report Citation: Joan George, Tiffany Clark, and Dennis McDougall May 2017. *Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California.* Applied EarthWorks, Inc., Hemet, California.

Attachments: ☐ None ☒ Location Map ☐ Site Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Site Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☒ Photograph Record Other:

BUILDING, STRUCTURE, AND OBJECT RECORD

 NRHP Status Code
Resource Name or # Æ-3477-2H, segment of East Westward Ave

B1. Historic Name: East Westward Ave **B2. Common Name:** same
B3. Original Use: Local road
B4. Present Use: Local road
B5. Architectural Style: 12-22 ft wide paved road
B6. Construction History: Historic maps indicate that the section of East Westward Avenue located east of South Hathaway Street has been in use since at least the early 1940s (U.S. Army Corp of Engineers 1942). The subject segment today is completely modern in appearance, design, and construction on its western half but retains some of its earlier character in the eastern half. East of the subject segment, the road was rerouted and the older portion abandoned and destroyed by the late 1960s (NETROnline 2017).

B7. Moved? ☒ No Yes Unknown **Date:** **Original Location:**
B8. Related Features: None
B9a. Architect: Unknown **b. Builder:** Unknown
B10. Significance: Theme Twentieth century automobile roads
Area Banning Pass **Period of Significance** None
Property Type Automobile road **Applicable Criteria** None
The road does not appear to be eligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). Historical maps indicate that the section of East Westward Avenue located east of South Hathaway Street has been in use since at least the early 1940s. The western portion of the structure consists of a 22-ft-wide asphalt-concrete paved road. The eastern extent of the roadway is 12 ft in width and is constructed of a rudimentary pavement of coarse gravels and asphalt. Both sections of the road are completely modern in appearance, design, and construction, and lack any historical features. Only the alignment itself appears historic in age based upon its depiction on historical maps. The road is one of several that were built in the area in the 1940s. Although the road is broadly associated with the development of the city of Banning, it is not directly associated with any pattern of events or historical trends in local, state, or national history. Thus, there is no evidence that it is directly associated with any events of recognized historical significance (NRHP Criterion A/CRHR Criterion 1). The road was likely built by the City of Banning, and not a specific individual. Therefore, the structure is not directly associated with the productive life of an important historical figure (NRHP Criterion B/CRHR Criterion 2). The road does not represent the work of a prominent architect, designer, or builder, nor does it qualify as an important example of its type, period, region, or method of construction (NRHP Criterion C/CRHR Criterion 3). Finally, the East Westward Avenue does not have the potential to yield any information important to the study of our local, state, or national history and is thus not eligible for listing under NRHP Criterion D/CRHR Criterion 4.

B11. Additional Resource Attributes:

B12. References:

U.S. Army Corps of Engineers
1942 Banning, Calif. 1:62,500/15-minute scale topographic quadrangle.

NETROnline
2017 Aerial photographs dated 1967. Found at: http://www.historicaerials.com. Accessed June 2, 2017.

USGS (United States Geological Survey)
1956 Cabazon, Calif. 1:24,000/7.5-minute scale topographic quadrangle.
1972 Cabazon, Calif. 1:24,000/7.5-minute scale topographic quadrangle

B13. Remarks:

B14. Evaluator: Ken Moslak
Date of Evaluation: May, 2017

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary # 33-026821
Trinomial

PHOTOGRAPH RECORD

 *Resource Name or # Æ-3477-2H

Temporary Number/Resource Name: Æ-3477-2H
Project Name: Webb Associates – Banning Industrial #3477 **Photographer:** P. Moloney
Image Type: □ (bw) 35mm B&W film □ (cp) 35mm Color Print film □ (cs) 35mm Color Slide film
□ (df) Digital-Floppy disk ☒ (dm) Digital-Memory flash card
Camera Type and Model: Panasonic Lumix
Film Type and Speed: SD card **Roll Number:** 3477-2-dm
Year: 2017

Mo.	Day	Time	Frame/ File Name	Subject/Description	Facing
5	24	1343	026 & 027	33-026821; overviews from east boundary.	S, W
5	24	1345	028	33-026821; overview from mid project area point.	W
5	24	1345	029	33-026821; overview of rough tarmac.	W
5	24	1356	030	33-026821; overview of smooth-top asphalt.	E

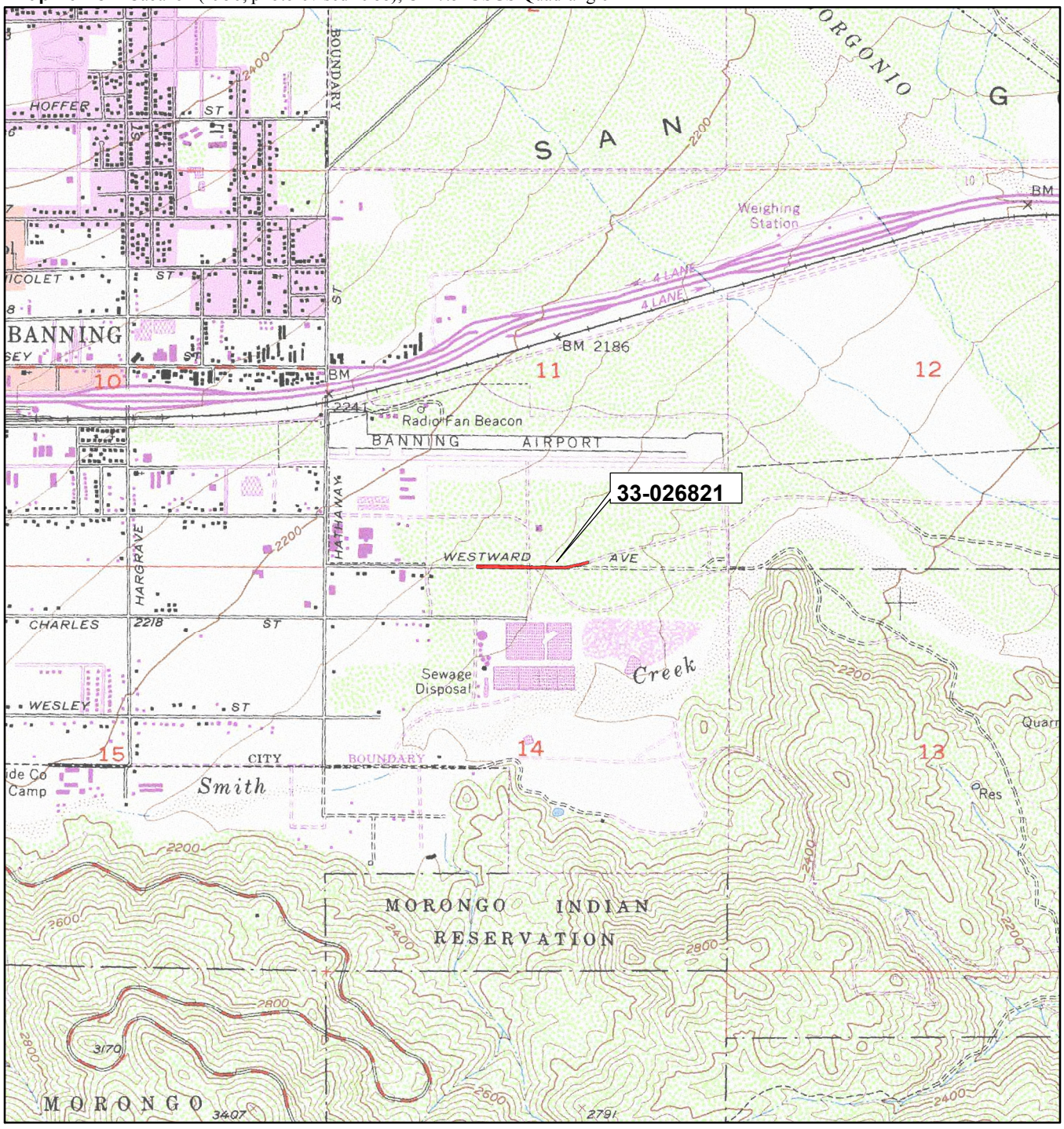
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 33-026821
HRI#
Trinomial

Page 4 **of** 4 **Resource Name or #:** Æ-3477-2H **Scale:** 1:24,000

Map Name: Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangle **Date:** 201733



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency **Primary #** 33-026822
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Resource Name or #: Æ-3477-3H, segment of John Street

P1. Other Identifier:

P2. Location: a. County Riverside, CA ☐ **Not for Publication** ☒ **Unrestricted**
b. USGS 7.5′ Quad Cabazon, CA **Date** 1988
T 3 S, **R** 1 E; Section 34; **S.B.B.M.**
c. Address: None **City** Banning **Zip** 92220
d. Zone 11; NAD83 West end of recorded segment: 512224 **mE /** 3753646 **mN**
East end of recorded segment: 512859 **mE /** 3753673 **mN**
e. Other Locational Data: This 2,083 ft long segment of John Street is situated between the Banning Municipal Airport to the south and railroad tracks and Interstate 10 to the north. The subject segment lies east of Hargrave St.

P3a. Description: The recorded segment is a well maintained modern paved road measuring approximately 20 ft wide. From its intersection with South Hargrave Street, the roadway runs in an east to northeast direction for approximately 2,620 ft at which point it terminates at the western end of the Banning Airport. The road appears to be regularly maintained. No historic-period signage, guardrails, or other historical roadway features were observed along this road segment. Historical maps indicate that the section of John Street that ran between South Hargrave and South Hathaway streets has been in use since the mid-1950s (ACOE 1941, USGS 1956). It appears that the subject segment was constructed to provide secondary access to the north side of Banning Municipal Airport, replacing an older airport access at the northwest corner of the airport property. Historic aerial photographs suggest that this segment of road was paved by at least 1967 (NETROnline 2017). The eastern extent of the roadway appears to have been realigned following the construction of an airport hanger sometime in the 1970s or 1980s.

P3b. Resource Attributes: HP 37: Highway/trail, road

P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

P5. Photograph or Drawing: Roll 3477-2-dm; Frames 21–25

P6. Date Constructed/Age and Source: ☐ Prehistoric ☒ Historic ☐ Both

P7. Owner and Address: Unknown

P8. Recorded by: Ken Moslak and Pat Moloney, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

P9. Date Recorded: May 24, 2017

P10. Type of Survey: ☒ Intensive ☐ Reconnaissance ☐ Other
Describe: Intensive-level survey for Section 106 and CEQA compliance purposes

P11. Report Citation: Joan George, Tiffany Clark, and Dennis McDougall May 2017. *Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California.* Applied EarthWorks, Inc., Hemet, California.

Attachments: ☐ None ☒ Location Map ☐ Site Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Site Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☒ Photograph Record Other:

B1. **Historic Name:** John Street **B2. Common Name:** same
B3. **Original Use:** Local road
B4. **Present Use:** Local road
B5. **Architectural Style:** 20 ft wide paved road.
B6. **Construction History:** Historic maps indicate that the road was in used since the mid-1950s (ACOE 1943, USGS 1956). It appears that the subject segment was constructed to provide secondary access to the north side of Banning Municipal Airport, replacing an older airport access at the northwest corner of the airport property. The road was paved by at least 1967 (NETROnline 2017). The subject segment today is completely modern in appearance, design, and construction.

B7. **Moved?** ☒ No Yes Unknown **Date:** **Original Location:**
B8. **Related Features:** None
B9a. **Architect:** Unknown **b. Builder:** City of Banning
B10. **Significance: Theme** Twentieth century automobile roads
Area Banning Pass **Period of Significance** None
Property Type Automobile road **Applicable Criteria** None
The subject segment of John Street does not appear to be eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). Historical maps indicate that John Street has existed as a local road since at least the mid-1950s. The subject segment is a 20-ft-wide asphalt-concrete paved road that is completely modern in appearance, design, and construction, and lacks any historical features. Only the alignment itself appears historic in age based upon its depiction on historical maps. The road was likely built to access the Banning Municipal Airport and may have been part of the infrastructure improvements made by the City to the airport in the 1950s. Although the road is broadly associated with the development of the city of Banning, and the airport in particular, it is not directly associated with any pattern of events or historical trends in local, state, or national history. Thus, there is no evidence that it is directly associated with any events of recognized historical significance (NRHP Criterion A/CRHR Criterion 1). The road was built by the City of Banning, and not a specific individual. Therefore, the structure is not directly associated with the productive life of an important historical figure (NRHP Criterion B/CRHR Criterion 2). The road does not represent the work of a prominent architect, designer, or builder, nor does it qualify as an important example of its type, period, region, or method of construction (NRHP Criterion C/CRHR Criterion 3). Finally, the John Street does not have the potential to yield any information important to the study of our local, state, or national history (NRHP Criterion D/CRHR Criterion 4).

B11. **Additional Resource Attributes:**

B12. **References:**

ACOE (US Army Corps of Engineers)
1943 Banning, Calif. 1:62,500/15-minute scale topographic quadrangle.

USGS (United States Geological Survey)
1956 Cabazon, Calif. 1:24,000/7.5-minute scale topographic quadrangle.

NETROnline
2017 Aerial photographs dated 1967. Found at: http://www.historicaerials.com. Accessed June 2, 2017.

B13. **Remarks:**

B14. **Evaluator:** Ken Moslak
Date of Evaluation: May, 2017

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary # 33-026822
Trinomial

PHOTOGRAPH RECORD

 *__Resource Name or #__ Æ-3477-3H

Temporary Number/Resource Name: Æ-3477-3H
Project Name: Webb Associates – Banning Industrial #3477 **Photographer:** P. Moloney
Image Type: □ (bw) 35mm B&W film □ (cp) 35mm Color Print film □ (cs) 35mm Color Slide film
□ (df) Digital-Floppy disk ☒ (dm) Digital-Memory flash card
Camera Type and Model: Panasonic Lumix
Film Type and Speed: SD card **Roll Number:** 3477-2-dm
Year: 2017

Mo.	Day	Time	Frame/ File Name	Subject/Description	Facing
5	24	1313	021	33-026822; overview from east end.	
5	24	1317	022	33-026822; overview from middle of segment.	W
5	24	1317	023 & 024	33-026822; close-ups of two road top finishes.	
5	24	1323	025	33-026822; overview of road from west boundary.	E

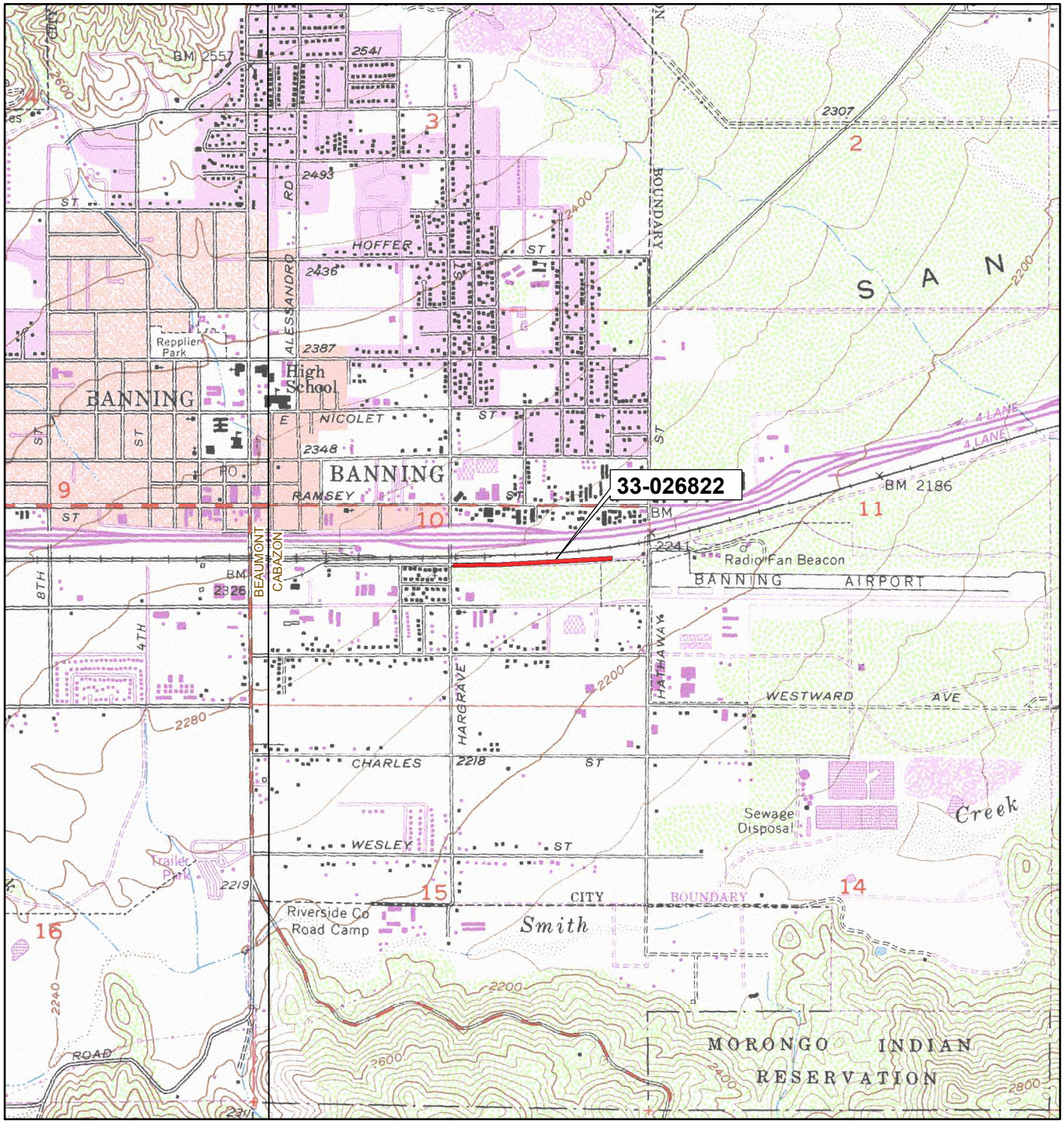
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 33-026822
HRI#
Trinomial

Page 4 **of** 4 **Resource Name or #:** Æ-3477-3H **Scale:** 1:24,000

Map Name: Beaumont (1953, photorevised 1988) and Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangles **Date:** 2017



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

State of California — The Resources Agency **Primary #** 33-026820
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Resource Name or #: Æ-3477-4H, segment power transmission line

P1. Other Identifier:

P2. Location: a. County Riverside, CA ☐ **Not for Publication** ☒ **Unrestricted**
b. USGS 7.5′ Quad Cabazon, CA **Date** 1988
T 3 **S**, **R** 1 **E**; **Section** 34; **S.B.B.M.**
c. Address: None **City** Banning **Zip** 92220
d. Zone 11; NAD83 West end of recorded segment**:** 514632 **mE /** 3753090 **mN**
East end of recorded segment: 514250 **mE /** 3753087 **mN**
e. Other Locational Data: This 1,253-ft-long segment of local power transmission line is situated running east-west along the southern edge of Sec. 11, T3S, R1E. The subject segment consists of seven poles which pass through site CA-RIV-8364H, as updated in May 2017.

P3a. Description: The subject segment consists of seven poles which pass through site CA-RIV-8364H, as updated in May 2017. The segment formerly ran along the north shoulder of historical East Westward Avenue which has since been abandoned and destroyed. Date nails indicate most poles were manufactured from 1958–1971 with one pole replaced recently. Inspection tags show the line is still in use.

P3b. Resource Attributes: HP 1: Unknown (Electrical Utility Line)

P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

P5. Photograph or Drawing: Roll 3477-2-dm; Frames 2-8

P6. Date Constructed/Age and Source: ☐ Prehistoric ☒ Historic ☐ Both

P7. Owner and Address: Unknown

P8. Recorded by: Ken Moslak and Pat Moloney, Applied EarthWorks, Inc., 3550 E. Florida Ave., Suite H, Hemet, CA 92544.

P9. Date Recorded: May 24, 2017

P10. Type of Survey: ☒ Intensive ☐ Reconnaissance ☐ Other
Describe: Intensive-level survey for Section 106 and CEQA compliance purposes

P11. Report Citation: Joan George, Tiffany Clark, and Dennis McDougall May 2017. *Cultural Resource Assessment of 96 Acres for Banning Industrial Project, City of Banning, Riverside County, California.* Applied EarthWorks, Inc., Hemet, California.

Attachments: ☐ None ☒ Location Map ☐ Site Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Site Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☒ Photograph Record Other:

BUILDING, STRUCTURE, AND OBJECT RECORD

 NRHP Status Code
Resource Name or # Æ-3477-4H, segment power transmission line

B1. Historic Name: **B2. Common Name:** same
B3. Original Use: Local electrical transmission
B4. Present Use: Local electrical transmission
B5. Architectural Style:
B6. Construction History: The subject segment does not appear on historical USGS topographic quadrangle maps (USGS 1956, USGS 1972). However, an aerial image dating to the late 1960s shows a series of cleared areas in the approximate location of the utility poles; these cleared areas are located north of an abandoned segment of East Westward Avenue (NETROnline 2017). Date nails showing pole construction dates range from 1958–1971 for the main transmission line and a 1929 date on an accessory pole (guy-line support). The wide range of manufacture dates suggests that the line may have been constructed of reused poles in the early 1970s, which substantiates the historical aerial imagery. The easternmost pole has been cut and the line rerouted to north from there in recent times.

B7. Moved? ☒ No □ Yes Unknown **Date:** **Original Location:**
B8. Related Features: None
B9a. Architect: Unknown **b. Builder:** City of Banning

B10. Significance: Theme
Area City of Banning **Period of Significance** None
Property Type **Applicable Criteria** None
The subject segment of this local transmission line does not appear to be eligible for inclusion in the National Register of Historic Place (NRHP) or the California Register of Historical Resources (CRHR). It is among numerous transmission lines located within the City of Banning (City), and it has never achieved any recognition as an important electric utility line. In addition, it does not exhibit any architectural or engineering merits that would set it apart from the many similar transmission lines in the region. The electrical transmission line was likely constructed to meet the electricity demands of customers at a time when the City's population and development was beginning to expand. The transmission line itself is not responsible for the growth and development of the City, but merely the attempt to electrify the city and keep up with consumer demand. Thus, there is no evidence that it is directly associated with any events of recognized historical significance (NRHP Criterion A/CRHR Criterion 1). The transmission line was built by the City, a municipality, and not individuals. Therefore, the structure is not directly associated with the productive life of an important historical figure (NRHP Criterion B/CRHR Criterion 2). The transmission line does not represent the work of a prominent architect, designer, or builder, nor does it qualify as an important example of its type, period, region, or method of construction (NRHP Criterion C/CRHR Criterion 3). Finally, the transmission line does not have the potential to yield any information important to the study of our local, state, or national history (NRHP Criterion D/CRHR Criterion 4).

B11. Additional Resource Attributes:

B12. References:
USGS (United States Geological Survey)
1956 Cabazon, Calif. 1:24,000/7.5-minute scale topographic quadrangle.
1972 Cabazon, Calif. 1:24,000/7.5-minute scale topographic quadrangle
NETROnline
2017 Aerial photographs dated 1967. Found at: http://www.historicaerials.com. Accessed June 2, 2017.

B13. Remarks:

B14. Evaluator: Ken Moslak
Date of Evaluation: May, 2017

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PHOTOGRAPH RECORD

Primary # 33-026820
Trinomial

 ***Resource Name or #** Æ-3477-4H

Temporary Number/Resource Name: Æ-3477-4H
Project Name: Webb Associates – Banning Industrial #3477 **Photographer:** P. Moloney
Image Type: □ (bw) 35mm B&W film □ (cp) 35mm Color Print film □ (cs) 35mm Color Slide film
□ (df) Digital-Floppy disk ☒ (dm) Digital-Memory flash card
Camera Type and Model: Panasonic Lumix
Film Type and Speed: SD card **Roll Number:** 3477-2-dm
Year: 2017

Mo.	Day	Time	Frame/ File Name	Subject/Description	Facing
5	24	1103	002	33-026820; 1959 utility pole 78682S	
5	24	1104	003	33-026820; 1959 utility pole, date nails.	
5	24	1109	004	33-026820; 1971 utility pole 1910667E, close-up.	
5	24	1113	005	33-026820; 1971 utility pole 1910668E, close-up.	
5	24	1117	006	33-026820; 1958 utility pole 7868??, close-up.	
5	24	1120	007	33-026820; 1929 utility pole, guy pole.	
5	24	1129	008	33-026820; 1971 utility pole, close-up.	

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

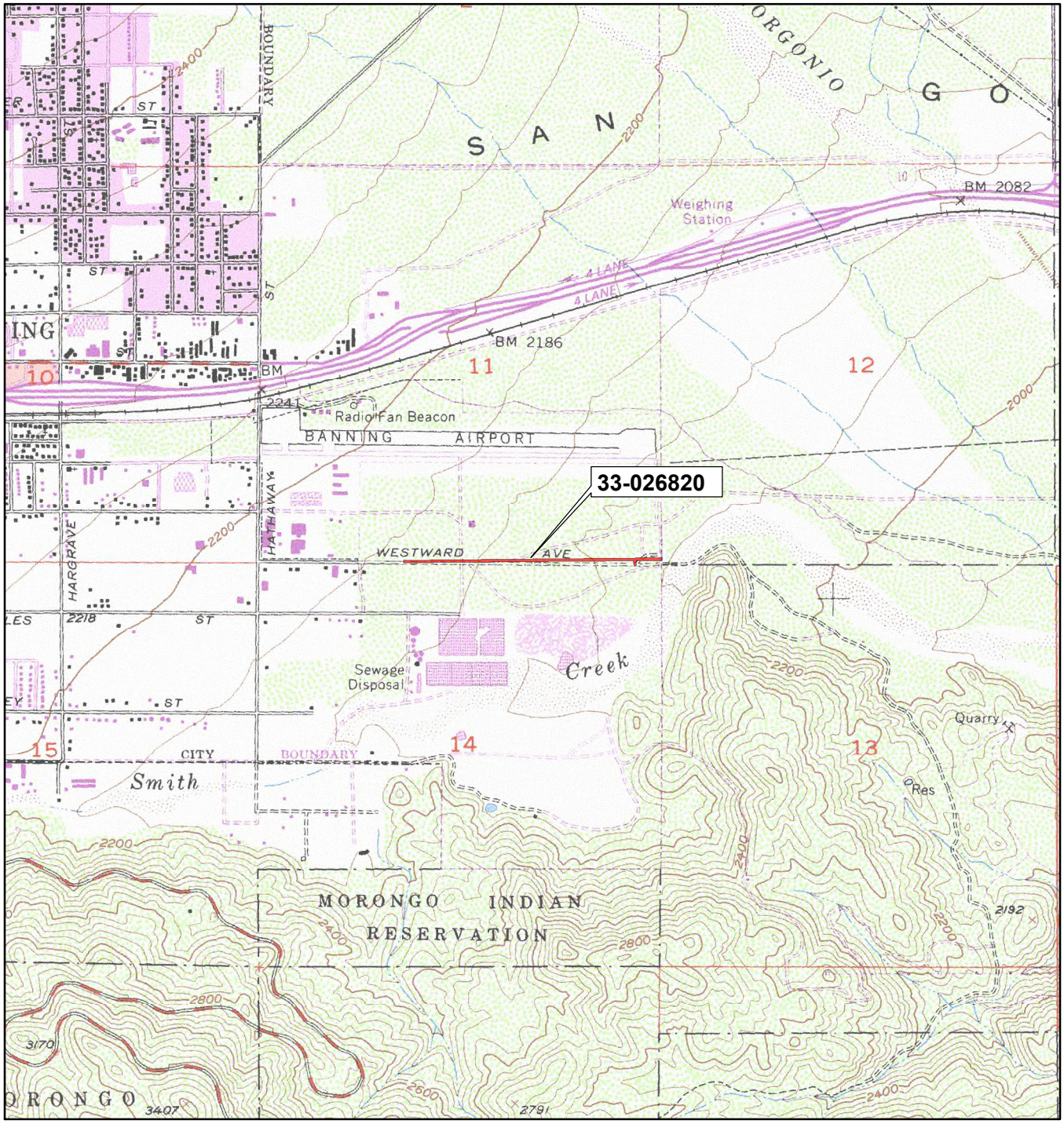
Primary # 33-026820
HRI#
Trinomial

Resource Name or #: Æ-3477-4H

Scale: 1:24,000

Map Name: Cabazon (1956, photorevised 1988), CA 7.5' USGS Quadrangle

Date: 2017



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

APPENDIX B

NATIVE AMERICAN COMMUNICATION

LIST OF NATIVE AMERICAN CONTACTS AND RECORD OF RESPONSES

Name	Date & Time of Calls	Responses
Denisa Torres Cultural Resource Manager Morongo Band of Mission Indians	May 12, 2017 May 26, 2017	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.
Raymond Huaute Cultural Resource Specialist Morongo Band of Mission Indians	May 12, 2017 May 26, 2017	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 12, 2017

Denisa Torres
Cultural Resource Manager
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Torres:

Applied EarthWorks, Inc. (Æ) is conducting a supplemental cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM). The supplemental study involves offsite improvement areas (see attached map)

The initial cultural resource study, conducted in June of last year, identified one historical refuse scatter within the Project boundaries. Æ performed an intensive-level archaeological survey of the offsite improvement areas on May 9, 2017. During the pedestrian survey, close attention was paid to soils, vegetation, and natural and human-modified landforms. No prehistoric cultural resources were observed during the survey. However, five historic-era resources (2 roads, 2 refuse scatters, and 1 utility line) were identified during the survey.

Should your records show that cultural properties exist within or near the Project area, or the offsite improvement areas shown on the enclosed map, or if you have any concerns regarding Native American issues related to the overall Project, please contact me at (951) 766-2000 or via letter expressing your concerns. You may also e-mail me at jgeorge@appliedearthworks.com. If I do not hear from you within in the next two weeks, I will contact you with a follow-up phone call or email.

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

From: Joan George
To: Denisa Torres
Subject: RE: Banning Industrial Project - Supplemental Cultural Study
Date: Friday, May 26, 2017 11:19:00 AM
Attachments: Banning Industrial_Torres.pdf

Good morning,

Just a quick follow-up on the supplemental Banning Industrial project. To summarize, the project, in coordination with the City of Banning, proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The supplemental study involves offsite improvement areas for utilities. The initial cultural resource study, conducted in June of last year, identified one historical refuse scatter within the Project boundaries. Æ performed an intensive-level archaeological survey of the offsite improvement areas on May 9, 2017. No prehistoric cultural resources were observed during the survey. However, five historic-era resources (2 roads, 2 refuse scatters, and 1 utility line) were identified during the survey. Should you have any comments or concerns regarding this Project, please call or email me.

Thank you,
Joan

Joan George | Applied EarthWorks, Inc.
Associate Archaeologist
951.766.2000 x-24 office

From: Joan George [mailto:jgeorge@appliedearthworks.com]
Sent: Friday, May 12, 2017 10:33 AM
To: Denisa Torres
Subject: Banning Industrial Project - Supplemental Cultural Study

Good morning,

Attached please find a scoping letter and map for off-site improvements to the Banning Industrial Project, Riverside County, California.

Thank you,
Joan

Joan George | Applied EarthWorks, Inc.
Associate Archaeologist



3550 E. Florida Ave., Suite H
Hemet, CA. 92544-4937
951.766.2000 x-24 office
www.appliedearthworks.com

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 12, 2017

Raymond Huaute
Cultural Resource Specialist
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Huaute:

Applied EarthWorks, Inc. (Æ) is conducting a supplemental cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM). The supplemental study involves offsite improvement areas (see attached map)

The initial cultural resource study, conducted in June of last year, identified one historical refuse scatter within the Project boundaries. Æ performed an intensive-level archaeological survey of the offsite improvement areas on May 9, 2017. During the pedestrian survey, close attention was paid to soils, vegetation, and natural and human-modified landforms. No prehistoric cultural resources were observed during the survey. However, five historic-era resources (2 roads, 2 refuse scatters, and 1 utility line) were identified during the survey.

Should your records show that cultural properties exist within or near the Project area, or the offsite improvement areas shown on the enclosed map, or if you have any concerns regarding Native American issues related to the overall Project, please contact me at (951) 766-2000 or via letter expressing your concerns. You may also e-mail me at jgeorge@appliedearthworks.com. If I do not hear from you within in the next two weeks, I will contact you with a follow-up phone call or email.

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

From: Joan George
To: Raymond Huaute
Subject: RE: Banning Industrial Project - Supplemental Cultural Study
Date: Friday, May 26, 2017 11:19:00 AM
Attachments: Banning Industrial_Huaute.pdf

Good morning,

Just a quick follow-up on the supplemental Banning Industrial project. To summarize, the project, in coordination with the City of Banning, proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The supplemental study involves offsite improvement areas for utilities. The initial cultural resource study, conducted in June of last year, identified one historical refuse scatter within the Project boundaries. Æ performed an intensive-level archaeological survey of the offsite improvement areas on May 9, 2017. No prehistoric cultural resources were observed during the survey. However, five historic-era resources (2 roads, 2 refuse scatters, and 1 utility line) were identified during the survey. Should you have any comments or concerns regarding this Project, please call or email me.

Thank you,
Joan

Joan George | Applied EarthWorks, Inc.
Associate Archaeologist
951.766.2000 x-24 office

From: Joan George [mailto:jgeorge@appliedearthworks.com]
Sent: Friday, May 12, 2017 10:32 AM
To: Raymond Huaute
Subject: Banning Industrial Project - Supplemental Cultural Study

Good morning,

Attached please find a scoping letter and map for off-site improvements to the Banning Industrial Project, Riverside County, California.

Thank you,
Joan

Joan George | Applied EarthWorks, Inc.
Associate Archaeologist



3550 E. Florida Ave., Suite H
Hemet, CA. 92544-4937
951.766.2000 x-24 office
www.appliedearthworks.com

LIST OF NATIVE AMERICAN CONTACTS AND RECORD OF RESPONSES

Name	Date & Time of Calls	Responses
Patricia Garcia-Plotkin Director Tribal Historic Preservation Office Agua Caliente Band of Cahuilla Indians	May 25, 2016 Letter dated June 7, 2016	Scoping letter sent via email. The Agua Caliente Band of Cahuilla Indians (ACBCI) noted that the Project is not located within the ACBCI Reservation, however it is within the Tribe's Traditional use Area (TUA). The Tribe has no concerns regarding the Project and defers to the Morongo Band of Mission Indians.
Amanda Vance Chairperson Augustine Band of Cahuilla Indians	May 25, 2016 June 8, 2016	Scoping letter sent via United States Postal Service (USPS). E-mailed follow-up effort for correspondence. No response received.
Judy Stapp Director of Cultural Affairs Cabazon Band of Mission Indians	May 25, 2016 Letter dated May 31, 2016	Scoping letter sent via email. Received letter from Ms. Stapp via email. Ms. Stapp stated that the Project is located outside of Tribe's current reservation boundaries, but within an area that may be considered a traditional use area. The Tribe has no specific archival information indicating that the Project area may be a sacred/religious site or other site of Native American traditional cultural value. However, the Tribe recommends there be an archaeologist on-site during all ground disturbing activities to monitor for unanticipated discoveries.
Luther Salgado Chairperson Cahuilla Band of Indians	May 25, 2016 June 1, 2016 June 8, 2016	Scoping letter sent via USPS. Letter returned to sender. E-mailed a copy of the scoping letter. E-mailed follow-up effort for correspondence. No response received.

Name	Date & Time of Calls	Responses
Shane Chapparosa Chairman Los Coyotes Band of Mission Indians	May 25, 2016 June 8, 2016	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.
Denisa Torres Cultural Resource Manager Morongo Band of Mission Indians	May 25, 2016 June 8, 2016	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.
John Gomez Environmental Coordinator Ramona Band of Cahuilla Indians	May 25, 2016 June 8, 2016	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.
Daniel McCarthy Director – CRM Department San Manuel Band of Mission Indians	May 25, 2016 May 26, 2016	Scoping letter sent via email. Email response received from Ms. Leslie Mouriquand, Consultant on behalf of the San Manuel Band of Mission Indians. The Tribe noted that the Project is outside of the boundaries of the Tribe's ancestral territory. The Tribe referred us to the Morongo Band of Mission Indians for review and comment on the Project.
Terry Hughes Tribal Administrator Santa Rosa Band of Mission Indians	May 25, 2016 June 8, 2016	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.
Goldie Walker Chairperson Serrano Nation of Mission Indians	May 25, 2016 June 8, 2016	Scoping letter sent via USPS. Left voicemail message in an effort to follow-up on initial correspondence. No response received.
Joseph Ontiveros Cultural Resource Department Soboba Band of Luiseño Indians	May 25, 2016 June 8, 2016	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.

Name	Date & Time of Calls	Responses
Michael Mirelez Cultural Resource Coordinator Torres-Martinez Desert Cahuilla Indians	May 25, 2016 June 8, 2016	Scoping letter sent via email. E-mailed follow-up effort for correspondence. No response received.

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
nahc@pacbell.net

Information Below is Required for a Sacred Lands File Search

Date: March 27, 2016

Project: Webb Associates – Banning Industrial Project

County: Riverside

USGS Quadrangle Name: Cabazon

Township 3S Range 1E Section(s) 10 and 11

Company/Firm/Agency: Applied EarthWorks, Inc.

Contact Person: Tiffany Clark

Street Address: 133 N. San Gabriel Blvd, Suite 201

City: Pasadena Zip: 91107

Phone: (626) 578-0119

Fax: (626)204-5590

Email: tclark@appliedearthworks.com

Project Description: The project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport.

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

May 2, 2016

Tiffany Clark
Applied EarthWorks, Inc.

Sent by E-mail: tclark@appliedearthworks.com
Number of Pages: 5

RE: Proposed Webb Associates – Banning Industrial Project, City of Banning, Cabazon USGS Quadrangle, Riverside County, California

Dear Ms. Clark:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. A search of the SFL was completed for the USGS quadrangle information provided with negative results.

Our records indicate that the lead agency for this project has not requested a Native American Contact List for the purposes of consultation. Please note that the intent of the referenced codes below is to mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.

- Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.
   - All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

The results of these searches and surveys should be included in the "Tribal Cultural Resources" subsection of the Cultural Resources section of the environmental document submitted for review.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Contact List
Riverside County
May 2, 2016

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway Cahuilla
Indio , CA 92203
(760) 342-2593

(760) 347-7880 Fax

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairman
P.O. Box 189 Cahuilla
Warner Springs , CA 92086
Chapparosa@msn.com
(760) 782-0711

(760) 782-0712 Fax

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairman
P.O. Box 391670 Cahuilla
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105

(951) 763-4325 Fax

San Manuel Band of Mission Indians
Lynn Valbuena, Chairwoman
26569 Community Center Serrano
Highland , CA 92346
(909) 864-8933

(909) 864-3370 Fax

Soboba Band of Luiseno Indians
Carrie Garcia, Cultural Resources Manager
P.O. Box 487 Luiseno
San Jacinto , CA 92581 Cahuilla
carrieg@soboba-nsn.gov
(951) 654-2765

(951) 654-4198 Fax

Torres-Martinez Desert Cahuilla Indians
Mary Resvaloso, Chairperson
P.O. Box 1160 Cahuilla
Thermal , CA 92274
tmchair@torresmartinez.org
(760) 397-0300

(760) 397-8146 Fax

Santa Rosa Band of Mission Indians
Steven Estrada, Chairman
P.O. Box 391820 Cahuilla
Anza , CA 92539
(951) 659-2700

(951) 659-2228 Fax

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 Cahuilla
Coachella , CA 92236
(760) 398-4722
(760) 369-7161Fax

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Road Cahuilla
Banning , CA 92220 Serrano
dtorres@morongo-nsn.gov
(951) 849-8807
(951) 572-6004 Fax
(951) 572-6004 Fax

San Manuel Band of Mission Indians
Daniel McCarthy, M.S., Director-CRM Dept.
26569 Community Center Drive Serrano
Highland , CA 92346
dmccarthy@sanmanuel-nsn.gov
(909) 864-8933 Ext 3248

(909) 862-5152 Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person or agency of statutory responsibility as defined in Public Resources Code Sections 21080.3.1 Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Webb Associates - Banning Industrial Project, City of Banning, Cabazon USGS Quadrangle, Riverside County, California.

Native American Contact List
Riverside County
May 2, 2016

Cabazon Band of Mission Indians
Judy Stapp, Director of Cultural Affairs
84-245 Indio Springs Parkway Cahuilla
Indio , CA 92203
jstapp@cabazonindians-nsn.gov
(760) 342-2593

(760) 347-7880 Fax

Los Coyotes Band of Cahuilla and Cupeno Indians
Janice Elzendnga, Tribal Administrator
P.O. Box 189 Cahuilla
Warner Springs , CA 92086
(760) 782-0711

(760) 782-2701 Fax

Los Coyotes Band of Cahuilla and Cupeno Indians
John, Perada, Environmental Director
P.O. Box 189 Cahuilla
Warner Springs , CA 92086
(760) 782-0712

(760) 782-2730 Fax

Ramona Band of Cahuilla Indians
Manuel Hamilton, Vice Chairperson
P.O. Box 391670 Cahuilla
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105

(951) 763-4325 Fax

Ramona Band of Mission Indians
John Gomez, Environmental Coordinator
P.O. Box 391670 Cahuilla
Anza , CA 92539
Jgomez@ramonatribe.com
(951) 763-4105

(951) 763-4325 Fax

Santa Rosa Band of Mission Indians
Terry Hughes, Tribal Administrator
P.O. Box 391820 Cahuilla
Anza , CA 92539
thughes@santarosacahuilla-nsn.gov
(951) 659-2700

(951) 659-2228 Fax

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive Cahuilla
Palm Springs , CA 92264
(760) 699-6800

(760) 699-6919 Fax

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad Cahuilla
Banning , CA 92220 Serrano
(951) 849-8807
(951) 755-5200
(951) 922-8146 Fax

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343 Serrano
Patton , CA 92369

(909) 528-9027
(909) 528-9032

Agua Caliente Band of Cahuilla Indians THPO
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive Cahuilla
Palm Springs , CA 92264
ACBCI-THPO@aguacaliente.net
(760) 699-6907
(760) 567-3761 Cell
(760) 699-6924 Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Webb Associates - Banning Industrial Project, City of Banning, Cabazon USGS Quadrangle, Riverside County, California.

Native American Contact List
Riverside County
May 2, 2016

Augustine Band of Cahuilla Mission Indians
Karen Kupcha
P.O. Box 849 Cahuilla
Coachella , CA 92236
(760) 398-4722

Cahuilla Band of Indians
Luther Salgado, Chairperson
P.O. Box 391760 Cahuilla
Anza , CA 92539
Chairman@cahuilla.net
(951) 763-5549
(951) 763-2808

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Luiseno
San Jacinto , CA 92581 Cahuilla
jontiveros@soboba-nsn.gov
(951) 663-5279
(951) 654-5544, ext 4137
(951) 654-4198 Fax

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160 Cahuilla
Thermal , CA 92274
mmirelez@tmdci.org
(760) 399-0022, Ext. 1213

(760) 397-8146 Fax

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Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Shane Chapparosa
Chairman
Los Coyotes Band of Mission Indians
P.O. Box 189
Warner Springs, CA 92086

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Chapparosa:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

A cultural resource literature and records search conducted at the Eastern Information Center (EIC) housed at the University of California, Riverside, indicates that as many as 41 cultural resource studies have been conducted within a one-mile radius of the Project area; one of these studies involved the Project area specifically. The records search also indicated that 197 cultural resources have been identified within a one-mile radius of the Project area. One of these resources, a historical refuse scatter, is documented within the Project boundaries. *Æ* performed an intensive-level archaeological survey of the Project area on May 24, 2016. During the pedestrian survey, close attention was paid to soils, vegetation, and natural and human-modified landforms. No prehistoric cultural resources were observed during the survey. However, the previously documented historic refuse scatter was identified during the survey.

As part of the cultural resource assessment of the Project area, *Æ* requested a search of the Native American Heritage Commission's (NAHC's) *Sacred Lands File*. The NAHC responded on May 2, 2016 stating that the *Sacred Lands File* search was completed with negative results. Should your records show that cultural properties exist within or near the Project area shown on the enclosed map, or if you have any concerns regarding Native American issues related to the overall Project, please contact me at (951) 766-2000 or via letter expressing your concerns. You may also e-mail me at jgeorge@appliedearthworks.com. If I do not hear from you within in the next two weeks, I will contact you with a follow-up phone call or email.

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Patricia Garcia-Plotkin
Director - Tribal Historic Preservation Office
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Garcia-Plotkin:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

John Gomez
Environmental Coordinator
Ramona Band of Cahuilla Indians
P.O. Box 391670
Anza, CA 92539

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Gomez:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Terry Hughes
Tribal Administrator
Santa Rosa Band of Mission Indians
P. O. Box 391820
Anza, CA 92539

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Hughes:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Respectfully yours,

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Daniel McCarthy
Director – CRM Department
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. McCarthy:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

A cultural resource literature and records search conducted at the Eastern Information Center (EIC) housed at the University of California, Riverside, indicates that as many as 41 cultural resource studies have been conducted within a one-mile radius of the Project area; one of these studies involved the Project area specifically. The records search also indicated that 197 cultural resources have been identified within a one-mile radius of the Project area. One of these resources, a historical refuse scatter, is documented within the Project boundaries. *Æ* performed an intensive-level archaeological survey of the Project area on May 24, 2016. During the pedestrian survey, close attention was paid to soils, vegetation, and natural and human-modified landforms. No prehistoric cultural resources were observed during the survey. However, the previously documented historic refuse scatter was identified during the survey.

As part of the cultural resource assessment of the Project area, *Æ* requested a search of the Native American Heritage Commission's (NAHC's) *Sacred Lands File*. The NAHC responded on May 2, 2016 stating that the *Sacred Lands File* search was completed with negative results. Should your records show that cultural properties exist within or near the Project area shown on the enclosed map, or if you have any concerns regarding Native American issues related to the overall Project, please contact me at (951) 766-2000 or via letter expressing your concerns. You may also e-mail me at jgeorge@appliedearthworks.com. If I do not hear from you within in the next two weeks, I will contact you with a follow-up phone call or email.

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Michael Mirelez
Cultural Resource Coordinator
Torres-Martinez Desert Cahuilla Indians
P. O. Box 1160
Thermal, CA 92274

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Mirelez:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Respectfully yours,

Joan George

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Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Joseph Ontiveros
Cultural Resource Department
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92581

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Ontiveros:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

A cultural resource literature and records search conducted at the Eastern Information Center (EIC) housed at the University of California, Riverside, indicates that as many as 41 cultural resource studies have been conducted within a one-mile radius of the Project area; one of these studies involved the Project area specifically. The records search also indicated that 197 cultural resources have been identified within a one-mile radius of the Project area. One of these resources, a historical refuse scatter, is documented within the Project boundaries. *Æ* performed an intensive-level archaeological survey of the Project area on May 24, 2016. During the pedestrian survey, close attention was paid to soils, vegetation, and natural and human-modified landforms. No prehistoric cultural resources were observed during the survey. However, the previously documented historic refuse scatter was identified during the survey.

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Respectfully yours,

Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Luther Salgado
Chairperson
Cahuilla Band of Indians
P.O. Box 391760
Anza, CA 92539

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Mr. Salgado:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

A cultural resource literature and records search conducted at the Eastern Information Center (EIC) housed at the University of California, Riverside, indicates that as many as 41 cultural resource studies have been conducted within a one-mile radius of the Project area; one of these studies involved the Project area specifically. The records search also indicated that 197 cultural resources have been identified within a one-mile radius of the Project area. One of these resources, a historical refuse scatter, is documented within the Project boundaries. *Æ* performed an intensive-level archaeological survey of the Project area on May 24, 2016. During the pedestrian survey, close attention was paid to soils, vegetation, and natural and human-modified landforms. No prehistoric cultural resources were observed during the survey. However, the previously documented historic refuse scatter was identified during the survey.

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Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Judy Stapp
Director of Cultural Affairs
Cabazon Band of Mission Indians
84-245 Indio Springs
Indio, CA 92203

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Stapp:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Denisa Torres
Cultural Resource Manager
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Torres:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Amanda Vance
Chairperson
Augustine Band of Mission Indians
P.O. Box 846
Coachella, CA 92236

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Vance:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

May 25, 2016

Goldie Walker
Chairwoman
Serrano Nation of Mission Indians
P.O. Box 343
Patton, CA 92369

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Walker:

Applied EarthWorks, Inc. (*Æ*) is conducting a cultural resource study of the Banning Industrial Project (Project). The Project proposes to construct an industrial warehouse and road on approximately 55 acres immediately north of the Banning Airport. The Project is located just south of the I-10 Freeway and the Southern Pacific Railroad in the City of Banning, Riverside County, California. As indicated on the attached map, the Project is located on the Cabazon, CA 7.5' USGS map within Sections 10 and 11, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian (SBBM).

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Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Joan George

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.

From: SMConsultation
To: Joan George
Subject: FW: Cultural Resource Study for Banning Industrial Project
Date: Thursday, May 26, 2016 1:26:22 PM
Attachments: Banning Industrial_McCarthy.pdf

Hi Joan,

Thank you for scoping with this office. The project is outside the boundaries of the Tribe's ancestral territory. I refer you to the Morongo Band of Mission Indians for review and comments on this project.

Thank you,
Leslie Mouriquand MA, RPA
Consultant

Daniel McCarthy, MS, RPA (Retired)
Director
Cultural Resources Management Department
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346
Office: 909 864-8933 x 3248
Cell: 909 838-4175
To ensure a rapid reply concerning all AB 52 Consultation correspondence please use:
SMConsultation@sanmanuel-nsn.gov

From: Daniel McCarthy
Sent: Thursday, May 26, 2016 10:09 AM
To: SMConsultation
Subject: FW: Cultural Resource Study for Banning Industrial Project

Daniel McCarthy, MS, RPA
Director
Cultural Resources Management Department
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346
Office: 909 864-8933 x 3248
Cell: 909 838-4175
dmccarthy@sanmanuel-nsn.gov
To ensure a rapid reply concerning all AB 52 Consultation correspondence please use:
SMConsultation@sanmanuel-nsn.gov

From: Joan George [mailto:jgeorge@appliedearthworks.com]

Sent: Wednesday, May 25, 2016 4:21 PM
To: Daniel McCarthy
Subject: Cultural Resource Study for Banning Industrial Project

Good afternoon,

Attached please find a scoping letter and map for an industrial warehouse project located on approximately 55 acres north of the Banning Airport, Riverside County, California.

Thank you,
Joan

Joan George | Applied EarthWorks, Inc.
Associate Archaeologist



3550 E. Florida Ave., Suite H
Hemet, CA. 92544-4937
951.766.2000 x-24 office
www.appliedearthworks.com

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May 31, 2016

Joan George
Associate Archaeologist
Applied EarthWorks, Inc.
3550 E. Florida Avenue, Suite H
Hemet, CA 92544-4937

Re.: Cultural Resource Investigation for the Banning Industrial Project
Riverside County, California

Dear Ms. George,

Thank you for contacting the Cabazon Band of Mission Indians concerning cultural resource information relative to the above referenced project.

The project is located outside of the Tribe's current reservation boundaries but within an area that may be considered a traditional use area. The Tribe has no specific archival information on the site indicating that it may be a sacred/religious site or other site of Native American traditional cultural value within the project area. The Cabazon Band suggests, however, there be an archaeologist on site during all ground disturbing activities to monitor for the discovery of unknown cultural resources.

We look forward to continued collaboration in the preservation of cultural resources or areas of traditional cultural importance.

Best regards,

Judy Stapp
Director of Cultural Affairs

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-020-2016-001

June 07, 2016

[VIA EMAIL TO:jgeorge@appliedearthworks.com]
Applied Earthworks
Ms. Joan George
3550 E Florida Ave, Suite H
Hemet, CA 92544-4937

Re: Cultural Resource Investigation for the Banning Industrial Project, Riverside County, California

Dear Ms. Joan George,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Banning Industrial project. A records check of the ACBCI cultural registry revealed that the project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area (TUA).We currently have no concerns regarding this project. This letter shall conclude our consultation efforts.

*At this time ACBCI has no concerns and defers to the Morongo Band of Mission Indians. This letter shall conclude our consultation efforts.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6981. You may also email me at vharvey@aguacaliente.net.

Cordially,

V. Harvey

Victoria Harvey
Archaeological Monitoring Coordinator
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

Appendix I

Banning Distribution Center
Case No. 16-70000002
City of Banning, Riverside County, California

Preliminary Drainage Study

Prepared for:
Banning Industrial, LP
17842 Mitchell North, Suite 100
Irvine, CA 92614-6004
Telephone: (949) 474-2000

Prepared By:

ALBERT A. WEBB ASSOCIATES
3788 McCray Street
Riverside, CA 92506

Original Date Prepared: July 2016
Revised: February, 2018



Christopher Castaneda, P.E.
Associate Engineer, Stormwater Engineering

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SECTION 1 - SUMMARY

PURPOSE

Albert A. Webb Associates (WEBB) was contracted by Banning Industrial, LP to prepare a preliminary drainage study for the Banning Distribution Center project. The purpose of this study is to address the hydrological and hydraulic design aspects of the proposed Banning Distribution Center. The City of Banning Stormwater regulations require at a minimum all developments will make provisions to store runoff from rainfall events up to and including the 100-year 3-hour storm (Municipal Code 13.24). In addition post-development peak urban runoff discharge rates shall not exceed pre-development peak urban runoff discharge rates.

In order to comply with City of Banning stormwater regulations, two onsite retention basins are proposed, which will capture the entire 100-year 3-hour storm runoff volume and infiltrate into the underlying soils within a 48 hour period. Onsite runoff will be intercepted and conveyed through the site by means of conventional catch basins, swales and an underground storm drain system discharging to the retention basins. Offsite runoff will be intercepted, conveyed through the site, and discharged at/ or near its original location in order to avoid any downstream drainage issues to adjacent properties.

The scope of this report will include the following:

- Determine and analyze the onsite 100-year 3-hour storm event for post-project conditions.
- Determine the required retention basin sizes to contain the 100-year 3-hour storm flood volume and treat onsite flows for water quality.
- Determine the required basin bottom area to drain the 100-year 3-hour storm flood volume within 48 hours.
- Determination of offsite areas impacting the site.
- Preparation of a preliminary report summarizing the hydrology and hydraulic results.

DESCRIPTION OF WATERSHED

The proposed project includes the development of an industrial building, associated parking lot, and two stormwater retention basins on a 63.9 acre parcel. The project includes the development of a warehouse/ distribution building with 1,000,000 square feet of warehouse space, 10,000 square feet of office space, 392 truck and trailer parking spaces, 223 automobile parking spaces and 205 loading docks.

The project is located north of the Banning Municipal Airport, south of I-1o freeway, east of Hargrave Street, and west of San Gorgonio River. The project site is currently undeveloped, consisting mostly of desert type vegetation dominated by non-native grasslands with sparse sage scrubs. The northern boundary of the site parallels the Interstate 10 (I-10) Freeway and Union Pacific Railroad (UPRR). There are several offsite drainages that flow onto the site originating from the north. These offsite flows are conveyed beneath the existing railroad tracks through underground box and/ or corrugated metal culverts (CMPs) and flow in a southeasterly direction onto the site. Runoff from the site generally flows southeast to Ramsey Street Wash, which runs for approximately a half mile in the same direction before entering Smith Creek. Flows continue in Smith Creek for 1.5 miles before flowing into the San Gorgonio River, which then empties into the Whitewater River (11.5 miles to the East). Refer to the end of this section for more information on the project location.

There may be several jurisdictional waters, wetlands and associated riparian habitats potentially impacted by construction of the proposed project. These areas may be subjected to regulations by U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board under Section 401 of the CWA and Porter Cologne water Quality Control Act, and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code. Permanent impacts will need to be assessed based on final project design and may require authorizations from the USACE, RWQCB and CDFW agencies.

OFFSITE DRAINAGE

The largest offsite drainage entering the site (see Offsite Drainage Map) is from the Ramsey Street Storm Drain (O1 Watershed). Flows are conveyed from north to south beneath the I-10 and UPRR through a series of culverts into an unimproved channel (Ramsey Street Wash) that enters at the lower west boundary of the project. This unimproved channel runs in an easterly direction along the south project boundary and exits the site at the southeast corner. The project will deviate away from these off-site flows by avoiding adding improvements in this area.

The second offsite drainage (O2 Watershed) enters the western site boundary and runs in a southeasterly direction and joins with the Ramsey Street Wash at the site southwest corner. The offsite O2 Watershed tributary area is approximately 10 acres consisting of the area between the I-10 and UPRR right-of-ways.

The third offsite drainage (O3 Watershed) also enters the western site boundary just above where O2 Watershed enters. The O3 Watershed tributary area is approximately 83 acres in size consisting of the area east of Hathaway Street and north of the I-10 Freeway. Flows are conveyed across the 1-10 and UPRR through a series of culverts into an unimproved channel (wash) that enters at the mid-western site boundary. This wash runs in a southeasterly direction through the site for a short distance and joins with the O2 Watershed wash. The combined flows from O2 and O3 Watersheds then enter the Ramsey Street Wash near the southwestern property boundary.

The fourth offsite drainage (O4 Watershed) enters at the northeast corner of the project site. The O4 Watershed tributary area is approximately 19 acres in size consisting of the area between the I-10 freeway and UPRR. Flows are conveyed across the railroad tracks through several culverts into an earthen channel along the south side of the railroad tracks. The O4 Watershed drainage flows onto the site near the northeastern boundary and exits the project boundary on the eastern boundary mostly as shallow sheet flow.

All offsite flows are proposed to be collected and bypassed through the project site via a separate bypass storm drain system without comingling with the on-site flows and without entering the proposed retention basins. The bypassed off-site flows will be discharged at/ or near their original discharge location into the Ramsey Street Wash.

PROPOSED CONDITIONS

The City of Banning Stormwater regulations require at a minimum all developments will make provisions to store runoff from rainfall events up to and including the 100-year 3-hour storm (Municipal Code 13.24). Two retention basins are proposed to store the required 100-year 3-hour runoff volume during post-development conditions. The basins are located along the southerly project boundary just north of the Ramsey Street Wash. The retention basins will be required to treat on-site flows for water quality and retain the 100-year 3-hour storm event, mitigating all storm events below the 100-year storm. Refer to the Preliminary WQMP Report for further details.

The onsite watershed areas tributary to the two proposed retention basins were based on the Banning Distribution Center Conceptual Grading Plan (See Section 4). The project site was subdivided into two watersheds. Watershed AREA-1 consists of 20.1 acres and drains into the retention Basin 1. Watershed AREA-2 consists of 37.4 acres and drains into retention Basin 2 (See Section 2). The remaining 6 acres of the project will be pervious areas draining away from the project and are considered to be self-treating.

Onsite runoff will be intercepted and conveyed through the site by means of conventional catch basins, grate inlets, swales and an underground storm drain system discharging to the retention basins. Offsite runoff will be intercepted, conveyed through the site via a separate bypass storm drain system, and discharged at/ or near its original discharge locations into the Ramsey Street Wash.

For the purpose of this preliminary drainage study, both basins volume capacities and bottom footprint areas were summarized and the basins drawdown time calculations were performed for both basins together. The means of equalizing and distributing the on-site flows into the proposed basins so their capacity is utilized in the most efficient way will be a subject of the final design stage for the proposed development.

The retention basins design considerations, storage curves and drawdown time calculations are provided in Section 3.

METHODOLOGY

HYDROLOGY

Hydrologic calculations were performed in accordance with the RCFC&WCD Hydrology Manual, dated April 1978. The Synthetic Unit Hydrograph Method was used to determine peak flood volumes and peak flow rates.

The hydrological parameters, including rainfall values and soil types were derived from the RCFC&WCD Hydrology Manual. The isohyetal maps and soil map have been included in Section 2

Synthetic Unit Hydrograph Method calculations were performed using a computer program developed by CivilDesign Corporation and Joseph E. Bonadiman and Associates Inc. The computer program is commonly referred to as CivilD which incorporates the hydrological parameters outlined in the RCFC&WCD Hydrology Manual.

The Synthetic Unit Hydrograph Method was used to determine the necessary flood volume to size the infiltration basins. The peak flow rates were computed by determining the centroid of the drainage area, the longest water path that drained into the infiltration basins, and the length of the water path downstream to the centroid.

HYDRAULICS

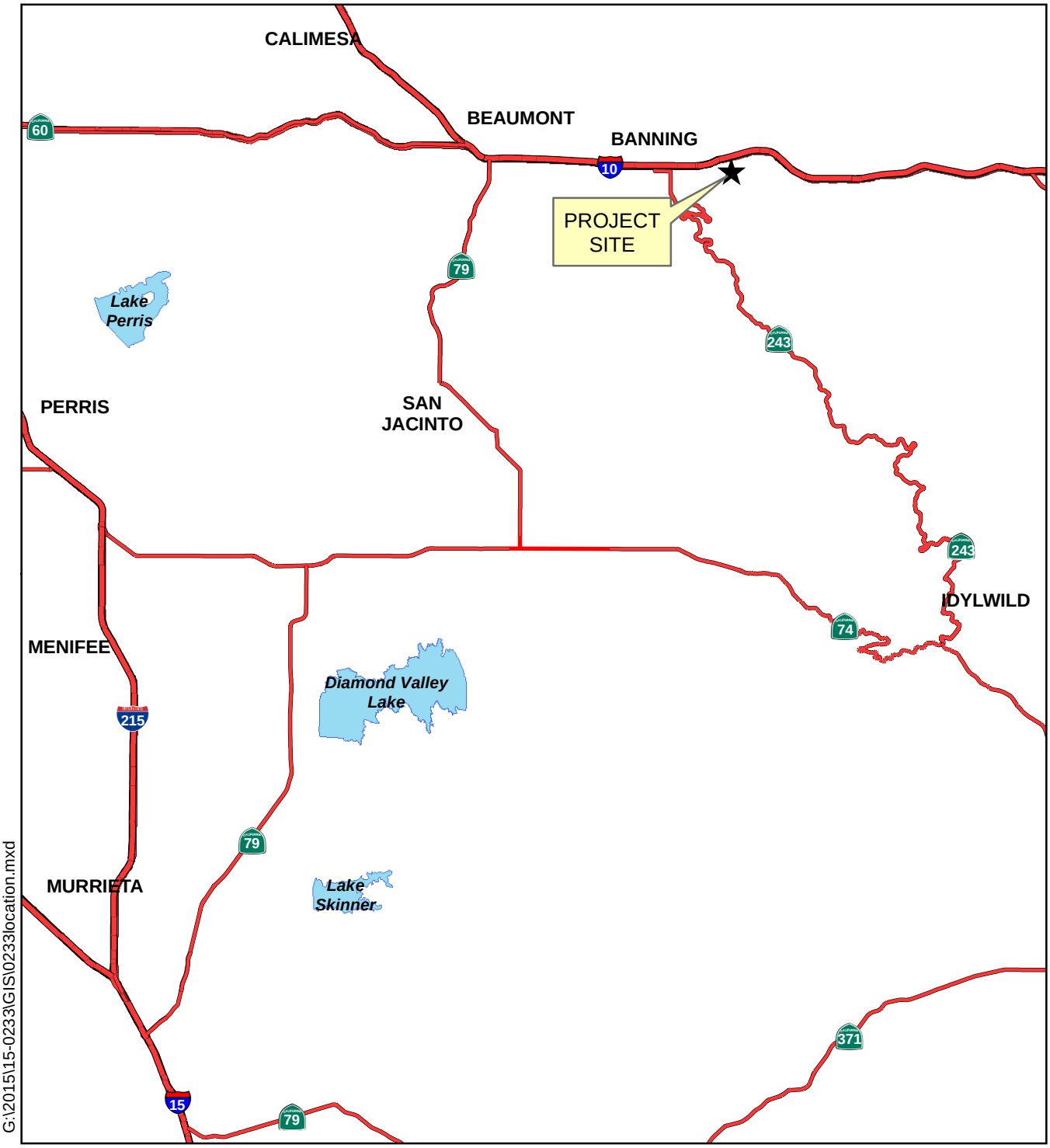
Normal depth calculations and inlet calculations were performed using the Hydraulic Toolbox 4.1 Software developed by Federal Highway Administration (FHWA) in cooperation with Aquaveo. For preliminary results, see Section 4.

Water quality basin calculations were performed using spreadsheets that were created by RCFC&WCD. Preliminary calculations and additional details can be reviewed in the P-WQMP.

FIG. 1 VICINITY MAP

FIG. 2 AERIAL PHOTOGRAPH

FIG. 3 RECEIVING WATERBODIES



Legend

★ Project Location

N
W E
S

0 3 6 9 Miles

Vicinity Map

ALBERT A. WEBB ASSOCIATES

Banning Distribution Center



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Legend

Project Boundary

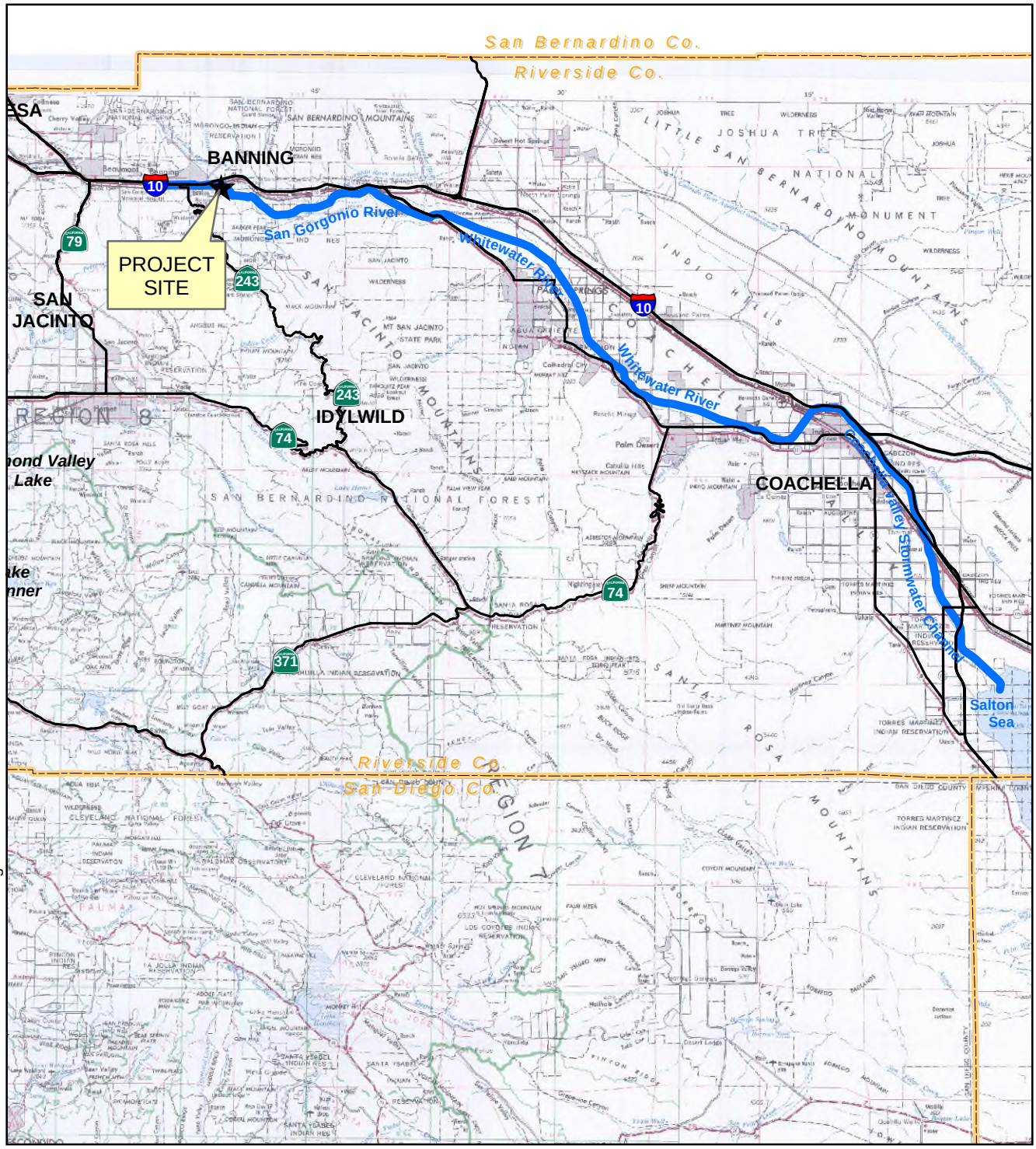
N
W E
S

0 750 1,500 2,250 Feet

Aerial Map

ALBERT A. WEBB ASSOCIATES

Banning Distribution Center



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Legend

★ Project Location

N
W E
S

0 3 6 9
Miles

Receiving Waters Map

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES

SECTION 2 - HYDROLOGY ANALYSIS

HYDROLOGY PARAMETERS

The RCFC&WCD Hydrology Manual was used to determine several of the hydrological parameters. The following rainfall depths were utilized in the hydrology analyses, which were obtained from the isohyetal maps provided in the RCFC&WCD Hydrology Manual:

Table 1 – Precipitation Values

	Duration
Storm Event	3-Hour (inches)
2-Year	0.98
100-Year	2.20

The value for slope intensity was determined to be 0.53. The isohyetal maps have been included in at the end of this section.

Based on the Plate C-1.20 (Cabazon) in the RCFC&WCD Hydrology Manual, the project site is classified as soil type A and B. A composite RI number was used for each sub-area. The soils map is also included at the end of this section.

The cover type was determined based on the existing land cover and the proposed land use of the site. Run-Off Index numbers were taken from the RCFC&WCD Hydrology Manual. The commercial landscaping cover type was used to represent the developed condition and chaparral/ narrowleaf cover type was used to represent the existing condition. The table below summarizes the runoff index values and values for percentage each category of impervious cover:

Table 2 – Cover Type

	Cover Type	Soil Group A	Soil Group B	Soil Group C	Soil Group D	Percentage of Impervious Cover (AREA-1)	Percentage of Impervious Cover (AREA-2)
Developed	Commercial Landscaping	32	56	69	75	78	92
Existing	Chaparral, Narrowleaf	55	72	81	86	0	0

ON-SITE UNIT HYDROGRAPH METHOD HYDROLOGY

The unit hydrograph method was used to determine peak flood volumes for the 100-year 3-hour. The City of Banning requires the project site to retain the entire runoff volume from the 100-year 3-hour storm event and mitigate all flowrates down to existing flowrate values. The unit hydrographs were used to determine the 100-year 3-hour storm event flood volume. The results of the hydrologic calculations are summarized in Table 3. The flood volume results will be used to determine the required retention basin sizes. The total required flood volume for 100-year 3-hour storm event is 389,971 ft^3 or 8.95 acre-ft. The entire flood volume must be retained on-site.

The unit hydrograph calculations and Unit Hydrograph Exhibit are included in the following pages.

Table 3 – On-site Unit Hydrograph Results

Watershed ID	Drainage Area (Acres)	100-year 3-hour Peak Discharge (cfs)	100-year 3-hour Peak Volume (ac-ft)
Area-1	20.1	37.0	2.89
Area-2	37.8	68.8	6.06
*Total	57.9		

*The project site is 63.9 acres but there is approximately 6 acres of pervious area that drain away from the site and directly to pervious landscape and/ or the blue stream line area.

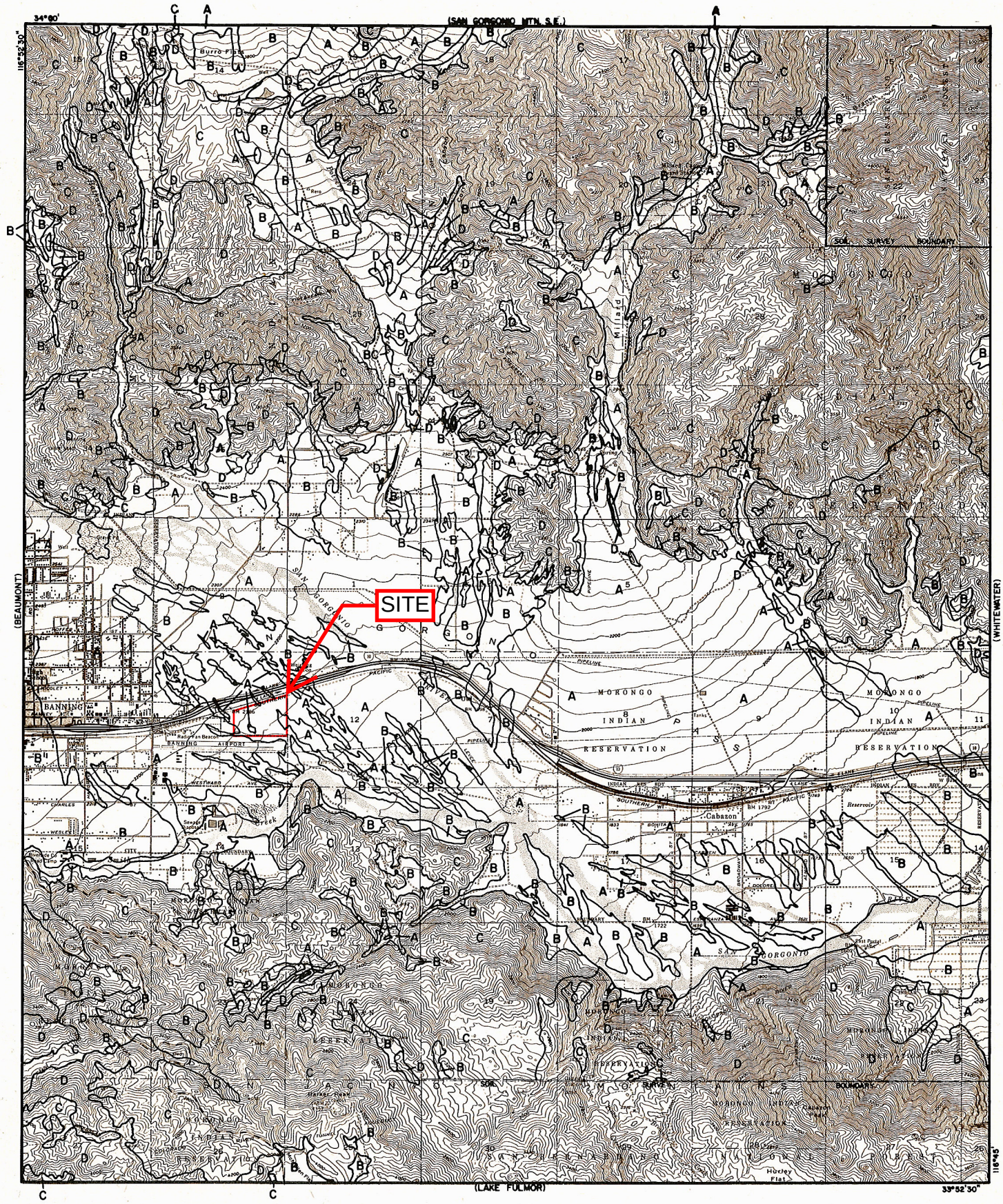
OFF-SITE UNIT HYDROGRAPH METHOD HYDROLOGY

As previously stated, the O3 (Off-site Area 3) Watershed enters the western site boundary just above where O2 Watershed enters. The O3 Watershed tributary area is approximately 83 acres in size. This is the biggest watershed that impacts the project site and the results were utilized to estimate the discharge and volumes for the other watersheds for preliminary purposes. The Unit Hydrograph methodology was used to analyze the O1 and O3 watersheds to determine the associated peak flow rates and volumes. Watershed O1 resulted in a Based on the results of the O3 analysis, a yield was calculated to determine for the flowrates and volumes of the remaining watersheds. This analysis resulted in a peak flow rate yield of 2.2 cfs/ acre and a volume yield of 0.094 acre-ft/ acre. Refer to Table 4 for results .A rational method analysis will be used during final engineering to determine more precise flow rates.

Table 4 – Off-site Unit Hydrograph Results

Watershed ID	Drainage Area (Acres)	100-year 3-hour Peak Discharge (cfs)	100-year 3-hour Peak Volume (ac-ft)
O1	802	856.0	78.766
O2	10.2	22.4	0.893
O3	82.9	182.0	7.257
O4	19.3	42.5	1.689

SOILS MAP-PLATE C-1.20



LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC&WCD

HYDROLOGY MANUAL

N

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR CABAZON

PLATE C-1.20

LAND USE COVER PLATE D-5.5

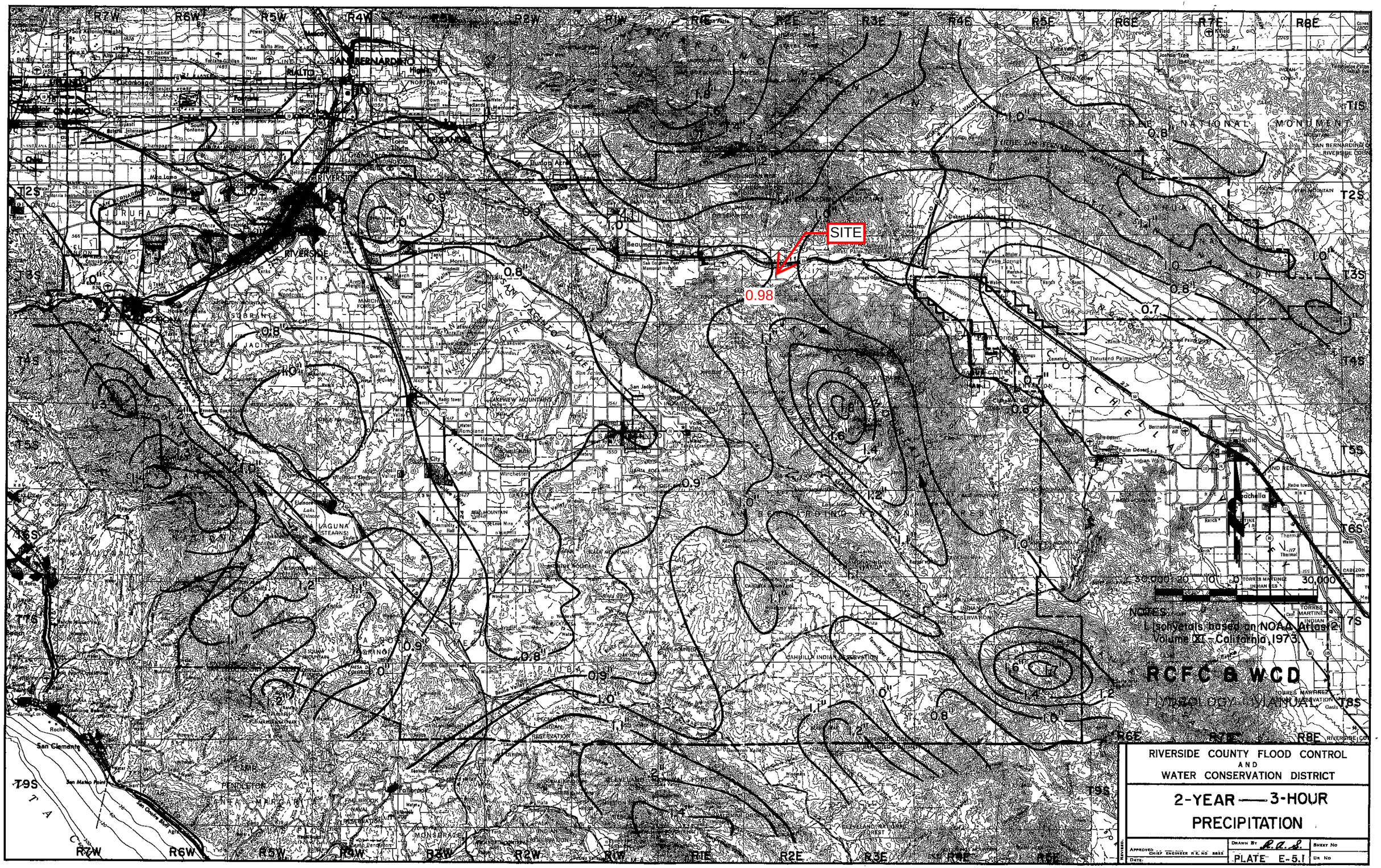
RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

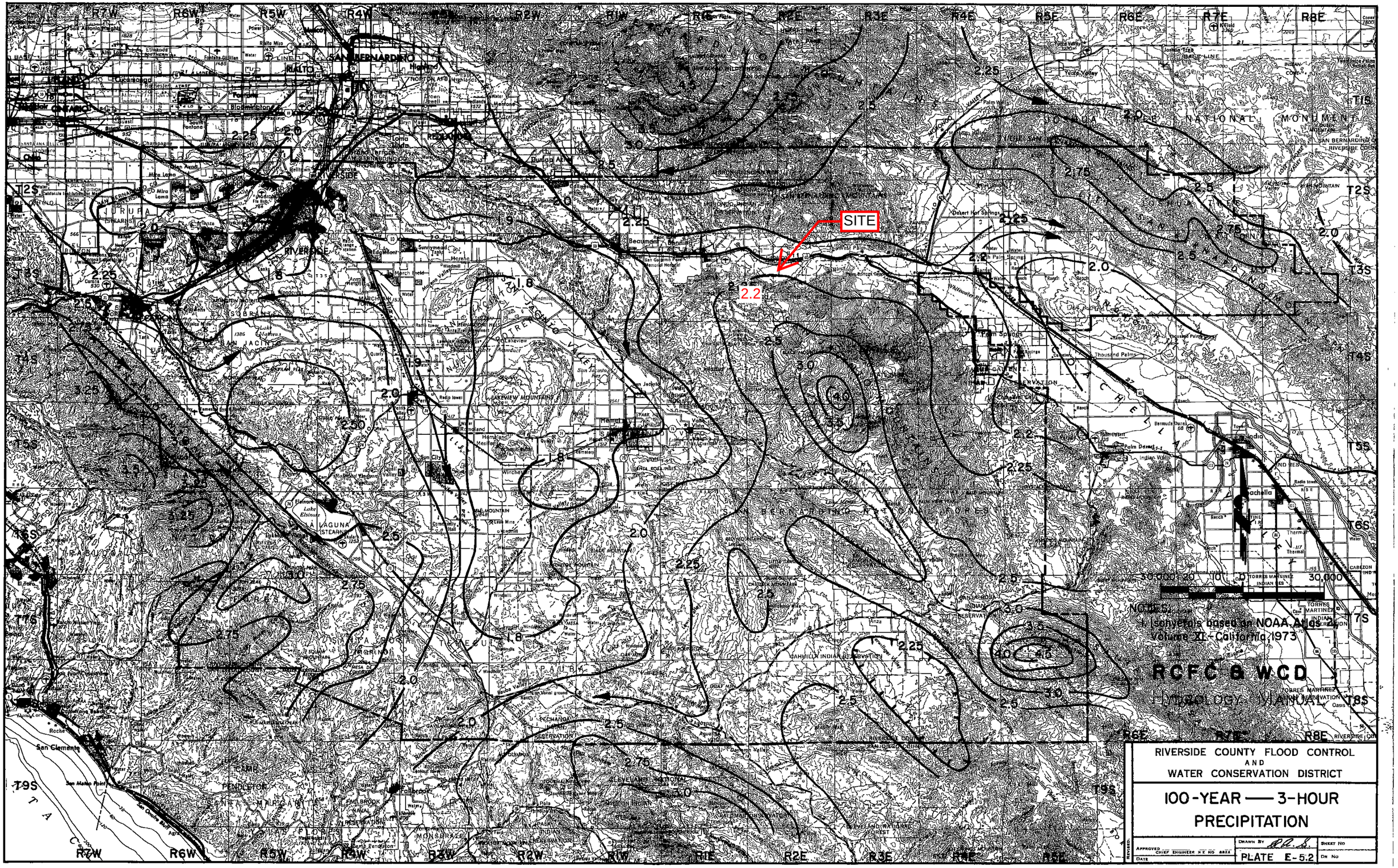
Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

RCFC & WCD
HYDROLOGY MANUAL

RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

ISOHEYTAL MAPS PLATES E-5.1&5.2


SITE
0.98
NOTES:
1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973.
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
2-YEAR — 3-HOUR
PRECIPITATION
PLATE E-5.1


SITE
2.2
NOTES:
1. Isohyetals based on NOAA Atlas 2
Volume XI - California, 1973
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 3-HOUR
PRECIPITATION
PLATE E-5.2

UNIT HYDROGRAPH INPUT DATA

COUNTY OF RIVERSIDE - 11/6/2017
BANNING INDUSTRIAL WO 15-0233

UNIT HYDROGRAPH INPUT DATA-AREA 1

	EXISTING	PROPOSED
TOTAL AREA	20.1	20.1
L (ft)	1637	1856
Lc (ft)	802	1177
DIFFERENCE IN ELEV. (ft)	57	56
AVERAGE "N"	0.030	0.015
LOW LOSS RATE	0.900	0.276
PERCENT IMPERVIOUS (%)	0	78
RI NUMBERS (Plate D-5.5) SOIL GROUP AND LAND USE BREAKDOWN		
AMC II SOIL GROUP "A"	NARROW LEAF CHAPPAREL	Commercial Landscaping
AREA (ac)	2.50	2.5
% IMPERVIOUS	0	0.78
RI	55	32
AMC II SOIL GROUP "B"	NARROW LEAF CHAPPAREL	Commercial Landscaping
AREA (ac)	17.60	17.6
% IMPERVIOUS	0	0.78
RI	72	56
COMPOSITE RI	69.9	53.0

	Precipitation (in)
2-YR 1-HR	0.58
100-YR 1-HR	1.28
2-YR 3-HR	0.98
100-YR 3-HR	2.20
2-YR 6-HR	1.30
100-YR 6-HR	3.20
2-YR 24-HR	2.70
100-YR 24-HR	7.20

COUNTY OF RIVERSIDE - 11/6/2017
BANNING INDUSTRIAL WO 15-0233

UNIT HYDROGRAPH INPUT DATA-AREA 2

	EXISTING	PROPOSED
TOTAL AREA	37.8	37.8
L (ft)	2227	3159
Lc (ft)	1019	995
DIFFERENCE IN ELEV. (ft)	71	64
AVERAGE "N"	0.030	0.015
LOW LOSS RATE	0.900	0.165
PERCENT IMPERVIOUS (%)	0	92
RI NUMBERS (Plate D-5.5) SOIL GROUP AND LAND USE BREAKDOWN		
AMC II SOIL GROUP "A"	NARROW LEAF CHAPPAREL	Commercial Landscaping
AREA (ac)	3.40	3.4
% IMPERVIOUS	0	0.92
RI	55	32
AMC II SOIL GROUP "B"	NARROW LEAF CHAPPAREL	Commercial Landscaping
AREA (ac)	34.40	34.4
% IMPERVIOUS	0	0.92
RI	72	56
COMPOSITE RI	70.5	53.8

	Precipitation (in)
2-YR 1-HR	0.58
100-YR 1-HR	1.28
2-YR 3-HR	0.98
100-YR 3-HR	2.20
2-YR 6-HR	1.30
100-YR 6-HR	3.20
2-YR 24-HR	2.70
100-YR 24-HR	7.20

100-YEAR 3-HOUR UNIT HYDROGRAPH (BASIN-1)

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/06/17 File: AREA13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Banning distribution Center
100-Year 3-Hour Storm
Developed Condition
Basin 1 Area

Drainage Area = 20.10(Ac.) = 0.031 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.10(Ac.) = 0.031 Sq. Mi.
Length along longest watercourse = 1856.00(Ft.)
Length along longest watercourse measured to centroid = 1177.00(Ft.)
Length along longest watercourse = 0.352 Mi.
Length along longest watercourse measured to centroid = 0.223 Mi.
Difference in elevation = 56.00(Ft.)
Slope along watercourse = 159.3103 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.052 Hr.
Lag time = 3.13 Min.
25% of lag time = 0.78 Min.
40% of lag time = 1.25 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
20.10	0.98	19.70

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
20.10	2.20	44.22

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.980(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 2.200(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
20.100	53.00	0.780

Total Area Entered = 20.10(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
53.0	53.0	0.541	0.780	0.161	1.000	0.161
					Sum (F) =	0.161

Area averaged mean soil loss (F) (In/Hr) = 0.161
Minimum soil loss rate ((In/Hr)) = 0.081
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	159.658	33.977	6.883
2	0.167	319.315	48.343	9.793
3	0.250	478.973	11.263	2.282
4	0.333	638.631	4.177	0.846
5	0.417	798.288	2.240	0.454
		Sum = 100.000	Sum=	20.257

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.343	0.161	---	0.18
2	0.17	1.30	0.343	0.161	---	0.18
3	0.25	1.10	0.290	0.161	---	0.13
4	0.33	1.50	0.396	0.161	---	0.23
5	0.42	1.50	0.396	0.161	---	0.23
6	0.50	1.80	0.475	0.161	---	0.31
7	0.58	1.50	0.396	0.161	---	0.23
8	0.67	1.80	0.475	0.161	---	0.31
9	0.75	1.80	0.475	0.161	---	0.31
10	0.83	1.50	0.396	0.161	---	0.23
11	0.92	1.60	0.422	0.161	---	0.26
12	1.00	1.80	0.475	0.161	---	0.31
13	1.08	2.20	0.581	0.161	---	0.42
14	1.17	2.20	0.581	0.161	---	0.42
15	1.25	2.20	0.581	0.161	---	0.42
16	1.33	2.00	0.528	0.161	---	0.37
17	1.42	2.60	0.686	0.161	---	0.53
18	1.50	2.70	0.713	0.161	---	0.55
19	1.58	2.40	0.634	0.161	---	0.47
20	1.67	2.70	0.713	0.161	---	0.55
21	1.75	3.30	0.871	0.161	---	0.71
22	1.83	3.10	0.818	0.161	---	0.66
23	1.92	2.90	0.766	0.161	---	0.60
24	2.00	3.00	0.792	0.161	---	0.63
25	2.08	3.10	0.818	0.161	---	0.66
26	2.17	4.20	1.109	0.161	---	0.95
27	2.25	5.00	1.320	0.161	---	1.16
28	2.33	3.50	0.924	0.161	---	0.76
29	2.42	6.80	1.795	0.161	---	1.63
30	2.50	7.30	1.927	0.161	---	1.77
31	2.58	8.20	2.165	0.161	---	2.00
32	2.67	5.90	1.557	0.161	---	1.40
33	2.75	2.00	0.528	0.161	---	0.37
34	2.83	1.80	0.475	0.161	---	0.31
35	2.92	1.80	0.475	0.161	---	0.31
36	3.00	0.60	0.158	0.161	0.044	0.11
Sum =		100.0			Sum =	20.7

Flood volume = Effective rainfall 1.73(In)
times area 20.1(Ac.)/[(In)/(Ft.)] = 2.9(Ac.Ft)
Total soil loss = 0.47(In)
Total soil loss = 0.794(Ac.Ft)
Total rainfall = 2.20(In)
Flood volume = 125904.7 Cubic Feet
Total soil loss = 34599.8 Cubic Feet

Peak flow rate of this hydrograph = 35.996(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+ 5	0.0086	1.25	VQ				
0+10	0.0295	3.03	V Q				
0+15	0.0508	3.09	V Q				
0+20	0.0745	3.45	V Q				
0+25	0.1051	4.45	V Q				
0+30	0.1409	5.19	V Q				
0+35	0.1786	5.48	V Q				
0+40	0.2164	5.48	V Q				
0+45	0.2587	6.14	V Q				
0+50	0.2983	5.75	VQ				

```
    0+55       0.3340      5.18  |    VQ     |           |           |           |
    1+ 0       0.3730      5.66  |     Q     |           |           |           |
    1+ 5       0.4205      6.90  |    VQ     |           |           |           |
    1+10       0.4759      8.04  |      V Q  |           |           |           |
    1+15       0.5333      8.34  |       VQ  |           |           |           |
    1+20       0.5890      8.09  |        Q  |           |           |           |
    1+25       0.6490      8.71  |        Q  |           |           |           |
    1+30       0.7201     10.32  |         VQ|           |           |           |
    1+35       0.7914     10.35  |          Q|           |           |           |
    1+40       0.8623     10.29  |          QV           |           |           |
    1+45       0.9455     12.07  |           | QV        |           |           |
    1+50       1.0377     13.39  |           |  QV       |           |           |
    1+55       1.1265     12.90  |           | Q  V      |           |           |
    2+ 0       1.2134     12.61  |           | Q    V    |           |           |
    2+ 5       1.3026     12.96  |           | Q      V  |           |           |
    2+10       1.4074     15.21  |           |    Q    V |           |           |
    2+15       1.5421     19.57  |           |         Q |V          |           |
    2+20       1.6772     19.61  |           |         Q |  V        |           |
    2+25       1.8319     22.47  |           |           |  Q  V     |           |
    2+30       2.0476     31.32  |           |           |        V  |Q          |
    2+35       2.2955     36.00  |           |           |           |V   Q      |
    2+40       2.5366     35.00  |           |           |           |    Q      |
    2+45       2.6951     23.01  |           |           |   Q       |      V    |
    2+50       2.7738     11.44  |           |Q          |           |        V  |
    2+55       2.8301      8.16  |         Q |           |           |         V |
    3+ 0       2.8681      5.53  |     Q     |           |           |         V |
    3+ 5       2.8838      2.27  |  Q        |           |           |         V |
    3+10       2.8884      0.67  Q           |           |           |         V |
    3+15       2.8900      0.24  Q           |           |           |         V |
    3+20       2.8904      0.05  Q           |           |           |         V |
-------------------------------------------------------------------------------
```

100-YEAR 3-HOUR UNIT HYDROGRAPH (BASIN-2)

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/06/17 File: AREA2310O.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Banning Distribution Center
10O-Year 3-Hour Storm
Developed Conditions
Basin 2 Area

Drainage Area = 37.80(Ac.) = 0.059 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 37.80(Ac.) = 0.059 Sq. Mi.
Length along longest watercourse = 3159.00(Ft.)
Length along longest watercourse measured to centroid = 995.00(Ft.)
Length along longest watercourse = 0.598 Mi.
Length along longest watercourse measured to centroid = 0.188 Mi.
Difference in elevation = 64.00(Ft.)
Slope along watercourse = 106.9706 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.065 Hr.
Lag time = 3.88 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.55 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
37.80	0.98	37.04

10O YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
37.80	2.20	83.16

STORM EVENT (YEAR) = 10O.00
Area Averaged 2-Year Rainfall = 0.980(In)
Area Averaged 10O-Year Rainfall = 2.200(In)

Point rain (area averaged) = 2.200(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 2.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
37.800	53.80	0.920

Total Area Entered = 37.80(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
53.8	53.8	0.533	0.920	0.092	1.000	0.092
					Sum (F) =	0.092

Area averaged mean soil loss (F) (In/Hr) = 0.092
Minimum soil loss rate ((In/Hr)) = 0.046
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.165

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.907	26.124	9.952
2	0.167	257.814	49.957	19.031
3	0.250	386.721	13.696	5.218
4	0.333	515.628	5.715	2.177
5	0.417	644.535	2.588	0.986
6	0.500	773.442	1.408	0.536
7	0.583	902.349	0.512	0.195
		Sum = 100.000	Sum=	38.095

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.343	0.092	---	0.25
2	0.17	1.30	0.343	0.092	---	0.25
3	0.25	1.10	0.290	0.092	---	0.20
4	0.33	1.50	0.396	0.092	---	0.30
5	0.42	1.50	0.396	0.092	---	0.30
6	0.50	1.80	0.475	0.092	---	0.38
7	0.58	1.50	0.396	0.092	---	0.30
8	0.67	1.80	0.475	0.092	---	0.38
9	0.75	1.80	0.475	0.092	---	0.38
10	0.83	1.50	0.396	0.092	---	0.30
11	0.92	1.60	0.422	0.092	---	0.33
12	1.00	1.80	0.475	0.092	---	0.38
13	1.08	2.20	0.581	0.092	---	0.49
14	1.17	2.20	0.581	0.092	---	0.49
15	1.25	2.20	0.581	0.092	---	0.49
16	1.33	2.00	0.528	0.092	---	0.44
17	1.42	2.60	0.686	0.092	---	0.59
18	1.50	2.70	0.713	0.092	---	0.62
19	1.58	2.40	0.633	0.092	---	0.54
20	1.67	2.70	0.713	0.092	---	0.62
21	1.75	3.30	0.871	0.092	---	0.78
22	1.83	3.10	0.818	0.092	---	0.73
23	1.92	2.90	0.765	0.092	---	0.67
24	2.00	3.00	0.792	0.092	---	0.70
25	2.08	3.10	0.818	0.092	---	0.73
26	2.17	4.20	1.109	0.092	---	1.02
27	2.25	5.00	1.320	0.092	---	1.23
28	2.33	3.50	0.924	0.092	---	0.83
29	2.42	6.80	1.795	0.092	---	1.70
30	2.50	7.30	1.927	0.092	---	1.84
31	2.58	8.20	2.164	0.092	---	2.07
32	2.67	5.90	1.557	0.092	---	1.47
33	2.75	2.00	0.528	0.092	---	0.44
34	2.83	1.80	0.475	0.092	---	0.38
35	2.92	1.80	0.475	0.092	---	0.38
36	3.00	0.60	0.158	0.092	---	0.07
Sum =		100.0			Sum =	23.1

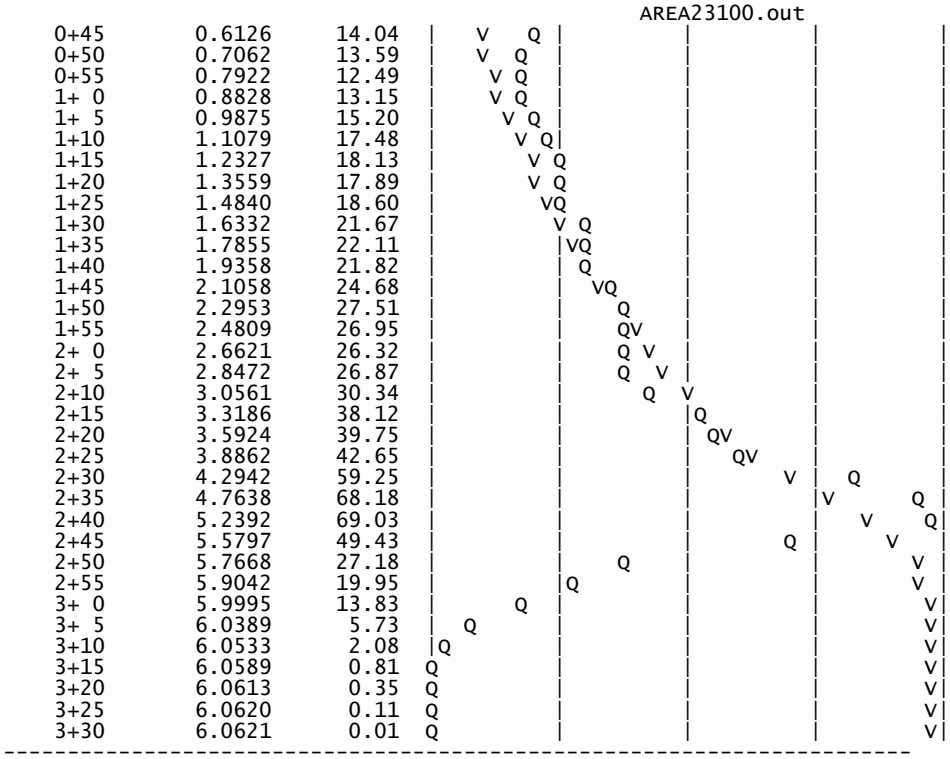
Flood volume = Effective rainfall 1.92(In)
times area 37.8(Ac.)/[(In)/(Ft.)] = 6.1(Ac.Ft)
Total soil loss = 0.28(In)
Total soil loss = 0.867(Ac.Ft)
Total rainfall = 2.20(In)
Flood volume = 264066.2 Cubic Feet
Total soil loss = 37754.7 Cubic Feet

Peak flow rate of this hydrograph = 69.029(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

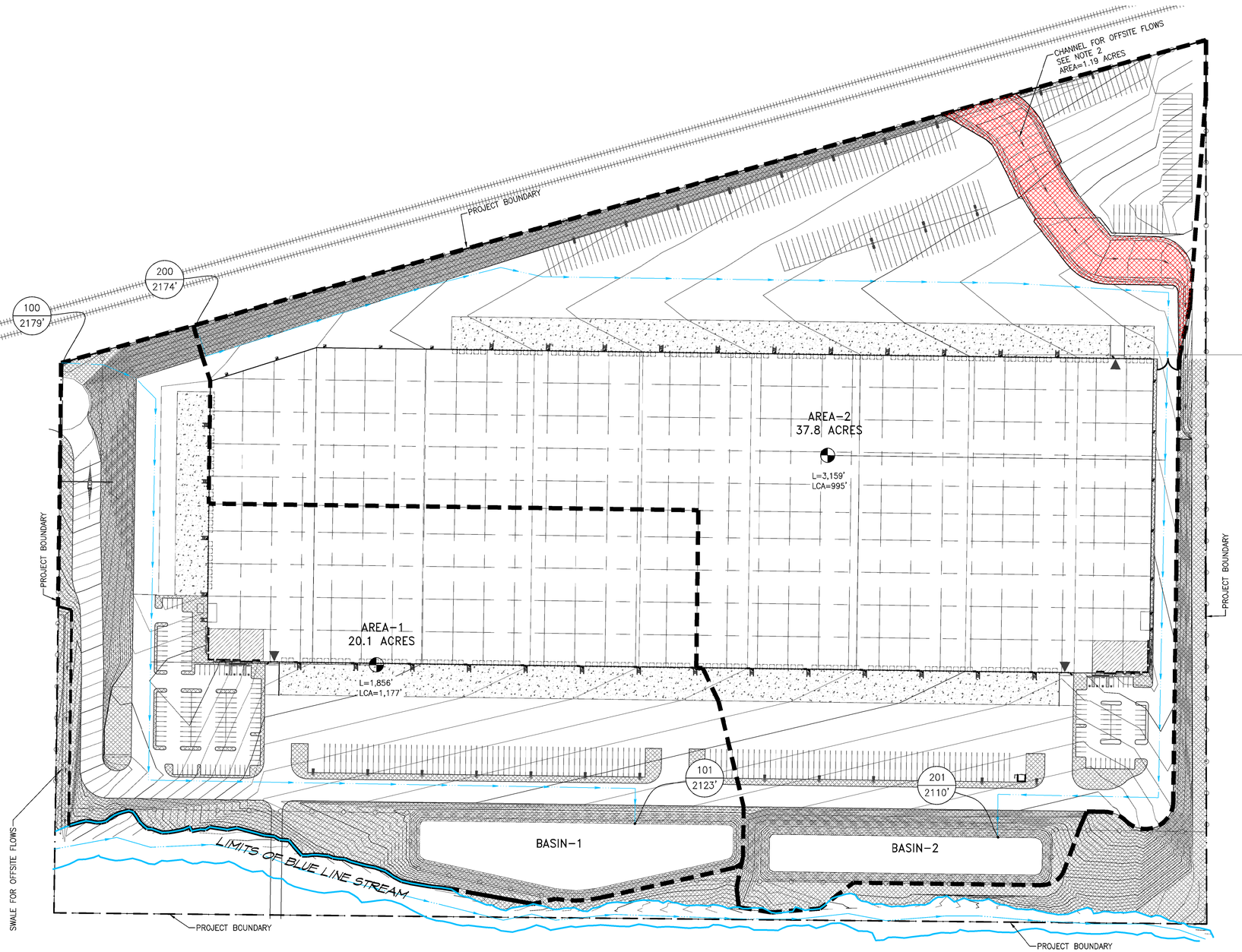
Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	17.5	35.0	52.5	70.0
0+ 5	0.0172	2.50	VQ				
0+10	0.0675	7.29	V Q				
0+15	0.1231	8.08	V Q				
0+20	0.1828	8.67	|V Q				
0+25	0.2562	10.65	|V Q				
0+30	0.3389	12.01	| V Q				
0+35	0.4282	12.96	| V Q				
0+40	0.5159	12.73	| V Q				



0+45	0.6126	14.04	
0+50	0.7062	13.59	
0+55	0.7922	12.49	
1+ 0	0.8828	13.15	
1+ 5	0.9875	15.20	
1+10	1.1079	17.48	
1+15	1.2327	18.13	
1+20	1.3559	17.89	
1+25	1.4840	18.60	
1+30	1.6332	21.67	
1+35	1.7855	22.11	
1+40	1.9358	21.82	
1+45	2.1058	24.68	
1+50	2.2953	27.51	
1+55	2.4809	26.95	
2+ 0	2.6621	26.32	
2+ 5	2.8472	26.87	
2+10	3.0561	30.34	
2+15	3.3186	38.12	
2+20	3.5924	39.75	
2+25	3.8862	42.65	
2+30	4.2942	59.25	
2+35	4.7638	68.18	
2+40	5.2392	69.03	
2+45	5.5797	49.43	
2+50	5.7668	27.18	
2+55	5.9042	19.95	
3+ 0	5.9995	13.83	
3+ 5	6.0389	5.73	
3+10	6.0533	2.08	
3+15	6.0589	0.81	
3+20	6.0613	0.35	
3+25	6.0620	0.11	
3+30	6.0621	0.01	

PROPOSED ONSITE UNIT HYDROGRAPH MAP

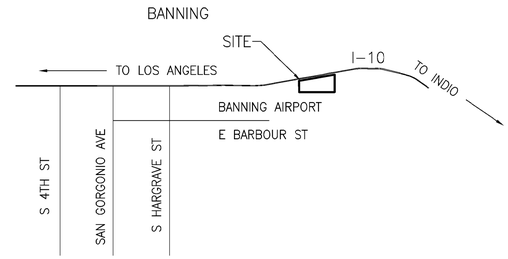


LEGEND

- DRAINAGE AREA BOUNDARY
- FLOWLINE
- 101 / 400 — NODE NUMBER / NODE ELEVATION (FT.)
- WATERSHED CENTROID

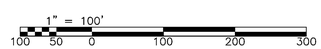
DRAINAGE AREA BREAK DOWN	
AREA-1	20.1 ACRES
AREA-2	37.8 ACRES
SELF-TREATING AREA	6.0 ACRES
TOTAL AREA	63.9 ACRES

NOTE:
1. THE PROJECT AVOIDS ADDING IMPROVEMENTS IN THE LIMITS OF THE BLUE STREAM. THIS CAUSED APPROXIMATELY 6 ACRES OF THE PROJECT AREA TO REMAIN UNIMPROVED.
2. THE CHANNEL THAT RUNS THROUGH THE SITE CONVEYS OFF-SITE FLOWS TO THE EAST SIDE OF THE PROJECT. THESE FLOWS WILL NOT COMMINGLE WITH ON-SITE FLOWS. CHANNEL AREA WAS INCLUDED IN AREA-2 FOR CONSERVATIVELY SIZING BASIN-2.
3. ALL ON-SITE FLOWS WILL BE TREATED FOR WATER QUALITY USING THE INFILTRATION BASINS. REVIEW THE PWQMP REPORT FOR FURTHER DETAILS.
4. ALL ON-SITEFLOWS DRAINING AWAY FROM THE SITE WILL SHEET FLOW THROUGH PERVIOUS AREAS ALLOWING SELF-TREATMENT. REVIEW THE PWQMP REPORT FOR FURTHER DETAILS.



VICINITY MAP
N.T.S.





BANNING INDUSTRIAL, LLC
DISTRIBUTION WAREHOUSE
UNIT HYDROGRAPH HYDROLOGY MAP
PROPOSED CONDITION

SCALE:	1"=100'
DATE:	10/2/2015
DESIGNED:	MSH
CHECKED:	EA
PLN CK REF:	
F.B.	

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O.
SHEET 1 OF 1 SHEETS

C:\2015\15-0233\DRAINAGE\HYD\DWG FOLDER\15-0233-C-PROP-UH.DWG 11/13/2017 4:56:40 PM

100-YEAR 3-HOUR UNIT HYDROGRAPH (OFFSITE)

U n i t H y d r o g r a p h A n a l y s i s

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Study date 01/26/18 File: OFFSITE13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Banning Distribution Center
100-Year 3-Hour Storm
Offsite Area O1

Drainage Area = 802.00(Ac.) = 1.253 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 802.00(Ac.) = 1.253 Sq. Mi.
Length along longest watercourse = 14258.00(Ft.)
Length along longest watercourse measured to centroid = 8498.00(Ft.)
Length along longest watercourse = 2.700 Mi.
Length along longest watercourse measured to centroid = 1.609 Mi.
Difference in elevation = 522.00(Ft.)
Slope along watercourse = 193.3062 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.386 Hr.
Lag time = 23.14 Min.
25% of lag time = 5.79 Min.
40% of lag time = 9.26 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
802.00	1.00	802.00

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
802.00	2.25	1804.50

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.000(In)
Area Averaged 100-Year Rainfall = 2.250(In)

Point rain (area averaged) = 2.250(In)
Areal adjustment factor = 99.65 %
Adjusted average point rain = 2.242(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
802.000	34.80	0.520

Total Area Entered = 802.00(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
34.8	34.8	0.717	0.520	0.381	1.000	0.381
					Sum (F) =	0.381

Area averaged mean soil loss (F) (In/Hr) = 0.381
Minimum soil loss rate ((In/Hr)) = 0.191
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.484

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	21.606	1.104	8.925
2	0.167	43.212	4.021	32.500
3	0.250	64.818	8.316	67.217
4	0.333	86.424	17.987	145.382
5	0.417	108.030	16.612	134.269
6	0.500	129.636	10.793	87.234
7	0.583	151.242	7.073	57.170
8	0.667	172.848	5.385	43.528
9	0.750	194.454	4.219	34.104
10	0.833	216.059	3.457	27.944
11	0.917	237.665	2.789	22.539
12	1.000	259.271	2.354	19.026
13	1.083	280.877	2.104	17.003
14	1.167	302.483	1.817	14.688
15	1.250	324.089	1.466	11.846
16	1.333	345.695	1.257	10.158
17	1.417	367.301	1.155	9.332
18	1.500	388.907	1.023	8.265
19	1.583	410.513	0.931	7.521
20	1.667	432.119	0.763	6.168
21	1.750	453.725	0.732	5.917
22	1.833	475.331	0.621	5.019
23	1.917	496.937	0.562	4.540
24	2.000	518.543	0.498	4.026
25	2.083	540.149	0.391	3.157
26	2.167	561.755	0.363	2.937
27	2.250	583.361	0.234	1.892
28	2.333	604.967	0.217	1.756
29	2.417	626.573	0.246	1.992
30	2.500	648.178	0.259	2.096
31	2.583	669.784	0.259	2.096
32	2.667	691.390	0.259	2.096
33	2.750	712.996	0.237	1.914
34	2.833	734.602	0.145	1.171
35	2.917	756.208	0.135	1.091
36	3.000	777.814	0.135	1.091
37	3.083	799.420	0.081	0.656
			Sum = 100.000	Sum= 808.266

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.350	0.381	0.169	0.18
2	0.17	1.30	0.350	0.381	0.169	0.18
3	0.25	1.10	0.296	0.381	0.143	0.15
4	0.33	1.50	0.404	0.381	---	0.02
5	0.42	1.50	0.404	0.381	---	0.02
6	0.50	1.80	0.484	0.381	---	0.10
7	0.58	1.50	0.404	0.381	---	0.02
8	0.67	1.80	0.484	0.381	---	0.10
9	0.75	1.80	0.484	0.381	---	0.10
10	0.83	1.50	0.404	0.381	---	0.02
11	0.92	1.60	0.430	0.381	---	0.05
12	1.00	1.80	0.484	0.381	---	0.10
13	1.08	2.20	0.592	0.381	---	0.21
14	1.17	2.20	0.592	0.381	---	0.21
15	1.25	2.20	0.592	0.381	---	0.21
16	1.33	2.00	0.538	0.381	---	0.16
17	1.42	2.60	0.700	0.381	---	0.32
18	1.50	2.70	0.726	0.381	---	0.35
19	1.58	2.40	0.646	0.381	---	0.26
20	1.67	2.70	0.726	0.381	---	0.35
21	1.75	3.30	0.888	0.381	---	0.51
22	1.83	3.10	0.834	0.381	---	0.45
23	1.92	2.90	0.780	0.381	---	0.40
24	2.00	3.00	0.807	0.381	---	0.43
25	2.08	3.10	0.834	0.381	---	0.45
26	2.17	4.20	1.130	0.381	---	0.75
27	2.25	5.00	1.345	0.381	---	0.96
28	2.33	3.50	0.942	0.381	---	0.56
29	2.42	6.80	1.830	0.381	---	1.45
30	2.50	7.30	1.964	0.381	---	1.58
31	2.58	8.20	2.206	0.381	---	1.82
32	2.67	5.90	1.587	0.381	---	1.21
33	2.75	2.00	0.538	0.381	---	0.16
34	2.83	1.80	0.484	0.381	---	0.10
35	2.92	1.80	0.484	0.381	---	0.10
36	3.00	0.60	0.161	0.381	0.078	0.08
Sum =		100.0			Sum =	14.1

Flood volume = Effective rainfall 1.18(In)
times area 802.0(Ac.)/[(In)/(Ft.)] = 78.8(Ac.Ft)
Total soil loss = 1.06(In)
Total soil loss = 71.081(Ac.Ft)
Total rainfall = 2.24(In)

Flood volume = 3431043.2 Cubic Feet
Total soil loss = 3096308.3 Cubic Feet

Peak flow rate of this hydrograph = 856.033(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	225.0	450.0	675.0	900.0
0+ 5	0.0111	1.61	Q				
0+10	0.0626	7.48	Q				
0+15	0.1960	19.37	Q				
0+20	0.4960	43.55	VQ				
0+25	0.9208	61.69	V Q				
0+30	1.3709	65.35	V Q				
0+35	1.7488	54.87	V Q				
0+40	2.0677	46.30	VQ				
0+45	2.4012	48.42	VQ				
0+50	2.7359	48.61	VQ				
0+55	3.0913	51.60	VQ				
1+ 0	3.4642	54.15	VQ				
1+ 5	3.8201	51.67	VQ				
1+10	4.1982	54.90	Q				
1+15	4.6716	68.73	VQ				
1+20	5.2941	90.39	V Q				
1+25	6.0425	108.67	VQ				
1+30	6.8879	122.75	V Q				
1+35	7.8123	134.22	V Q				
1+40	8.8911	156.64	V Q				
1+45	10.1395	181.26	V Q				
1+50	11.5055	198.35	V Q				
1+55	13.0235	220.42	V Q				
2+ 0	14.7606	252.21	V Q				
2+ 5	16.6451	273.64	V Q				
2+10	18.6112	285.47	V Q				
2+15	20.7168	305.74	V Q				
2+20	23.0623	340.56	V Q				
2+25	25.8397	403.28	V Q				
2+30	29.1823	485.34	V Q				
2+35	32.9967	553.86	V Q				
2+40	37.6867	680.98	V Q				
2+45	43.2051	801.28	V Q				
2+50	49.1006	856.03	V Q				
2+55	54.5406	789.88	V Q				
3+ 0	58.8070	619.49	V Q				
3+ 5	62.0241	467.12	Q V				
3+10	64.5791	370.99	Q V				
3+15	66.6790	304.90	Q V				
3+20	68.3894	248.35	Q V				
3+25	69.7961	204.25	Q V				
3+30	70.9822	172.22	Q V				
3+35	72.0003	147.83	Q V				
3+40	72.8768	127.27	Q V				
3+45	73.6305	109.44	Q V				
3+50	74.2841	94.89	Q V				
3+55	74.8633	84.11	Q V				
4+ 0	75.3750	74.30	Q V				
4+ 5	75.8285	65.84	Q V				
4+10	76.2260	57.72	Q V				
4+15	76.5760	50.82	Q V				
4+20	76.8859	45.01	Q V				
4+25	77.1541	38.94	Q V				
4+30	77.3884	34.02	Q V				
4+35	77.5887	29.08	Q V				
4+40	77.7611	25.03	Q V				
4+45	77.9116	21.85	Q V				
4+50	78.0467	19.62	Q V				
4+55	78.1741	18.49	Q V				
5+ 0	78.2940	17.41	Q V				
5+ 5	78.4056	16.20	Q V				
5+10	78.5028	14.11	Q V				
5+15	78.5827	11.60	Q V				
5+20	78.6450	9.05	Q V				
5+25	78.6932	6.99	Q V				
5+30	78.7284	5.12	Q V				
5+35	78.7503	3.18	Q V				
5+40	78.7596	1.36	Q V				
5+45	78.7626	0.43	Q V				
5+50	78.7644	0.27	Q V				
5+55	78.7655	0.16	Q V				
6+ 0	78.7659	0.05	Q V				

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0
Study date 07/29/16 File: 031100.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Banning Distribution Center
100-Year 1-Hour Storm
Offsite Area O3

Drainage Area = 82.90(Ac.) = 0.130 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 82.90(Ac.) = 0.130 Sq. Mi.
Length along longest watercourse = 4414.00(Ft.)
Length along longest watercourse measured to centroid = 2427.00(Ft.)
Length along longest watercourse = 0.836 Mi.
Length along longest watercourse measured to centroid = 0.460 Mi.
Difference in elevation = 161.00(Ft.)
Slope along watercourse = 192.5872 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.154 Hr.
Lag time = 9.21 Min.
25% of lag time = 2.30 Min.
40% of lag time = 3.69 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
82.90	0.58	48.08

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
82.90	1.28	106.11

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.580(In)
Area Averaged 100-Year Rainfall = 1.280(In)

Point rain (area averaged) = 1.280(In)
Areal adjustment factor = 99.92 %
Adjusted average point rain = 1.279(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
37.000	71.00	0.200
45.900	82.00	0.200

Total Area Entered = 82.90(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
71.0	71.0	0.350	0.200	0.287	0.446	0.128
82.0	82.0	0.221	0.200	0.181	0.554	0.100
					Sum (F) =	0.229

Area averaged mean soil loss (F) (In/Hr) = 0.229
Minimum soil loss rate ((In/Hr)) = 0.114
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.740

Slope of intensity-duration curve for a 1 hour storm =0.5300

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	54.273	4.585	3.831
2	0.167	108.546	30.814	25.745
3	0.250	162.820	28.715	23.991
4	0.333	217.093	12.324	10.296
5	0.417	271.366	7.174	5.994
6	0.500	325.639	4.845	4.048
7	0.583	379.913	3.231	2.700
8	0.667	434.186	2.414	2.017
9	0.750	488.459	1.773	1.482
10	0.833	542.732	1.295	1.082
11	0.917	597.006	0.824	0.688
12	1.000	651.279	0.595	0.497
13	1.083	705.552	0.649	0.543
14	1.167	759.825	0.465	0.388
15	1.250	814.099	0.296	0.247
			Sum = 100.000	Sum= 83.548

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	3.40	0.522	0.229	---	0.29
2	0.17	4.70	0.721	0.229	---	0.49
3	0.25	4.70	0.721	0.229	---	0.49
4	0.33	5.10	0.783	0.229	---	0.55
5	0.42	5.80	0.890	0.229	---	0.66
6	0.50	5.90	0.906	0.229	---	0.68
7	0.58	7.10	1.090	0.229	---	0.86
8	0.67	8.70	1.335	0.229	---	1.11
9	0.75	13.20	2.026	0.229	---	1.80
10	0.83	29.70	4.558	0.229	---	4.33
11	0.92	7.70	1.182	0.229	---	0.95
12	1.00	4.00	0.614	0.229	---	0.39
Sum =		100.0			Sum =	12.6

Flood volume = Effective rainfall 1.05(In)
times area 82.9(Ac.)/[(In)/(Ft.)] = 7.3(Ac.Ft)
Total soil loss = 0.23(In)
Total soil loss = 1.579(Ac.Ft)
Total rainfall = 1.28(In)
Flood volume = 316106.5 Cubic Feet
Total soil loss = 68790.7 Cubic Feet

Peak flow rate of this hydrograph = 182.004(CFS)

1 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 50.0 100.0 150.0 200.0
0+ 5	0.0077	1.12	Q
0+10	0.0728	9.44	VQ
0+15	0.2217	21.62	V Q
0+20	0.4260	29.67	V Q
0+25	0.6703	35.47	V Q
0+30	0.9606	42.16	V Q
0+35	1.2917	48.07	V Q
0+40	1.6824	56.73	V Q
0+45	2.1783	72.01	V Q
0+50	2.9263	108.61	V Q
0+55	4.1798	182.00	V Q
1+ 0	5.3066	163.61	V Q
1+ 5	5.9862	98.69	Q V
1+10	6.3979	59.77	Q V
1+15	6.6567	37.58	Q V
1+20	6.8322	25.48	Q V
1+25	6.9586	18.36	Q V
1+30	7.0501	13.28	Q V
1+35	7.1159	9.56	Q V
1+40	7.1612	6.58	Q V

1+45	7.1946	4.85	Q	|	|	|	V|
1+50	7.2226	4.06	Q	|	|	|	V|
1+55	7.2421	2.84	Q	|	|	|	V|
2+ 0	7.2535	1.65	Q	|	|	|	V|
2+ 5	7.2562	0.39	Q	|	|	|	V|
2+10	7.2568	0.10	Q	|	|	|	V|

OFFSITE UNIT HYDROGRAPH MAP

San Gorgonio River

San Gorgonio River

San Gorgonio River

LINE C-1

LINE C-3

LINE C

LINE A

LAT D-2A

GILMAN ST

SAN GORGONIO AVE

ALESSANDRO RD

FLORIDA ST

HARGRAVE ST

HATHAWAY ST

WILSON ST

GEORGE ST

NICOLET ST

SECOND ST

WILLIAMS ST

RAMSEY ST

LINE D-2

LINE D-1

LINE D (RAMSEY ST SD)

LINE H

Elev. 2329

O3
82.9

Q100=182 CFS

O1
802

Q100=1764 CFS

O4
19.3

Q100=42.5 CFS

O2
10.2

Q100=22.4 CFS

PROJECT SITE

Elev. 2157

Ramsey St. Wash

Legend

- Watershed Boundary
- Watercourse/Stream
- Existing Drainage Facility
- Proposed MDP Drainage Facility
- Existing Culvert
- O1 / 802 — Watershed ID / Drainage Area (acres)

(1) Location of existing culverts are approximate and needs to be field verified and/or determine with as-built plans

500 250 0 500 1,000 Feet

Banning Distribution Center
Banning Industrial, LP

Offsite Drainage Hydrology Map

SCALE:	1" = 500'	ALBERT A. WEBB ASSOCIATES	W.O. 15-0233
DATE:	07/12/2016	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE, CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	1 OF 1 SHEETS
DESIGNED:	L.Johnson		DWG. offsite-drainage.mxd
CHECKED:			

SECTION 3 - HYDRAULIC ANALYSIS

ON-SITE STORM DRAIN FACILITIES

The project proposes two subsurface storm drain systems to convey on-site flows towards infiltration basins, which are designed to retain the 100-year 3-hr storm event. Basin-1 will receive all of the discharge from Drainage Management Area 1 (AREA-1), which consists of 20.1 acres. Basin-2 will receive all of the discharge from Drainage Management Area 2 (AREA-2), which consists of 37.8 acres. The runoff will be retained but there will be an emergency spillway located on the south side of each basin. The calculations for these systems shall be provided during final engineering.

A brief summary of each system will be provided and the results of the preliminary hydraulic analyses will be included at the end of the section. The peak flow rates determined by a100-year Rational Method on-site hydrology analysis will be utilized to evaluate the proposed storm drain systems.

Line-1

Line 1 starts collecting runoff from the north-easterly side of the project site. Line-1 conveys flows towards Basin-1. Line-1 shall be sized using the WSPGW software and the 100-year peak flowrate. Calculations shall be provided during final engineering.

Line-2

Line 2 starts collecting runoff from the north-easterly side of the project site. Line-1 conveys flows towards Basin-2. Line-2 shall be sized using the WSPGW software and the 100-year peak flow rate. Calculations shall be provided during final engineering.

Basin Sizing

A preliminary basin capacity evaluation shows that at depths of 3.75 feet in Basin 1 and 3.7 feet in Basin 2 will result in storing 5.45 ac/ ft in Basin 1 and 3.49 ac/ ft in Basin 2. Both of the basins are proposed to be 6 feet deep. In case of maximum water depth of 5 feet and 1 feet of freeboard are considered, the total available storage is 12.52 acre-ft. The total available basin storage is more than the total 100-year 3-hour runoff volume of 8.95 acre-ft. Refer to stage storage tables at the end of this section.

Emergency Spillways

There will be an emergency spillway available. The spillway will be designed using the 100 year peak flow. The design for the spillway will be provided during final engineering.

Drawdown Time

Infiltration testing for the two retention basins was performed by SCST Engineering date August 24, 2015. Three double ring infiltrometer tests were performed at the basin location. An average infiltration rate of 3.9 inches per hour was used to determine the drawdown time for the basins. (See infiltration results at the end of this section.)

The basin drawdown time was evaluated for combined runoff volumes, basin storage and available bottom area for infiltration for both basins. The means of equalizing and distributing the on-site flows into the proposed basins so their capacity is utilized in the most efficient way will be a subject of the final design stage for the proposed development.. The available basin bottom area for infiltration is 55,900 ft2 for Basin 1 and 34,540 ft2 for Basin 2.

The results of these analyses are provided at the end of this section.

LINE 1

***To be provided during Final Engineering.**

LINE 2

***To be provided during Final Engineering.**

BASIN SIZING (STAGE STORAGE TABLES)

Basin 1 Stage-Storage Summary

Elev (ft)	Depth (ft)	Area (acre)	Incremental Vol (acre-ft)	Cumulative Vol (acre-ft)
2123 Bot	0	1.28		0.00
			1.33	
2124	1	1.37		1.33
			1.42	
2125	2	1.46		2.74
			1.51	
2126	3	1.55		4.25
			1.60	
2127	4	1.65		5.85
			1.70	
2128	5	1.74		7.55
			1.79	
2129 Top	6	1.84		9.34

Basin 2 Stage-Storage Summary

Elev (ft)	Depth (ft)	Area (acre)	Incremental Vol (acre-ft)	Cumulative Vol (acre-ft)
2110 Bot	0	0.79		0.00
			0.83	
2111	1	0.87		0.83
			0.91	
2112	2	0.95		1.74
			0.99	
2113	3	1.03		2.74
			1.08	
2114	4	1.12		3.81
			1.16	
2115	5	1.20		4.97
			1.25	
2116 Top	6	1.29		6.22

EMERGENCY SPILLWAY

***To be provided during Final Engineering.**

INFILTRATION TESTING RESULTS

SCST ENGINEERING
SDVOSB . DVBE . SBE

Corporate Headquarters
6280 Riverdale Street
San Diego, CA 92120
P 619.280.4321
T 877.215.4321
F 619.280.4717
W www.scst.com

August 24, 2015

SCST No. 150390N
Report No. 1

Ms. Sue Smith
Pacific Newport Properties, Inc.
17842 Mitchell North, Suite 100
Irvine, California 92614

Subject: INFILTRATION TESTING
BANNING AIRPORT INDUSTRIAL PARK
BANNING, CALIFORNIA

Dear Ms. Smith:

This report presents our findings of the infiltration testing performed for the design of water quality facilities associated with the subject project in Banning, California. This testing was performed in accordance with our proposal number 15-0202 dated June 4, 2015.

SCOPE OF WORK

Southern California Soil and Testing, Inc. (SCST) performed three double-ring infiltrometer tests within the location identified on the project Conceptual Site Plan as the detention basin and obtained samples for examination and laboratory testing. The laboratory testing consisted of particle size analysis. Results of the testing are summarized in this report with field and laboratory test data.

SITE DESCRIPTION

The subject site encompasses approximately 65 acres located just north of the Banning Municipal Airport in Banning, California. The site is currently undeveloped and is fenced on the south, east, and west sides. The site is bound on the south by the Banning Municipal Airport, on the north by the Union Pacific Railroad, and to the east and west by undeveloped land. Figure 1 shows the general location of the project location. The site slopes gently down to the south and east, with shallow northwest-southeast trending drainages randomly distributed across the site. Much of the site is covered with low lying grasses and scrub brush.

FIELD AND LABORATORY TESTING

An SCST engineer performed double ring infiltration tests and obtained soil samples at 3 locations on August 13, 2015. Figure 2 shows the infiltration testing locations. Figures I-1 through I-3 present the field test results. Laboratory tests consisted of particle size analysis, and a brief description of the laboratory test procedures and the test results are presented in Appendix II. Soils were classified according to the Unified Soil Classification System (USCS). The results of the infiltration testing are summarized in Table 1. These values do not include a factor of safety, which is appropriately evaluated by the civil engineer based on factors of the design.

Table 1
Infiltration Testing Results

Location	Soil Type (USCS)	Infiltration Rate (inches/hour)
I-1 West End	SM	2.3
I-2 Center	SW-SM	4.7
I-3 East End	SM	3.9

LIMITATIONS

SCST should be advised of any changes in the project scope so that the data contained in this report can be evaluated with respect to the revised plans. The findings in this report are valid as of the date of this report. Changes in the condition of the project location can, however, occur with the passage of time, whether they are due to natural processes or work in this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report could be invalidated wholly or in part by changes beyond our control. This report should not be relied upon after a period of two years without a review by us verifying the suitability of the data to site conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the test pit locations, and that our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data and interpretations but will not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

If you have any questions, please call our office at (619) 280-4321.

Respectfully Submitted,
SOUTHERN CALIFORNIA SOIL AND TESTING, INC.



Vincent A. Uhde, EIT 151458
Staff Engineer

Emil Rudolph, GE 2767
Principal Engineer

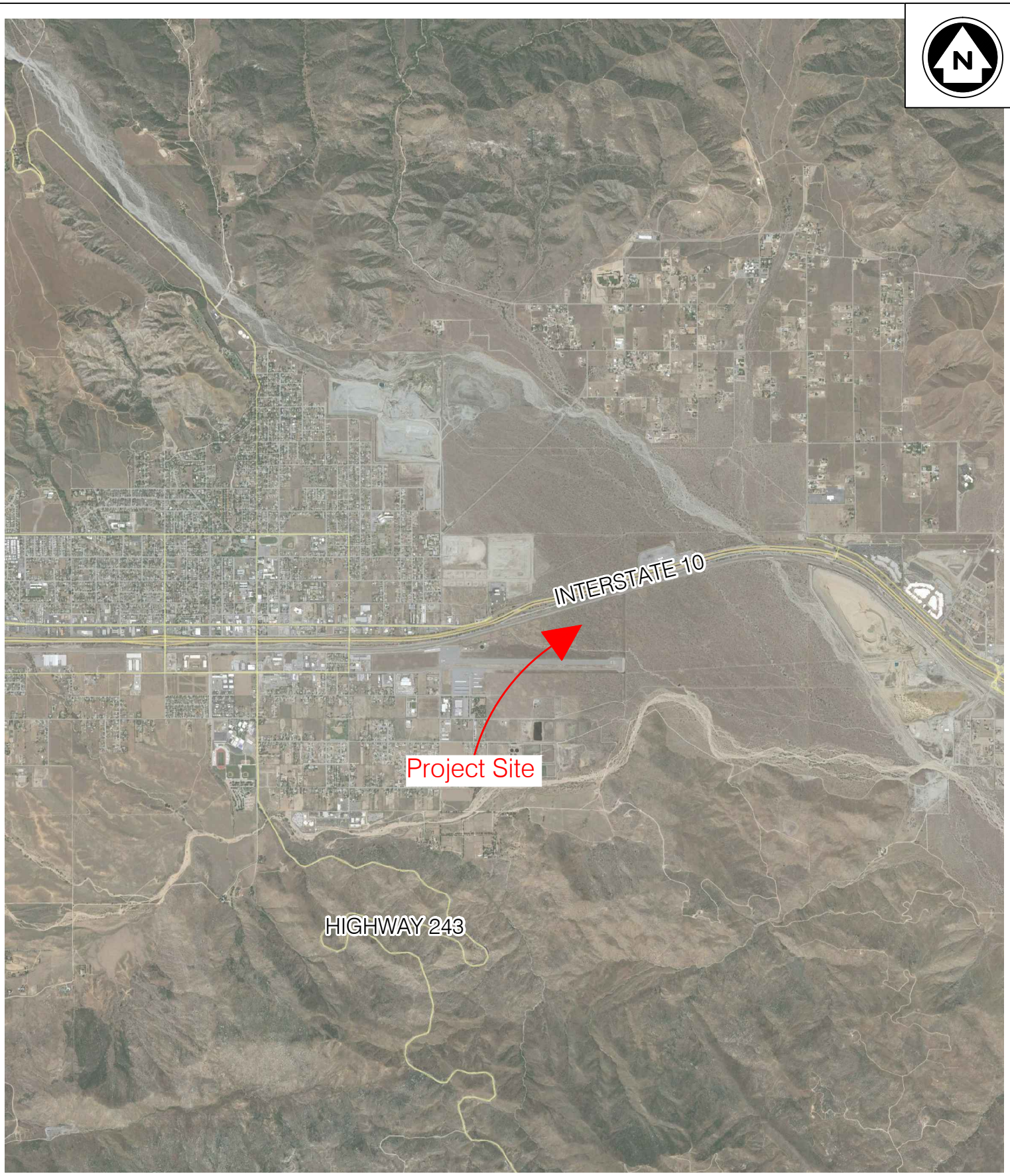
VAU:ER:aw

Attachments:

Figures
Figure 1 – Site Vicinity Map
Figure 2 – Infiltration Testing Location Map

Appendices
Appendix I – Report of Double Ring Infiltrometer Testing
Appendix II – Laboratory Testing

(1) Addressee via e-mail: Sue@PacificNewport.com

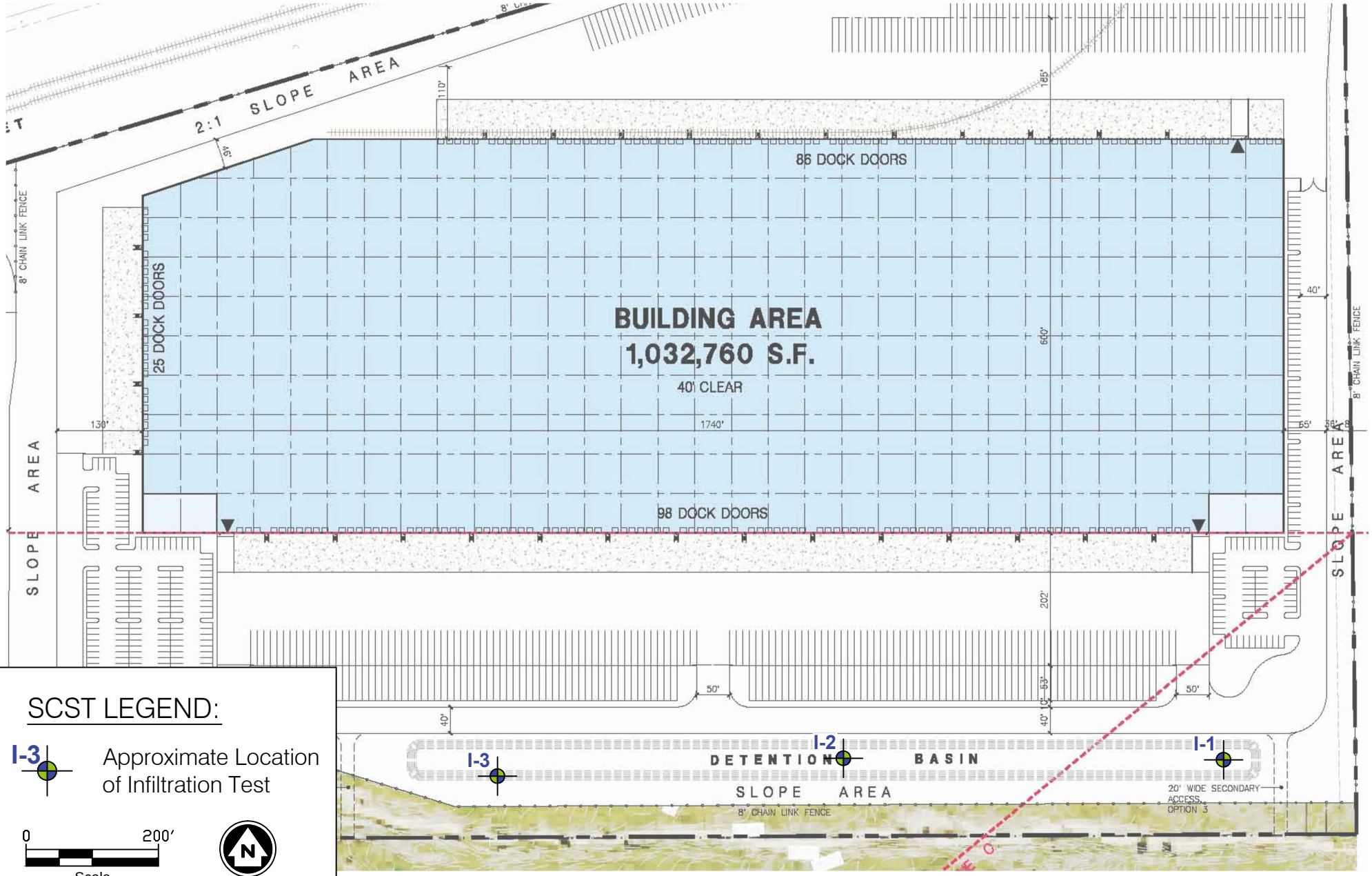


SOUTHERN CALIFORNIA SOIL & TESTING, INC.

SITE VICINITY MAP
Banning Airport Industrial Park
Banning, California

Date:	August, 2015
By:	JGA
Job No.:	150390N-1
Scale:	Not to Scale

Figure: 1



SCST LEGEND:

I-3 Approximate Location of Infiltration Test

0 200' Scale

N

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

INFILTRATION TESTING LOCATION MAP
Banning Airport Industrial Park
Banning, California

Date: August, 2015
By: JGA
Job No.: 1510390N-1

Figure: 2

APPENDIX I
REPORT OF DOUBLE RING INFILTROMETER TESTING

ASTM D3385

Report of Double Ring Infiltrometer Testing

Project Name: **BANNING AIRPORT INDUSTRIAL PARK**
Test Number: **I-1**
Project Number: **150390N**
Date Tested: **8/13/2015**
Test Depth (ft): **1 ft bgs**
Tested By: **VAU**
Reviewed By: **ER**
Soil Type: **SILTY SAND**

Inner Ring Test Data

Graduated Cylinder Area (in^2): N/A
Graduated Cylinder Volume (in^3): N/A
Inner Ring Diameter (in): 11.75

Interval (min)	Reading Difference (L)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
60	4.8	4:15 PM	5:15 PM	14.2	9.4	293	2.7
60	4.2	5:15 PM	6:15 PM	16.2	12.0	256	2.4
30	2.0	6:15 PM	6:45 PM	12.0	10.0	122	2.3
30	3.0	6:45 PM	7:15 PM	16.2	13.2	183	3.4

Outer Ring Test Data

Graduated Cylinder Area (in^2): 268.80
Graduated Cylinder Volume (in^3): 11827.2
Ring Diameter (in): 22.625

Interval (min)	Reading Difference (in)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
60	4.0	4:15 PM	5:15 PM	22.5	18.5	1075	3.7
60	2.0	5:15 PM	6:15 PM	19.5	17.5	538	1.8
30	1.5	6:15 PM	6:45 PM	17.5	16.0	403	2.7
30	1.5	6:45 PM	7:15 PM	26.0	24.5	403	2.7

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning , California

By:	VAU	Date:	August, 2015
Job Number:	150390-1	Figure:	I-1

ASTM D3385

Report of Double Ring Infiltrometer Testing

Project Name: **BANNING AIRPORT INDUSTRIAL PARK** Test Number: **I-2**

Project Number: **150390N** Date Tested: **8/13/2015** Test Depth (ft): **1 ft bgs**

Tested By: **VAU** Reviewed By: **ER** Soil Type: **SILTY SAND**

Inner Ring Test Data

Graduated Cylinder Area (in^2): N/A Graduated Cylinder Volume (in^3): N/A Inner Ring Diameter (in): 11.75

Interval (min)	Reading Difference (L)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
30	4.1	3:00 PM	3:30 PM	12.4	8.3	250	4.6
30	1.2	3:30 PM	4:00 PM	16.2	15.0	73	1.4
60	10.0	4:00 PM	5:00 PM	15.0	5.0	610	5.6
30	4.2	5:15 PM	5:45 PM	16.0	11.8	256	4.7
30	5.3	5:45 PM	6:15 PM	15.5	10.2	323	6.0
30	6.1	6:15 PM	6:45 PM	10.2	4.1	372	6.9

Outer Ring Test Data

Graduated Cylinder Area (in^2): 268.80 Graduated Cylinder Volume (in^3): 11827.2 Ring Diameter (in): 22.625

Interval (min)	Reading Difference (in)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
30	3.5	3:00 PM	3:30 PM	14.0	10.5	941	6.4
30	3.0	3:30 PM	4:00 PM	15.0	12.0	806	5.5
60	5.0	4:00 PM	5:00 PM	12.0	7.0	1344	4.6
30	3.3	5:15 PM	5:45 PM	13.5	10.3	874	6.0
30	4.0	5:45 PM	6:15 PM	19.5	15.5	1075	7.3
30	3.0	6:15 PM	6:45 PM	15.500	12.500	806	5.5

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning , California

By:	VAU	Date:	August, 2015
Job Number:	150390-1	Figure:	I-2

ASTM D3385

Report of Double Ring Infiltrometer Testing

Project Name: **BANNING AIRPORT INDUSTRIAL PARK**
Test Number: **I-3**
Project Number: **150390N**
Date Tested: **8/13/2015**
Test Depth (ft): **1 ft bgs**
Tested By: **VAU**
Reviewed By: **ER**
Soil Type: **SILTY SAND**

Inner Ring Test Data

Graduated Cylinder Area (in^2): N/A
Graduated Cylinder Volume (in^3): N/A
Inner Ring Diameter (in): 11.75

Interval (min)	Reading Difference (L)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
15	2.8	2:15 PM	2:30 PM	11.6	8.8	171	6.3
15	1.8	2:30 PM	2:45 PM	8.8	7.0	110	4.1
30	4.2	2:45 PM	3:15 PM	7.0	2.8	256	4.7
60	7.0	3:15 PM	4:15 PM	15.0	8.0	427	3.9
60	7.0	4:15 PM	5:15 PM	8.0	1.0	427	3.9
30	4.0	5:15 PM	5:45 PM	16.0	12.0	244	4.5

Outer Ring Test Data

Graduated Cylinder Area (in^2): 268.80
Graduated Cylinder Volume (in^3): 11827.2
Ring Diameter (in): 22.625

Interval (min)	Reading Difference (in)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
15	0.5	2:15 PM	2:30 PM	14.0	13.5	134	1.8
15	2.5	2:30 PM	2:45 PM	13.5	11.0	672	9.2
30	2.0	2:45 PM	3:15 PM	11.0	9.0	538	3.7
60	3.0	3:15 PM	4:15 PM	14.5	11.5	806	2.7
60	6.5	4:15 PM	5:15 PM	13.5	7.0	1747	6.0
30	4.3	5:15 PM	5:45 PM	16.0	11.8	1142	7.8

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

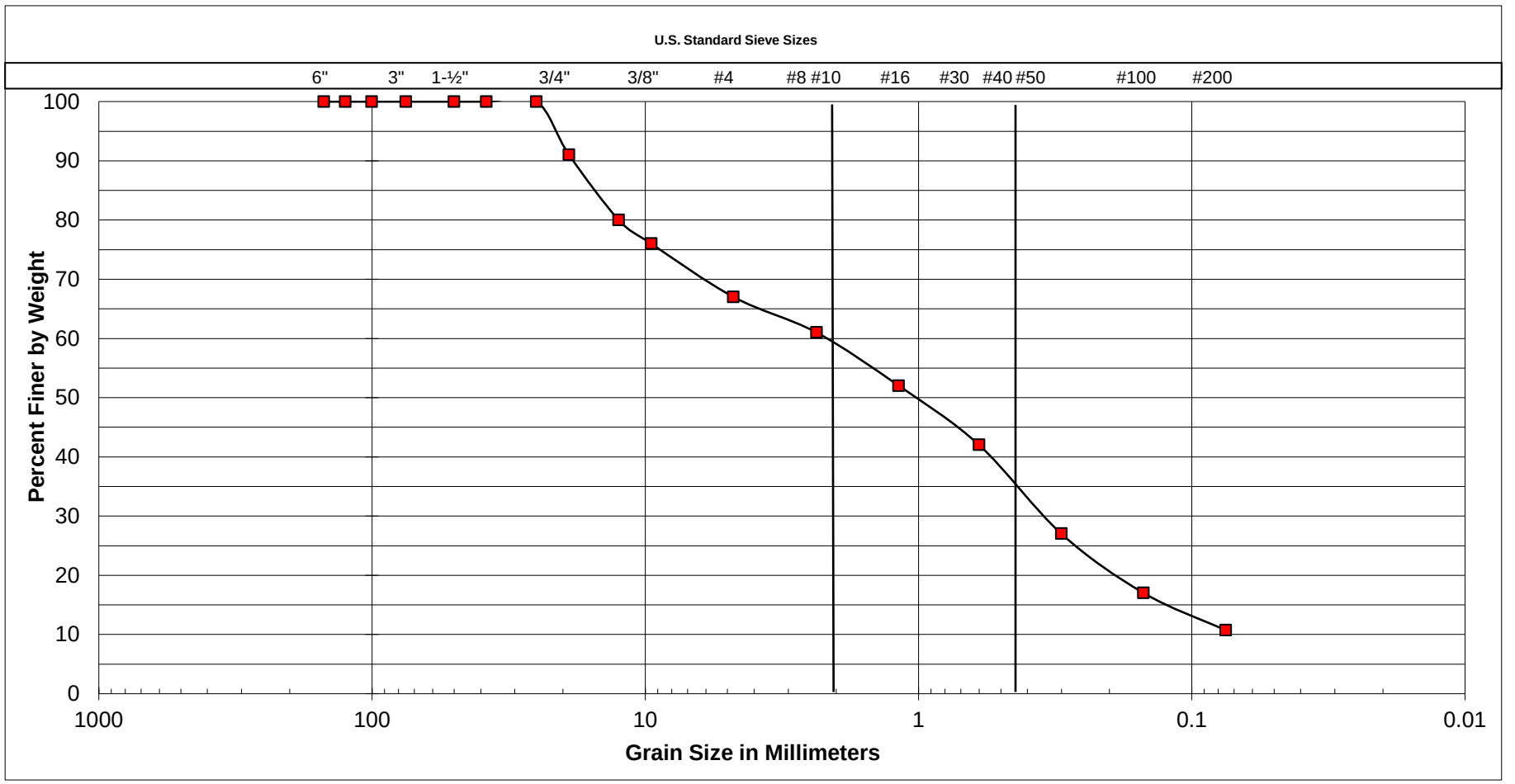
Banning Airport Industrial Park
Banning , California

By:	VAU	Date:	August, 2015
Job Number:	150390-1	Figure:	I-3

APPENDIX II
LABORATORY TESTING

The laboratory test program was design to fit the specific need of this project and was limited to testing on-site materials. A brief description of each type of test is presented below. Results are given on the following pages.

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.
- **GRAIN SIZE DISTRIBUTION:** The grain size distribution was determined for two samples in accordance with ASTM D 422. The results are presented on Figures II-1 and II-2.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
I-2

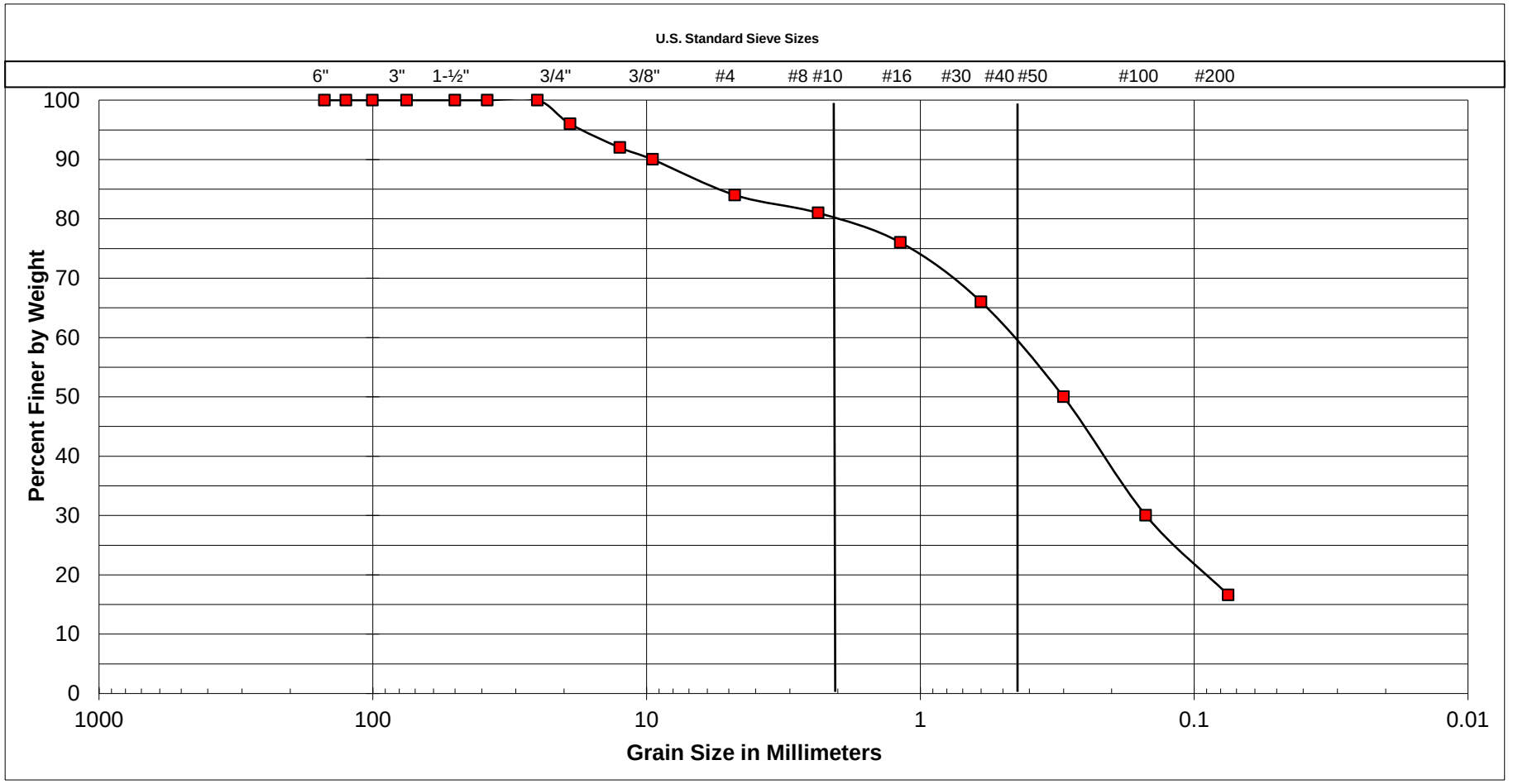
UNIFIED SOIL CLASSIFICATION:	SW-SM
DESCRIPTION	Well graded to Silty Sand

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning, Calilfornia

By:	ER	Date:	August 2015
Job Number:	150390N	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
I-3

UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	Silty Sand

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning, Califlornia

By:	ER	Date:	August 2015
Job Number:	150390N	Figure:	II-2

DRAWDOWN CALCULATION

Infiltration Basin
Drawdown Calculation

Designer:	MJS
Date:	11/2/2017
Project:	Banning Distribution Center
Location:	North of the Banning Municple Airport and South of I-10 Freeway
Area:	DMA 1 & DMA 2

(1)	Combined $V_{100Y\text{-}3H}$ =	389,971	ft^3
(2)	Combined Basin Bottom Area=	90440	ft^2**
(3)	Infiltration Rate =	1.21	in/hr ***

$$Drawdown = \frac{V_{100Y-3H}\ (ft^3)}{Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Drawdown Time= 42.8 hr

***The Geotechnical Infiltration Test Report shows acceptable soil infiltration capability. The average measured infiltration rate is 3.63 in/hr at the expected depth at the bottom of the underground system, used a safety factor of 3 to achive 1.21 in/hr.

**For preliminary purposes, the combined basin bottom areas for both Basin-1 and Basin-2 were used to prove that the basins will drain within 48 hours. The basin bottoms will be indivdually analyzed during final engineering and a drawdown calculation will be submitted for each basin. The basin bottoms will be finalnized during final engineering.

SECTION 4 - CONCLUSION

Based on the results of the unit hydrograph calculations and the provided basin volumes per the conceptual grading plans, Basins 1 and 2 have enough volume capacity to contain the 100-year 3-hour storm volumes and enough bottom footprint area to drawdown the volume within the required 48 hours.

Because the site is located within the sphere of influence of the Banning Municipal Airport, the Riverside County Airport Land Use Commission (ALUC) is requiring a maximum 48 hour retention time for the onsite retention basins.

Onsite runoff will be intercepted and conveyed through the site by means of conventional catch basins, grate inlets, swales and an underground storm drain system discharging to the retention basins. Offsite runoff will be intercepted, conveyed through or around the site via separate bypass storm drain system, and discharged at/ or near its original discharge locations into the Ramsey Street Wash.

Because of the full onsite retention of the design runoff volumes, post-development peak urban runoff discharge rates and volumes will not exceed pre-development peak urban runoff discharge rates and volumes. The project preserves flow patterns and directions and does not cause flow diversion or flow concentration and adverse drainage impacts on the downstream properties. Based on the results of this report, the proposed facilities will convey, store and release flows safely through the site in accordance with Riverside County Flood Control and Water Conservation District and City of Banning Municipal Codes requirements.

In summary of the analyses and results of this report, the following conclusions were derived from the hydrology and hydraulic results:

- The proposed on-site subsurface storm drain systems will adequately convey flows to the basin and provide flood protection for the 100-year storm event.
- The proposed basins will adequately treat on-site flows and retain the 100-year 3-hour storm flood volume.
- The proposed basin will infiltrate the 100-year 3-hour storm flood volume within 48 hours.
- The proposed project will not impact flooding condition to upstream or downstream properties

CONCEPTUAL GRADING PLAN

CITY OF BANNING
BANNING DISTRIBUTION CENTER
DESIGN REVIEW NO.16-7002 & CONCEPTUAL GRADING PLAN

NOTES:

1. THOMAS GUIDE RIVERSIDE COUNTY (2007 ED.) PAGE 722, PORTION OF GRID E3 & F3.
2. THIS PROJECT SITE IS LOCATED WITHIN SECTION 11, TOWNSHIP 3 SOUTH, RANGE 1 EAST.
3. FEMA COMMUNITY PANEL NO. 06065C0836G & 06065C0837G ZONE A & X.
4. THIS PROJECT IS NOT LOCATED WITHIN A SPECIFIC PLAN.
5. THIS PROJECT SITE IS LOCATED WITHIN THE BANNING MUNICIPAL AIRPORT OVERLAY ZONE B2, C, & D.
6. THIS AREA IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS WITHIN A SPECIAL STUDIES ZONE.
7. THIS PROJECT SITE IS NOT LOCATED WITHIN A FLOOD PLAIN.
8. THERE ARE NO EXISTING BUILDINGS ON THIS SITE.
9. SUBSURFACE SEPTIC SEWAGE IS NOT INTENDED FOR THIS SITE.
10. EXISTING AND PROPOSED EASEMENTS ARE SHOWN ON THIS SITE.
11. ALL EXISTING UTILITIES ON THIS PLAN ARE APPROXIMATE IN LOCATION AND SIZE.
12. AUTO PARKING STALLS ARE 9'X19' & TRAILER PARKING STALLS ARE 10'X53'
13. REFER TO ARCHITECTURAL ELEVATIONS FOR FENCE DETAILS.

LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPE AREA
- FIRE ACCESS
- PROPOSED SCREEN WALL
- PROPOSED CHAINLINK FENCE
- EXISTING CHAINLINK FENCE
- GRADEBREAK/RIDGELINE
- (1475') EXISTING CONTOURS
- 1475 PROPOSED CONTOURS
- W PROPOSED WATER LINE
- FIRE PROPOSED FIRE LINE
- SD PROPOSED STORM DRAIN
- SS PROPOSED SEWER
- MITIGATION FLOW

FL	FLOW LINE
GB	GRADE BREAK
GRND	GROUND
INV	INVERT
LS	LANDSCAPE AREA
LP	LOW POINT
MAX	MAXIMUM
PL	PROPERTY LINE
RG	ROUGH GRADE
R/W	RIGHT OF WAY
TYP	TYPICAL

- EGRESS & INGRESS
- PROP EXTERIOR LIGHT

EASEMENT NOTES:

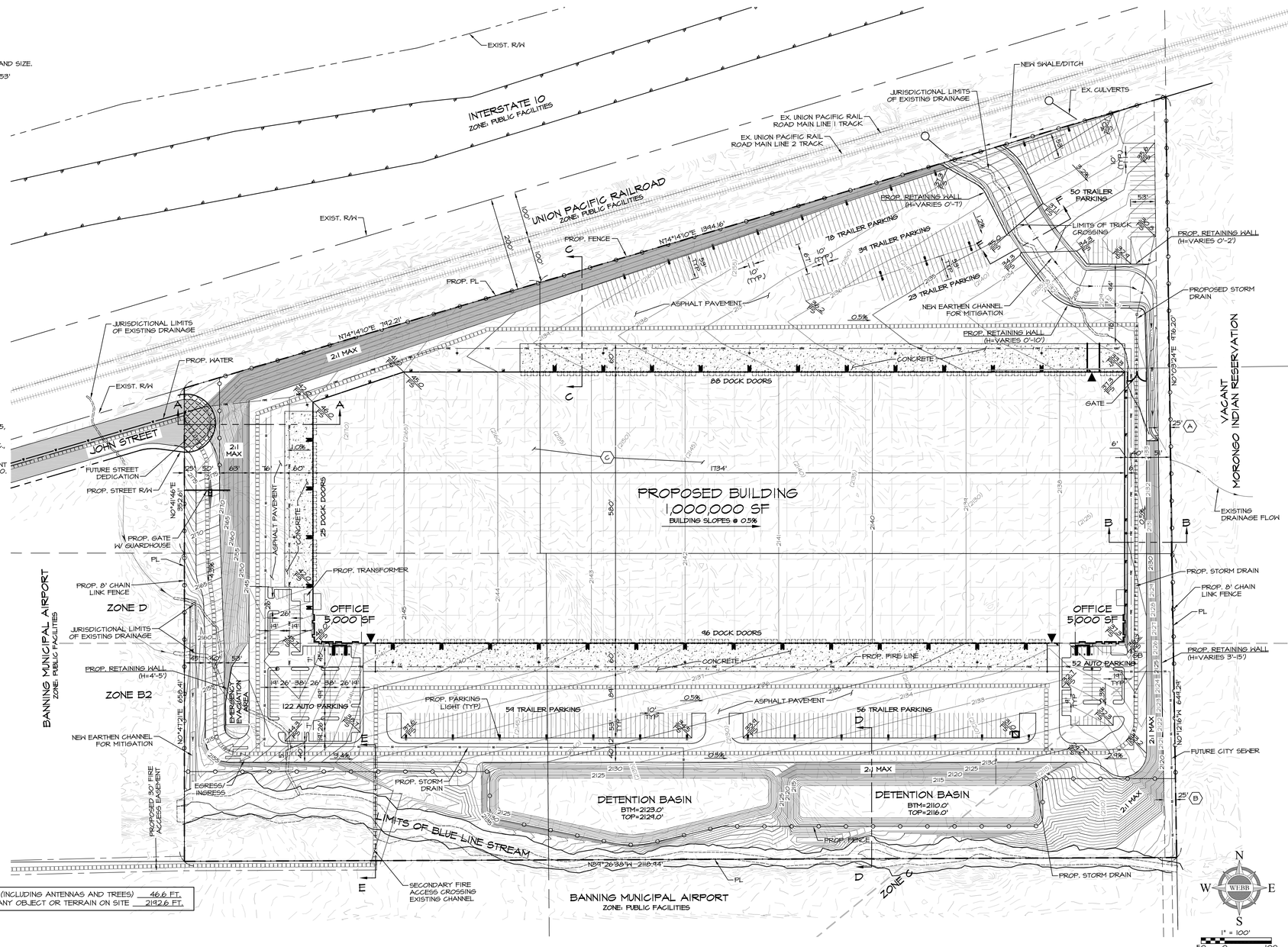
(A) INDICATES AN EASEMENT IN FAVOR OF SOUTHERN PACIFIC PIPE LINES, FOR PIPELINE LINES AND INCIDENTAL PURPOSES, RECORDED ON JUNE 15, 1974 AS INSTRUMENT NO. 123444, OF OFFICIAL RECORDS

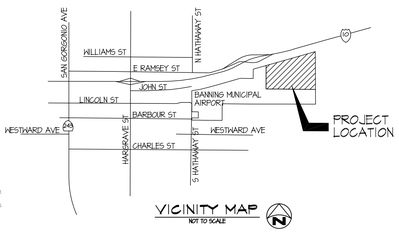
(B) INDICATES AN EASEMENT IN FAVOR OF WILLIAMS COMMUNICATIONS, INC., FOR UTILITIES AND INCIDENTAL PURPOSES, RECORDED ON MARCH 16, 2000 AS INSTRUMENT NO. 2000-098498 AND ALSO DESCRIBED IN DOCUMENT ENTITLED "EASEMENT DEED BY COURT ORDER IN SETTLEMENT OF LANDOWNER ACTION" RECORDED AUGUST 29, 2013 AS INSTRUMENT NO. 2013-0429148, BOTH OF OFFICIAL RECORDS.

(C) INDICATES AN EASEMENT IN FAVOR OF SOUTHERN PACIFIC COMPANY, FOR CONSTRUCTION, MAINTENANCE AND OPERATION OF PIPE LINES OF AQUEDUCTS FOR CONDUCTING AND TRANSPORTING WATER AND INCIDENTAL PURPOSES, RECORDED OCTOBER 28, 1955 IN BOOK 1813, PAGE 434 OF OFFICIAL RECORDS.

SITE TABULATION:	BUILDING
PROPOSED PARCEL GROSS AREA	2,783,415 SF (63.90 AC)
PROPOSED DEDICATION	6,588 SF (0.15 AC)
PROPOSED PARCEL NET AREA	2,776,827 SF (63.75 AC)
BUILDING AREA	1,000,000 SF
OFFICE	10,000 SF
WAREHOUSE	990,000 SF
TOTAL BUILDING AREA	1,000,000 SF
LOT COVERAGE	35.9%
LANDSCAPING REQUIRED- MIN. 15% OF ALL PARKING AREA (247,261 SF)	37,084 SF
LANDSCAPING PROVIDED	668,264 SF
LANDSCAPE COVERAGE	37.5%
OFFICE PARKING (REQ'D) 1/300 SF	33 STALLS
WAREHOUSE PARKING (REQ'D) 0-20,000 SF @ 1/1,000 SF	22 STALLS
WAREHOUSE PARKING (REQ'D) ABOVE 20,000 @ 1/2,000 SF	485 STALLS
TOTAL REQUIRED PARKING	540 STALLS
TRAILER PARKING (REQ'D) 1 PER 4 DOCK DOORS (205 DOCK DOORS)	52 STALLS
PARKING PROVIDED: STANDARD PER (9'X19')	166 STALLS
TRAILER PARKING (10'X53')	321 STALLS
HANDICAPPED PARKING (9'X19')	8 STALLS
TOTAL AUTO PARKING PROVIDED:	174 STALLS
TOTAL TRAILER PARKING PROVIDED:	321 STALLS

HEIGHT DATA	
HEIGHT ABOVE GROUND OR TALLEST OBJECT (INCLUDING ANTENNAS AND TREES)	46.6 FT.
HIGHEST ELEVATION (ABOVE SEA LEVEL) OF ANY OBJECT OR TERRAIN ON SITE	2192.6 FT.





VICINITY MAP
NOT TO SCALE

OWNER/APPLICANT:

COMPANY: BANNING INDUSTRIAL, LP
CONTACT: WILLIAM R. PATTON
ADDRESS: 17842 MITCHELL N., SUITE 100 IRVINE, CA 92614
PHONE: (949) 474-2000
FAX: (949) 474-1664

ENGINEER:

COMPANY: ALBERT A. WEBB ASSOCIATES
CONTACT: DJ ARELLANO
ADDRESS: 3788 MCCRAY ST RIVERSIDE, CA 92506
PHONE: (951) 686-1070
FAX: (951) 788-1256

ARCHITECT:

COMPANY: HPA, INC.
CONTACT: HOON KEUN PARK
ADDRESS: 18831 BARDEEN AVENUE, SUITE 100 IRVINE, CA 92612
PHONE: (949) 862-2116

A.P.N.:

532-110-006, 532-130-001, & 532-130-002

LAND USE / ZONING:

EXISTING USE:	VACANT
PROPOSED USE:	DISTRIBUTION CENTER
EXISTING ZONING:	A1 & PF-A
PROPOSED ZONING:	A1
EXISTING GEN. PLAN LAND USE:	A1 & PF-A
PROPOSED GEN. PLAN LAND USE:	A1

LANDSCAPE AREA:

31.1% PROPOSED
15% REQUIRED
660,856 S.F. PROPOSED COVERAGE

EARTHWORK ESTIMATE:

CUT: XX CY
FILL: XX CY
SHRINKAGE: XX CY
NET: X CY BALANCED

UTILITY COMPANIES:

WATER:	CITY OF BANNING
SEWER:	CITY OF BANNING
ELECTRIC:	CITY OF BANNING
TELEPHONE:	VERIZON
GAS:	SOUTHERN CALIFORNIA GAS COMPANY
CABLE:	TIME WARNER CABLE

ACREAGE

GROSS:	63.90 AC
NET:	63.75 AC
DEDICATED:	0.15 AC

PROJECT DESCRIPTION:

DEVELOPMENT OF A WAREHOUSE/DISTRIBUTION BUILDING WITH 990,000 SQUARE FEET OF WAREHOUSE SPACE, 10,000 SQUARE FEET OF OFFICE SPACE, 342 TRUCK AND TRAILER PARKING SPACES, 223 AUTOMOBILE PARKING SPACES AND 205 LOADING DOCKS ON A 63.90 GROSS ACRE SITE.

LEGAL DESCRIPTION:

PARCEL 1 (APN: 532-110-006):

ALL OF THAT PORTION OF THE NORTHEASTERLY QUARTER OF SECTION 11, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, LYING SOUTH OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY;

EXCEPT THE WESTERLY 1,323.08 FEET, AS MEASURED ON THE SOUTHERLY LINE OF SAID NORTHEASTERLY QUARTER.

PARCEL 2 (APN: 532-130-002):

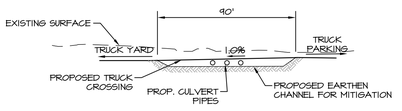
THE EAST HALF OF THE NORTH HALF OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

PARCEL 3 (APN: 532-130-001):

THE WESTERLY 1,323.00 FEET OF THE NORTHEAST QUARTER OF SECTION 11, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO BASE AND MERIDIAN, LYING SOUTHERLY OF THE SOUTHERN PACIFIC RAILROAD COMPANY'S RIGHT OF WAY, SAID WESTERLY 1,323.08 FEET BEING MEASURED ALONG THE SOUTHERLY LINE OF SAID NORTHEAST QUARTER. ALSO, THE WEST HALF OF THE NORTH HALF OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO BASE AND MERIDIAN;

EXCEPTING THEREFROM THAT PORTION THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 11; THENCE NORTHERLY ALONG THE WEST LINE OF THE EAST HALF OF SAID SECTION 11, A DISTANCE OF 844.34 FEET, MORE OR LESS, TO THE SOUTH LINE OF THE RIGHT OF WAY OF THE SOUTHERN PACIFIC RAILROAD; THENCE NORTHEASTERLY ALONG SAID SOUTH RIGHT OF WAY LINE, A DISTANCE OF 587.47 FEET; THENCE SOUTHERLY AND PARALLEL WITH THE AFOREMENTIONED WEST LINE OF THE EAST HALF OF SECTION 11, A DISTANCE OF 1,011.64 FEET TO THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 11; THENCE WESTERLY ALONG THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 11, A DISTANCE OF 563.27 FEET TO THE POINT OF BEGINNING.



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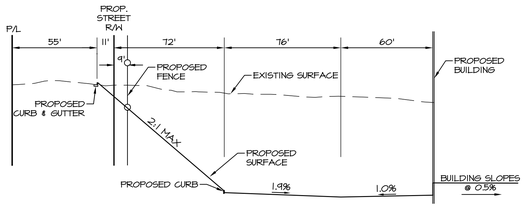

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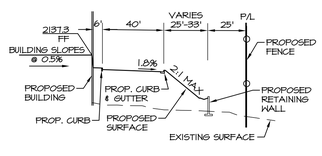

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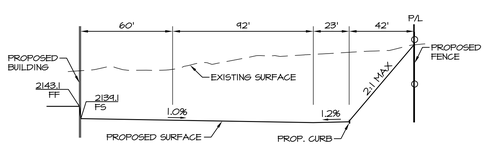

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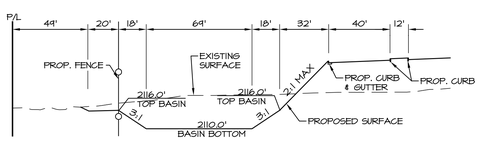

SECTION D-D
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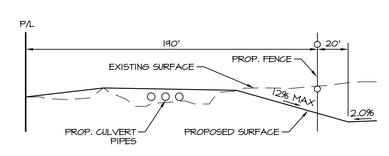


SECTION E-E
NOT TO SCALE

REVISIONS	DATE	BY

SCALE: 1" = 100'
DATE: 2/5/18
DESIGNED: ---
CHECKED: CHECKER
PLN CK REF.:
F.B.

ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

PLOT DATE: 5-Feb-18

CITY OF BANNING
DESIGN REVIEW & CONCEPTUAL GRADING

BANNING DISTRIBUTION CENTER

W.O. 15-0233
SHEET 1
OF 2 SHEETS
DWG. NO.

G:\2015\15-0233\DRAWINGS\ENTITLEMENT\15-0233-PLOT PLAN.DWG 11/16/2017 5:58:47 PM

APPENDIX 1 – FLOODPLAIN ANALYSIS

ALBERT A. WEBB ASSOCIATES

15-0233

Memorandum



To: DJ Arellano, PE

From: Joseph Caldwell, PE / CPSWQ / CPESC

Date: February 2, 2018

Re: Existing and Proposed Flooding Southerly of Banning Distribution Center

The following Technical Memorandum is prepared to document the existing and post project condition floodplain southerly of the proposed Banning Distribution Center. Under current conditions the Ramsey Street Storm Drain collects runoff from the north side of Interstate 10 and discharges it into a natural drainage feature on the southerly side of the freeway. This natural drainage features traverses in an east west direction and is located along the southerly side of the proposed Banning Distribution Center. Three other smaller drains also discharge to the natural drainage feature.

To analyze the existing and proposed flooding in the natural drainage feature, 100-Year flow rates were calculated using the Riverside County Flood Control and Water Conservation District's Synthetic Unit Hydrography methodology. Detailed backup for the hydrological calculations are contained the hydrology report prepared for the Banning Distribution Center. It was determined that the peak 100-Year flow rate for the natural drainage feature is 856 cfs.

The U.S. Army Corps of Engineer's HEC-RAS v. 5.0.3 program was used to model the existing and proposed condition floodplain of the natural drainage feature. A two-dimensional finite volume grid was developed and existing and proposed surfaces were used to populate the hydraulic routing parameters in the grid. Existing and proposed 100-Year conditions were simulated for the project.

Exhibits 1 and 2 show the pre-project and the post project results. These results show that the proposed Banning Distribution Center Project will not be subject to flooding from the existing drainage feature to the south. It should be noted that the modeled velocities in the natural drainage feature are relatively high. Due to this it is recommended that adequate slope protection be implemented into the final design of the Banning Distribution Center in order to protect against lateral streambed migrations onto the site.

Exhibit 1 - Existing 100-Year Flooding - Banning Distribution Center

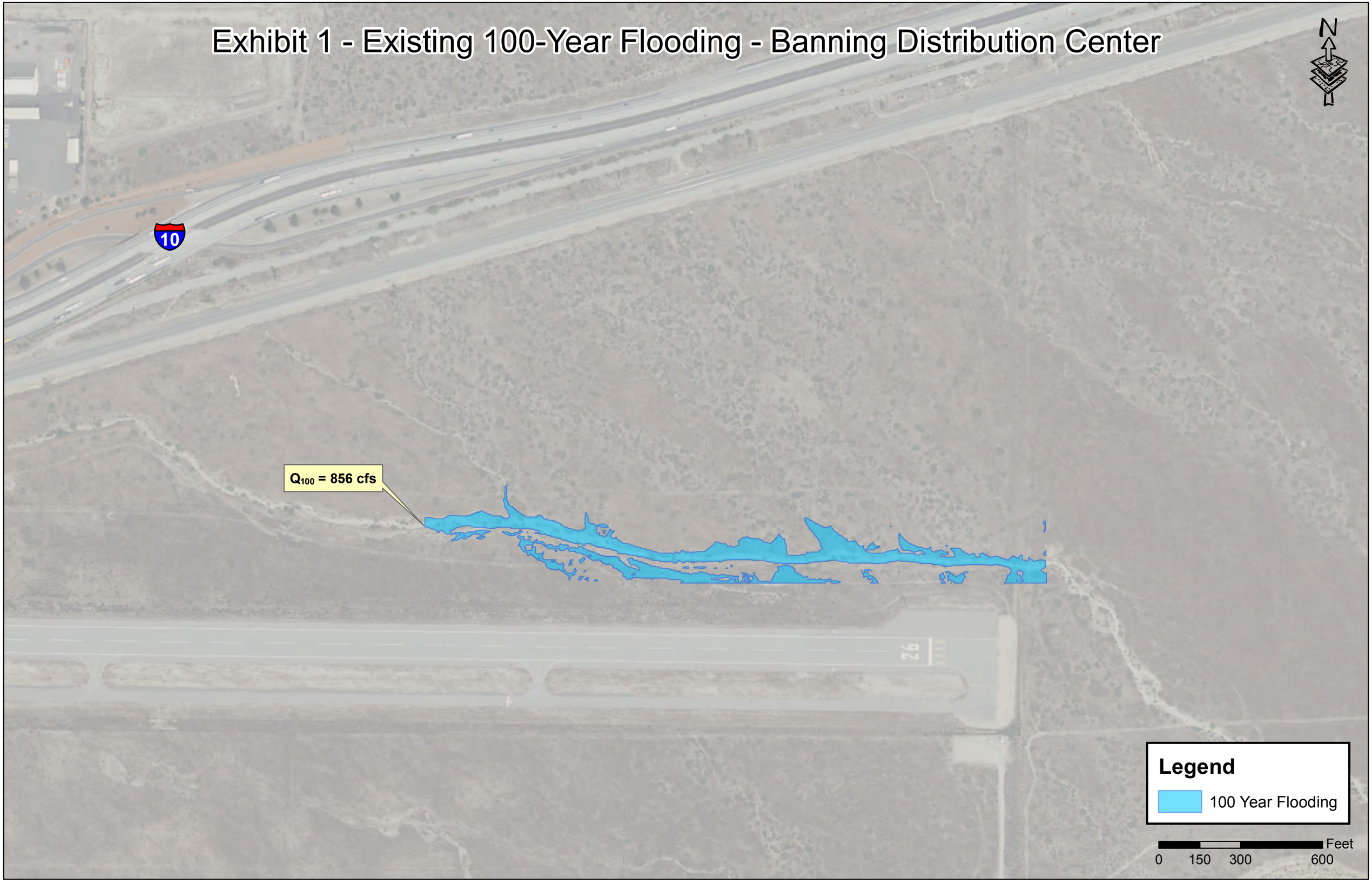
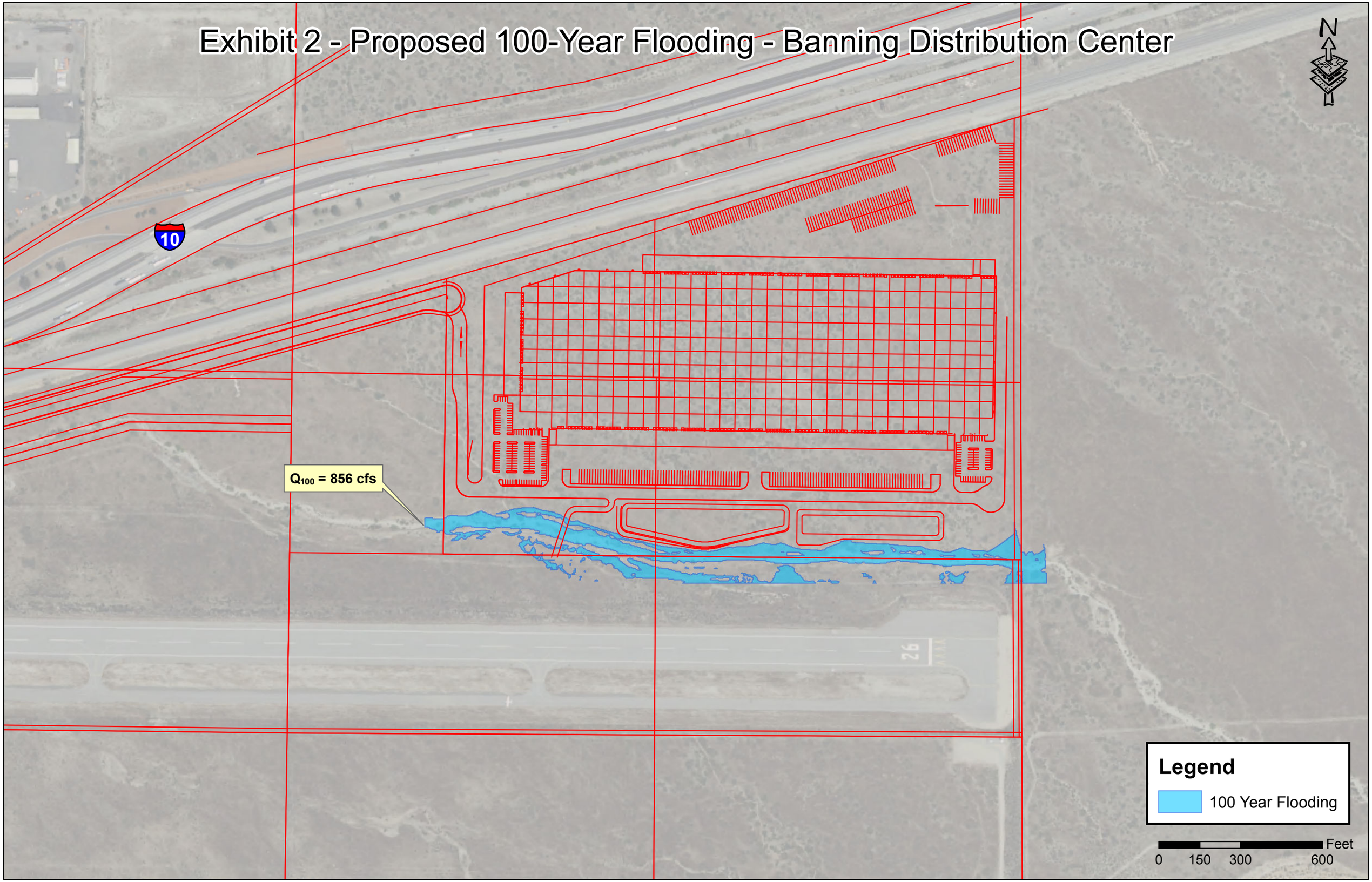


Exhibit 2 - Proposed 100-Year Flooding - Banning Distribution Center



Appendix J

ALBERT A. WEBB ASSOCIATES



WATER SUPPLY ASSESSMENT

BANNING DISTRIBUTION CENTER

Prepared for

BANNING, CA
Established 1913
Proud History
Prosperous Tomorrow

November 3, 2017

www.webbassociates.com

WATER SUPPLY ASSESSMENT

FOR

Banning Distribution Center

Prepared for:

City of Banning
99 E. Ramsey Street
Banning, CA 92220

Prepared by:

Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506
Contacts: Autumn DeWoody, Associate Environmental Analyst
Sam I. Gershon, RCE, Senior Vice President
(951) 686-1070

November 2017

ALBERT A. WEBB ASSOCIATES

Corporate Headquarters
3788 McCray Street
Riverside, CA 92506
951.686.1070

Palm Desert Office
36-951 Cook Street #103
Palm Desert, CA 92211
760.568.5005

Murrieta Office
41391 Kalmia Street #320
Murrieta, CA 92562
951.686.1070

W.O. No. 2017-0122

November 6, 2017

Mr. Luis Cardenas, P.E.
Senior Civil Engineer
City of Banning
99 E. Ramsey Street
Banning, CA 92220

Re: Water Supply Assessment for Banning Distribution Center

Dear Mr. Cardenas,

Pursuant to your Notice to Proceed on August 9, 2017 and our proposal dated June 27, 2017 transmitted herewith is the Water Supply Assessment of the subject project pursuant to SB 610. Please note that the Appendices are provided electronically on the enclosed CD.

Sincerely,

ALBERT A. WEBB ASSOCIATES

Autumn DeWoody
Associate Environmental Analyst



Sam I. Gershon, RCE
Senior Vice President

Enclosure:
Two copies of WSA

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APPENDICES (available on attached CD)

A. City of Banning. *2015 Urban Water Management Plan.* Prepared by Krieger & Stewart Engineering Consultants, May 2016.

B. Agreement dated December 23, 2003 between City of Banning and Beaumont Cherry Valley Water District to share the cost of constructing and operating three new production wells.

C. Beaumont Cherry Valley Water District. *2015 Urban Water Management Plan.* January 2017.

D. San Gorgonio Pass Water Agency. *2015 Urban Water Management Plan.* Prepared by Kennedy/Jenks Consultants, March 2017.

E. Beaumont Basin *Stipulation for Entry of Judgment* and *Judgment Pursuant to Stipulation* with exhibits, California Superior Court Case No. RIC 389197, dated February 4, 2004.

F. California Dept. of Public Works, Division of Water Rights. *Whitewater River Adjudication Proceedings-Order Determining and Establishing the Several Rights by Appropriation to the Use of the Waters of the Whitewater River Stream System, San Bernardino and Riverside Counties.* Order entered April 23, 1928.

G. Determination of the Relative Rights, Based Upon Prior Appropriation of the Various Claimants to the Waters of the Whitewater River and its Tributaries in San Bernardino and Riverside Counties, California, California Superior Court Case No. 18035, recorded December 9, 1938.

H. Beaumont Basin Watermaster, *2016 Annual Report (Draft)*, August 2017.

I. Geoscience Support Services, Inc. *Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and Available Water Supply from the Beaumont Basin, prepared by the City of Banning*. March 29, 2011.

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SECTION 1 - INTRODUCTION

1.1 Purpose

In October of 2001, Senate Bill 610 (SB 610) was signed into California state law with an effective date of January 1, 2002. SB 610 amended existing legal requirements for confirmation of water supply sufficiency as a condition of approval for development projects. The confirmation of water supply sufficiency is achieved through an analysis of the water purveyor's existing and future water sources and existing and projected water demand in relation to a "project" as defined by SB 610, resulting in the production of a project-specific Water Supply Assessment ("WSA" or "Assessment"). The WSA also requires additional analysis if any portion of the water purveyor's water supplies include groundwater.

Section 1 of this Assessment describes the existing and proposed land use designations of the project site, the proposed project's relation to the water supplier's Urban Water Management Plan (UWMP), a review of statewide conservation requirements and Assessment methodology. Section 2 provides the water demand analysis of both the project site and the City, Section 3 reviews the projected water supplies for the project and the City; Section 4 contains the required discussion of the City's groundwater supplies; and Section 5 concludes the Assessment by answering the primary question at hand.

The SB 610 Assessment is triggered for projects that are subject to the California Environmental Quality Act (CEQA) and that meet the definition of "project" as defined in Water Code Section 10912.

Law

> Water Code Section 10910: *(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.*

Water Code Section 10912: *For the purpose of this part, the following terms have the following meanings:*

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

1.2 Proposed Project

The "Banning Distribution Center" ("Project") proposes to develop 63.9 acres (gross) into industrial use, which would result in a maximum cumulative building area of 1,000,000 square feet. Therefore, the proposed floor area square footage of this project triggers the need for preparation of a WSA pursuant to SB 610.

The Project will be supplied by a public water system operated by the City of Banning. As CEQA Lead Agency and water supplier for the Project, the City of Banning commissioned this Assessment from Albert A. Webb Associates on August 9, 2017 to answer the following key question per SB 610: whether the projected supply for the next 20 years, based on normal, single dry and multiple dry years, will meet the demand projected for the project plus existing and planned future uses, including agricultural and manufacturing uses.

Project Location

The Banning Distribution Center is located in the City of Banning within Riverside County. Specifically, the Project site is located immediately north of the Banning Airport and immediately south of Interstate 10 (I-10) and the Union Pacific Railroad line (UPRR). The Project site consists of three existing parcels (APNs 532-110-006, 532-130-001, and 532-130-002), which will be combined into one new parcel as part of the applications submitted to the City by the project developer. Please refer to **Figure 1-1**, "Regional Location."

Existing Site Description

The Project site consists of 63.75 acres (net) that are currently vacant with low-lying grasses and scrub brush. The area directly to the south and west of the Project site consists of the Banning Municipal Airport facility, which is a city-owned facility zoned as Public Facilities consisting of approximately 295 acres. The property to the east of the Project is owned by the Morongo Band of Mission Indians and is currently vacant; it is not within the City's sphere of influence. The area north of the Project is the UPRR line and I-10 freeway. Please refer to **Figure 1-2**, "Project Vicinity."

The site topography is relatively flat and slopes gently to the south and east. Current elevations range from about 2,179 feet above mean sea level (msl) on the northwest corner of the site to about 2,101 feet msl on the southeast corner of the site. Please refer to **Figure 1-3**, "Site Topography."

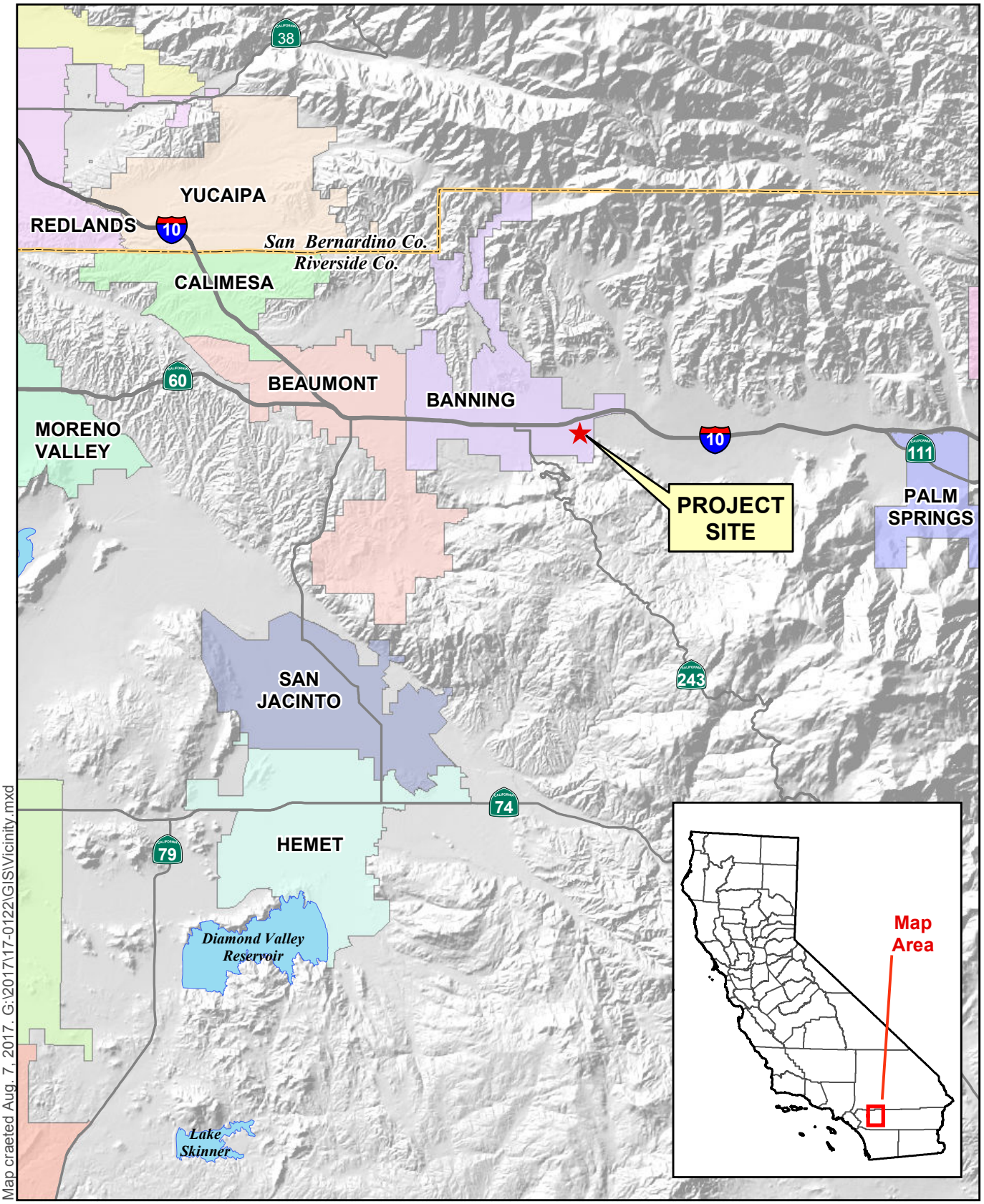

Figure 1-1 – Regional Location

Banning Distribution Center

0 2 4 6 Miles

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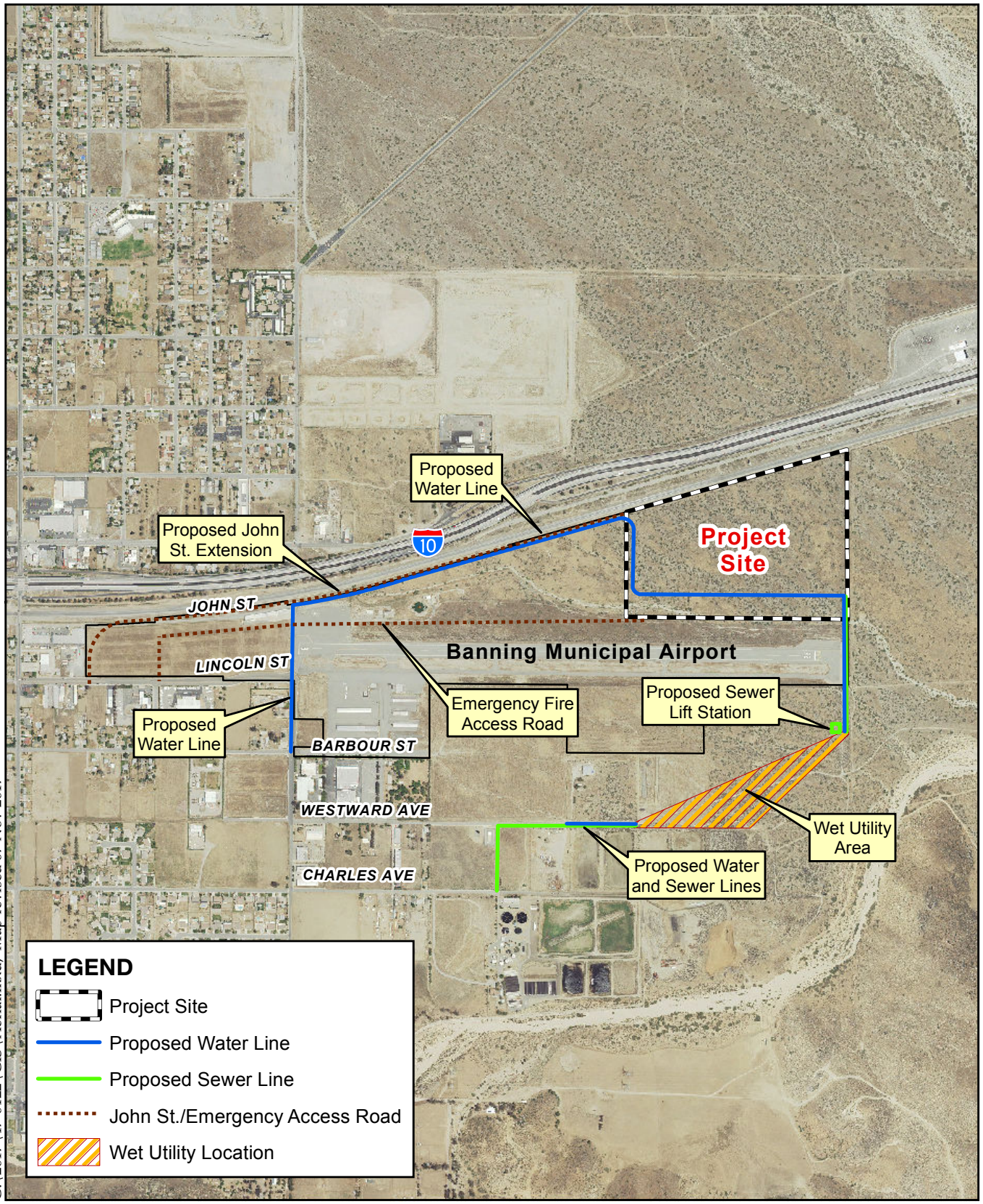

G:\2017\17-0122\GIS\Aerial.mxd; Map revised 07 Nov 2017

Sources: Riverside Co. GIS, 2017;
USDA NAIP, 2014.

0 500 1,000 1,500 2,000 Feet

Figure 1-2 - Project Vicinity

Banning Distribution Center

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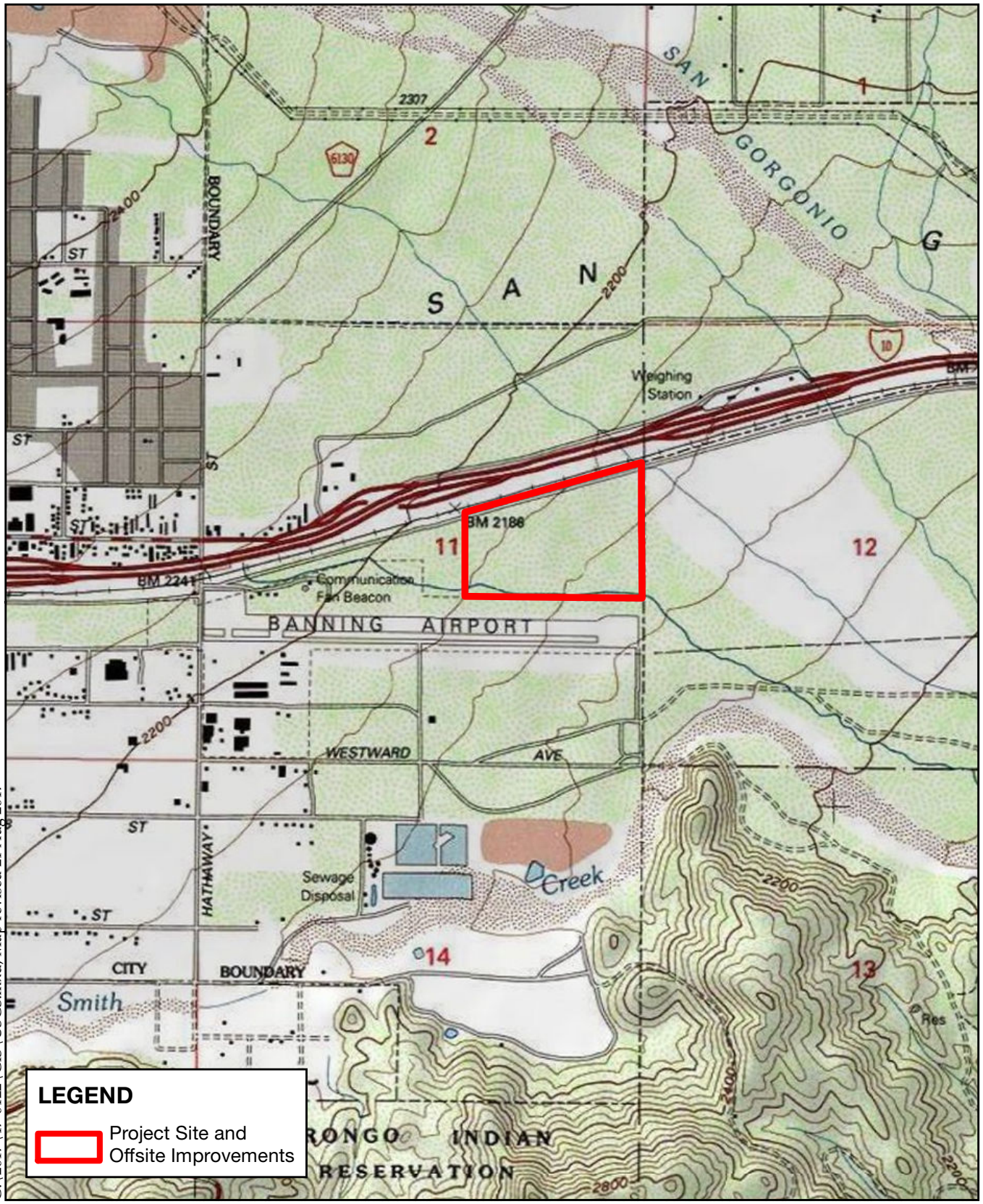

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Sources: ESRI / USGS 7.5min Quad
DRG: CABAZON

0 1,000 2,000 3,000 Feet

Figure 1-3 - Site Topography
Banning Distribution Center

ALBERT A. WEBB ASSOCIATES

Project Land Use Designations

The City's General Plan (2006), has designated the Project site as mostly Airport Industrial (44 acres) and partly Public Facilities-Airport (20 acres). Surrounding land use designations include Business Park, Industrial, and Airport Industrial. The existing land use designations for the Project site are shown on **Figure 1-4.**

The Project includes a General Plan Amendment to change the land use designation for 20 acres of the site from Public Facilities-Airport to Airport-Industrial. The proposed land use plan for the project site is shown on **Figure 1-5.**

According to the City's General Plan (2006), the Airport-Industrial land use designation allows airport-related and transportation-related functions such as machining, manufacturing, warehousing, flight schools, restaurants and office uses (p. III-8).

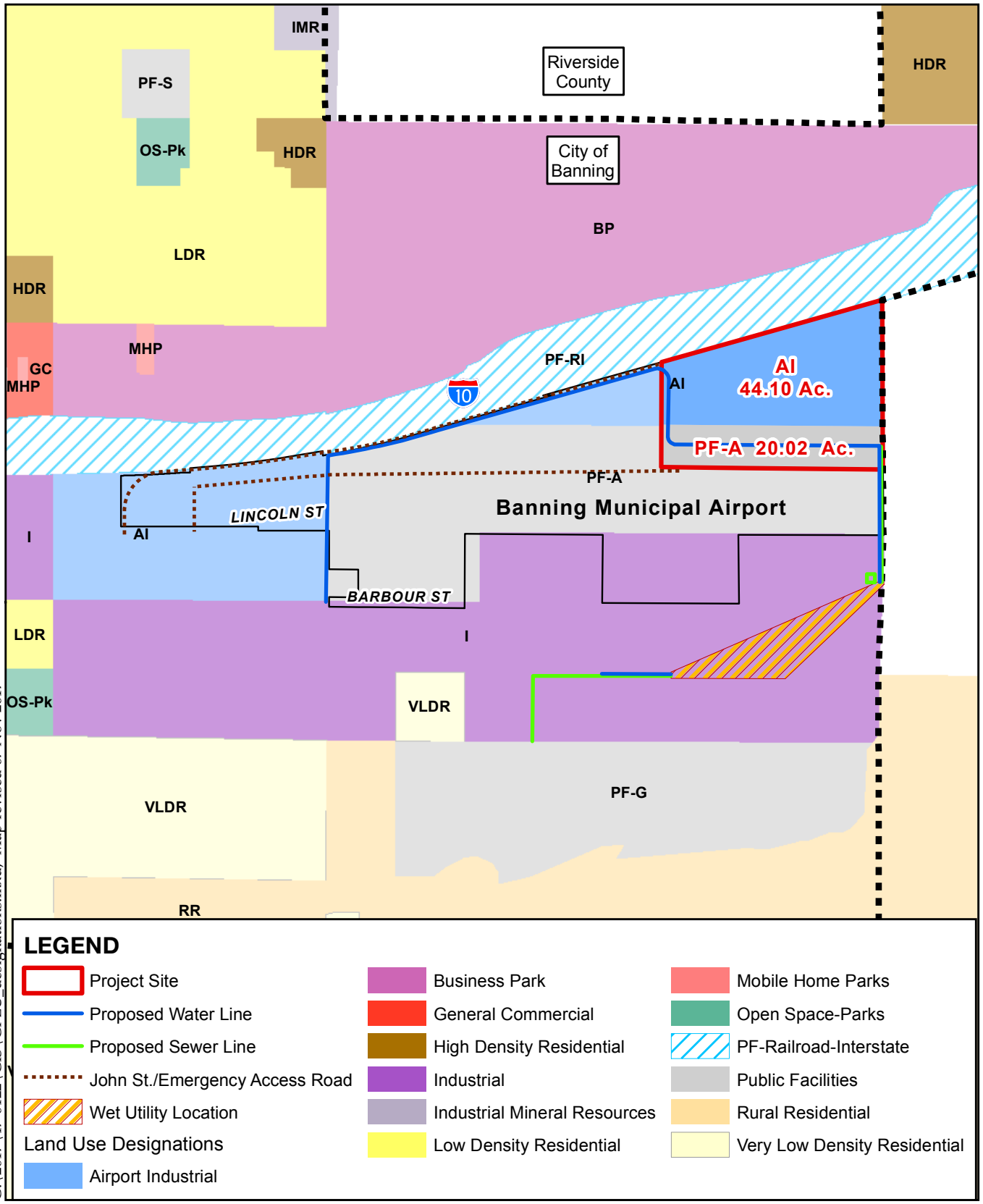
The Banning Distribution Center will consist of 1,000,000 square feet of industrial warehouse (non-refrigerated high-cube warehouse) that includes approximately 10,000 square feet of office space on 63.9 acres (gross) of vacant land. It can be assumed that the future tenant of the building will not be "e-commerce." The proposed warehouse is consistent with the site's existing land use and zoning designations.

The land use details for each proposed Planning Area are summarized in **Table 1-1**.

Table 1-1: Banning Distribution Center Land Use Summary

Existing Land Use	Existing Site Acreage	Proposed Land Use	Proposed Floor Area (SF)	Proposed Acreage gross (net)	Proposed Floor-to-Area Ratio (FAR)
Airport-Industrial	44	Airport - Industrial	1,000,000	63.90 (63.75)	0.36
Public Facilities-Airport	20				

Notes:
Data from City of Banning, *Initial Study for Banning Distribution Center,* updated June 12, 2017, Draft Screencheck 1.
Definitions: FAR = floor area ratio, which is the amount of building square feet in relation to the size of the lot. SF = square feet.



G:\2017\17-0122\GIS\GPLU_designations.mxd; Map revised 07 Nov 2017

Sources: City of Banning, 2016;
Riverside Co. GIS, 2017.

0 500 1,000 1,500 2,000 Feet

Figure 1-4 - Existing Land Use

Banning Distribution Center

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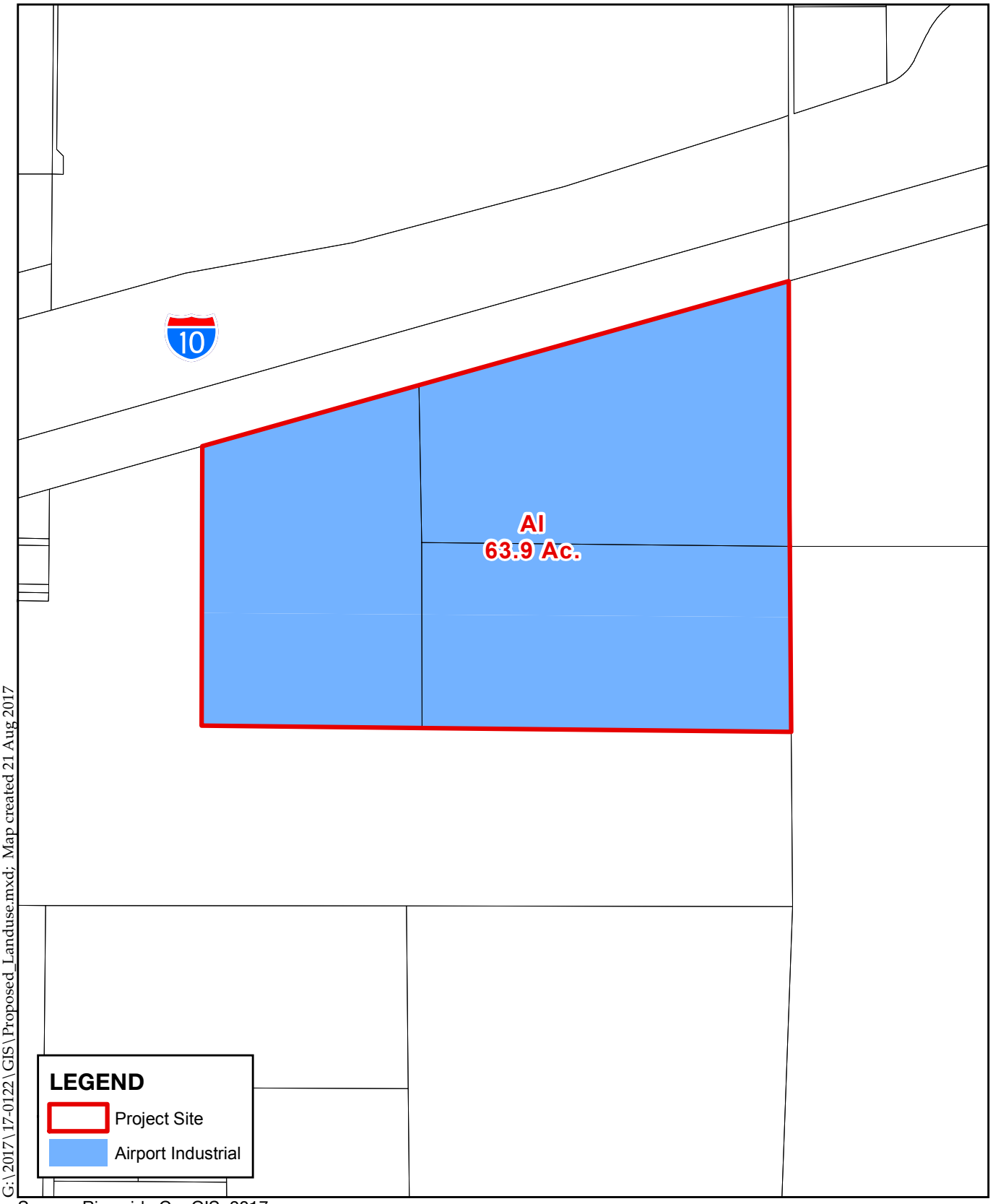

Source: Riverside Co. GIS, 2017.

Figure 1-5 - Proposed Land Use

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES

The project also includes offsite utility improvements in order to connect the proposed warehouse to the City's sanitary sewer and potable water systems. Two stormwater detention basins are proposed on-site that are designed to contain a maximum combined volume of 12.52 acre-feet.[1]

The proposed development plans that were used for this Assessment are shown in **Figure 1-6** and the proposed landscaping plans that were provided for this Assessment are provided in **Figure 1-7.** Landscaping is provided over approximately 19% of the site (530,091 square feet or 12.2 acres) with the remainder of the site consisting of the building and hardscape (2,252,052 square feet or 51.7 acres).[2]

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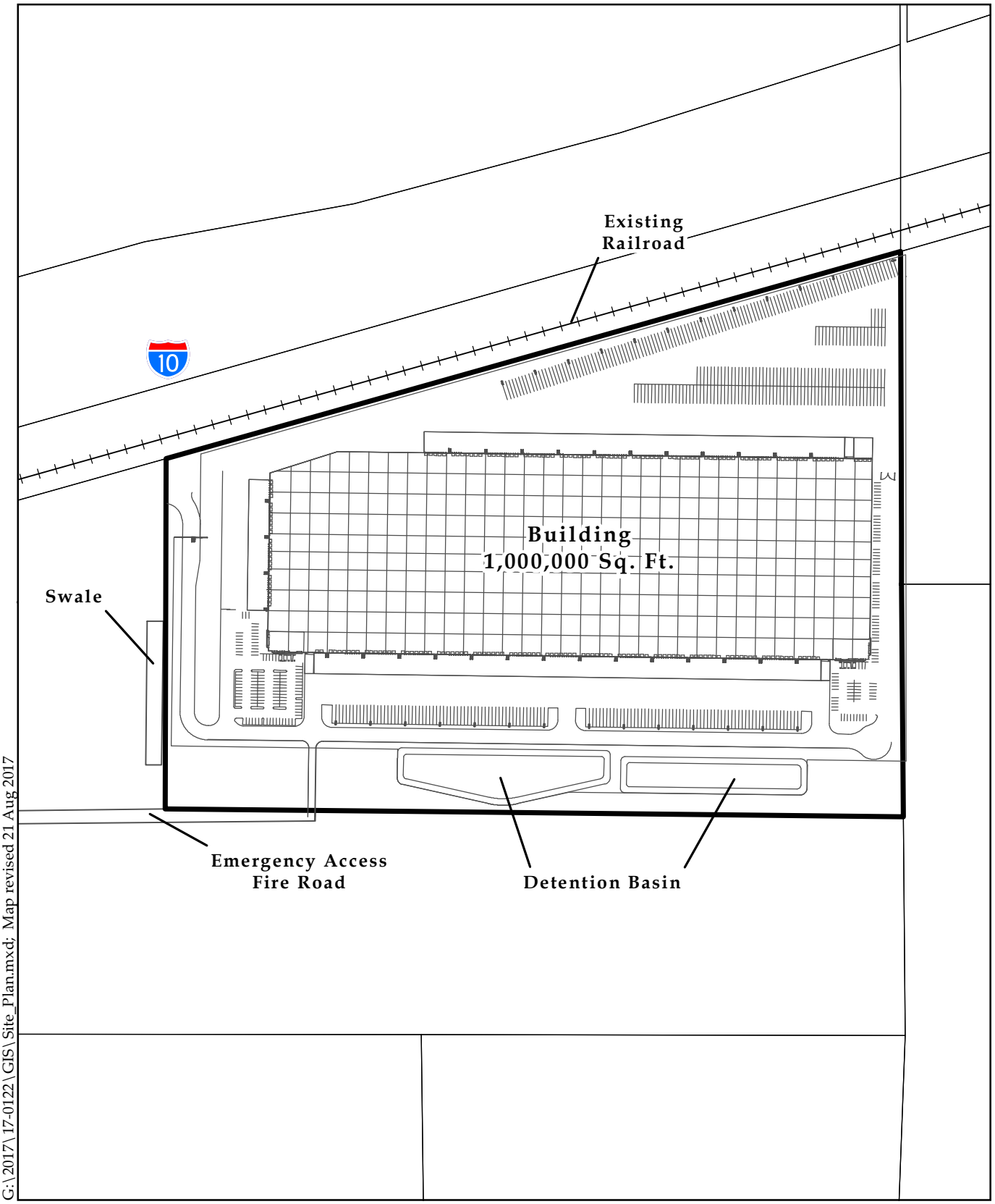
[1] Albert A. Webb Associates. *Drainage Study for Banning Distribution Center, City of Banning, CA.* Prepared for Banning Industrial, LP. July 2016.
[2] From *City of Banning, Banning Distribution Center Design Review No.16-7002 & Conceptual Grading Plan* by Albert A. Webb Associates, dated 12/21/2016.



G:\2017\17-0122\GIS\Site_Plan.mxd; Map revised 21 Aug 2017

Figure 1-6 - Site Plan

Banning Distribution Center

0 200 400 600 800 Feet

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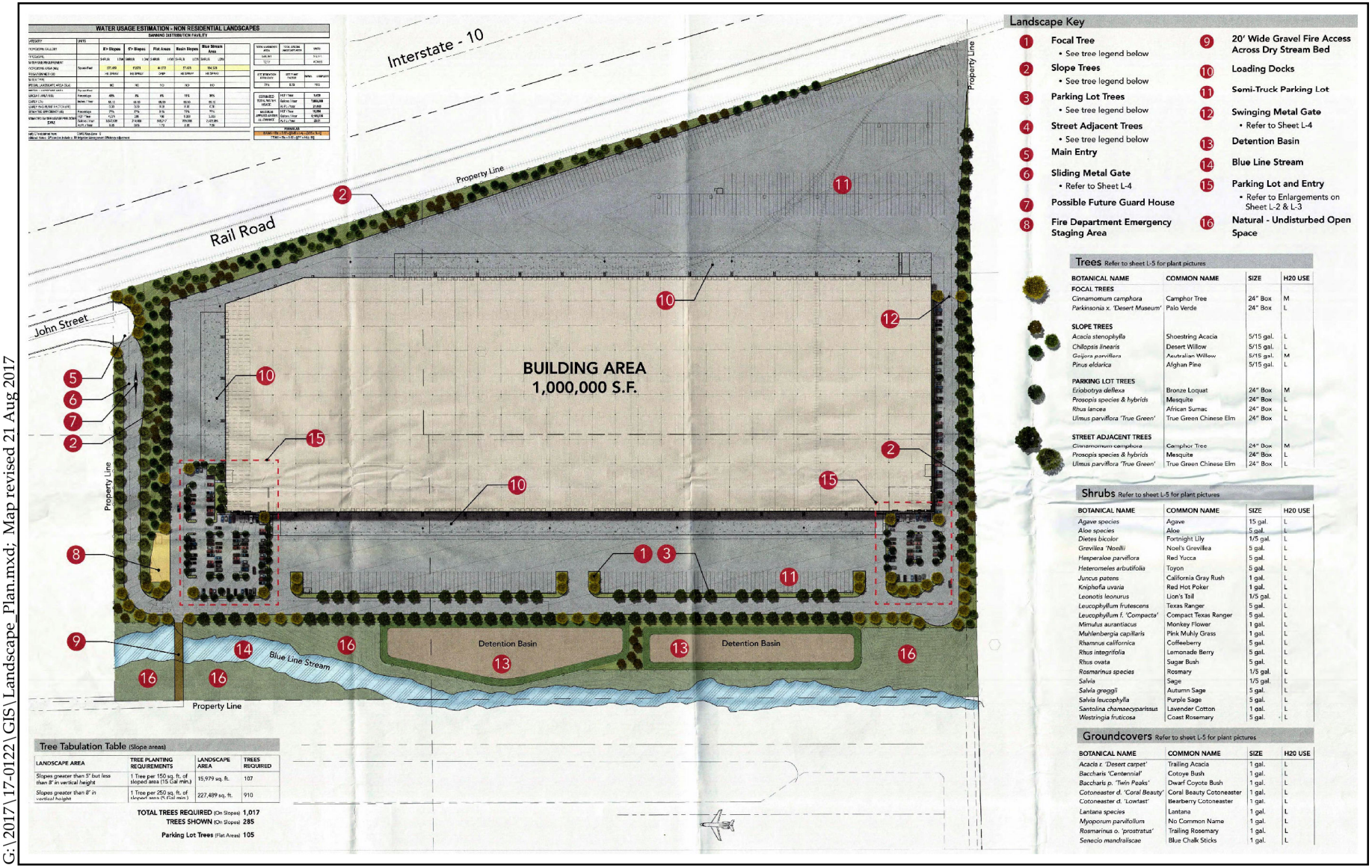

G:\2017\17-0122\GIS\Landscape_Plan.mxd; Map revised 21 Aug 2017

Source: Land Concern, Nov. 2016.

Not to Scale

Figure 1-7 - Conceptual Landscape Plan

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES

1.3 Project Relation to Urban Water Management Plan

Law

Water Code Section 10910. *(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code* [CEQA]*, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).*

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand

associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

The City of Banning, through its Public Works Department and Water Division provides municipal water to its service area of approximately 16,908 acres, which includes the area within the City's boundary as well as some unincorporated areas of Riverside County (Appendix A, p. 2-1). The City of Banning is the water supplier for the Project and has prepared a 2015 Urban Water Management Plan (UWMP, **Appendix A**), that was adopted by City Council on June 14, 2016 and deemed complete by the California Department of Water Resources on April 26, 2017.

Banning's 2015 UWMP references a *Recycled Water Master Plan* (prepared by Carollo Engineers, dated September 2006 and included in Appendix A). The City anticipates implementing upgrades by 2025 at the City's wastewater treatment plant that will produce effluent that meets recycled water standards (Appendix A, Standardized Table 6-6). Therefore, recycled water will not be considered for the Project in this Assessment, which is consistent with the current development plan.

The City has also recently updated its *Sewer System Management Plan* (revised 6/30/16),[3] and is in the process of preparing an integrated master plan for sewer, water, and recycled water. The City has also developed a *Chromium-6 Compliance Plan* (dated December 2015 and located in Appendix M of the City's 2015 UWMP) that outlines treatment options that are expected to be built in early 2020; however the State Water Resources Control Board has very recently rescinded the chromium-6 maximum contaminant level (MCL) of 10 parts per billion (ppb) for drinking water. Until a new MCL for chromium-6 is adopted, the previous MCL of 50 ppb for Total Chromium is currently in effect.[4]

[3] Available at City's Web site: http://www.ci.banning.ca.us/DocumentCenter/View/1006 or from City of Banning Public Works Department.
[4] As of May 31, 2017, the Superior Court of Sacramento County issued a judgment invalidating the hexavalent chromium MCL and as of August 1, 2017, the State Water Resources Control Board directed staff to start the process of adopting a new MCL that properly considers the economic feasibility of complying with the MCL. Estimated to take 18-24 months.

The City of Banning and Beaumont-Cherry Valley Water District (BCVWD) jointly own and operate three groundwater wells in accordance with an agreement between the two parties, dated December 23, 2003 (**Appendix B**). The City also purchases imported water from the San Gorgonio Pass Water Agency (SGPWA), which is a State Water Project contractor.

BCVWD has prepared a 2015 UWMP (**Appendix C**) that discusses its relationship with the City of Banning. Likewise, SGPWA has prepared a 2015 UWMP (**Appendix D**) that incorporates Banning's projections for population growth and future demands for purchased imported water.

1.4 Statewide Mandatory Water Conservation Requirements

The Governor proclaimed a statewide State of Emergency due to ongoing drought conditions on January 17, 2014. Since then, the Governor has issued at least six Executive Orders and other Proclamations in response to impacts from extended statewide drought conditions. Executive Order B-37-16 issued on May 9, 2016, established a new water use efficiency framework for California. The order established longer-term water conservation measures that include permanent monthly water use reporting, new urban water use targets, reducing system leaks and eliminating wasteful practices, strengthening urban drought contingency plans and improving agricultural water management and drought plans.

The City of Banning adopted Ordinance No. 1489 on June 9, 2015 in response to the Emergency Conservation Regulations mandated by the State Water Resources Control Board. The Ordinance updated the City's Water Conservation Plan that is codified in Chapter 13.16 of the City's Municipal Code. The ordinance outlines stringent prohibitions and penalties, a voluntary conservation stage that is always in effect, and mandatory water shortage stages 1 through 4 that target a strict enforcement of water conservation routines following a water crisis. In addition, the City's Water Shortage Contingency Plan describes the methods to achieve and the implications of reducing water supplies up to 50% (Appendix A, Chapter 7). Lastly, the City implements various

programs to reduce water consumption, identified as Demand Management Measures in the UWMP. According to May 22, 2017 data reported to the state, cumulative water savings by the City since June 2015 is at 24.8%.[5]

On April 7, 2017 the Governor issued Executive Order B-40-17 that ended the drought state of emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. The Executive Order maintains the mandatory water reporting requirements and prohibitions on wasteful practices contained in Executive Order B-37-16, as described previously.[6] In a related action, state agencies released a plan to implement Executive Order B-37-16 titled, "Making Water Conservation a California Way of Life."[7]

1.5 Methodologies of Analysis

This Assessment follows the report outline suggested by the California Department of Water Resources' *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001*. The projected potable water demands published in the City's 2015 UWMP were determined based upon population growth projections from Southern California Association of Governments (SCAG), a City demand factor of 220 gpcd (gallons per capita per day) and the proportion of actual historical water use by industrial properties (Appendix A, p. 4-2). The UWMP used a population growth-based approach to estimating future water demand as opposed to a land use-based approach that follows the current and ultimate land uses shown in the General Plan.

[5] Available at State Water Resources Control Board Web site for required conservation reporting: http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/2017jun/supplierconservation_060617.pdf

[6] State of California, Executive Order B-40-17 can be found at https://www.gov.ca.gov/docs/4.7.17_Exec_Order_B-40-17.pdf.

[7] April 2017 Final Report, available at http://www.water.ca.gov/wateruseefficiency/conservation/docs/20170407_EO_B-37-16_Final_Report.pdf.

SECTION 2 - WATER DEMAND ANALYSIS

The purpose of this section is to evaluate whether the proposed Project was considered in the water supplier's planning for water demand. This section will: 1) identify the various water use sectors, 2) identify water demand by those sectors for the next twenty years, and 3) compare the Banning Distribution Center's water demand to the water demand for the Project site that was included in the Banning 2015 Urban Water Management Plan (UWMP, Appendix A).

Law

Water Code Section 10910: *(c) (2) (2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).*

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

2.1 Citywide Demographic Factors

A variety of demographic factors may affect water use. The Urban Water Management Planning Act lists several demographic factors to be detailed including climate, current

and projected population, density, and the mix of customer types (or sectors).[1] As suggested by the Department of Water Resources' *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001*, these data are provided herein are taken generally from the City's latest UWMP.

The City of Banning is located in the San Gorgonio Pass; a geologically-unique valley between the Peninsular Range province (San Jacinto Mountains) to the south and the Transverse Range province (San Bernardino Mountains) to the north. The local climate is characterized by hot, dry summers and short, mild winters. According to the 2015 UWMP, "The area receives an average annual precipitation of 19.7 inches, most of which takes place between December and March. Evapotranspiration in the area ranges from 7.88 inches in July to 1.94 inches in December (p. 2-3)." The average annual high temperature is approximately 77°F, and the average annual low temperature is 47°F (ibid, Table 2-1).

As of 2015, the population of Banning was estimated at 30,500 persons. The City currently provides water through 10,650 metered connections (Appendix A, p. 2-4). Most of the anticipated growth in the City will occur through two planned Specific Plan developments: Butterfield and Rancho San Gorgonio, which are summarized below.

[1] California Water Code Sections 10631 (e)(1) and (2).

Table 2-1: Summary of Significant Proposed Developments

Butterfield Specific Plan	Rancho San Gorgonio Specific Plan
1,543 acres	831 acres
4,900 residential units	3,385 residential units
Two elementary schools	-
Two commercial sites	-
Clubhouse	-
Community parks and trails	49 acres of park land, 160 acres of paseos and open space
-	81 acres of right-of-way and utility easements
Constructed in 5 phases over 30 years	Constructed in 6 phases over 18 years

Notes:
From 2015 UWMP (Appendix A) p. 2-5.

Based on these two development proposals, approximately 8,285 new dwelling units (26,194 people) are anticipated by 2040 (3.16 people per residential connection). The year of ultimate buildout of the City has been estimated at 2061, when the City reaches a population of 80,226 persons (2010 Banning UWMP, p. 61).

The City's estimated population growth over the next 25 years, with and without the previously mentioned Specific Plan developments is shown in **Table 2-2.**

Table 2-2: City of Banning Population Estimates, 2010-2040

Population	2010	2015	2020	2025	2030	2035	2040
Without Proposed Specific Plans	29,603	30,491	31,913	33,335	34,757	36,179	37,700
With Proposed Specific Plans	-	30,491	35,730	40,969	46,207	51,446	56,685

Notes:
2010 data from Banning 2010 UWMP, Table 2-3.
2015-2040 data reproduced from 2015 UWMP Table 2-2 (Appendix A).

The projected rate of population growth beginning in 2015 is approximately 5,239 more people every five years, or about 1,050 people (approximately 3%) every year. In comparison, the rate of growth over the five year period from 2010 to 2015 was 3%.

2.2 City of Banning's Current and Future Water Demand

The City of Banning categorizes its water customers into five categories: residential, commercial, industrial, public and irrigation. The Irrigation category consists of one irrigation account that receives non-potable water from one City well located in the Beaumont Basin.

The City also provides water to the Banning Heights Mutual Water Company on an emergency or as-needed basis which generally occurs during the summer time. Banning Heights Mutual Water Company currently serves 200 domestic customers in the Banning Bench community (BHMWC Web site, 7/21/17).[2] The City also provides water to High Valleys Water District, which is located in the San Jacinto Mountains and has no natural water source. High Valleys Water District pumps the water purchased from the City of Banning up the mountain to serve approximately 225 residential customers located in the Twin Pines and Poppet Flats communities (HVWD Web site,

[2] Banning Heights Mutual Water Company Web site: http://www.bhmwco.com/

7/31/17).[3] The City of Banning has included a 1% annual growth rate in the number of residential connections for both of these agencies in their water demand projections.

According to the water loss audit prepared as part of the 2015 Banning UWMP (Appendix A), the City estimates that 11% of produced water is lost and has assumed that rate into the future (p. 3-2).

The City of Banning's total water use in 2015 was 6,709 AFY, which includes water provided to other agencies and system losses as previously discussed (Appendix A, Table 3-3). The current and future water demands by customer category are reproduced below in **Table 2-3**.

Table 2-3: City of Banning Current and Future Water Demand (AFY)

Customer Category	2015	2020	2025	2030	2035	2040
	Actual	Projected				
Residential [a]	3,300	4,382	4,578	4,772	4,966	5,173
Proposed Specific Plan Developments (residential)	-	1,609	1,983	2,288	2,649	2,988
Commercial	1,705	2,281	2,382	2,484	2,586	2,694
Industrial	92	94	99	103	107	111
Public	53	63	66	69	71	74
Irrigation (potable)	524	739	779	818	859	903
Irrigation (non-potable)	202	205	207	210	211	212
Sales/Transfers/Exchanges to other agencies [b]	95	100	105	110	116	122
Losses (11%)	738	1,042	1,122	1,194	1,272	1,351
Sub-Total	**6,709**	**10,515**	**11,321**	**12,048**	**12,837**	**13,628**
Effluent for Cabazon Storage Unit	2,207	2,869	1,409	1,607	1,823	2,039
Recycled Water for Irrigation	-	-	1,680	1,680	1,680	1,680
TOTAL WATER DEMAND	**8,916**	**13,384**	**14,410**	**15,335**	**16,340**	**17,347**

Notes: Data from Appendix B to 2015 Banning UWMP (standardized Tables 4-1, 4-2, 4-3, and 6-4).
(a) Includes single-family detached residences, condominiums, apartments, and mobile homes.
(b) Water provided to High Valleys Water District and Banning Heights Mutual Water Company, assuming a 1% growth rate per year.

[3] High Valleys Water District Web site: http://www.highvalleyswater.com/index.html

By far, the most common land use in the City is residential, at 92% of the City's water customer accounts and consuming 57% of the City's 2015 water deliveries (Appendix A, p. 3-2). Included in the residential category are single-family residences, condominiums, apartments, and mobile homes. The second most common customer type are commercial accounts that make up 7% of customers and use 29% of the City's 2015 water deliveries. Industrial customers make up 1% of water customers and consumed roughly 2% of water delivered in 2015. Public customers and irrigation accounts are nominal; however irrigation consumed 12% of water delivered in 2015. Agricultural accounts within the City are included in the residential sector accounts, and additional agricultural activities are not expected to develop in the future (ibid, p. 3-4). On the other hand, the City does expect growth in the residential, commercial, industrial, and public sector accounts.

2.3 Project Water Demand

Water service to the Project will be provided by the City of Banning. As shown in **Figure 1-4**, the Project site is currently designated by the City General Plan as mostly Airport-Industrial (44 acres) and partly Public Facilities-Airport (20 acres). The Project proposes a General Plan Amendment to change 20 acres currently designated Public Facilities-Airport to Airport-Industrial (**Figure 1-5**). Because the City has not established unit water demand factors for each land use category, we are unable to state with certainty whether the anticipated water use rate between Public Facilities-Airport and Airport-Industrial differs, and if so, by how much.

According to data provided by the City for this Assessment, approximately one-third of the properties designated for industrial development have been developed, as shown in **Table 2-4**. The Industrial-Mineral areas (i.e., Robertson's Ready Mix plant) have been excluded because it is distinctly unique from the other industrial designations. Although they have a well on-site, it is unreliable and the City provides them water as needed through a two-inch service.

Table 2-4: Current Level of Industrial Development

General Plan Land Use	Developed (acres)	Vacant (acres)	Total (acres)	Percent Developed
Industrial	147	274	421	35%
Airport-Industrial	42	94	136	31%
Sub-Total	**189**	**368**	**557**	**34%**
Industrial-Mineral [a]	189	28	217	87%
Total	**378**	**396**	**774**	**49%**

Notes: Values are rounded to nearest whole number. Data provided by City Staff via email (July 25, 2017).
(a) Distinctly unique compared to other industrial properties in the City..

A water unit demand factor was calculated for the Project using the industrial water demand in 2015 of 92 AFY (shown in **Table 2-3**), divided by the developed industrial area of 189 acres (shown in **Table 2-4**). The calculated Project water demand factor is shown in **Table 2-5.**

Table 2-5: Water Demand Factor for Project

Land Use	Annual Water Demand (AFY)	Developed Industrial Area (acres)	Industrial Water Demand (AFY per acre)
Industrial	92	189	0.5

Notes:
Values rounded to nearest whole number.

A draft Conceptual Landscape Plan for the Project (dated November 9, 2016, prepared by Land Concern Landscape Architecture) was provided for this Assessment (**Figure 1-7**). The conceptual landscape plan provides an Estimated Annual Water Use (EAWU) rate of 21 AFY (rounded) for the landscaping proposed over 530,091 square feet (12.2 acres) of the site. Using the Project water demand factor of 0.5 AFY per acre

multiplied by the remaining area of the site (51.7 acres) gives an estimated water demand of 26 AFY (rounded). The total water demand for the Project is then the sum of the EAWU of 21 AFY and 26 AFY, as shown below in **Table 2-6**.

Table 2-6: Estimated Water Demand of Project

Landscape Demand (AFY) [a]	Industrial Water Demand (AFY/acre)	Hardscape/Other Area (acres)	Total Water Demand for Project (AFY)
21.2	0.5	51.7	47

Notes:
(a) From Land Concern Landscape Architecture, *Conceptual Landscape Plan*, dated November 9, 2016.

We have estimated the Project's potable water demand at 47 AFY based on the information and guidance provided by the City.

As shown in **Table 2-3**, the City expected an increase in water demand by industrial customers of 19 AFY (from 92 AFY to 111 AFY) between 2015 and 2040, which is roughly a 0.8 AF per year increase. The estimated water demand of the Project is significantly more than the City had anticipated in their 2015 UWMP demand projections for industrial properties.

However, based on information provided by the City for this Assessment that commercial and industrial developments often are accounted for by the City in a combined way, the Project's water demand will be compared to the combined commercial and industrial demand projections. As shown in **Table 2-7**, water demands from commercial land uses are projected to increase 989 AFY from 2015 to 2040, or roughly 198 AF every five years. When combined with industrial, this increases to 1,008 AFY increase in water demands from 2015 to 2040, or roughly 202 AF every five years for commercial/industrial.

Table 2-7: Combined Demand Projections of Industrial and Commercial (AFY)

	2015	2020	2025	2030	2035	2040
Commercial	1,705	2,281	2,382	2,484	2,586	2,694
Industrial	92	94	99	103	107	111
Sum	**1,797**	**2,375**	**2,481**	**2,587**	**2,693**	**2,805**

Considering the City has not seen any significant new developments in either the commercial or industrial sectors since the 2010 UWMP was prepared, the Project's estimated water demand of 47 AFY is well within the water demand projections of the commercial/industrial sectors.

The following two sections of the Assessment describe the supplies projected to be available to the City of Banning from 2015 to 2040, as according to the 2015 UWMP. Based on the findings therein, the water supply available to the City is more than adequate to meet the Project's estimated needs.

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SECTION 3 - WATER SUPPLY ANALYSIS

This section identifies the sources of potable water that are available to and utilized by the City of Banning. The purpose of this section is to evaluate the water supplies that could be utilized by the proposed Project during normal, single-dry and multiple-dry water years during a 20-year projection. Section 4 – Groundwater Analysis contains additional required information regarding the City's groundwater supplies.

Law

Water Code Section 10910 (d)(1)*: The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.*

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

3.1. Documenting Wholesale Water Supplies

Many retail water suppliers in California, including the City of Banning, receive supplies from one or more water wholesalers. SB 610 requires this Assessment to document wholesale supplies received by: i) describing the quantities of water received from each wholesaler in prior years; ii) identifying existing entitlements, water rights, and/or water service contracts held by the City for the wholesale supply; iii) provide proof of entitlements, water rights, service contracts, relevant capital outlay programs, and construction permits for necessary infrastructure to deliver wholesale supplies, if any; and iv) regulatory approvals required to convey or deliver the wholesale supply.

Wholesale Supplies Received

Wholesale imported water is available to the City and neighboring entities to purchase from the San Gorgonio Pass Water Agency (SGPWA or "Agency"), the local wholesaler of State Water Project water and participant in the Yuba Accord Agreement.

State Water Project water is imported from northern California and available as stipulated by the Department of Water Resources (DWR) in response to hydraulic conditions in the Sacramento/San Joaquin delta, environmental regulations and the local hydrology.[1] Therefore, imported water supplies to southern California can be highly variable; in 2014 for example, the allocation of State Water Project water reached the lowest proportions on record due to persistent drought conditions.

The Agency began importing State Water Project water into the region in 2003, when Phase 1 of the East Branch Extension (EBX) of the California Aqueduct was completed. Since that time, deliveries of State Water Project water within the region increased steadily until the recent drought, as shown in **Table 3-1**.

[1] Department of Water Resources, *State Water Project Delivery Capability Report*, published every 2 years as well as "Notice to State Water Project Contractors" issued as often as needed.

Table 3-1: Imported Water Deliveries to SGPWA

Calendar Year	Actual Volume Delivered (AF)	Proportion of Maximum Allocation Available
2003	116	90%
2004	814	65%
2005	687	90%
2006	4,420	100%
2007	4,815	60%
2008	4,905	35%
2009	6,609	40%
2010	8,403	50%
2011	10,730	80%
2012	10,974	65%
2013	9,695	35%
2014	5,131	5%
2015	3,930	20%
Sum	**71,229**	**-**
Median	**4,905**	**60%**
Mean	**5,479**	**57%**

From San Gorgonio Pass Water Agency, *Report on Water Conditions Reporting Period 2015*, January 2017, Table 4. Available at the SGPWA Web site: http://www.sgpwa.com/wp-content/uploads/2017/07/2015-Final-Report-on-Water-Conditions.pdf [cited as Report, 2015]

SGPWA's maximum allocation (or contract amount) of State Water Project water ("Table A") is 17,300 AFY. As shown in **Table 3-1,** the average allocation that has been made available to SGPWA from 2003 to 2015 is 57% of their Table A contract amount. It is rare that an agency receives their entire Table A allocation.

DWR prepares a biennial report to assist State Water Project contractors in assessing the near and long-term availability of supplies from the State Water Project to use in their planning efforts and for use in their UWMP's. DWR issued its most recent update,

the 2015 State Water Project Delivery Capability Report (DCR) in July 2015.[2] To evaluate supply availability under future conditions, the 2015 DCR included four model studies that used the following assumptions to model current conditions: existing facilities, hydrologic inflows based on 82 years of historical inflows (1922 to 2003) that were adjusted to reflect current levels of development in the supply source areas, current regulatory and operational constraints, and contractor demands for State Water Project water at maximum Table A amounts. The first of the future-conditions studies, the Early Long Term (ELT) scenario, was based on these assumptions but reflected changes expected to occur from climate change (a 2025 emission level and a 15 cm sea level rise). The 2015 SGPWA UWMP uses the ELT scenario to estimate future State Water Project supply availability because of the model assumptions and because it is consistent with the studies DWR has used in previous DCR's for supply availability under future conditions. Based on the ELT scenario, DWR estimates in the 2015 DCR that for all contractors combined, the State Water Project can deliver on a long-term basis a total Table A supply of 62% of total maximum Table A amounts. During the single dry year, DWR also estimates that a total Table A supply of 11% of total maximum Table A amounts can be delivered. Likewise, DWR estimates that during a four-year dry period the State Water Project can deliver 33% of total maximum Table A amounts. Notably, the 2015 DCR does not include the extremely dry period that occurred in 2013 and 2014; however, it is anticipated the next update of the DWR models will include these years for the next update of the biennial DCR. (Appendix D, p. 3-6).

SGPWA has therefore assumed in their 2015 UWMP supply projections that 62% of their Table A amount will be available on average during normal precipitation years; 11% during a single dry year, 5% during a worst-case single dry year and 33% during a multiple dry year period based on DWR's 2015 Final DCR (Appendix D, p. 3-1).

Sales of imported water from SGPWA to local retail agencies, specifically Beaumont Cherry Valley Water District (BCVWD), City of Banning, and Yucaipa Valley Water

[2] Delivery Capability Report can be found at DWR Web site: http://baydeltaoffice.water.ca.gov/swpreliability/

District (YVWD) currently account for all of SGPWA's water demands (Appendix D, p. 2-1). Additional smaller agencies may potentially request supplies in the future. When the SGPWA is able to obtain water in excess of customer demands, they can store it in the groundwater basins for future use. The volumes delivered to member agencies of SGPWA in 2010 and 2015 are listed in **Table 3-2**. Note the decrease in demands between the two time periods, as well as each agency's two-year average proportion of total deliveries.

Table 3-2: Past and Current Water Demands on SGPWA (AF)

Retail Agency Name	2010 (AF)	2015 (AF)	Percent Change from 2010 to 2015	Average Percent of Total
Beaumont Cherry Valley Water District	5,727	2,773	-52%	73%
City of Banning	1,338	694	-48%	17%
Yucaipa Valley Water District	713	454	-36%	10%
Total [a]	**7,778**	**3,921**	-	-

Notes: From Appendix D, Table 2-2.
(a) Total deliveries received by retail customers shown here are slightly less than volume delivered to SGPWA in Table 3-1, likely due to system loss during conveyance.

The City of Banning purchases imported water from SGPWA for the purpose of groundwater replenishment within the Beaumont Storage Unit (aka Beaumont Basin). Replenishment of the basin on behalf of the City occurs at BCVWD's Noble Creek spreading facility. Future recharge volumes of imported water in the Beaumont Basin will be dependent on the availability of State Water Project water and the availability of basin storage capacity. Pursuant to the Beaumont Basin Judgment (**Appendix E**), the City is entitled to the water it purchases and replenishes in the Beaumont Basin. Like a bank account, the volume to which the City is entitled but does not pump can be credited to the City's storage account. The volumes purchased from SGPWA and recharged to the Beaumont Based from 2010 to 2015 are provided in **Table 3-3**.

Table 3-3: Imported Water Purchased by City, 2010-2015 (AF)

2010	2011	2012	2013	2014	2015
1,338	800	1,200	1,200	608	694

Notes:
From Appendix A, Table 5-1.

In addition to State Water Project water, SGPWA purchases imported water supplies from Yuba County. SGPWA entered into the Yuba Accord Agreement, which allows for the purchase of water from the Yuba County Water Agency through DWR. Yuba Accord water comes from north of the Delta, and as such the water purchased under this agreement is subject to losses associated with transporting it through the Delta. SGPWA receives approximately 300 AFY on average under this Agreement, and has recently signed a time extension to the Agreement (Appendix D, p. 3-9).

In its 2015 UWMP, SGPWA has projected adequate supplies to meet the projected water demands from BCVWD, City of Banning, YVWD and "others" that may join in the future, which cannot be met from each agency's other water supply sources. SGPWA's future supplies to meet future demand include a combination of existing and planned sources (beginning in 2020), during average precipitation years and multiple-dry years through 2040. Planned supplies are discussed below and include purchasing supply from San Bernardino Valley Municipal Water District, exchanges with other contractors and/or other sources. SGPWA has also projected that additional supplies will be required to meet the projected demands from current and future customer agencies during a single dry year beginning around 2025 (Appendix D, Table 3-4 and pp. 5-1 to 5-4).

SGPWA plans to purchase up to 5,000 AF of San Bernardino Valley Municipal Water District's (Valley District's) Table A amount in years when Valley District's Board declares a surplus. SGPWA expects this to occur two years out of every five, or on average, 2,000 AFY (Appendix D, p. 3-10). In addition, SGPWA has signed on as an owner of capacity in the proposed Sites Reservoir Project, and completed design of a

conjunctive use storage facility for additional supplies, including Article 21 water from the State Water Project when available (Appendix D, p. 3-11).[3]

SGPWA has exchanged imported water with a neighboring wholesale agency, Crestline Lake Arrowhead Water Agency (CLAWA) on three different occasions. In 2010, SGPWA received 1,000 AF of CLAWA's Table A amount in exchange for a like amount to be returned by 2020. Likewise, in 2013, SGPWA received 2,000 AF of CLAWA's Table A amount in exchange for 1,300 AF to be returned by 2023. Lastly, in 2016, SGPWA received 1,200 AF of CLAWA's Table A amount in exchange for 600 AF to be returned by 2026 (Appendix D, p. 3-10). Therefore, future exchanges are possible though no details have been provided.

SGPWA's 2015 UWMP states the following in terms of future water supply acquisitions (Appendix D, p. 3-11):

> *The Agency's Board has committed to keeping ahead of the regional water demand curve and implementation of the capacity fee will enable it to do so financially. The Agency has updated a study identifying additional supplemental supplies that are for sale around the state, particularly south of the Delta, and will move quickly to negotiate a deal for one or more of these sales in 2016 or early 2017.*

The actual supplies and the projected wholesale water supplies that are expected to be available to SGPWA through 2040 are shown in **Table 3-4**.

[3] The Article 21 Program with DWR provides water supplies to SWP Contractors when water in excess of the current SWP need is available.

Table 3-4: SGPWA Actual and Projected Wholesale Water Supplies (AF)

Source of Supply	2015	2020	2025	2030	2035	2040
	Actual	Projected				
Existing Imports						
Imported SWP [a]	10,700	10,700	10,700	10,700	10,700	10,700
Yuba Accord	300	300	300	300	300	300
Sub-Total Existing Supplies	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**
Planned Purchases						
Valley District	-	2,000	2,000	2,000	2,000	2,000
Other	-	1,500	3,800	7,700	11,700	15,000
Sub-Total Planning Supplies		**3,500**	**5,800**	**9,700**	**13,700**	**17,000**
Total Supplies	**11,000**	**14,500**	**16,800**	**20,700**	**24,700**	**28,000**

Notes: From Appendix D, Table 3-1.
(a) Assumes future imported supplies at 62% of SGPWA's Table A amount (17,300 AFY).

*

Although the supply from the SWP that was available to SGPWA in 2015 was 11,000 AF (Appendix D, Table 3-1), the actual volume provided to customer agencies (BCVWD, Banning and YVWD) was significantly less at 3,921 AF as shown previously in **Table 3-2**.

SGPWA adopted Ordinance No. 10 to establish procedures for allocating reduced deliveries of water to its Purchasers (including Banning) during a drought or other water shortage event. The ordinance established a Water Shortage Contingency Plan with rationing and reduction goals to be conducted by the retail water agencies, which includes Banning (Appendix D, Table 7-1).

Approximately 27% of the SGPWA service area contains the City of Banning and the City's sphere of influence. In its 2015 UWMP, the City has taken this percentage as the proportion of SGPWA's supplies they are entitled to (Appendix A, p. 5-4), and presented this to SGPWA in a draft agreement. This agreement remains unsigned, as wholesale water suppliers typically do not commit to delivering a set volume or

proportion of their supply. SGPWA can be expected however, to provide water when their customer agencies make a request.

Nonetheless, the City of Banning has assumed in their supply projections that a set proportion of SGPWA's Table A allocation will be available for purchase based on the following parameters, which come from the previously mentioned unsigned agreement:

- 17,300 AFY – SGPWA Table A allocation;
- 58% - proportion of Table A allocation to be available; and
- 27% - Banning's portion of SGPWA service area.

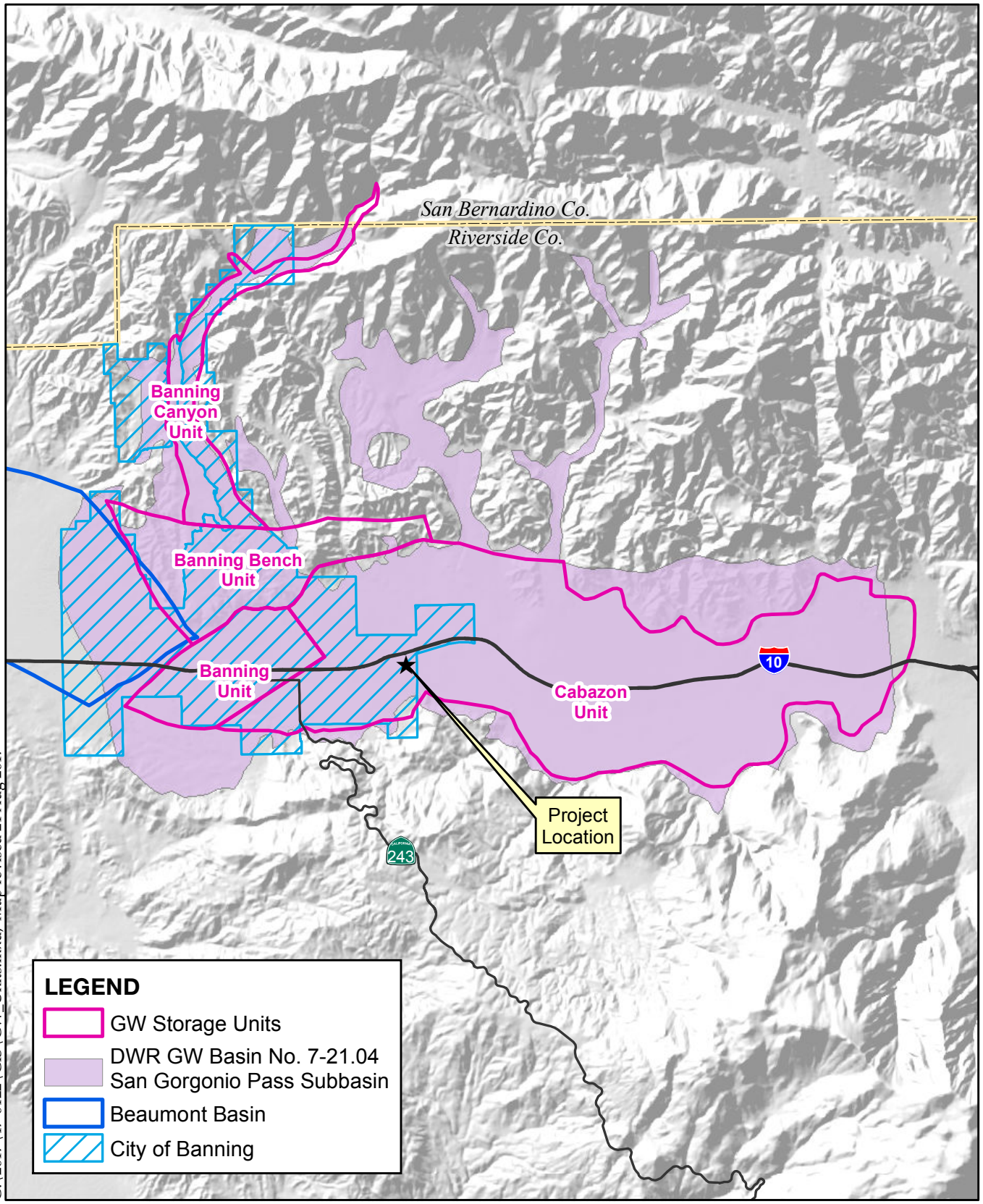
Based on the above, the estimated annual recharge quantity that could be purchased was determined by the City as follows (Appendix A, p. 5-4):

17,300 AFY x 57.5% x 27.3% = 2,718 AFY

Although the percentage of the SGPWA Table A allocation that SGPWA has used in its planning projections is 62%, the City opts for a more conservative proportion of 58% as reasoned in the City's 2015 UWMP (p. 6-4).

3.2. Documenting Water Supplies

The City of Banning obtains all of its water supply from groundwater, but there are three sources of water that provide the majority of the City's groundwater supply: 1) replenishment credits from purchasing and infiltrating imported water from SGPWA within the Beaumont Basin (as previously discussed), 2) diverted surface water from the Whitewater River that recharges the Banning Canyon Storage Unit, and 3) other City wells in the surrounding groundwater basins (also called "storage units, "as discussed in Section 4 – Groundwater Analysis). Refer to **Figure 3-1** for locations of the storage units accessed by the City.



Sources: Calif. Dept. of Water Resources, 2016; USGS, 2006; Riverside Co. GIS, 2017.

0 1 2 3 4 Miles

Figure 3-1 - Groundwater Storage Units

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES

Whitewater River Diversion

Since 1913, surface water (snowmelt) from the Whitewater River has been diverted into Banning Canyon by way of "the Flume," which was originally used to generate hydroelectric power by predecessor companies of Southern California Edison (SCE). Although the water still flows through two hydroelectric power plants, SCE no longer generates power and is in the process of withdrawing its license. The City of Banning is currently seeking a Special Use Permit from the U.S. Forest Service for the continued operation and maintenance of the Flume. After passing through the power plants, water delivered by the Flume stops at a reservoir within Banning Canyon that is owned by the Banning Heights Mutual Water Company (BHMWC). Approximately 1,000 AFY is used by BHMWC (Appendix A, p. 5-9). The Flume/reservoir system is the only water source for customers of BHMWC. Excess water then flows to the San Gorgonio River and adjacent recharge basins to recharge the Banning Canyon Storage Unit. The City estimates that an average of 1,500 AFY has been diverted into Banning Canyon since 1961 (ibid). Based on historical pumping rates, the Banning Canyon Storage Unit provides the largest supply of water for the City.

City Wells

As of 2015, the City owns and operates 21 groundwater wells outright, and shares ownership of three wells with BCVWD. A copy of the Agreement between the City of Banning and BCVWD dated December 23, 2003 is provided in **Appendix B**. All of the wells pump groundwater from five sub-units ("Storage Units") of the San Gorgonio Pass Basin, which are not totally independent from each other: Beaumont, Banning, Banning Bench, Cabazon, and Banning Canyon. Depending on the source, the City maintains different types of water rights, as follows:

- **Beaumont Basin:** Appropriative Water Right (defined in the Judgment as, "each Appropriator's share of Appropriative Water, such share expressed as a percentage as shown on Exhibit C"). The City of Banning's share of the Safe

Yield allocated to Appropriators is 31.43%.[4] Based on the five-year format used in the Rules and Regulations of the Judgment, the Appropriative Water estimated in 2010 is allocated to Appropriators during 2015. A copy of the Beaumont Basin Judgment is provided in **Appendix E.**

- **Banning Storage Unit:** This storage unit is not adjudicated. The City is the only remaining large user of water, after it acquired the Mountain Water Company.
- **Banning Bench Storage Unit:** This storage unit is not adjudicated. The City and Banning Heights Mutual Water Company rely on this basin to serve a portion of their respective water demands.
- **Cabazon Storage Unit:** This storage unit is not adjudicated. The City of Banning, Mission Springs Water District, Morongo Band of Mission Indians and Cabazon Water District rely on this basin to serve a portion of their respective water demands (Appendix D, p. 3-17).
- **Banning Canyon Storage Unit:** See **Appendix F** for a copy of the "Whitewater River Adjudication Proceedings, April 23, 1928" that documents the following rights in reverse chronological order:
    1. Joint entitlement between The Banning Water Company (to which the City of Banning is a successor), BHMWC and the San Gorgonio Power Company (a predecessor of SCE) to "…divert from the natural flow of the South Fork of Whitewater River, through the Consolidated Reservoir and Power Company Canal ["the Flume"] a total of 13.26 cubic feet per second - priority October 31, 1906…and subject to the provisions of an Agreement dated January 10, 1913, an Instrument dated December 30, 1913, and a Deed dated August 7, 1922" (see page 6 of Appendix F).
    2. Entitlement of The Banning Water Company (City of Banning) to "…divert from the natural flow of San Gorgonio River and its tributaries, through its system of spreading [diversion] ditches an amount of 20,000 acre-feet per annum, with a priority date of January 1, 1887…provided that said

[4] Judgment (2004) defines Safe Yield as, "The maximum quantity of water which can be produced annually from a Groundwater Basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage."

water is subsequently withdrawn from said underground storage and applied to beneficial use by said Banning Water Company…" (see page 9 of Appendix F).

3. Entitlement of The Banning Water Company (City of Banning) to "…divert from the natural flow of San Gorgonio River, or from its underground storage in San Gorgonia [sic] Canyon as provided for in [the two previously mentioned entitlements], or in part from both of said sources, through the Main Stone Lined Conduit of said Banning Water Company's system, and through various ditches and pipe lines leading thereto hereinafter mentioned, a total of 14,000 acre-feet per annum - priority March 17, 1875…and said total quantity of water to be diverted at such times and at such rates throughout the year as may be necessary in order that said Banning Water Company may adequately supply the requirements of water for domestic, stock watering and irrigation purposes within the territory which it serves as hereinabove described…and the requirements of water for domestic and municipal purposes within the city of Banning" (pp. 9-10 of Appendix F).

In the same 1928 proceedings, the State determines that, "Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company are the owners of the paramount right to divert water from the South Fork of Whitewater River through the Consolidated Reservoir and Power Company Canal…" (p. 17). The three entitlements listed above are reiterated in a December 1938 proceeding that determined the relative rights of various claimants to the waters of the Whitewater River and its tributaries (Riverside County Superior Court, case no. 18035), a copy of which is provided in **Appendix G** (refer to pp. 28-36).

- **Imported water from SGPWA:** Annual water order request form.

An expanded discussion that is required for groundwater supplies by SB 610 is located in Section 4 – Groundwater Analysis.

Water Supply Capacities

The capacity of a supply system differs from the available supplies or safe yield in that "capacity" presents the maximum output possible. For example, the capacity of the City's groundwater wells refers to a pumping rate based on running the pumps at full utilization, 24-hours a day, 7 days a week. Although this maximum rate of pumping is assumed in terms of comparing capacities, groundwater pumps are rarely used at more than two-thirds capacity. Knowing the system capacity is important to ensure the City can meet all demands imposed upon the system, specifically meeting "average day demand" and "maximum day demand." Demand can be met with multiple supply sources, storage, or a combination of both. The City's reservoirs are not considered part of the City's supply in this Assessment, however, they are used to regulate hourly fluctuations in demand, provide fire flow, and supplement supply during an extended outage of a source (Appendix A, section 7.1.2).

As the City land uses and population change, so will the average and maximum day demands. The City is required to meet the following water supply criterion from the California Code of Regulations: "a source of supply equal to one maximum day demand, with one average day demand from local sources." Based on 2015 data, the maximum day demand for the City is currently estimated at 30 AF per day (6,788.6 gpm, Appendix A p. 7-3).

The estimated pumping capacities of the City's (active) well field are provided below in **Table 3-5**. The adjudicated/estimated safe yields for each Storage Unit are included to compare with the pumping capacities. Per the criterion described previously, the City's source of supply as of 2015 meets and exceeds the maximum day demand, all from local sources (i.e., existing wells).

Table 3-5: Existing Pumping Capacity for City

Source	Number of Active Wells	Nominal Capacity (gpm) [a]	Safe Yield (AFY) [d]
Beaumont Basin	5	4,650	2,097 (City's portion in 2015) [c]
	3 equally shared with BCVWD	3,000 [b]	
Banning	4	3,500	1,130 (estimated)
Cabazon	1	900	2,515 (estimated)
Banning Bench	3	3,650	1,960 (estimated)
Banning Canyon	8	8,600	4,070 (estimated)
Total	**21 (plus 3 equally shared)**	**24,300**	**11,773**

Notes: Data from Appendix A, Sec. 5.1.1-5.1.5.
(a) "gpm" is gallons per minute. Capacities are design capacities based on historical water use records.
(b) Combined nominal capacity of the three wells is 6,000 gpm, half of which is allotted to the City.
(c) From Appendix H, Table 3-7. Banning's portion in 2015 is 31.43% of the Appropriative Water (unused overlying water) estimated in 2010.
(d) Estimated safe yields for Banning, Banning Bench, and Banning Canyon storage units come from Appendix I (p. 45), calculated as the average of two methods of calculating maximum perennial yield: Zero Net Draft Method (the average annual groundwater production over a selected period of time when the average groundwater elevation is the same), and the Hill Method (production for an average water level change of zero). Due to limited data, Cabazon was calculated differently using the equation of hydrologic equilibrium.

Notably, the pumping capacity for the Beaumont Basin in **Table 3-5** does not include any of the production rights the City has to water that is banked in their Beaumont Basin storage account, which was most recently measured at the end of 2016 at 49,990.8 AF according to the 2016 (draft) Watermaster Annual Report (Appendix H, p. 3-10).

In the event of an emergency, the City can nearly meet the current maximum day demand of 30 AF (6,788.6 gpm) with its suite of emergency backup systems. Seven of the City's active wells are equipped with emergency generators or other backup

systems in the event of a power outage, as shown below in **Table 3-6**. If additional supply is needed in an emergency, portable generators can be obtained to operate other wells and booster stations (Appendix A, p. 7-3). The City also maintains 13 reservoirs currently containing 19.7 million gallons (ibid, p. 7-4).

Table 3-6: City Wells with Emergency Backup Systems

Well No.	Storage Unit	Capacity (gpm)	System Type
1	Banning Bench	1,250	Pelton wheel
3		500	
4	Banning Canyon	600	
5		550	
10		600	Diesel engine drive
C2	Beaumont Basin	1,000	Generator
M12	Banning	950	
	Total	**5,450**	-

Notes: From Appendix A, p. 7-4

The City shares a 12-inch diameter emergency potable water interconnection with BCVWD located at the western boundary of the City's service area, which can be another source of water in the event of an emergency. The interconnection was built in the 1990's so that water can be supplied in either direction between agencies and, according to BCVWD's 2015 UWMP: "The City of Banning's water system pressure zones closely match BCVWD's and mutual exchanges are possible" (Appendix C, p. 6-58). In addition, BCVWD has provided several large pipeline "stub outs" (future points of connection) from their potable water system across Highland Springs Avenue to the City of Banning. BCVWD expects these "stub outs" will be extended through the future Butterfield Specific Plan project (see Section 2, Table 2-1) to connect with the City's potable water system. According to BCVWD, "These interconnections allow Banning to recharge imported [State Water Project water] at BCVWD's groundwater recharge facility and, using the joint wells and the interconnections, extract that water when needed, and convey it to Banning's water system for use" (Appendix C, p. 6-58).

3.3. Descriptions of All Water Supply Projects

City Well Production:

The City of Banning currently owns 21 groundwater wells outright, and shares equal ownership of three additional wells with BCVWD. A study of the maximum perennial yield estimates of the Banning, Banning Bench, Banning Canyon, and Cabazon storage units was commissioned by the City and prepared by Geoscience Support Services, Inc. in 2011. The report estimates the amount of groundwater in storage within the City of Banning water resource area to be approximately 1.1 to 1.2 million AF, although existing wells may not be able to access all of it (Appendix I, p. 23). The report also estimates long-term supply available from the adjudicated Beaumont Basin based on the information available and previous safe yield.

The Beaumont Basin Watermaster has estimated that at the end of 2016, approximately 101,425.0 AF of water is held in storage for each party with a storage account. The City's storage account currently holds 49,990.8 AF (Appendix H, p. 3-10). Pursuant to the Judgment, the City is allowed to pump sufficient water from the Beaumont Basin in order to meet its water demand. Should this amount exceed the City's rights, the Watermaster has an obligation to replenish the overproduction (Appendix I, p.43).

The City has indicated that additional groundwater can be developed from the Cabazon Storage Unit, particularly after the City's WWTP is expanded and upgraded (Appendix A, p. 5-5). The City is currently seeking funding to construct additional groundwater wells and water storage reservoirs (ibid, p. 6-11).

In addition to planning for new wells, the City repairs or replaces facilities as necessary in order to maintain the integrity and reliability of the City's water system. One project that will repair a major component of the City's supply network is currently in the final planning stages. The "Banning Water Canyon Main Replacement Project" will replace portions of the existing Banning Water Canyon main (a riveted steel pipeline that was constructed circa 1927), which conveys potable water from a series of City wells along

the San Gorgonio River (Banning Canyon Storage Unit) to the City's service area (ibid). The City has completed its environmental impact document for the project pursuant to the California Environmental Quality Act (CEQA) and is in the process of obtaining the appropriate permits and approvals from various agencies, including but not limited to: the U.S. Forest Service, U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and the Regional Water Quality Control Board-Colorado River Basin.

The City's water supply for the last five years (groundwater pumped by City wells and imported water from SGPWA) is shown in **Table 3-7.** The City pumped 6,659 AF in 2015 from all five storage units. Notably, the City reduced pumping by approximately 24% between the high of 8,742 AF in 2013 and 2015.

Table 3-7: City Water Production and Purchases, 2011-2015 (AFY)

Storage Unit	2011	2012	2013	2014	2015
Beaumont	1,483	1,170	2,136	2,729	1,675
Banning	1,345	1,260	1,747	1,393	527
Banning Bench	1,319	1,644	1,701	1,001	1,208
Cabazon	499	455	11	787	787
Banning Canyon	3,808	4,046	3,147	2,558	2,462
Sub-Total	**8,454**	**8,575**	**8,742**	**8,468**	**6,659**
Purchased Water from SGPWA	800	1,200	1,200	608	694
TOTAL	**9,254**	**9,775**	**9,942**	**9,076**	**7,353**

Notes: Actual amounts produced. From Appendix A, Tables 5-1 and 5-2.

As of 2015, approximately 91% of the City's water supply came from groundwater, with a majority pumped from the Banning Canyon Storage Unit. The City strives to maximize local water supplies, and minimize the need for imported water. The City does not consider imported water its current or future primary source of water (Appendix A, p. 6-4).

In terms of reliability, the City has not experienced any actual supply deficiencies in its groundwater supply despite the recent five-year drought (Appendix A, p. 6-1). Further, as part of the Beaumont Basin adjudication, the City can store up to 80,000 AF of water in the basin. At the end of 2015, the City's storage account held approximately 47,888 AF (Appendix H, p. 3-10).

The City's water supply projections from 2020 to 2040 are shown in **Table 3-8**, with the City's assumed available supply from SGPWA at 2,718 AFY. Recycled water supply is not included. Compared to the actual supplies historically required by the City in **Table 3-7**, total groundwater supply projections show a 59% increase from 2015 to 2040.

Table 3-8: Projected City Water Supplies, 2020-2040 (AFY)

Source	2020	2025	2030	2035	2040
Beaumont Basin Appropriative Water (Actual quantity to be pumped)[a]	1,266 (840)	1,145 (1,645)	1,029 (2,372)	925 (3,162)	925 (3,643)
Banning Storage Unit	1,130	1,130	1,130	1,130	1,130
Banning Bench Storage Unit	1,960	1,960	1,960	1,960	1,960
Cabazon Storage Unit	2,515	2,515	2,515	2,515	2,515
Banning Canyon Storage Unit	4,070	4,070	4,070	4,070	4,070
Sub-Total	**10,941**	**10,820**	**10,704**	**10,600**	**10,600**
Purchased SWP water from SGPWA [a]	2,718	2,718	2,718	2,718	2,718
Total	**13,659**	**13,538**	**13,422**	**13,318**	**13,318**

Notes: From Appendix A, Table 5-4.
(a) From Appendix A, Table 5-3. Shown for comparison only, not part of totals.

Projected supplies from the Beaumont Basin (i.e., Appropriative Water available after overlying producers take their share) are subject to the provisions of the Judgment (see discussion in Section 4) and are expected to vary annually and decrease over time.

However, as shown in **Table 3-8**, the City's projection of the quantities of groundwater pumped from the Beaumont Basin increase with time to meet projected demands by accessing the City's water storage account. The volume projected to be pumped from the Beaumont Basin increases on average by approximately 140 AFY from 2020 to 2040 while the available supply decreases by roughly 17 AFY over the 20-year period.

The City's water supply projections in **Table 3-8** for the other sources (Banning, Banning Bench, Cabazon, Banning Canyon, and imported water) show a consistent supply from 2020 to 2040. These constant supply volumes from the storage units correlate to the estimated safe yield of each storage unit, and the City's assumption on annual imported water availability from SGPWA at 2,718 AFY.

A thorough description of the City's groundwater rights pursuant to SB 610 guidance is provided in Section 4 – Groundwater Analysis.

City Wastewater Effluent Production:

The effluent discharged from the City's wastewater treatment plant (WWTP) is currently treated to secondary standards and is then discharged to percolation ponds that recharge the Cabazon Storage Unit. The City currently does not produce effluent that meets the threshold for recycled water that can be distributed for irrigation and other beneficial uses. Therefore, the City is planning an upgrade of the WWTP with the addition of tertiary treatment facilities, as well as an expansion by 2025 from a treatment capacity of 3.6 million gallons per day (MGD) to 5.1 MGD.[5]

After completion of the WWTP upgrades, the City would have recycled water to distribute for beneficial uses, which is estimated at 1,680 AFY. This would be in addition to continuing the use of percolation basins. The City's 2006 Recycled Water Master Plan estimated the demand for recycled water at that time to be 2,700 AFY

[5] Parsons Corp. for City of Banning, *Water Reclamation Facility Preliminary Draft Pre-Design Report* (July 2007) and *90% Design Plans for 1.5 MGD Water Reclamation Facility Expansion Project* (April, 2008) (Available from City of Banning Public Works Dept.).

(Appendix A, p. 5-12). Although the demand for recycled water may exceed the supply, distribution is limited by the network of recycled water pipelines.

The actual 2015 volume of wastewater collected, treated and then percolated, as well as the projected volumes of recycled water are shown in **Table 3-9**.

Table 3-9: Current and Projected Recycled Water (AFY)

Level of Effluent Treatment and Use	2015	2020	2025	2030	2035	2040
	Actual	Projected				
Secondary (percolation)	2,207	2,869	1,409	1,607	1,823	2,039
Tertiary (irrigation)	0	0	1,680	1,680	1,680	1,680
Total	**2,207**	**2,869**	**3,089**	**3,287**	**3,503**	**3,719**

Notes: From Appendix A, Tables 5-5 and 5-6.

According to DWR, recycled water is wastewater that has been treated to a specific quality to enable it to be used again (2015 UWMP Guidebook Appendices, Appendix M). For the purposes of the 2015 UWMPs, DWR considered the term "recycled water" to include the various levels of secondary, tertiary, and advanced treatment that are described in Title 22 of the California Code of Regulations. Therefore we have included recycled water in the supply projections as shown in **Table 3-10**.

Table 3-10: City Water Supply Projections with Recycled Water 2020-2040 (AFY)

Supply Source	2020	2025	2030	2035	2040
Beaumont Basin Appropriative Water Allocation	1,266	1,145	1,029	925	925
(Actual quantity to be pumped)	(840)	(1,645)	(2,372)	(3,162)	(3,643)
Banning Storage Unit	1,130	1,130	1,130	1,130	1,130
Banning Bench Storage Unit	1,960	1,960	1,960	1,960	1,960
Cabazon Storage Unit	2,515	2,515	2,515	2,515	2,515
Banning Canyon Storage Unit	4,070	4,070	4,070	4,070	4,070
Purchased SWP water from SGPWA	2,718	2,718	2,718	2,718	2,718
Sub-Total [a]	**13,659**	**13,538**	**13,422**	**13,318**	**13,318**
Recycled Water -Tertiary (irrigation)	0	1,680	1,680	1,680	1,680
Total [B]	**13,659**	**15,218**	**15,102**	**14,998**	**14,998**

Notes:
(a) Does not include the estimated actual production from the City's storage account in the Beaumont Basin shown in parenthesis in Table 3-8.
(b) Does not include secondary effluent in percolation basins because supply from Cabazon basin is already accounted for in table.

Recycled water is a widely recognized reliable source of water for a growing list of beneficial uses. The City expects future use of recycled water to increase and offset potable water demand. Currently, an integrated master plan for water, wastewater and recycled water is being prepared by the City and a professional consulting firm.

Imported Water Supplies from SGPWA

Current infrastructure limits SGPWA to importing a maximum of approximately 11,000 AFY. The Agency is in the process of completing the "Phase 2 of the East Branch Extension" project (or "EBX 2") that will provide the infrastructure necessary to import

the entire Table A allocation of 17,300 AFY when it is available, plus additional supplies (Report, 2015). With additional imported water, the Agency has started construction on the "Beaumont Avenue Recharge Facility" that includes a new connection to the East Branch Extension (EBX) and a new pipeline that conveys the water to a new recharge facility. This new facility will enable storage of imports received during wet years to use during dry years ("conjunctive use").

In addition, SGPWA and Valley District have recently constructed improvements to the existing EBX, an expansion of the Crafton Hills Reservoir from 90 AF to 135 AF, and a bypass line to continue delivering water in the event the Crafton Hills Reservoir is out of service. Lastly, the Agency is considering purchasing capacity in the Valley District's proposed Bunker Hill Conjunctive Use Project, which would enable the Agency to store imports in the Bunker Hill Basin during wet years and deliver to retail agencies in dry years.

SGPWA has put a financial plan in place to purchase additional supplemental water supplies from various sources. One of the sources of revenue for this financial plan is a recently adopted capacity fee on new growth in the Agency's service area. (Appendix D, p. 3-12). In order to collect the capacity fee, the Agency has to sign cooperative agreements with retail water agencies or land use planning agencies within its service area. In areas where SGPWA can collect the fee, the Agency has stated that it can assure its retail customers that it will have the financial resources to procure needed additional water supplies.

Although SGPWA has other financial resources to procure additional water for these areas as needed, a cooperative agreement with Banning may be needed as the City grows. However, the size of the proposed Project is such that a cooperative agreement would not be necessary to meet its water demands, in addition to existing City demands.

3.4 Documenting Normal Year Supply and Demand for City of Banning

According to DWR, a "normal" or "average" year can be a single year or averaged range of years that most closely represents the average water supply available to the agency (2015 UWMP Guidance, p. 7-4). The City interpreted this to mean, "one year in the historical sequence that most closely represents median runoff levels and patterns" (Appendix A, p. 6-5). Based on that assumption, the representative normal year for the City was 2001 (ibid, p. 6-7). The City has assumed in the 2015 UWMP that supply reliability will remain constant during normal, single dry, and multiple dry precipitation years, due to reliance on groundwater (ibid, p. 6-6). This assumption will be reassessed by the City in the next UWMP.

The normal year supply available to the City and the normal year demand projections from Section 2 are compared in **Table 3-11**.

Table 3-11: Projected Normal, Single Dry and Multiple Dry Year Supply and Demand (AFY)

	2020	2025	2030	2035	2040
Supply[a]	13,659	13,538	13,422	13,318	13,318
Demand[b]	10,515	11,320	12,047	12,837	13,629
Difference	**3,144**	**2,218**	**1,375**	**481**	**-311**

Notes: Does not include supply or demand for recycled water. Same as Tables 6-4, 6-5, and 6-6 in Appendix A.
(a) See Table 3-8 herein.
(b) See Table 2-3 herein.

Based on the methodology in the City's 2015 UWMP, surplus supply will be available during a normal (or "average") year between 2020 and 2039. A deficit in supply appears beginning in 2040 under normal year conditions. The 2015 UWMP also projected a deficit beginning in 2040 and provided this discussion in response (p. 6-8):

Although projected supply totals are less than projected demand totals for 2040, the City has 46,774 AF [2014 Watermaster Annual Report, which has been updated to 49,990.8 in 2016 draft Watermaster Annual Report] *of stored water in its Beaumont Basin storage account, which is not accounted for in the projected supply totals. Therefore, the City has ample water supplies to meet projected demands through 2040.*

3.5 Documenting Single Dry Year Supply and Demand for City of Banning

A "single dry year" is defined by DWR as, "the year that represents the lowest water supply available to the agency" (2015 UWMP Guidance, p. 7-4). The City interpreted this to mean "the lowest annual runoff for a watershed" (Appendix A., p. 6-5). Based on that assumption, the representative single dry year for the City was 2007 (ibid, p. 6-7). Again, the City assumes that supply will not change during normal, single dry, and multiple dry precipitation years, due to reliance on groundwater. Therefore, the projected water supplies and customer demands for a single dry year would be the same as shown in **Table 3-11** (Appendix A, p. 6-8).

The City has determined in its 2015 UWMP that surplus supply will be available during a single dry year that could occur anytime from 2020 to 2039, with a deficit in supply beginning in 2040. However, because of the groundwater storage account maintained in the Beaumont Basin, the City expects to have sufficient supplies to meet demand through 2040.

3.6 Documenting Multiple Dry Year Supply and Demand for City of Banning

A "multiple dry year" sequence is defined by DWR as, "the period that represents the lowest average water supply availability to the agency for a consecutive multiple year period (three years or more)" (2015 UWMP Guidance, p. 7-5). The City interpreted this to be defined as, "the lowest average runoff for a consecutive multiple year period (three years or more)" (Appendix A, p. 6-5). Based on that assumption, the representative multiple dry year period for the City was 2012 to 2014 (ibid, p. 6-7). Again, the City assumes that supply will not change during normal, single dry, and

multiple dry precipitation years, due to reliance on groundwater. Therefore, the projected water supplies and customer demands for a multiple dry year period would be the same as shown in **Table 3-11** (Appendix A, p. 6-8).

The City has determined in its 2015 UWMP that surplus supply will be available during a multiple dry year that could occur anytime from 2020 to 2039, with a deficit in supply beginning in 2040. However, because of the groundwater storage account maintained in the Beaumont Basin, the City expects to have sufficient supplies to meet demand through 2040 despite a three-year drought.

3.7 Comparison of Banning's Projected Supply and Demand

As explained previously in Section 2, the annual water demand for the Banning Distribution Center is estimated at 47 AFY. This would increase the current industrial water demand 50% from 92 AFY to 139 AFY, and require the City to revise industrial water demand projections accordingly in the 2020 UWMP update.

To reiterate, California Water Code Section 10910(c)(2) states:

> *If the project water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).*

The City has provided guidance for this Assessment to combine the commercial and industrial demand projections together for comparison with the Project's estimated water demand. Therefore, the Project's water demand has been included in the City's demand projections for commercial/industrial properties.

Because the supply and demand comparisons shown in **Table 3-11** do not include the actual quantity estimated by the City in their 2015 UWMP to be pumped from the Beaumont Basin, pursuant to their storage account production rights, the resulting estimated supply is less than realistically available. This results in a calculated deficit in

supply shown in 2040. Supply availability in the future will have to take into account the recalculation of the Beaumont Basin safe yield in 2024, any new estimates of safe yield from the other storage units that may be done in the future, or any change in the supplies of imported water and recycled water.

In conclusion, the City of Banning projected water supply (potable, recycled and groundwater held in storage) that is available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the Banning Distribution Center Project, in addition to the City's existing and planned future uses including agricultural and manufacturing uses.

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SECTION 4 - GROUNDWATER ANALYSIS

As discussed in Section 3, groundwater is the primary source of supply for the City of Banning, which will provide the water supply for the proposed Banning Distribution Center. SB 610 requires specific groundwater information to be included in the Assessment if groundwater will be a source of water for the proposed project.

Law

Water Code Section 10910 (f): *If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:*

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as over drafted or has projected that the basin will become over drafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

4.1 Review of Urban Water Management Plan (CWC Section 10910 (f)(1))

The *2015 Urban Water Management Plan* (UWMP), prepared by Krieger & Stewart Engineering Consultants on behalf of the City of Banning was adopted by the City Council by Resolution 2016-10 UA on June 14, 2016. The UWMP includes information relevant to the identified water supply for the proposed project and is incorporated herein (Appendix A). This information includes: current and projected water demands (*System Water Use*) through year 2040; a description of the various groundwater basins (*System Water Supplies*); the reliability of the water supply, projected supply

and demand comparisons, and water shortage plans (*Water Supply Reliability* and *Water Shortage Contingency Planning*); and water demand management efforts (*Demand Management Measures*).[1]

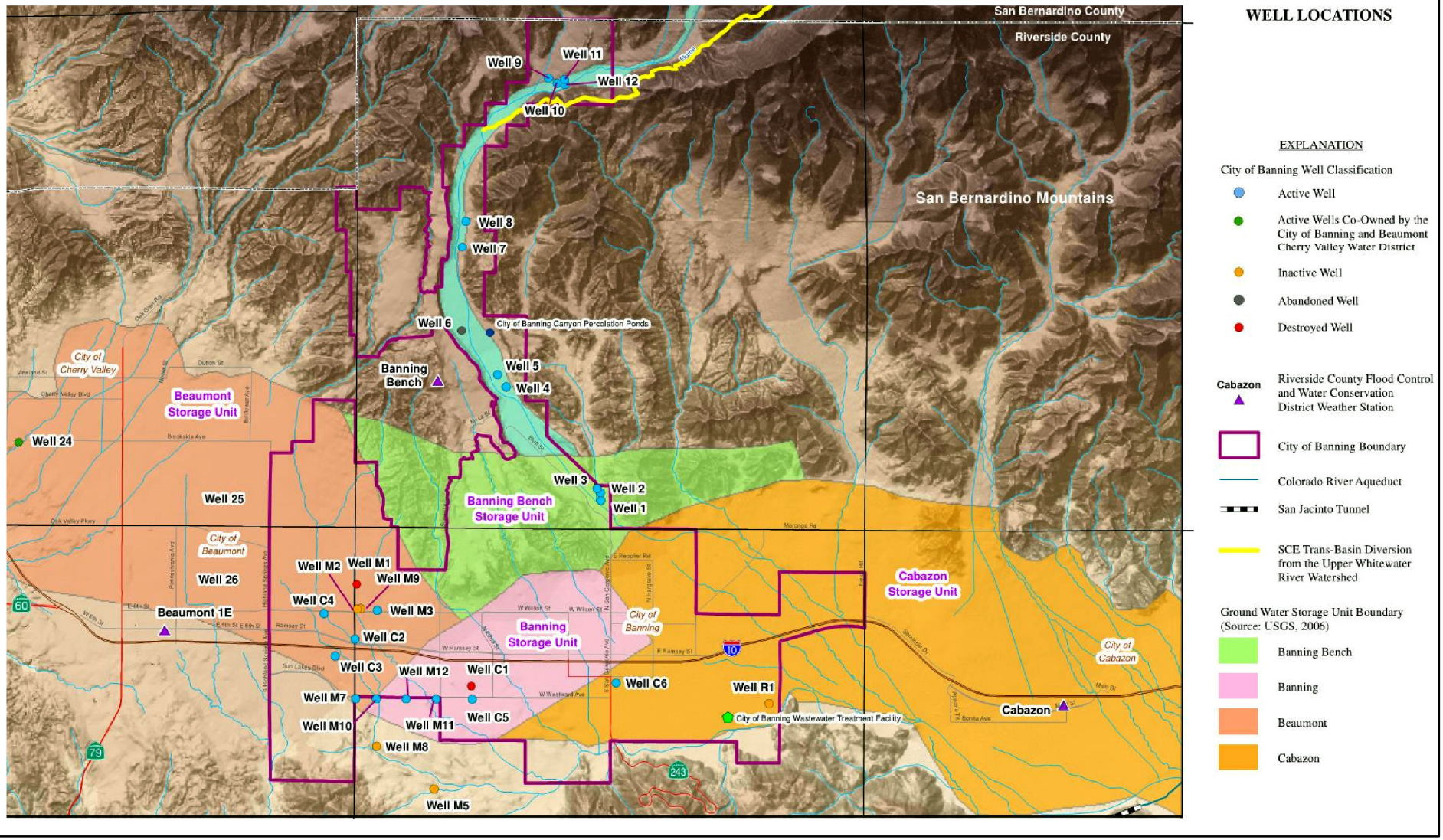
4.2 Groundwater Basin Descriptions (CWC Section 10910 (f)(2))

The City of Banning is underlain by a portion of the San Gorgonio Pass Subbasin of the greater Coachella Valley Groundwater Basin (Basin 7-021.04). The whole of the Subbasin is approximately 38,650 acres (60 square miles) in size and bounded on the north of the San Bernardino Mountains and on the south by the San Jacinto Mountains. The western boundary is defined by a surface drainage that divides the Colorado River and South Coast Hydrologic Study Areas,[2] and the eastern boundary is formed by bedrock constriction that creates a groundwater cascade into the adjacent Indio Subbasin. In 1987, the California Department of Water Resources (DWR) estimated the total storage capacity of the Subbasin at 2.2 million acre-feet (MAF) and the volume held in storage at 1.4 MAF (Bulletin 118, updated 2/27/14).[3]

The westerly half of the San Gorgonio Pass Subbasin includes five hydraulically-connected groundwater storage units (or "basins"), which constitute the City of Banning water resource area.[4] The City extracts water from wells located in the following storage units as shown on **Figure 4-1**:

- Banning Storage Unit;
- Banning Bench Storage Unit;
- Banning Canyon Storage Unit;
- Beaumont Storage Unit; and
- Cabazon Storage Unit.

[1] Words and phrases italicized parenthetically reference chapters so titled in the City's 2015 UWMP.
[2] Also defines the boundary between the Santa Ana River RWQCB and the Colorado River Basin RWQCB.
[3] Available from Bulletin 118 Update, http://water.ca.gov/groundwater/bulletin118/coloradoriver.cfm.
[4] Storage unit boundaries have been most recently been defined in the document: *Geology, Ground-Water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside County, California, Scientific Investigations Report 2006-5026* prepared by the U.S.G.S. in cooperation with SGPWA, dated 2006. Available at https://pubs.usgs.gov/sir/2006/5026/pdf/sir_2006-5026.pdf.



G:\2017\17-0122\GIS\Wells.mxd; Map created 23 Aug 2017

Source: 2010 UWMP, Geoscience Inc., May 2011

Figure 4-1 - City of Banning Well Locations

Banning Distribution Center

Not to Scale

ALBERT A. WEBB ASSOCIATES

The Beaumont, Banning Canyon and Cabazon Storage Units have active recharge activities through the use of recharge basins. Other sources of recharge include precipitation and subsurface inflow from storage unit to storage unit.

Banning Storage Unit Description

The Banning Storage Unit is approximately 2,489 acres (4 square miles) in size and underlain by alluvial sediments, with bedrock occurring to the north at the base of the San Bernardino Mountains (Appendix A, p. 5-5). According to a 2011 study by Geoscience Support Services, Inc. (provided in Appendix I), the average saturated thickness in the basin was 600 feet, with an effective porosity of 15-17%, and an estimated storage volume between 211,000 to 240,000 AF (p. 24).

The Banning Storage Unit is not adjudicated and the City is the only remaining large water user in the unit, after acquiring the Mountain Water Company. The City currently operates four groundwater production wells within the Banning Storage Unit, which have a combined nominal pumping capacity of 3,500 gallons per minute (gpm, *ibid*). One of the wells in this storage unit has an emergency generator with pumping capacity of 950 gpm (Appendix A, Table 7-1).

The safe yield of the Banning Storage Unit has been estimated by Geoscience (2011) at 1,130 acre-feet per year (AFY), using historical production data from 1992 to 2010 and groundwater elevations from 2003 to 2009 (Appendix I, Figs. 12, 13).[5] According to the 2015 UWMP, the City has assumed this safe yield rate as the projected annually available water supply from the Banning Storage Unit from 2020 to 2040 (Appendix A, Table 5-4), which are expected to be consistent regardless of any future drought conditions (Appendix A, Table 6-2). In 2015, the City pumped 527 AFY from this unit, or roughly 8% of its total groundwater production (Appendix A, Table 5-2).

[5] Production analysis of three groundwater storage units were provided in the geohydrologic study: *Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and Available Water Supply from the Beaumont Basin* prepared by Geoscience, dated March 29, 2011. Included herein as Appendix I.

Banning Bench Storage Unit Description

The Banning Bench Storage Unit is approximately 3,573 acres (6 square miles) in size with a considerably smaller estimated volume of groundwater in storage compared to the other storage units, of 1,200 AF to 1,500 AF. The average saturated thickness was estimated in 2011 to be about 30 feet with an effective porosity of 15-17%. (Appendix I, p. 24).

The City currently operates three groundwater production wells within the unit, which have a combined pumping capacity of 3,650 gpm (Appendix A, p. 5-7). Like the Banning Storage Unit, the Banning Bench Storage Unit is not adjudicated. The City and Banning Heights Mutual Water Company rely on this storage unit to serve a portion of their respective water demands. During an emergency, two of the City's wells in this storage unit have the ability to produce a combined maximum rate of 1,750 gpm without electricity using Pelton wheels (Appendix A, Table 7-1).[6]

The safe yield of the Banning Bench Storage Unit was estimated by Geoscience (2011) to be 1,960 AFY using historical production and groundwater elevation data from 1979 to 2009 (pp. 35-36). According to the 2015 UWMP, the City has assumed this safe yield rate as the projected available water supply from the Banning Storage Unit from 2020 to 2040 (Appendix A, Table 5-4), which are expected to be consistent regardless of any future drought conditions (Appendix A, Table 6-2). In 2015, the City pumped 1,208 AFY from this unit, or roughly 18% of total production (Appendix A, Table 5-2).

Banning Canyon Storage Unit Description

The Banning Canyon Storage Unit is approximately 1,058 acres (2 square miles) in size and is mostly comprised of Banning Canyon where the San Gorgonio River flows intermittently out of the San Gorgonio Mountains (Appendix A, p. 5-7). From 12,000 to 13,500 AF of groundwater is estimated in storage, with an average saturated thickness of 161 feet and effective porosity of 15-17% (Appendix I, p. 24).

[6] A Pelton wheel allows pumping to occur without electricity but instead with the pressure in the system as long as upstream wells are pumping.

Recharge also occurs within the canyon through the diversion of the Whitewater River, which began in 1913. Spreading ponds/infiltration basins have been created adjacent to the river bed to facilitate infiltration when surface flow is present. The basins are un-gauged and as such, there has been no recordation of the volume of water infiltrated (Appendix I, p. 23). After Banning Heights Mutual Water Company (BHMWC)[7] extracts their allotment of water from the Whitewater River diversion, the City can access the remainder in the groundwater.

The City currently operates eight groundwater production wells within the Banning Canyon Storage Unit, which have a combined pumping capacity of 8,600 gpm (*ibid).* Three of the wells in this storage unit have the ability to produce water in an emergency; two with Pelton wheels and one diesel engine drive (Appendix A, Table 7-1). Using the backup systems, these wells would have a pumping capacity of 1,750 gpm (*ibid)*.

The safe yield of the Banning Canyon Storage Unit has been estimated by Geoscience (2011) at 4,070 AFY using groundwater elevation and well production data from 1984 to 2000 (Appendix I, Figs. 16,17). According to the 2015 UWMP, the City has assumed this safe yield rate as the projected available water supply from the Banning Storage Unit from 2020 to 2040 (Appendix A, Table 5-4), which are expected to be consistent regardless of drought conditions (Appendix A, Table 6-2). In 2015, the City pumped 2,462 AFY from this unit, or roughly 37% of total production (Appendix A, Table 5-2).

Beaumont Storage Unit Description

The Beaumont Storage Unit (aka Beaumont Basin) is the second largest of the five storage units at approximately 12,480 acres (20 square miles). The Beaumont Basin was adjudicated by the Riverside County Superior Court in 2004 as a result of a friendly lawsuit to establish water rights and develop a storage program for the basin.

[7] Banning Heights Mutual Water Company serves 200 domestic water connections with storage and treatment facilities (www.bhmwco.com).

A copy of the Judgment is provided in Appendix E.[8] A court-appointed Watermaster Committee was established consisting of representatives from each of the five appropriators (Cities of Banning and Beaumont, BCVWD, South Mesa Water Company, and Yucaipa Valley Water District). Other stipulated users include 17 overlying users, consisting of individuals, golf courses/resorts, poultry farmers, private companies, and a church. The Watermaster carries out the provisions of the Judgment including monitoring of the basin and files an annual report on pumping and replenishment.[9]

The following is a summary description of the Beaumont Basin Judgment from Langridge et al., 2016): [10]

> *Parties to the judgment entered into agreements with the Watermaster to store 260,000 AF in the basin. The safe yield of the basin, estimated at 8,650 AFY, was distributed to overlying users who only incurred water replacement charges if they pumped more than five times their share of the safe yield over a five-year period. Allocation to the five appropriative users included any portion of the safe yield available after overlying users satisfied their needs. If they pumped more than their allotment they also had to pay to replace that water. Appropriators were allocated an additional "temporary surplus" totaling 160,000 AF from 2004-2013 to satisfy their needs, with some to be stored in the basin for future use. The temporary surplus is no longer available…*

The safe yield of the Beaumont Basin was reevaluated as required by the Judgment ten years after issuance.[11] As of April 3, 2015, the safe yield available to all parties was

[8] Beaumont Basin Judgment: *San Timoteo Watershed Management Authority v. City of Banning et al., Stipulation for Entry of Judgment Adjudicating Groundwater Rights in the Beaumont Basin, Case No. RIC 389197, Superior Court of California in and for the County of Riverside.*
[9] All Watermaster documents can be accessed on the Web site: http://www.beaumontbasinwatermaster.org/
[10] Ruth Langridge, Abigail Brown, Kirsten Rudestam and Esther Conrad, 2016, *An Evaluation of California's Adjudicated Groundwater Basins, Report for the State Water Resources Control Board.* Available at http://groundwater.ca.gov/docs/UCSC_Adjudicated_Groundwater_Basins_Report_FINAL.pdf.

determined to be 6,700 AFY, which is a 23% decrease from the original estimate of 8,650 AFY.[12] The "temporary surplus" is no longer allowed and appropriators are permitted to extract only the amount each has in storage and their proportionate share of Appropriative Water (Appendix A, p. 5-4).

The Watermaster determines on an annual basis the amount of groundwater to which each producer is entitled without incurring a replenishment obligation. The City of Banning's share of the safe yield is currently 31.43% of the Appropriative Water, which is the amount left after the Overlying Users have taken their share. For example, in 2016 the City's proportion of Appropriative Water was equivalent to 2,099.1 AF and according to Watermaster records the City pumped 1,472.7 AF in 2016 or about 70% of their allocation. For comparison, in 2015 the City pumped 80% of their allocation in the Beaumont Basin (2,097.5 AF, Appendix H, Table 3-8). Overtime, as Overlying Users increase the amount of water used, the City of Banning's share is expected to decline.

The City of Banning purchases imported water from the local wholesaler, San Gorgonio Pass Water Agency (SGPWA), for recharge of the Beaumont Basin at BCVWD's recharge facility (Appendix H, p. 3-6). In 2015, the City recharged 694 AFY of imported water at this location (Appendix A, Table 5-1). Again, the City can credit this recharge volume to its storage account for future withdrawal. Future recharge rates (and available supply from SGPWA) are estimated by the City to be 2,718 AFY based on an unsigned draft agreement with the SGPWA (*ibid*, p. 5-4).[13]

As of December 31, 2015, the total storage allowed in the Beaumont Basin stands at 280,000 AF; the City of Banning can store up to 80,000 AF (Appendix H, p. 2-7). At the end of calendar year 2016, the City had approximately 49,990.8 AF in its storage account or 62% of capacity, based on the draft 2016 Watermaster Report provided in

[11] The Beaumont Basin Watermaster Committee adopted a report entitled, "Final 2013 Reevaluation of the Beaumont Basin Safe Yield" prepared by Thomas Harder & Co. in association with Alda, Inc. on April 1, 2015 as part of Resolution No. 2015-01.
[12] Judgment (2004) defines Safe Yield as, "The maximum quantity of water which can be produced annually from a Groundwater Basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage."
[13] A copy of the draft agreement could not be obtained for this Assessment.

Appendix H (p. 3-10). The volume held in the Beaumont Basin storage account is notable because of its size and that it is not accounted for in the City's projected supplies. The City only includes in its supply projections their estimated proportion of Appropriative Water, not the actual volume that could be pumped since the City will only pump that volume which is required to meet demands. The Beaumont Basin storage account is of such size that hypothetically, it could provide enough water to meet 2015 demand (approximately 6,700 AFY) for roughly seven years.

The City currently operates five groundwater production wells in the Beaumont Basin that have a combined capacity of 4,650 gpm (Appendix A, p. 5-3). One of the wells has an emergency generator with pumping capacity of 1,000 gpm (Appendix A, Table 7-1).

The City shares equal ownership in three additional water production wells in the Beaumont Basin with Beaumont Cherry Valley Water District (BCVWD) in accordance with an agreement dated December 23, 2003 (Appendix B). The wells have a combined capacity of 6,000 gpm, of which the City is allotted half. Therefore, the City's total pumping capacity in the Beaumont Basin is 7,650 gpm (Appendix A, p. 5-3).

Cabazon Storage Unit Description

The Cabazon Storage Unit is the largest of the five storage units at approximately 17,215 acres (27 square miles). As such, the estimated volume in storage ranges from 880,000 to 1,000,000 AF, with an average saturated thickness of 350 feet and effective porosity of 15-17% (Appendix I, p. 24).[14]

The Cabazon Storage Unit is not adjudicated. The City currently operates one groundwater production well in this unit, which has a pumping capacity of 900 gpm (Appendix A, p. 5-5). This well is not yet equipped with emergency back-up features to allow production during a power outage (*ibid*, p. 7-1).

[14] Notably, the volume of storage is approximate as the depth to basin bottom was not observed in wells ranging from 500 to 1,200 feet below ground surface during the preparation of the Geoscience, 2011 report (Appendix I, p. 24).

The safe yield of the Cabazon Storage Unit has been estimated by Geoscience (2011) at 2,515 AFY using an alternate method than the other non-adjudicated storage units discussed previously. Because of limited long-term pumping and groundwater elevation data, Geoscience used a water budget approach that estimates the average annual change in storage based on all the inflow and outflow to the storage unit (1,805 AFY), which was then added to the average production from the City's well (710 AFY) (Appendix I, pp. 29, 45).

Natural recharge of the Cabazon Storage Unit is supplemented by the City of Banning with percolation ponds containing the treated effluent of the City's wastewater treatment plant (WWTP). The City plans to achieve tertiary treatment with an upgrade and expansion of the plant facilities by 2025 (p. 5-12). The City estimates that 1,680 AFY of tertiary-treated recycled water will then be made available for irrigation purposes (and offset an equal amount of potable water demand) and no longer applied to recharge the Cabazon Storage Unit (*ibid*, p. 5-6). The remaining secondary effluent, which is projected to increase with increased development, will be used for recharge purposes.

Based on the findings of the hydrogeologic study by Geoscience (2011), the City plans to more than double groundwater production in the Cabazon Storage Unit from 787 AFY pumped in 2015 to the estimated safe yield of 2,515 AFY by 2020 (Appendix A, p. 5-8). The City assumes consistent reliability at this rate of extraction through 2040 regardless of drought conditions (*ibid*, Table 6-2).

Storage Unit Summary

A summary of the groundwater produced in 2015 from each storage unit, the estimated future production levels, the forms of water right and pertinent notes for each are provided in **Table 4-1.**

Table 4-1: City Groundwater Production and Rights Summary

Storage Unit	2015 Production (AFY)	Future (AFY)	Form of Right	Notes
Banning	527	1,130	Non-adjudicated basins	Safe yield 1,130 AFY (estimated)
Banning Bench	1,208	1,960		Safe yield 1,960 AFY (estimated)
Cabazon	787	2,515		Safe yield 2,515 AFY (estimated)
Banning Canyon	2,462	4,070	Appropriative	Safe yield 4,070 AFY (estimated)
Beaumont	1,675	31.43% of unused overlying production	Appropriative	Total safe yield 6,700 AFY
Beaumont Basin Storage Account	694 (SWP water)	2,718 (SWP water)	Water order request	Actual is variable.
	47,888 AF in storage	Up to 80,000 AF can be stored	Groundwater Storage Agreement	Tracked by Watermaster, allowed per Judgment.

4.3. Historic Use of Groundwater (CWC Section 10910 (f)(3))

Banning's groundwater supply comes from their 21 (and 3 shared) active groundwater wells located throughout their service area. The annual groundwater production rate since 2000 from all groundwater storage units available to the City is listed below in **Table 4-2**.

Table 4-2: City of Banning Historic Groundwater Production

Calendar Year	Groundwater Produced (AFY)
2000	9,373
2001	9,932
2002	9,691
2003	9,992
2004	9,779
2005	9,212
2006	10,115
2007	10,226
2008	10,225
2009	9,237
2010	8,319
2011	8,454
2012	8,575
2013	8,742
2014	8,468
2015	6,659
Average	**9,187**

Notes: Data from 2000-2010 obtained from City of Banning's 2010 UWMP, Table 4-3. Data from 2011-2015 from Banning 2015 UWMP, Table 5-2 (Appendix A).

4.4. Projected Use of Groundwater by the City (CWC Section 10910 (f)(4))

The proposed Project will receive water from a combination of the City of Banning's groundwater wells. The City's projected groundwater use is dependent upon the cost of extracting, treating and transporting the water to its customers. According to the nominal capacities provided in the 2015 UWMP, the City's current well capacity is estimated at 24,300 gpm. The City of Banning's projected use of groundwater from all five storage units in the San Gorgonio Pass Subbasin is reproduced in **Table 4-3**.

Table 4-3: City of Banning Projected Groundwater Production (AFY)

Storage Unit	2020	2025	2030	2035	2040
Beaumont	840	1,645	2,372	3,162	3,643
(Estimated Proportion of Appropriative Water)	(1,266)	(1,145)	(1,029)	(925)	(925)
Banning	1,130	1,130	1,130	1,130	1,130
Banning Bench	1,960	1,960	1,960	1,960	1,960
Cabazon	2,515	2,515	2,515	2,515	2,515
Banning Canyon	4,070	4,070	4,070	4,070	4,070
Total	**10,515**	**11,320**	**12,047**	**12,837**	**13,318**

Notes: From Table 5-3, Banning 2015 UWMP located in Appendix A. Footnote to this table in UWMP states, "The City plans to pump only those quantities of water needed to meet demands" (p. 5-8).

As shown in the projections of **Table 4-3**, the City plans to increase production within the Cabazon Storage Unit, but the details are not yet known. In addition, the production rate is expected to increase in the Beaumont Basin as the City uses water from its storage account, even though the Appropriative Water is projected to decrease over time.

In addition to production from new future wells, the City of Banning will purchase additional imported water supplies when possible from SGPWA for the purpose of recharging the Beaumont Storage Unit as previously discussed. Similarly, the City plans to upgrade its wastewater treatment plant to produce higher quality effluent that can offset potable irrigation water demand. Currently, the City is preparing to start phased repairs of the Banning "water" Canyon pipeline to eliminate aging infrastructure that is prone to leaks. The pipeline will be relocated onto higher ground to make it less likely to incur damage from the San Gorgonio River and easier to maintain. To help with planning future water supply investments, the City is currently preparing an "integrated master plan" for recycled water, sewer, and potable water projects.

4.5. Sufficiency of Groundwater Basin (CWC Section 10910 (f)(5))

Non-Adjudicated Basins

The amount of water that the City of Banning expects to be available from each of the four non-adjudicated storage units (Banning, Banning Bench, Banning Canyon and Cabazon) is based on a 2011 geohydrologic study that has been accepted by the City and used for planning projections in the most recent UWMP (refer to Geoscience report in Appendix I). The study updated a prior 2009 geohydrologic study by the same firm in the same area but with additional and updated data sources including driller's logs, geophysical borehole logs, historical production data, groundwater elevation data, weather data, pumping tests, wastewater percolation data, water quality data, public and private files and personal communications with local and state agencies (Appendix I, p. 7). The City has therefore determined that the resulting estimated safe yields are the most accurate measurements of available of supplies. The City has also determined that those supplies are currently and will continue to be sufficient to meet demands up to 2040, as shown in the assumptions used in the 2015 UWMP.

Adjudicated Basin

The City of Banning's legal right to pump water in an amount not to exceed its Appropriator Production Rights, except as additional annual Production may be authorized by the provisions of the Physical Solution, is protected by the Judgment as discussed above, and buttressed by a number of programs and projects directed at ensuring the sufficiency of groundwater supplies from the Beaumont Basin. An adjudicated water right has perhaps the most substantial indicia of reliability of any water right that currently exists in California. An adjudicated right is based upon long-term studies whose purpose it is to protect the long-term functionality of the water source. These rights are coordinated in an established and binding manner with all the other users of the Basin and are overseen by the Watermaster Committee which has the authority to mandate and proscribe activities whose purpose is to protect the water source and maximize its long-term beneficial use.

The Watermaster Committee consists of representation from the five appropriators: City of Banning, City of Beaumont, SMWC, YVWD, and BCVWD. The Judgment granted the Watermaster discretionary powers to develop and implement a groundwater management plan for the basin, including water quality and quantity considerations and reflecting the provisions of the Judgment. The Watermaster responsibilities according to the Judgment include the following (summarized from Watermaster 2016 Annual Report in Appendix H, pp. 1-3 to 1-4):

- **Administration** of activities under the Rules and Regulations of the Judgment, originally adopted June 8, 2004, and subsequently amended in 2006 and 2008. The Rules and Regulations establish how the Watermaster accounts for the water resources of the Basin. Watermaster collects replenishment assessments from parties pumping in excess of their pumping right to fund its operations. Each year, Watermaster publishes an Annual Report, which documents production and recharge activities in the Beaumont Basin.
- **Approve Producer Activities** such as recharging water, transferring or exchanging water, storing local water, and storing or recovering supplemental water.
- **Maintain and Improve Water Supply** by determining on an annual basis the amount of groundwater that each producer is entitled to pump without incurring a replenishment assessment. Watermaster is responsible for facilitating and coordinating the acquisition, recharge, and storage of imported water or other local supplemental water to replenish and/or conjunctively manage the Basin to increase local supplies.
    - Supplemental replenishment water can be in the form of recycled water, imported State Water Project water, or other imported water. Replenishment can be accomplished by spreading and percolation, injection, or in-lieu use of surface water or imported water.
- **Monitor and Understand the Basin** by collecting information from producers and other cooperating agencies in order to enhance the knowledge of Basin

function to manage it more effectively. Information collected by the Watermaster includes:

- Water production, water level, and water quality information from the Appropriator Parties;
- Water production and water level information from the Overlying Parties;
- Water level and water quality data collected by local agencies as part of their Maximum Benefit and Monitoring Program[15] for the Beaumont Management Zone; and
- Ground surface elevations from surveys to determine whether ground subsidence may be occurring as a result of over-pumping from the basin.

- **Maintain and Improve Water Quality** by participating in efforts to preserve or enhance the quality of groundwater. Assists regulatory agencies to enforce water quality regulations, including the Maximum Benefit Monitoring Program of the Beaumont Management Zone.
- **Develop and Administer a Well Policy** on the proper construction and abandonment methods of wells in the Basin. The Watermaster adopted Resolution 2004-04 to set minimum standards for the construction, repair, abandonment and destruction of groundwater extraction wells in the Basin. The Resolution adopted Riverside County Ordinance No. 682.3[16] and expanded it to require the installation of a sounding tube to measure water levels on all future wells.
- **Develop and Enter into Contracts for Beneficial Programs and Services** that are beneficial to the Basin on behalf of the Parties to the Judgment. Includes

[15] As a result of the 2004 amendments to the Santa Ana Regional Water Quality Control Board's Basin Plan to incorporate updated total dissolved solids (TDS) and nitrogen management plan, the groundwater subbasin boundaries (called management zones), TDS and nitrate-nitrogen groundwater quality objectives, TDS and nitrogen wasteload allocations, reach designations, and TDS and nitrogen objectives and beneficial uses for specific surface waters were all revised. As a result, the use of recycled water in the Beaumont Management Zone would exceed the new antidegradation objectives. Therefore, maximum-benefit objectives and commitments from affected agencies were agreed upon. One of the commitments is to monitor groundwater and surface water quality for changes in the salt (TDS and nitrogen) concentrations, which is reported annually in the Maximum Benefit Monitoring Program.

[16] An ordinance of the County of Riverside regulating the construction, reconstruction, abandonment and destruction of wells, available at the Clerk of the Board Web site: http://www.rivcocob.org/ords/600/682.3.pdf.

programs for conjunctively utilizing the Basin for the storage of supplemental water, and programs for the direct and indirect use of recycled water.

- **Provide Cooperative Leadership** with other local, state, and/or federal agencies to develop and implement regional scale programs for the management of the Basin and its surrounding resources.

All Watermaster processes are governed by Rules and Regulations and receive active oversight from the Court which retains continuing jurisdiction over the administration of the Judgment. Consequently, the sufficiency of the groundwater is not only directed by rigorous Watermaster management processes, but validated and ensured by continuing Court oversight.

The efforts listed above collectively comprise a comprehensive regimen directed to ensuring and maximizing the long-term beneficial use of water in the Beaumont Basin. In particular, and specific to the location of current and future groundwater production facilities upon which Banning relies or will rely to provide water to meet all demands within its service area, efforts related to "Maintain and Improve Water Supply" and efforts related to developing "Contracts for Beneficial Programs and Services," address the sufficiency of groundwater from the Basin. Fundamentally, the goal of the Watermaster's responsibilities is to develop a regional, long range, and equitable water supply plan for producers in the Beaumont Basin that incorporates sound basin management.

The sufficiency of the City of Banning's groundwater supply is assured due to the abundance of groundwater which it overlies, Watermaster responsibilities that prioritize and assure production from the Beaumont Basin, coupled with the pursuit of expanded recycled water that enable the continued use of this abundant supply for municipal purposes.

Sufficiency of groundwater from the five storage units on which the City of Banning relies is further assured for the following reasons:

- SGPWA is a State Water Project contractor that provides imported water from the State Water Project for direct and indirect use by parties to the Judgment in the Beaumont Basin for basin recharge purposes (when supplies are available). SGPWA monitors groundwater levels twice a year over a large network of monitoring wells (currently 110 wells), as well as regular water quality monitoring of imported water supplies.

- Local compliance with the Sustainable Groundwater Management Act of 2014 (SGMA) is in progress with creation of the "San Gorgonio Pass Groundwater Sustainability Agency," that will develop a Groundwater Sustainability Plan (GSP) for all non-adjudicated parts of the San Gorgonio Pass Sub-basin that is within the SGPWA service area. Members of the new agency include SGPWA, Cabazon Water District, City of Banning and Banning Heights Mutual Water Company. The GSP must be prepared by 2022 to demonstrate, with a relatively robust level of analysis, what actions will be taken to ensure the basin will operate within its sustainable yield. The GSP will include the Banning, Banning Bench, and Banning Canyon Storage Units, and most of the Cabazon Storage Unit.

- The SGPWA 2015 UWMP analyzes the sufficiency of imported water supplies for average rain years as well as single and multiple year drought scenarios from 2015 to 2040 and concludes the Agency is expected to have adequate supplies to meet projected future needs in average and multiple-dry year scenarios. However, the Agency will need to procure additional water supplies, which are described in the UWMP and reiterated herein, to meet projected single dry year conditions.

California Water Code Section 10631(j) provides that urban water suppliers, such as the City of Banning, that rely upon a wholesale agency for a source of water may rely upon water supply information provided by the wholesale agency in fulfilling UWMP informational requirements.

SGPWA's independent analysis of regional water conditions in conjunction with DWR's most recent Delivery Capability Report, provide additional and reliable assurances concerning the sufficiency of imported water supplies that comprise a portion of overall Beaumont Basin supply sufficiency.

The City's pursuit of improved and expanded recycled water supplies described in Section 3, along with future storage and recovery projects will help drought-proof the City's groundwater resources during imported water shortages. These efforts are consistent with the goals of the Beaumont Basin Watermaster, as well as the intent of SGMA.

In conclusion, the sufficiency of groundwater supplies available to the City in the Beaumont Basin is assured because of the City's additions to their storage account and the programs overseen by the Beaumont Basin Watermaster, which are conducted under the auspices of continuing Court jurisdiction, that specifically direct and assure the long-term production of water pursuant to the City's legal rights to produce such water necessary to meet future demands.

Similarly, the sufficiency of groundwater supplies available to the City from the Cabazon, Banning, Banning Bench, and Banning Canyon Storage Units is assured because of the 2011 geohydrologic study of said storage units that was commissioned by the City. The study calculated the safe yields of each based on the most current information available at the time (see Appendix I). These results in combination with the City's efforts and that of other participating parties to maintain the diversion of Whitewater River into Banning Canyon, the City's pursuit of expanded recycled water supplies and increased groundwater production in the Cabazon basin, as well as the City's focus on capturing stormwater runoff as part of new development proposals will help to meet the City's anticipated water demands.

SECTION 5 - PRIMARY ISSUE FOR ASSESSMENT

As cited below, the lead agency, "…shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy demands of the project, in addition to existing and planned future uses." The lead agency is expected to approve or disapprove the project based on a number of factors, including but not limited to the Water Supply Assessment.

Law

> Water Code Section 10910(g)(1): *Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.*
>
> Water Code Section 10911(b): *The city or county shall include the water assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision 9a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.*
>
> *(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.*

The lead agency is expected to review the Assessment and decide whether additional water supply information is needed for its consideration of the proposed project.

5.1 Findings

Whereas:

1. The City of Banning has been identified as the water supplier for the Banning Distribution Center ("Project").
2. The projected total water demand for the Project is 47 acre-feet per year (AFY).
3. The water demand for the Project was included in the "2015 Urban Water Management Plan" dated May 2016, which was adopted by the City of Banning Utility Authority by Resolution 2016-10 UA on June 14, 2016.
4. The City of Banning's water supply capacity from City wells, as of 2015, was 24,300 gallons per minute (gpm). Supplies are obtained from five hydraulically-connected storage units of the San Gorgonio Pass Groundwater Sub-basin: Banning, Banning Bench, Banning Canyon, Cabazon, and Beaumont Storage Units.
5. The City has estimated build-out of the General Plan to occur beyond the 20-year planning horizon required for this Assessment.
6. As of 2015, the City of Banning's combined potable and non-potable water demand was 6,709 AFY. The City estimates an increase of potable and non-potable water demand to 13,628 AFY by 2040. In addition, the City anticipates the development of tertiary-level recycled water by 2025 in the amount of 1,680 AFY to offset potable water currently used for landscape irrigation.
7. The City of Banning has Appropriative Water Rights in the Beaumont Storage Unit, and documented entitlement to water within the Banning Canyon Storage Unit. The Cabazon, Banning, and Banning Bench Storage Units are not adjudicated. The City purchases imported State Water Project water from San Gorgonio Pass Water Agency for recharge of the Beaumont Storage Unit pursuant to the stipulations of the Groundwater Storage Agreement with the Watermaster.

8. The City of Banning maintains a storage account in the Beaumont Storage Unit, currently estimated by the Beaumont Basin Watermaster at 49,990.8 AF, pursuant to the stipulations of the adjudication. The City has not included this storage account in their supply projections provided in the 2015 UWMP.

Considering the aforementioned facts, the total projected water supplies available to the City of Banning during normal, single dry, and multiple dry water years during a 20-year projection are therefore sufficient to meet the projected water demand associated with the proposed Project, in addition to the City's existing and planned future uses, including agricultural and manufacturing uses, as described in Chapter 6 of the City's 2015 Urban Water Management Plan (Appendix A).

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City of Banning

2015 Urban Water Management Plan

FINAL



Prepared By:
Krieger & Stewart
Engineering Consultants

May 2016

Proud History
Prosperous Tomorrow

(951) 922-3130

POST OFFICE BOX 998
BANNING, CALIFORNIA 92220

99 EAST RAMSEY STREET
BANNING, CALIFORNIA 92220

CITY OF BANNING
FINAL 2015 URBAN WATER MANAGEMENT PLAN

MAY 2016

Prepared by

KRIEGER & STEWART
Engineering Consultants

3602 University Avenue
Riverside, California 92501
(951) 684-6900

For Submission To
CALIFORNIA DEPARTMENT OF WATER RESOURCES
OFFICE OF WATER USE EFFICIENCY
1416 NINTH STREET
SACRAMENTO, CA 94236-0001

SIGNATURE _____

DATE 5/26/2016

1036-1
DFS/VEM/lge
1036-1-UWMP2015

CITY OF BANNING
Banning, California

2015 URBAN WATER MANAGEMENT PLAN
CONTACT SHEET

Date plan submitted to the Department of Water Resources:	**June 21, 2016**
City of Banning City Manager:	**Michael Rock**
Names of plan preparers:	**David F. Scriven** **Victoria E. Morrell** **Krieger & Stewart, Incorporated** **City of Banning Consulting Engineer**
Phone:	**(951) 684-6900**
Fax:	**(951) 684-6986**
E-mail addresses:	**dscriven@kriegerandstewart.com** **vmorrell@kriegerandstewart.com**
The Water supplier is a:	**City**
The Water supplier is a:	**Retailer**
Utility services provided by the water supplier include:	**Domestic and municipal water service and sanitary sewage collection and treatment**
Is This Agency a Bureau of Reclamation Contractor?	**No**
Is This Agency a State Water Project Contractor?	**No**

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CHAPTER 1

INTRODUCTION AND OVERVIEW

CHAPTER 1
INTRODUCTION AND OVERVIEW

1.1 BASIS FOR PREPARING AN URBAN WATER MANAGEMENT PLAN

> *Water Code*
>
> **10617.** "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually…
>
> **10621.** (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).
>
> (d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

The City of Banning (City) has prepared this 2015 Urban Water Management Plan in accordance with the Urban Water Management Planning Act (UWMP Act), as set forth in Part 2.6 of Division 6 of the California Water Code, and the Water Conservation Act of 2009, as set forth in Part 2.55 of Division 6 of the California Water Code. The City serves greater than 3,000 active water service connections and supplies more than 3,000 acre-feet (AF) of water per year, and therefore meets the definition of an urban water supplier pursuant to California Water Code (CWC) Section 10617, cited above. As an urban water supplier, the City is required to prepare and adopt an Urban Water Management Plan (UWMP or Plan) every five years and to submit same to the California Department of Water Resources (DWR). Copies of the applicable sections of the CWC are included in **Appendix A** herein.

The City operates a public water system (PWS), as defined in California Health and Safety Code Section 116275(h), which defines a PWS as "a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year." PWSs are regulated by the State Water Resources Control Board, Division of Drinking Water. An urban water supplier may operate one or more PWS. The City operates a single PWS, which currently serves a population of approximately 30,500 people through about 10,650 water service connections.

1.2 URBAN WATER MANAGEMENT PLAN DEVELOPMENT

Water Code

10620. (d)(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

10621. (b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

10635. (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon…

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

1.2.1 Plan Organization and Development

This Urban Water Management Plan (UWMP) has been developed in compliance with the California Water Code (CWC), as cited in **Section 1.1** herein, and in accordance with guidance documents issued by the California Department of Water Resources (DWR).

This UWMP generally follows the format recommended by DWR's *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers*, dated March 2016. The standardized tables required for 2015 UWMPs have been completed and are included in **Appendix B** herein. In order to assist DWR in its review of this UWMP, a checklist citing the document location of required information is included in **Appendix C** herein.

1.2.2 Public Participation

The City is a retail water supplier and, since its first UWMP was developed in 1985, has actively encouraged community participation in its urban water management planning efforts by holding public hearings and making draft UWMPs available for public review and comment prior to adoption.

On May 24, 2016, the City held a public hearing to discuss and receive comments on its Draft 2015 Urban Water Management Plan. Copies of the Draft were made available at the City Clerk's office during regular business hours and online at www.ci.banning.ca.us/draft2015uwmp for public review approximately 30 days prior to the public hearing. All comments received prior to and during the public hearing were taken into consideration during preparation of the Final 2015 UWMP. Copies of the comments received on the Draft 2015 UWMP, and the City's responses thereto, are included in **Appendix D** herein.

Prior to the public hearing on the Draft 2015 UWMP, and in accordance with CWC Section 10642 and California Government Code Section 6066, the City published notice of the date, time, and location of the public hearing in The Press-Enterprise on April 18, 2016 and April 25, 2016. Copies of these published notices are included in **Appendix D** herein. A copy of the Final 2015 UWMP is available for public review at the City Clerk's office during regular business hours and is also available online at www.ci.banning.ca.us/2015uwmp.

1.2.3 Agency Coordination

City staff coordinated the development of this Plan with local water agencies and other interested parties. On February 23, 2016, the City provided a written 60-day notice to cities, counties, and other entities, as specified in **Table 1-1** below. The 60-day notice satisfies the requirements set forth in CWC Section 10621(b), which requires that an urban water supplier, at least 60 days prior to the public hearing on its 2015 UWMP, notify any city or county within which the water supplier provides water, that the water

supplier is reviewing and considering changes or amendments to its UWMP. Copies of the 60-day notices are included in **Appendix D**.

Copies of comments received on the Draft 2015 UWMP are also included in **Appendix D** herein and were considered during preparation of the final 2015 UWMP.

TABLE 1-1
COORDINATION WITH APPROPRIATE AGENCIES

Entities	Coordination and Public Involvement Actions					
	Commented on Draft	Attended Public Meeting	Was Sent a Copy of the Draft Plan[1]	Was Sent 60-Day Notice	Was Provided Notice of Public Hearing	Was Sent a Copy of the Final Plan
San Gorgonio Pass Water Agency				×	×	×
Beaumont Cherry Valley Water District				×	×	×
Beaumont Basin Watermaster				×	×	×
City of Beaumont				×	×	×
Yucaipa Valley Water District				×	×	×
High Valleys Water District				×	×	×
County of Riverside Planning Department				×	×	×
Various Developers	×			×	×	×
Building Industry Association of Southern California				×	×	×
Cabazon Water District				×	×	×
Morongo Band of Mission Indians				×	×	×
Banning Heights Mutual Water Company				×	×	×
South Mesa Water Company				×	×	×
General Public [1]	×	×	×		×	×
California Department of Water Resources						×
California State Library						×

[1] Documents were made available to the public through notices published in the newspaper and copies of documents made available online and at the City Clerk's office for public review.

1.3 UWMP ADOPTION, SUBMITTAL, AND IMPLEMENTATION

1.3.1 Plan Adoption and Submittal

The City prepared this UWMP in 2015 and 2016. The Plan was adopted by the City Council on June 14, 2016, and was submitted to the California Department of Water Resources (DWR) and the California State Library on June 21, 2016. A copy of the City's Resolution Adopting the 2015 UWMP is included in **Appendix E** herein.

Final copies of this UWMP, as well as any adopted amendments, are available for public review at the City Clerk's office during normal business hours and online at www.ci.banning.ca.us/2015uwmp.

This Plan includes all information necessary to meet the requirements of the UWMP Act (UWMP Act), as set forth in Part 2.6 of Division 6 of the California Water Code, and the Water Conservation Act of 2009, as set forth in Part 2.55 of Division 6 of the California Water Code. The Water Conservation Act of 2009 is also referred to as 20X2020 or SB X7-7.

In addition to the UWMP Act and the Water Conservation Act of 2009, the City, in preparing this Plan, referenced guidance available from DWR, including that set forth in the document titled *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers*, prepared by DWR, dated March 2016, and referred to herein as the DWR Guidebook.

1.3.2 Plan Implementation

To facilitate effective and efficient management of water supplies, and in compliance with the UWMP Act and the Water Conservation Act of 2009, the City has prepared this 2015 UWMP. This UWMP includes background information regarding groundwater supply and historic water use within the City's service area, as well as water management tools and options that will enable the City and its residents to maximize efficient use of available water resources, reduce per capita water use, and decrease the potential future need to import water from other regions. This 2015 UWMP will be implemented as set

forth herein. Since UWMPs are due for revision every five years, this UWMP is projected to be in effect until the year end 2020, at which time the City's 2020 UWMP will be developed and adopted.

CHAPTER 2

SYSTEM DESCRIPTION

CHAPTER 2
SYSTEM DESCRIPTION

Water Code

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:
(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

2.1 CITY OF BANNING

The City of Banning was incorporated on February 6, 1913. The City currently comprises a total land area of approximately 23.2 square miles (14,848 acres) in northern Riverside County, approximately 25 miles east of downtown Riverside and approximately 30 miles west of the City of Palm Springs. The City of Banning is bounded by the City of Beaumont on the west and the Morongo Band of Mission Indians on the east. The unincorporated community of Cabazon lies approximately 1-1/2 miles to the east.

The Banning Water Company was incorporated in 1884 to provide delivery of domestic and irrigation water to various local customers. In 1913, the Banning Water Company began operating as a public utility, and, in 1967, the City of Banning acquired the Banning Water Company. Later, in 1997, the City purchased the Mountain Water Company, which had supplied water to its customers from groundwater wells located within the City of Banning in an unincorporated portion of the County of Riverside. The City's water system is currently part of the City of Banning Public Works Department and Water Division.

2.2 WATER SERVICE AREA

The City, through its Public Works Department and Water Division, provides municipal water to its service area, which includes the area within the City's boundary as well as some unincorporated areas of Riverside County. The City of Banning's Water Service Area comprises approximately 16,908 acres and is depicted on **Figure 1** herein.

2.3 COOPERATIVE AGREEMENTS WITH LOCAL AGENCIES

The City participates in the following cooperative agreements pertaining to water:

- The City of Banning and Beaumont-Cherry Valley Water District jointly own and operate three groundwater wells in accordance with an agreement between the two parties, dated December 23, 2003.

- The City of Banning is party to an agreement with Banning Heights Mutual Water Company and Southern California Edison for restoration of the Flume.

- The City of Banning purchases State Water Project water from the San Gorgonio Pass Water Agency. The City uses said water for groundwater recharge in the Beaumont Basin.

- The City of Banning participates in the Beaumont Management Zone (BMZ) Maximum Benefits Program, which is under the oversight of the Santa Ana Regional Water Quality Control Board (RWQCB) and is intended to ensure the long-term sustainability of water quality in the BMZ. Yucaipa Valley Water District, Beaumont-Cherry Valley Water District, and City of Beaumont are also participants in the program.

- City of Banning is a member of the San Gorgonio Pass Regional Water Alliance (Alliance), which was created on November 6, 2012 by action of the Riverside County Board of Supervisors. The Alliance was created to identify challenges in water supply and water quality in the region and to improve coordination, collaboration, and communication among local, state, and federal governments and water purveyors and other water resource stakeholders in the San Gorgonio Pass region.

- The City is currently working with other water agencies that overly the San Gorgonio Pass Subbasin to develop a cooperative agreement to manage the subbasin in accordance with the Sustainable Groundwater Management Act (SGMA). The other agencies involved include Desert Water Agency, Mission Springs Water District, High Valleys

Water District, Morongo Band of Mission Indians, San Gorgonio Pass Water Agency, and Banning Heights Mutual Water Company.

2.4 SERVICE AREA CLIMATE

The City is located within the San Gorgonio Pass, which experiences climate characterized by hot, dry summers and short, mild winters. The area receives an average annual precipitation of approximately 19.7 inches, most of which takes place between December and March. Evapotranspiration (ETo) in the area ranges from 7.88 inches in July to 1.94 inches in December.

Monthly average maximum and minimum temperatures, monthly average precipitation, and monthly average evaporation for the area are set forth in **Table 2-1** below. Copies of the printed data sources are included in **Appendix F** herein.

TABLE 2-1
CLIMATE

Month	Average Precipitation (inches) [1]	Average Maximum Temperature (°F) [1]	Average Minimum Temperature (°F) [1]	Standard Monthly Average ETo (inches) [2]
Jan	4.52	60.3	38.4	2.28
Feb	3.80	63.1	38.8	2.61
Mar	3.32	65.8	39.9	4.20
Apr	1.44	71.9	42.7	4.98
May	0.55	78.6	47.5	6.68
Jun	0.14	87.5	52.2	7.17
Jul	0.23	95.5	58.2	7.88
Aug	0.27	95.0	58.8	7.55
Sep	0.51	90.1	55.5	6.09
Oct	0.65	80.1	49.1	4.12
Nov	1.82	69.0	42.9	2.64
Dec	2.46	61.7	39.2	1.94
Annual	**19.71**	**76.6**	**46.9**	**58.14**

[1] Average rainfall data and average temperature data were obtained from the Western Regional Climate Center website at http://www.wrcc.dri.edu/ for the Beaumont #2 Station (040609) for the period of record 08/01/1939 to 1/20/2015.

[2] ETo data was obtained from the California Irrigation Management Information System (CIMIS) website at http://www.cimis.water.ca.gov/ for the Hemet Station (Station 239).

2.5 SERVICE AREA POPULATION

The City currently serves a population of approximately 30,500 people through approximately 10,650 water service connections. Population within the City's service area increased to its current level from approximately 28,250 in 2005. Based on development currently proposed within the City's water service area (as summarized in Section 2.6 herein), approximately 8,285 new dwelling units are anticipated to be added to the City's service area by 2040.

Data obtained from the Southern California Association of Governments (SCAG), estimates that the City's population is anticipated to reach approximately 37,700 people by 2040. This number does not appear to account for the proposed development within the City's service area; therefore, population estimates are based on the proposed additional dwelling units and an estimate of 3.12 persons per dwelling unit. Estimated current and projected population for the City's water service area is set forth in **Table 2-2**.

TABLE 2-2
POPULATION - CURRENT AND PROJECTED

	2015[1]	2020[2]	2025[2]	2030[2]	2035[2]	2040
Population within the City's Water Service Area (without proposed specific plan developments)	30,491	31,913	33,335	34,757	36,179	37,700 [3]
Population within the City's Water Service Area (with proposed specific plan developments)	30,491	35,730	40,969	46,207	51,446	56,685 [4]

(1) Data obtained from the California Department of Finance document *E-1 Population Estimates for Cities, Counties, and the State with Annual Percentage Change—January 1, 2014 and 2015*. Sacramento CA, May 2015

(2) Population numbers based on a linear projection from 2015 through 2040

(3) Data obtained from the Southern California Association of Governments (SCAG) document *Draft Program Environmental Impact Report for the 2016 Regional Transportation Plan / Sustainable Communities Strategy*, Sapphos Environmental, Inc., November 24, 2015

(4) Based on SCAG data with the addition of approximately 8,285 connections between 2015 and 2040 and a factor of 3.12 persons per connection to account for the anticipated population increase resulting from two proposed specific plan developments in the City's service area, which are described in **Section 2.6** herein.

2.6 ANTICIPATED FUTURE DEVELOPMENT

Currently, there are two significant developments planned within the City's water service area, as described below. Final subdivision maps prepared for the two projects will comply with the provisions of California Government Code Section 66473.7.

2.6.1 Butterfield Ranch

The Butterfield Ranch Specific Plan (Butterfield Ranch) is a master planned community project that encompasses 1,543 acres and includes approximately 4,900 residential dwelling units, two elementary schools, two commercial sites, a golf course with clubhouse, and community parks and trails. The project would be constructed in five phases over an estimated period of 30 years.

A project-specific water supply assessment (WSA), titled *Water Supply Assessment for Butterfield Specific Plan, Issued June 2011 with the Draft EIR, Modified December 2011 by Section 4.1 of the Final EIR*, was prepared to determine the adequacy of existing and future water supplies available to serve the project. Projected water demand associated with Butterfield Ranch is included in the "Proposed Specific Plan Developments" column in **Table 3-1** herein.

The Environmental Impact Report (EIR) for Butterfield Ranch, which includes an analysis of water supply supported by the project-specific WSA cited above, has been approved by the City Council of the City of Banning.

2.6.2 Rancho San Gorgonio

The Rancho San Gorgonio Specific Plan (Rancho San Gorgonio) is a master planned community project that encompasses approximately 831 acres and includes up to 3,385 residential dwelling units, almost 49 acres of neighborhood and community parks, over 160 acres of paseos and open space, and approximately 81 acres of right-of-way and utility easements. The project is anticipated to be constructed in six phases over a period of 18 years. This period is likely to be extended due to varying economic factors.

A project-specific WSA was prepared for Rancho San Gorgonio, titled *Water Supply Assessment Rancho San Gorgonio Specific Plan*, by Madole & Associates, Inc. and Encompass Associates, Inc., dated September 30, 2015. Projected water demand associated with Rancho San Gorgonio is included in the "Proposed Specific Plan Developments" column in **Table 3-1** herein.

The Draft EIR for Rancho San Gorgonio is currently being finalized, and said EIR analyzes water supply supported by the project-specific WSA cited above.

CHAPTER 3

SYSTEM WATER USE

CHAPTER 3
SYSTEM WATER USE

3.1 WATER USES BY SECTOR

Water Code

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(e)(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Intuitional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.
(J) Distribution system water loss.

(2) The water use projections shall be in the same five year increments described in subdivision (a).

The City currently provides water service to a population of approximately 30,491 through approximately 10,648 service connections. The City of Banning categorizes its water users into the following five categories: Residential, Commercial, Industrial, Public, and Irrigation. The City also provides water to the Banning Heights Mutual Water Company and High Valleys Water District. Other water uses include fire protection, construction use, and groundwater recharge.

Table 3-1 is arranged by customer type and shows current and projected numbers of customer connections and quantities of water delivered. All of the City's water service connections are metered. **Table 3-2** lists system water losses and quantities of water provided to other agencies, and **Table 3-3** shows the City's total water use for 2015 through 2040 as the sum of **Table 3-1** and estimated system water losses.

TABLE 3-1 CURRENT AND PROJECTED WATER DELIVERIES (AF/YR)[1]								
Year	Water Use Sectors	Residential[3]	Commercial	Industrial	Public	Irrigation[4]	Proposed Specific Plan Developments[3,5]	Total
2015 [2]	# of Accounts	9,787	742	63	46	10	0	10,648
	Deliveries	3,395	1,705	92	53	726	0	5,971
2020	# of Accounts	10,257	778	66	48	10	1,423	12,582
	Deliveries	4,482	2,281	94	63	944	1,609	9,473
2025	# of Accounts	10,714	812	69	50	11	3,086	14,692
	Deliveries	4,683	2,382	99	66	986	1,983	10,198
2030	# of Accounts	11,171	847	72	52	11	5,995	18,101
	Deliveries	4,882	2,484	103	69	1,028	2,288	10,853
2035	# of Accounts	11,627	882	75	54	12	7,305	19,955
	Deliveries	5,082	2,586	107	71	1,070	2,649	11,565
2040	# of Accounts	12,116	919	78	57	12	8,285	21,467
	Deliveries	5,295	2,694	111	74	1,115	2,988	12,278

(1) Deliveries projected for 2020, 2025, 2030, 2035, and 2040 are based on projected population estimates based on SCAG data (refer to **Table 2-2** in **Chapter 2** herein) and a demand factor of 220 gpcd. Deliveries for proposed specific plan developments are based on projected water demands set forth in the documents, *Water Supply Assessment for Butterfield Specific Plan, Issued June 2011 with the Draft EIR and Modified December 2011 by Section 4.1 of the Final EIR* and *Water Supply Assessment Rancho San Gorgonio Specific Plan*, dated September 30, 2015.

(2) Numbers of accounts and deliveries for 2015 are based on City records for calendar year 2015.

(3) Includes accounts and deliveries for lower-income households (refer also to **Section 3.3** herein).

(4) Includes quantities of non-potable water from Well M7 provided for irrigation (approximately 200 AF/year).

(5) Projections of numbers of accounts and water deliveries are based on the water supply assessment documents cited in note (1) above.

TABLE 3-2 ADDITIONAL WATER USES AND LOSSES (AF/YR)						
Water Use	2015[1]	2020	2025	2030	2035	2040
Water Provided to Other Agencies[2]	95	104	109	113	119	124
System Water Losses[3]	738	1,042	1,122	1,194	1,272	1,351
Total	833	1,146	1,231	1,307	1,391	1,475

(1) Quantities for 2015 are based on the City's records.

(2) Quantities of water provided to other water suppliers (i.e. High Valleys Water District and Banning Heights Mutual Water Company), assuming a 1% growth rate per year. These quantities are included in the residential sector deliveries in **Table 3-1**.

(3) System water losses are based on the water audit report prepared for the City for the 2015 calendar year and are consistent with the City's estimated water losses for 2015. For the purposes of this UWMP, it is assumed that the percentage of water lost (11%) will remain consistent over the next 25 years.

TABLE 3-3 TOTAL WATER USE (AF/YR)						
Water Distributed	2015	2020	2025	2030	2035	2040
Table 3-1 + System Water Losses	6,709	10,515	11,320	12,047	12,837	13,629

3.1.1 Residential Sector

The City's residential sector includes single family residences, condominiums, apartments, and mobile homes. Water use in this sector typically includes indoor uses (such as bathing, laundry, drinking, cooking, and sanitation) and outdoor uses, such as landscape irrigation, car washing, swimming pools, and hardscape cleaning. Rural residences may also include livestock watering. Residential water use accounts for approximately 57% of the City's water use. The residential sector is expected to expand with new specific plan developments, as described in **Section 2.6** herein.

3.1.2 Commercial Sector

The City has a complex mix of commercial customers, ranging from family restaurants, insurance offices, and gas stations to shopping centers, high-volume restaurants, golf courses, and other facilities serving the local population and visitors. Commercial sector water use accounts for approximately 29% of the City's water use. The City's commercial sector is expected to grow to accommodate growth in the City's residential sector.

3.1.3 Industrial Sector

The City's industrial sector has historically been divided between airport-industrial related uses and traditional industrial uses, ranging from storage to heavy manufacturing. Industrial development has been an important source of employment in the City. Industrial sector water use accounts for approximately 1.5% of the City's water use.

3.1.4 Public Sector

The City's public sector includes governmental institutions, such as City Hall, fire and police facilities, hospitals, railroads, schools, the airport, the courthouse, and interstate highways. This sector also includes cemeteries, which are non-governmental institutions. The public sector is expected to expand as the City's population grows. Currently, public sector water use accounts for approximately 1% of the City's water use.

3.1.5 Irrigation

Currently, the City has ten landscape connections. Landscape demand is currently served by potable water, with the exception of the non-potable groundwater served to Sun Lakes Golf Course for irrigation use. Significant increases in landscape sector potable demand are not anticipated and future increases in landscape demand may be offset by future recycled water use. Currently, irrigation water use accounts for approximately 12% of the City's water use.

3.1.6 Agriculture

The only agriculture currently within the City of Banning is animal husbandry, and these uses are served under the residential sector. The City does not expect other agricultural activities to develop within its water service area, and land previously designated for agricultural purposes with a slope of 25% or greater is expected to be set aside for hillside preservation.

3.2 DISTRIBUTION SYSTEM WATER LOSSES

Water Code

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(e)(3)(A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(e)(3)(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

Beginning with the 2015 UWMP, water suppliers are required to report their distribution system water losses based on a methodology and quantification worksheet developed by the American Water Works Association (AWWA). In future UWMPs, this distribution system water loss will be included for each of the five years preceding the UWMP.

Based on the AWWA methodology and worksheet, the City's distribution system water loss was approximately 738.4 acre-feet for 2015. A copy of Banning's water audit report for the 2015 calendar year is included in **Appendix G** herein. The 2015 water loss determined based on the AWWA methodology and worksheet is consistent with the 2015 water loss measured by the City.

3.3 WATER USE FOR LOWER INCOME HOUSEHOLDS

> ***Water Code***
>
> **10631.1.** (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

In accordance with CWC Section 10631.1, this UWMP includes projected water use for residential housing needed for lower income households. "Lower income household" is defined in California Health and Safety Code Section 50079.5 as persons and families whose income does not exceed the qualifying limits for lower income families as established and amended from time to time pursuant to Section 8 of the United States Housing Act of 1937.

Based on U.S. Census Bureau data from the 2009-2013 American Community Survey 5-Year Estimates and the state income limits for Riverside County published by the California Department of Housing and Community Development, approximately 62 percent of the City's population are defined as lower income. Therefore, approximately 62 percent of water needed for residential uses is needed for lower income households.

The City has a civic and legal responsibility to provide for the water-related health and safety of the community. One of the City's objectives is to provide its customers with an adequate and reliable supply of high-quality water to meet present and future needs in an environmentally and economically responsible manner. Water use priority does not differ based on income level, but is classified by the type of use.

Residential sector water use projections included in **Table 3-1** herein include all residential accounts, regardless of income level, and residential accounts are not subdivided into income-specific categories. The City does not offer decreased water rates for lower income households, as rates are based on the cost of providing water service. The City does not give priority to one residential area over another; therefore, all residential customers are served equally, including during water shortage emergencies, in terms of service and delivery. The City does not deny water service to non-delinquent accounts.

CHAPTER 4

BASELINES AND TARGETS

CHAPTER 4
BASELINES AND TARGETS

Water Code

10608.20. (e) An urban retail water supplier shall include in its urban water management plan…due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

4.1 BASE DAILY PER CAPITA WATER USE (BASELINE)

***Water** Code*

10608.12. (b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010.

Base daily per capita water use (also referred to herein as baseline) is defined as set forth in Water Code Section 10608.12(b)(1). The City's baseline was determined in its 2010 UWMP, as modified by an addendum adopted by the City on December 11, 2012. The baseline is summarized herein and remains the same for this 2015 UWMP. The City's baseline was determined in accordance with methodologies developed by the California Department of Water Resources (DWR), pursuant to Water Code Section 10608.20(h)(1), that are set forth in the document, *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*, dated October 1, 2010, referred to herein as DWR's *Methodologies*.

A revised version of the *Methodologies* document, titled *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Final Draft*, dated February 2016, has been made available by DWR; however, the requirements for determining the baseline and the urban water use targets have not changed since the time that the 2010 UWMP was prepared.

Pursuant to DWR's *Methodologies*, calculating baseline water use involves four steps:

1. Estimate service area population for each year in the base period.
2. Calculate gross water use for each year in the base period, and express gross water use in gallons per day.
3. Divide gross water use by service area population for each year in the base period to calculate daily per capita water use.
4. Calculate the average per capita water use by summing the values calculated in step 3 above and dividing by the number of years in the base period. The result is the baseline.

The City had selected the ten-year base period of January 1, 2001 through December 31, 2010. The City's water use in acre-feet per year (AF/yr) is based on the City's water production records. Using this data, the City's baseline was determined to be 315 gallons per capita per day (GPCD), calculated as shown in **Table 4-1**.

TABLE 4-1
CITY OF BANNING BASE DAILY PER CAPITA WATER USE

Year	Estimated Service Area Population [1]	Gross Water Use		
		AF/yr [2]	MGD [3]	GPCD [4]
2001	24,639	10,032	8.95	363
2002	25,662	9,808	8.75	341
2003	27,608	10,043	8.96	324
2004	28,055	10,424	9.30	332
2005	28,250	9,427	8.41	298
2006	28,234	10,245	9.14	324
2007	28,193	10,245	9.14	324
2008	28,551	9,606	8.57	300
2009	28,751	9,259	8.26	287
2010	29,603	8,485	7.57	256
Baseline *(Average of Gross Water Use for 2001-2010)*				***315***

[1] Population values were obtained from the California Department of Finance, Table E-5.
[2] Acre-feet per year, based on the City's water production records
[3] Million gallons per day
[4] Gallons per capita per day

4.2. URBAN WATER USE TARGET

In accordance with CWC Section 10608.20(g), an urban retail water supplier may update its 2020 water use target in its 2015 UWMP and may make this update using a different target method than was used in 2010. City of Banning has elected not to update its urban water use target; therefore, the urban water use target and interim urban water use target described herein are the same as those set forth in Banning's 2010 UWMP.

The urban water use target is determined based on one of the four available methods described in Water Code Section 10608.20(b). Banning's urban water use target was determined during preparation of its 2010 UWMP and the City selected DWR's Method 1 for determining its urban water use target. Method 1 is set forth in CWC Section 10605.20(b)(1) and provides for an urban water use target of "eighty percent of the urban retail water supplier's baseline per capita daily water use".

Using Method 1, the City's urban water use target is equal to 80% of its baseline; therefore, City of Banning's urban water use target is 252 GPCD.

4.3. MINIMUM WATER USE REDUCTION REQUIREMENT

Water Code

10608.12. (b) "Base daily per capita water use" means any of the following:
(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use…

In accordance with DWR's *Methodologies*, a five-year baseline was calculated to determine whether the urban water use target meets the minimum water use reduction requirement pursuant to Water Code Section 10608.22. These calculations have not changed during preparation of this UWMP, and they are the same as those included in Banning's 2010 UWMP.

The following two steps were used to determine the minimum water use reduction requirement:

1. Calculate baseline water use using a continuous five-year period ending no earlier than December 31, 2007 and no later than December 31, 2010.

2. Multiply the result from the first Step by 0.95. The 2020 urban water use target cannot exceed this value. If the urban water use target is greater than this value, reduce the target to this value.

The City selected a five-year base period of January 1, 2006 through December 31, 2010. The City's five-year baseline water use was calculated as shown in **Table 4-2**.

TABLE 4-2
CITY OF BANNING FIVE-YEAR BASELINE WATER USE

Year	Estimated Service Area Population [1]	Gross Water Use		
		AF/yr [2]	MGD [3]	GPCD [4]
2006	28,234	10,245	9.14	324
2007	28,193	10,245	9.14	324
2008	28,551	9,606	8.57	300
2009	28,751	9,259	8.26	287
2010	29,603	8,485	7.57	256
Five-Year Baseline *(Average of Gross Water Use for 2005-2009)*				***298***

(1) Population values were obtained from the California Department of Finance, Table E-5
(2) Acre-feet per year, based on the City's water production records
(3) Million gallons per day
(4) Gallons per capita per day

The calculation in **Table 4-2** above yields a five-year baseline water use of 256 GPCD. In accordance with step 2 above, multiplying the five-year baseline by 0.95 yields a value of 283 GPCD.

Pursuant to Water Code Section 10608.22, "…an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12". The City's urban water use target is 252 GPCD, which is less than the 283 GPCD result described above, and therefore meets the minimum water use reduction requirement set forth in Water Code Section 10608.22.

4.4. INTERIM URBAN WATER USE TARGET

> *Water Code*
>
> **10608.12.** (j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

The interim urban water use target is defined in Water Code Section 10608.12(j) and is the midpoint between an urban retail water supplier's baseline and its urban water use target for 2020. Urban retail water suppliers who meet their interim urban water use target by December 31, 2015 are generally considered to be on track to meet their urban water use target by December 31, 2020.

Based on the City's baseline of 315 GPCD and its urban water use target of 252 GPCD, the City's interim urban water use target is 283 GPCD.

Based on completion of the SB X7-7 Verification Form, a copy of which is included in **Appendix H** herein, City of Banning's water use for compliance year 2015 was 196 GPCD; therefore, the City has met its interim urban water use target of 283 GPCD.

Further, the City's 2015 water use is below its urban water use target of 252 GPCD. Therefore, the City has achieved compliance with its interim water use target required by December 31, 2015, and it is on track to meet its urban water use target required by December 31, 2020.

CHAPTER 5

SYSTEM WATER SUPPLIES

CHAPTER 5
SYSTEM WATER SUPPLIES

Water Code

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue…

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

5.1 GROUNDWATER

The City is within the boundaries of the Coachella Valley Hydrologic Unit, which encompasses several groundwater basins, including the Coachella Valley Groundwater Basin (Basin), within which the City is located. The Basin is underlain by several large subbasins, the boundaries of

which are generally defined by fault lines that restrict the lateral flow of water. The Basin extends from Banning easterly to the Salton Sea.

The City is underlain by the San Gorgonio Pass Subbasin (SGP Subbasin) portion of the Basin. The SGP Subbasin is divided into water storage units (also colloquially termed "basins"), as depicted on **Figure 2** herein. The City extracts groundwater from the Banning Storage Unit, the Banning Bench Storage Unit, the Cabazon Storage Unit, the Beaumont Storage Unit, and the Banning Canyon Storage Unit, as described in **Table 5-2** below. The storage unit boundaries have most recently been defined in the document Geology, Ground-Water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside County, California, Scientific Investigations Report 2006-5026, prepared by the United States Geological Survey in cooperation with the San Gorgonio Pass Water Agency, dated 2006.

Groundwater recharge in the area results from precipitation infiltrating into the ground within the surface water catchments and particularly in the canyons north of the City. An additional source of recharge is subsurface inflow (also referred to as underflow) from storage unit to storage unit, infiltration of Whitewater River diversions in the Banning Canyon, and from percolation of treated wastewater into the Cabazon Storage Unit. The Banning Canyon area receives water from the percolation of canyon flows through the gravelly soils of the canyon bottom. The San Gorgonio River running southerly through the Banning Canyon provides intake areas for distributing water to spreading ditches that interconnect with spreading ponds located approximately one mile north of the Banning Bench to enhance percolation.

A geohydrologic study was conducted by Geoscience to determine the maximum perennial yield of the groundwater storage units in the vicinity and to determine the anticipated future available water supply from the Beaumont Storage Unit, Banning Storage Unit, Banning Bench Storage Unit, Cabazon Storage Unit, and Banning Canyon Storage Unit. The findings of the study are set forth in the report by Geoscience, titled *Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and Available Water Supply from the Beaumont Basin*, dated March 29, 2011 (herein referred to as the Geoscience Report).

5.1.1 Beaumont Storage Unit (Beaumont Basin)

The Beaumont Storage Unit (also referred to as the Beaumont Basin) is located primarily in the City of Beaumont, with some portions located within Banning, Calimesa, and Cherry Valley, as depicted on **Figure 2** herein. The Beaumont Storage Unit covers approximately 12,480 acres (19.5 square miles). The City operates five groundwater production wells, namely Wells C2, C3, C4, M3, and M7, within the Beaumont Basin. These five wells have a combined nominal capacity of 4,650 gallons per minute (gpm). The City also co-owns, with Beaumont-Cherry Valley Water District (BCVWD), three additional groundwater production wells (Wells 24, 25, and 26), with a combined nominal capacity of 6,000 gpm, of which half is allotted to the City. Therefore, the City's total nominal pumping capacity in the Beaumont Basin is 7,650 gpm.

The Beaumont Basin is an adjudicated basin pursuant to the *Stipulation for Entry of Judgment Adjudicating Groundwater Rights in the Beaumont Basin* (the Judgment), a copy of which is included in **Appendix I** herein. Pursuant to the Judgment, the Court appointed a five-member Watermaster Committee, consisting of representatives from each of the five appropriators, which include City of Banning, City of Beaumont, Beaumont-Cherry Valley Water District, South Mesa Water Company, and Yucaipa Valley Water District.

The safe yield of the Beaumont Basin was initially established at 8,650 AF/yr, to be distributed among the appropriators. The safe yield is to be reevaluated at least once every ten years. Based on the *2013 Reevaluation of the Beaumont Basin Safe Yield*, dated April 3, 2015, the safe yield was determined to be 6,700 AF/yr.

Based on a description of the Judgment included in the *Beaumont Basin Watermaster 2014 Annual Report Draft*, dated June 2015 (referred to herein as the 2014 Watermaster Report), a controlled overdraft (also referred to as temporary surplus) was created to allow the appropriators to extract from the Beaumont Basin, during the first ten years after adoption of the Judgment, a maximum of 16,000 AF/yr. The temporary surplus was divided among the appropriators, with City of Banning receiving 31.43 percent (or 5,029 AF/yr).

After the first 10 years of operation ended in 2014, appropriators no longer receive the temporary surplus and are permitted to extract only the amount each has in storage or credited to them. At the end of calendar year 2014, the City had approximately 46,774 AF in its storage account, based on the 2014 Watermaster Report. City of Banning is permitted to store up to 80,000 AF in the Beaumont Basin.

On an annual basis, the Watermaster determines the amount of groundwater to which each producer is entitled from the Beaumont Basin without incurring a replenishment obligation. City of Banning is entitled to 31.43% of the unused overlying production in the Beaumont Basin. Quantities to which the City is entitled but does not pump can be credited to the City's storage account.

The City purchases State Water Project (SWP) water from the San Gorgonio Pass Water Agency (SGPWA), who is one of 29 state water contractors. Quantities of SWP water purchased are recharged to the Beaumont Basin at BCVWD's Noble Creek spreading facility, which is located in the vicinity of Beaumont Avenue and Cherry Valley Boulevard. Quantities of water obtained from SGPWA and recharged to the Beaumont Basin are set forth in **Table 5-1** below. Quantities that will be recharged in the future are dependent upon SWP water availability and storage capacity available to the City.

The City has estimated future recharge quantities at 2,718 AF/yr, based on a draft Regional Water Allocation Agreement for Water Imported by the San Gorgonio Pass Water Agency based on a water retailer's sphere of influence within the SGPWA service area. The allocation agreement identifies that the City of Banning would receive 27.3% of the SGPWA Table A allocation which has been allocated by DWR in the amount of 17,300 AF/yr. SGPWA's Table A allocation is subject to the reliability of the SWP water deliveries, which the City's 2015 UWMP states that 58% was used (based on DWR's 2013 Final SWP Reliability Report). It should be noted that the draft allocation agreement has not been adopted by SGPWA, although it does provide a methodology for water supply planning related to imported water deliveries from SGPWA.

Based on the above, the estimated annual recharge quantity was determined as follows:

17,300 AF/yr X 57.5% X 27.3% = 2,718 AF/yr

.

TABLE 5-1 IMPORTED WATER RECHARGED TO BEAUMONT BASIN BY CITY OF BANNING [1] (AF/YR)					
2010	**2011**	**2012**	**2013**	**2014**	**2015**
1,338	800	1,200	1,200	608	694

[1] Based on data provided by San Gorgonio Pass Water Agency

5.1.2 Banning Storage Unit

The Banning Storage Unit lies south of the Banning Bench Storage Unit and east of the Beaumont Storage Unit, as depicted on **Figure 2** herein. The total surface area of the Banning Storage Unit is approximately 2,489 acres (3.9 square miles). The area is underlain by alluvial sediments, with bedrock occurring to the north in the San Bernardino Mountains. The City currently operates four groundwater production wells within the Banning Storage Unit, namely C-5, M10, M11, and M12, with a combined nominal pumping capacity of 3,500 gpm. The safe yield of the Banning Storage Unit was estimated by Geoscience in 2011 as 1,130 AF/yr.

5.1.3 Cabazon Storage Unit

The Cabazon Storage Unit is located near the eastern boundary of the City, southeast of the Banning Storage Unit and the Banning Bench Storage Unit, as depicted on **Figure 2** herein. The Cabazon Storage Unit encompasses a surface area of approximately 17,215 acres (26.9 square miles). The City currently operates one groundwater production well in the Cabazon Storage Unit, namely Well C6, with a nominal pumping capacity of 900 gpm.

Additional groundwater can be developed from the Cabazon Storage Unit. A water balance prepared for the Cabazon Storage Unit, as described in the Geoscience Report (cited in **Section 5.1** herein), determined that a positive change in storage has occurred as a result of inflow and outflow factors, including wastewater percolated into the Cabazon Storage Unit. Therefore, future projections of additional water from the Cabazon Storage Unit available to the City assume that all inflow and outflow values remain the same, with the exception of wastewater applied to the basin. For purposes of projecting

Cabazon water supplies into the future, inflow of recycled water increases in time to account for the increase of wastewater generated by an increase in population over time, and this recycled water will be percolated into the Cabazon Storage Unit. Once Phase I of the WWTP expansion (described in **Section 5.3** herein) is completed, approximately 1,680 AF/yr of recycled water will be used for irrigation purposes and will no longer be applied to the Cabazon Storage Unit for direct percolation.

Projected future wastewater volumes were estimated based on the population projections shown in **Table 2-2** herein. The average wastewater per capita for the period 2005-2010 was estimated by multiplying the population by 84.6 gallons per day. The average for 2010 alone was approximately 75 gallons per capita per day (gpcd), which had been reduced to approximately 65 gpcd, most likely due to water conservation efforts. With ongoing water conservation measures that have been previously implemented, and future conservation efforts to meet state mandated water reductions and the City's water use target, it is anticipated that wastewater volumes will remain at current levels or decrease even further.

To determine the volume of treated wastewater that will be percolated into the Cabazon Storage Unit, the volume of tertiary treated wastewater (1,680 AF/yr) generated after completion of Phase I of the WWTP expansion (described in **Section 5.3**) was deducted from the estimates of future wastewater generation. The remainder of treated wastewater will be percolated into the Cabazon Storage Unit and was incorporated into the hydrologic budget to estimate the anticipated future change in storage in the Cabazon Storage Unit as described in the Geoscience Report. The volume of groundwater, represented by the change in storage, is assumed to be additional water available to the City for development.

5.1.4 Banning Bench Storage Unit

The Banning Bench Storage Unit is located to the north of the Banning Storage Unit, as shown on **Figure 2** herein. The total surface area of the Banning Bench Storage Unit is approximately 3,573 acres (5.9 square miles). The City currently operates three groundwater production wells within the Banning Bench Storage Unit, namely Wells 1,

2, and 3, with a combined nominal pumping capacity of 3,650 gpm. The safe yield of the Banning Bench Storage Unit was estimated by Geoscience in 2011 as 1,960 AF/yr.

5.1.5 Banning Canyon Storage Unit

The Banning Canyon Storage Unit is located north of the Banning Bench Storage Unit, as depicted on **Figure 2** herein. The total surface area of the Banning Canyon Storage Unit is approximately 1,058 acres (1.7 square miles). The canyon bottom comprises alluvium, and the canyon sides are bedrock. The City currently operates eight groundwater production wells within the Banning Canyon Storage Unit, namely Wells 4, 5, 7, 8, 9, 10, 11, and 12, with a combined nominal pumping capacity of 8,600 gpm.

Additional recharge occurs in the Banning Canyon Storage Unit through the diversion of Whitewater River drainage into Banning Canyon, which began in 1913. The diverted water flows along steep mountain slopes for approximately 14 miles in a mostly concrete lined conveyance system known as the Flume.

Banning Heights Mutual Water Company (BHMWC) utilizes approximately 1,000 AF/yr of the Whitewater River diversions in the Flume, and the remainder of the diverted water flows into the San Gorgonio River below the BHMWC extraction point. A portion of the natural runoff and the Whitewater River diversions are diverted into spreading ponds located approximately one mile north of the Banning Bench in order to increase groundwater recharge. The safe yield of the Banning Canyon Storage Unit was estimated by Geoscience in 2011 as 4,070 AF/yr.

Quantities of groundwater pumped in 2010 through 2015 are set forth in **Table 5-2**. Past, current, and estimated future quantities of groundwater extracted from each storage unit (basin) by the City for use within its water service area are set forth in **Tables 5-2 and 5-3** herein.

TABLE 5-2 QUANTITIES OF GROUNDWATER PUMPED (AF/YR)						
Basin Name	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Beaumont Storage Unit	1,223	1,483	1,170	2,136	2,729	1,675
Banning Storage Unit	1,218	1,345	1,260	1,747	1,393	527
Banning Bench Storage Unit	1,472	1,319	1,644	1,701	1,001	1,208
Cabazon Storage Unit	565	499	455	11	787	787
Banning Canyon Storage Unit	3,888	3,808	4,046	3,147	2,558	2,462
San Gorgonio Pass Subbasin Total	**8,366**	**8,454**	**8,575**	**8,742**	**8,468**	**6,659**

TABLE 5-3 QUANTITIES OF GROUNDWATER PROJECTED TO BE PUMPED[(1)] (AF/YR)					
Basin Name	**2020**	**2025**	**2030**	**2035**	**2040**
Beaumont Storage Unit	840	1,645	2,372	3,162	3,643
Banning Storage Unit	1,130	1,130	1,130	1,130	1,130
Banning Bench Storage Unit	1,960	1,960	1,960	1,960	1,960
Cabazon Storage Unit	2,515	2,515	2,515	2,515	2,515
Banning Canyon Storage Unit	4,070	4,070	4,070	4,070	4,070
San Gorgonio Pass Subbasin Total	**10,515**	**11,320**	**12,047**	**12,837**	**13,318**

(1) Quantities are based on the projected water use described in **Chapter 3**, specifically **Tables 3-1, 3-2, and 3-3**. The City plans to pump only those quantities of water needed to meet demands.

TABLE 5-4 QUANTITIES OF AVAILABLE WATER SUPPLIES (AF/YR)					
Basin Name	**2020**	**2025**	**2030**	**2035**	**2040**
Beaumont Storage Unit[(1)]	1,266	1,145	1,029	925	925
Beaumont Storage Unit Recharge (SWP Water)[(2)]	2,718	2,718	2,718	2,718	2,718
Banning Storage Unit	1,130	1,130	1,130	1,130	1,130
Banning Bench Storage Unit	1,960	1,960	1,960	1,960	1,960
Cabazon Storage Unit	2,515	2,515	2,515	2,515	2,515
Banning Canyon Storage Unit	4,070	4,070	4,070	4,070	4,070
San Gorgonio Pass Subbasin Total	**13,659**	**13,538**	**13,422**	**13,318**	**13,318**

(1) Quantities of water available from the Beaumont Storage Unit are based on the estimated quantities of water that would be available to the City based on its appropriative rights after extractions by overlying producers, as set forth in Table 4-4 of *City of Banning 2010 Urban Water Management Plan*, dated

July 22, 2011. Because the safe yield of the Beaumont Storage Unit was reduced from 8,650 AF/yr to 6,700 AF/yr in 2013 (a decrease of approximately 22.5%), estimated quantities of water available to the City of Banning from the Beaumont Storage Unit were reduced proportionately herein.

(2) These quantities represent estimated annual recharge of the Beaumont Storage Unit by the City and do not account for the 46,774 AF that the City of Banning currently has in storage in the Beaumont Storage Unit.

5.2 SURFACE WATER

Since 1913, surface water from the Whitewater River has been diverted into the Banning Canyon Storage Unit, with an average of 1,500 AF/yr diverted into Banning Canyon since 1961. The water flowed within the Flume, and then through two hydroelectric power plants. Due to damage along sections of the Flume, surface flow is being diverted into Burnt Canyon to the north, and then back to the Flume upstream of Powerhouse No. 1, where it continues downstream through Powerhouse No. 2 to the reservoir operated by Banning Heights Mutual Water Company (BHMWC), where BHMWC extracts approximately 1,000 AF/yr. The remaining water flows to the San Gorgonio River, where it recharges the Banning Canyon Storage Unit.

The City of Banning plans to conserve stormwater flows from tributary creeks within its service area by allowing water to percolate into the ground. A preliminary evaluation by the City indicated that a portion of stormwater flows from creeks in the area could be conserved as "new" water to meet future needs. The Butterfield Ranch Specific Plan (described in **Section 2.6.1** herein) includes design features that are estimated to capture and recharge approximately 1,370 AF/yr of stormwater flows from Smith Creek by 2020. The Rancho San Gorgonio Specific Plan (described in **Section 2.6.2** herein) includes design features that are estimated to capture and recharge approximately 199 AF/yr of stormwater at full buildout.

5.3 WASTEWATER AND RECYCLED WATER

Water Code

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:
(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.
(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.
(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.
(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

5.3.1 Wastewater

City of Banning provides sewer service to the area within City limits and to unincorporated areas of Riverside County that surround the southeast portion of the City. The City of Banning is responsible for the collection, conveyance, treatment, and disposal of wastewater generated within its service area.

Collected wastewater is conveyed through sewer main lines, which are connected to the larger trunk lines. The trunk lines transport wastewater to the City's wastewater treatment plant (WWTP). The effluent is treated to secondary standards and is then

discharged to percolation ponds to recharge the Cabazon Storage Unit. Quantities of wastewater collected within the City's service area and treated at the WWTP during years 2010 through 2015 are set forth in **Table 5-5** below.

TABLE 5-5
WASTEWATER COLLECTED AND TREATED
(AF/YR)

Wastewater	2010	2011	2012	2013	2014	2015
Wastewater Collected & Treated[1]	2,477	2,241	2,369	2,357	2,246	2,207
Quantity Meeting Recycled Water Standards	0	0	0	0	0	0

[1] Wastewater is treated to secondary treatment standards.

TABLE 5-6
PROJECTED QUANTITIES OF WASTEWATER REQUIRING TREATMENT AND DISPOSAL[1]
(AF/YR)

Types of Use	Treatment Level	2020	2025	2030	2035	2040
Percolation	Secondary	2,869	1,409	1,607	1,823	2,039
Irrigation	Tertiary	0	1,680	1,680	1,680	1,680
	Total	2,869	3,089	3,287	3,503	3,719

[1] Assumes that Phase I of the WWTP expansion will be operational in 2025, and that all available quantities of recycled water will be used for landscape irrigation in the City

5.3.2 Recycled Water

The list of types of uses for which recycled water is approved within California is continuing to grow as the value of wastewater reclamation is now widely recognized as a reliable water resource. The State Water Resources Control Board (SWRCB) is responsible for Title 22 of the California Code of Regulations, which establishes water recycling criteria and allowable uses. The bulk of potential uses fall into landscape irrigation such as golf courses, schools, cemeteries, parks, medians, and freeway landscape.

The City of Banning currently does not produce recycled water. The City proposes to expand its 3.6 million gallons per day (MGD) wastewater treatment plant and construct facilities to support its planned recycled water storage and distribution capability in accordance with the *City of Banning Recycled Water Master Plan*, dated September 21, 2006 (Recycled Water Master Plan), a copy of which is included in **Appendix J** herein. Phase I of the WWTP expansion consists of increasing the capacity from 3.6 MGD to 5.1 MGD and adding tertiary treatment facilities for production of recycled water. Upon completion of Phase I, approximately 1,680 AF/yr of recycled water would be available to the City for irrigation use. Assuming that the WWTP expansion would be completed by year 2025, projected quantities of recycled water production and use are set forth in **Table 5-6** above. According to the Recycled Water Master Plan, the City has a current recycled water demand of approximately 2,700 AF/yr; however, future recycled water use is limited to irrigation use in near proximity to the City's recycled water pipeline, as well as quantities of recycled water available. Recycled water demand in excess of quantities available will be made up with potable water.

5.3.3 Proposed Actions to Encourage Use of Recycled Water

The City's Water Shortage Contingency Plan (**Chapter 7** herein) contains exceptions from water conservation measures for consumers, such as golf courses, commercial nurseries, and car wash facilities, who use recycled water. Historically, favorable rates for recycled water have been a primary incentive for customers with large landscaped areas to use recycled water in lieu of potable water for irrigation. The City can encourage recycled water use by restructuring its water rates and service charges for customers who use recycled water; however, recycled water use will be limited to those customers who are within close proximity to a recycled water pipeline.

CHAPTER 6

WATER SYSTEM RELIABILITY

CHAPTER 6
WATER SUPPLY RELIABILITY

Water Code

10631. (c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635…

6.1 FREQUENCY AND MAGNITUDE OF SUPPLY DEFICIENCIES

Although Southern California has experienced severe drought conditions since 2011, the City has not experienced any actual supply deficiencies due to its reliance on local groundwater sources. The City does not have an immediate concern with water supply reliability. Because the City's water supply is primarily groundwater, the City is not subject to short-term water shortages resulting from temporary dry weather conditions.

Factors that can cause water supply shortages are earthquakes, chemical spills, and energy outages at treatment and pumping facilities. The City of Banning includes the probability of catastrophic outages when using the reliability planning approach.

6.1.1 Groundwater

The City extracts groundwater from the Beaumont Storage Unit (Beaumont Basin) Banning Storage Unit, the Banning Bench Storage Unit, the Cabazon Storage Unit, and the Banning Canyon Storage Unit of the San Gorgonio Pass Subbasin portion of the Coachella Valley Groundwater Basin, as described in **Chapter 5**.

As stated previously, because the City's water supply is primarily groundwater, the City is not subject to short-term water shortages resulting from temporary dry weather conditions. Further, as part of the Beaumont Basin adjudication, the City has the option of storing up to 80,000 acre feet of water in the Beaumont Basin. At the end of calendar year 2014, City of Banning had 46,774 AF of water available in Beaumont Basin storage.

6.1.2 SWP Water

The City purchases imported State Water Project water (SWP) supplies for replenishment of the groundwater from the San Gorgonio Pass Water Agency (SGPWA), a State Water Contractor. Continuous availability of SWP allocations will require complete development of the SWP, which currently is unable to meet maximum Table A amount obligations during droughts; available water supplies are being further threatened by new and increasing constraints on the development of new water supply facilities and on the operation of existing facilities.

In particular, the Wanger decisions regarding protection of the Delta smelt, concerns about reliability of the Delta levees, and other concerns led the DWR to issue a revision in June 2012 of The SWP Reliability Report 2009, dated August 2010, wherein the long-term reliability of SWP supplies was reduced to approximately 60 percent of maximum allocations (later reduced to 58 percent). Without the construction of additional Sacramento-San Joaquin Delta facilities and certain water storage reservoirs, the water supply capability of the SWP will remain limited and SWP Contractors will have to share reduced quantities of available supplies, especially during droughts.

With continued progress in the completion of California WaterFix (formerly known as the Bay Delta Conservation Plan (BDCP)), the balance between more reliable SWP water supplies and ecosystem restoration will be increased.

The BDCP was a long-term conservation strategy designed to set forth actions required for a healthy Delta that would have been implemented over the next 50 years, with an estimated cost of about $20 billion. California WaterFix is a refinement of the BDCP that involves a shorter term of implementation and incidental take authorization, and a

narrowing of scope: the principal habitat restoration effort of the BDCP has been isolated as a separate program called "California EcoRestore".

California WaterFix itself involves the construction and operation of new water diversion facilities near Courtland to convey water from the Sacramento River through two tunnels to the existing state and federal pumping facilities near Tracy. In addition to other federal, state, and local approvals, California WaterFix requires changes to the water rights permits for the SWP and the federal Central Valley Project to authorize the proposed new points of water diversion and rediversion.

Currently, the cost of California WaterFix is estimated at about $15 billion. Eventually, SWP water supply reliability, quality, and delivered quantities and the overall health of the Delta may improve; however, it is unlikely that the costs for Delta improvements will be allocated to the SWP Contractors before 2020.

In addition to the existing restrictions on water supplies from the SWP, California is in its fourth consecutive year of severe drought. Beginning in 2012, the State has experienced the driest three years on record. In response to another dry winter in 2014/2015, the Governor of California issued an executive order on April 1, 2015, mandating water restrictions on urban water use statewide, and demanding 25 percent reduction in water use. As of the date of this report, the effect this executive order will have on water deliveries from the SWP is uncertain.

The 2013 SWP Final Reliability Report, dated December 2014, estimated the long-term reliability of SWP supplies at 58 percent of maximum Table A amounts through 2033. Last year, DWR issued the 2015 SWP Deliverability Capability Report, dated July 2015. Said report estimated the median deliverability of SWP supplies at approximately 64 percent, and long-term deliverability (82-year average value) at 62 percent of maximum Table A amounts 50 percent of the time over the historic long-term. However, said report's estimates are qualified as being based on existing and historical conditions, and are not intended as future projections. Furthermore, the extremely dry sequence from the beginning of January 2013 through the end of 2014 was one of the driest two-year periods in historical record, and resulted in a low SWP supply allocation in 2013 (35 percent of SWP Table A amounts), and an extremely low SWP water supply

allocation in 2014 (5 percent of Table A amounts). The dry hydrologic conditions that led to the low 2014 SWP water supply allocation were extremely unusual, and to date have not been included in the SWP delivery estimates presented in DWR's 2015 Delivery Capability Report. It is anticipated that the hydrologic record used in the DWR model will be extended to include the period through 2014 during the next update of the model, which is expected to be completed prior to issuance of the next update to the biennial SWP Delivery Capability Report. Given these factors, the older, more conservative 58 percent reliability figure has been used for future projections in this report.

SGPWA, has established a water shortage plan, which is set forth in its Ordinance No. 10, Ordinance Establishing Water Shortage Plan. Ordinance No. 10 adds SGPWA's Water Shortage Plan to the Rules and Regulations for SGPWA Water Service. A copy of Ordinance No. 10, adopted by SGPWA on July 21, 2014, is included in **Appendix L** herein.

SGPWA has also established a policy that will work toward the goal of meeting future water demands within its service area, which includes City of Banning. Said policy is set forth in Resolution No. 2014-02, A Resolution of the San Gorgonio Pass Water Agency Establishing a Policy for Meeting Future Water Demands. A copy of Resolution No. 2014-02, adopted by SGPWA on February 18, 2014, is included in **Appendix L** herein.

Although the City may expect variable reliability in availability of SWP water, such water is not its primary source of water, and short-term declines in SWP water availability would be offset by the City's substantial reserves of stored groundwater and would not result in a substantial impact to the City's water supply.

6.2 NORMAL AND DRY WATER YEARS

As required by the Urban Water Management Planning Act, the tables below describe the City's supply reliability and vulnerability during an average (normal) water year, a single dry water year, and multiple dry water years. For purposes of this section, a normal water year, a single dry water year, and a multiple dry water year period are defined below:

- **Normal Water Year** is defined as a year in the historical sequence that most closely represents median runoff levels and patterns.
- **Single Dry Water Year** is defined as the lowest annual runoff for a watershed.
- **Multiple Dry Water Year Period** is defined as the lowest average runoff for a consecutive multiple year period (three years or more).

As stated previously in this chapter, due to its reliance on local groundwater sources, the City has not experienced any actual supply deficiencies, even during multiple drought years. With the local groundwater reserves available to the City, the City does not anticipate a decrease in available water supplies during a dry year or during multiple dry years.

Table 6-1 describes groundwater supply reliability based on a normal water year, a single dry water year, and multiple dry water years. The base years and historic sequence are listed in **Table 6-3** and are based on historical precipitation data. **Table 6-2** describes groundwater supply reliability under current conditions and sets forth the anticipated supply reliability for the next three years.

The water supply quantities shown in **Tables 6-4**, **6-5**, and **6-6** are based on the maximum perennial yield quantities for each basin, as described in the City's 2010 UWMP, except the Beaumont Basin, which is adjudicated. Quantities of water available for the Beaumont Basin are based on estimated quantities that would be available to the City as described in note 2 to **Table 6-2** herein. The quantities estimated to be recharged to the Beaumont Basin were determined as described in **Section 5.1.1** herein.

The water demands described in **Tables 6-4**, **6-5**, and **6-6** were calculated on the basis of an average per capita demand within the City's service area of 220 gpcd, with future actual demands

of the two proposed specific plan developments (Butterfield Ranch and Rancho San Gorgonio) at the demands set forth in their respective water supply assessments, which are cited in note (1) of **Table 3-1** herein. At these demands, the City will be able to meet future demands through 2035 with existing supplies, without using any of the City's 46,774 AF of groundwater in reserve storage in the Beaumont Storage Unit. If the stored groundwater is used to supplement demands, the City will be able to satisfy projected demands at 220 gpcd without acquiring additional quantities of replenishment water for many years beyond 2040.

TABLE 6-1
GROUNDWATER SUPPLY RELIABILITY - HISTORIC CONDITIONS[1]
(AF/YR)

Source	Normal Water Year (2001)	Single Dry Water Year (2007)	Multiple Dry Water Years		
			2012	2013	2014
Beaumont Storage Unit[2]	5,910	5,910	5,910	5,910	5,910
Beaumont Storage Unit Recharge (SWP Water)[3]	0	0	1,200	1,200	608
Banning Storage Unit	1,130	1,130	1,130	1,130	1,130
Cabazon Storage Unit	2,515	2,515	2,515	2,515	2,515
Banning Bench Storage Unit	1,960	1,960	1,960	1,960	1,960
Banning Canyon Storage Unit	4,070	4,070	4,070	4,070	4,070
Total	**15,585**	**15,585**	**16,785**	**16,785**	**16,193**
Percent of Normal	100%	100%	100%	100%	100%

(1) Due to reliance on groundwater, supply reliability is the same during normal, single-dry, and multiple-dry water years. Refer to **Table 6-3** for the basis of water year data.

(2) The Beaumont Storage Unit was adjudicated in 2004.

(3) The City began providing SWP water for recharge of the Beaumont Storage Unit in 2008.

TABLE 6-2 GROUNDWATER SUPPLY RELIABILITY - CURRENT CONDITIONS[1] (AF/YR)					
Source	Normal Water Year (2016)	Single Dry Water Year (2016)	Multiple Dry Water Years		
			2016	2017	2018
Beaumont Storage Unit[2]	1,398	1,398	1,398	1,398	1,398
Beaumont Storage Unit Recharge (SWP Water)[3]	2,718	2,718	2,718	2,718	2,718
Banning Storage Unit	1,130	1,130	1,130	1,130	1,130
Cabazon Storage Unit	2,515	2,515	2,515	2,515	2,515
Banning Bench Storage Unit	1,960	1,960	1,960	1,960	1,960
Banning Canyon Storage Unit	4,070	4,070	4,070	4,070	4,070
Total	**13,791**	**13,791**	**13,791**	**13,791**	**13,791**
Percent of Normal	100%	100%	100%	100%	100%

(1) Due to reliance on groundwater, supply reliability is the same during normal, single-dry, and multiple-dry water years.

(2) Quantities of water available from the Beaumont Storage Unit are based on the estimated quantities of water that would be available to the City based on its appropriative rights after extractions by overlying producers, as set forth in Table 4-4 of *City of Banning 2010 Urban Water Management Plan*, dated July 22, 2011. Because the safe yield of the Beaumont Storage Unit was reduced from 8,650 AF/yr to 6,700 AF/yr in 2013 (a decrease of approximately 22.5%), estimated quantities of water available to the City of Banning from the Beaumont Storage Unit were reduced proportionately herein.

(3) These quantities represent estimated annual recharge of the Beaumont Storage Unit by the City and do not account for the 46,774 AF that the City of Banning currently has in storage in the Beaumont Storage Unit.

TABLE 6-3 BASIS OF WATER YEAR DATA		
Water Year Type	Base Years [1]	Historic Sequence
Average Water Year	2001	1901-2015
Single-Dry Water Year	2007	1901-2015
Multiple-Dry Water Years	2012-2014	1901-2015

(1) Base years identified from historical precipitation data for the period 1901-2015, a copy of which is included in **Appendix F**.

TABLE 6-4 NORMAL YEAR SUPPLY AND DEMAND COMPARISON[1] (AF/YR)					
	2020	**2025**	**2030**	**2035**	**2040 [2]**
Supply Totals	13,659	13,538	13,422	13,318	13,318
Demand Totals	10,515	11,320	12,047	12,837	13,629
Difference	3,144	2,218	1,375	481	-311

(1) Due to reliance on groundwater, supply reliability is the same during normal, single-dry, and multiple-dry water years.

(2) Although projected supply totals are less than projected demand totals for 2040, the City has 46,774 AF of stored water in its Beaumont Basin storage account, which is not accounted for in the projected supply totals. Therefore, the City has ample water supplies to meet projected demands through 2040.

TABLE 6-5 SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON[1] (AF/YR)					
	2020	**2025**	**2030**	**2035**	**2040 [2]**
Supply Totals	13,659	13,538	13,422	13,318	13,318
Demand Totals	10,515	11,320	12,047	12,837	13,629
Difference	3,144	2,218	1,375	481	-311

(1) Due to reliance on groundwater, supply reliability is the same during normal, single-dry, and multiple-dry water years.

(2) Although projected supply totals are less than projected demand totals for 2040, the City has 46,774 AF of stored water in its Beaumont Basin storage account, which is not accounted for in the projected supply totals. Therefore, the City has ample water supplies to meet projected demands through 2040.

TABLE 6-6
MULTIPLE DRY YEARS SUPPLY AND DEMAND COMPARISON[1]
(AF/YR)

		2020	2025	2030	2035	2040 [2]
First Year	Supply Totals	13,659	13,538	13,422	13,318	13,318
	Demand Totals	10,515	11,320	12,047	12,837	13,629
	Difference	3,144	2,218	1,375	481	-311
Second Year	Supply Totals	13,659	13,538	13,422	13,318	13,318
	Demand Totals	10,515	11,320	12,047	12,837	13,629
	Difference	3,144	2,218	1,375	481	-311
Third Year	Supply Totals	13,659	13,538	13,422	13,318	13,318
	Demand Totals	10,515	11,320	12,047	12,837	13,629
	Difference	3,144	2,218	1,375	481	-311

(1) Due to reliance on groundwater, supply reliability is the same during normal, single-dry, and multiple-dry water years.

(2) Although projected supply totals are less than projected demand totals for 2040, the City has 46,774 AF of stored water in its Beaumont Basin storage account, which is not accounted for in the projected supply totals. Therefore, the City has ample water supplies to meet projected demands through 2040.

6.3 WATER QUALITY IMPACTS ON RELIABILITY

Water Code

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

The City of Banning monitors its water quality as required by state and federal regulations. Groundwater underlying the City's water service area has historically been of high quality, with concentrations of total dissolved solids (TDS) under 300 milligrams per liter (mg/L). The average level of TDS detected in the City's drinking water during 2014 was 200 mg/L. The secondary maximum contaminant level (MCL) range for TDS concentrations in drinking water is 500-1,000 mg/L.

California has established a maximum contaminant level (MCL) of 10 parts per billion (ppb) for hexavalent chromium (Cr6), which took effect on July 1, 2014. Prior to this, Cr6 was regulated under California's total chromium MCL of 50 ppb. Based on monitoring results, the City has detected Cr6 at concentrations exceeding the MCL in water produced by seven of its groundwater production wells (Wells C2, C3, C4, C6, M3, M10, and M12).

The City has received a variance from the Cr6 MCL until year 2020 in order take actions necessary to address the high Cr6 concentrations. The City's *Chromium-6 Compliance Plan*, dated December 2015 (compliance plan) involves analysis to determine treatment options and the design and construction of treatment facilities. Completion of the compliance plan is anticipated to take place in early 2020. A copy of the compliance plan and associated Amendment No. 1 are included in **Appendix M** herein.

Besides the areas containing elevated levels of Cr6, City of Banning's drinking water is of excellent quality, and no significant impacts to Banning's water supply reliability are expected to result from water quality issues.

6.4 OTHER POTENTIAL WATER SOURCES

Water Code

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:
(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.
(g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635…
(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

6.4.1 Transfer or Exchange Opportunities

The City of Banning currently has no plans for water transfers or exchanges, with the exception of interbasin transfers in the adjudicated Beaumont Basin. The City can meet

its future water demand with existing groundwater sources, including SWP water used for recharge, as well as recycled water and conservation measures.

6.4.2 Water Supply Projects and Programs

The City currently repairs or replaces facilities as necessary in order to maintain the integrity and reliability of the City's water system. Additionally, the City is currently seeking funding to construct additional groundwater wells and water storage reservoirs.

The Banning Water Canyon Main Replacement Project will replace portions of the existing Banning Water Canyon Main (a riveted steel pipeline that was constructed circa 1927), which conveys potable water from a series of wells along the San Gorgonio River to the City's service area. The purpose of this project is to eliminate aging infrastructure.

6.4.3 Desalinated Water

The City of Banning is located approximately 55 miles from the Pacific Ocean and approximately 50 miles from the Salton Sea. Groundwater quality in the area does not have levels of total dissolved solids (TDS) that require desalting. Therefore, the City does not have access to a source of water that could be desalinated for potable use.

CHAPTER 7

WATER SHORTAGE CONTINGENCY PLANNING

CHAPTER 7
WATER SHORTAGE CONTINGENCY PLANNING

Water Code

10632. (a) The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.
(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.
(6) Penalties or charges for excessive use, where applicable.
(7) An analysis of the impacts of each of the actions and conditions described in subdivisions (1) to (7), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.
(8) A draft water shortage contingency resolution or ordinance.
(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.
(b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

7.1 WATER SHORTAGE CONTINGENCY PLAN

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. The City of Banning relies on groundwater as its primary source of water supply, and periodic drought has historically not substantially affected the groundwater levels.

Therefore, the water shortage contingency analysis herein focuses mainly on water supply interruption resulting from equipment failure and disaster.

The City adopted its Water Shortage Contingency Plan (WSCP) in 1991 with adoption of City Ordinance No. 1040. The WSCP outlines a plan of action in the event of a water shortage caused by a catastrophic event, such as electrical power failure, earthquake, pipeline failure, or other event that results in the City's potential inability to meet the water demands of its customers.

7.1.1 Three-Year Minimum Water Supply

The City's minimum water supply for the following three years (2016-2018) is listed in **Table 6-2** in **Chapter 6** herein. Although a decrease in availability of SWP water is expected during drought conditions, because the City's primary water supply is groundwater, drought conditions are not expected to result in a water shortage within the City's water service area. Should drought conditions persist over the next three years, the City does not expect to experience a decrease in water supply would be able to meet the water demands of its customers.

7.1.2 Catastrophic Water Supply Interruption

Several faults, including the Banning Fault and portions of the San Gorgonio Fault Zone, are present within the City's sphere of influence. The Banning Fault defines the north side of the Banning Bench Storage Unit, and it is characterized by a right-lateral strike-slip displacement on the northwest trending faults with a normal dip-slip displacement. The San Gorgonio Fault Zone describes a group of Quaternary reverse, thrust, and tear faults that extend from the Whitewater area westward to the Calimesa area and define the boundary of the Banning Storage Unit.

An earthquake could result in a power outage and damage to the water system facilities. The City has its own field crews, equipment, and materials to make immediate responses and repairs to its water system. Standby crews are on call at all times to respond promptly to emergencies.

The City's water production wells are located throughout its water service area, which provides the ability to supply water in different portions of the City. Also, the City has a 12-inch emergency interconnection with BCVWD at the western boundary of the City's service area, located at the intersection of Highland Springs Avenue and Sun Lakes Boulevard.

Wells 8, 9, 10, C-2, and M-12 have an emergency power source available to continue to operate when the power fails. Wells 1, 3, 4, and 5 do not have an emergency power supply, but they have the ability to provide water during an emergency. **Table 7-1** summarizes the City's wells with emergency power source and anticipated capacity during auxiliary backup. It should be noted that the backup systems for Wells 8, 9, and 10 require manual turn on. Additionally, Wells 1 and 3 are equipped with both electric pumps and Pelton wheels, and Wells 4 and 5 are equipped with only a Pelton wheel pump, which also allows these wells to provide water in the event of an emergency. Pelton wheel pumps allow these wells to be operated by a hydraulic-driven pump using existing water under pressure in the distribution system. If additional water supply capacity is needed, portable generators can be obtained to operate other remaining wells and booster stations.

The total water available from the use of these nine wells is 6,850 gpm (30.3 AF/day), based on City of Banning dry-year capacities, City of Banning Public Works (2011). These quantities would be sufficient to meet the maximum day demand of approximately 30 AF/day (based on 2015 high day). If needed, additional water is available in the aboveground storage, as listed in **Table 7-2** herein. The total emergency aboveground water supply available is 67.1 AF. Total combined emergency supply from production wells and aboveground storage reservoirs and tanks is approximately 97.4 AF. It should be noted that the High Valleys Reservoir is used exclusively by High Valleys Water District and the associated storage is not included in the emergency supplies listed for the City.

TABLE 7-1 WELLS WITH EMERGENCY GENERATORS AND BACKUP SYSTEMS				
Well	Location	Total Capacity		Remarks
		GPM	AF/Day	
1	Banning Bench Storage Unit	1,250	5.5	Pelton Wheel
3	Banning Bench Storage Unit	500	2.2	Pelton Wheel
4	Banning Canyon Storage Unit	600	2.7	Pelton Wheel
5	Banning Canyon Storage Unit	550	2.4	Pelton Wheel
8	Banning Canyon Storage Unit	550	2.4	Backup Portable Generator
9	Banning Canyon Storage Unit	400	1.8	Backup Portable Generator
10	Banning Canyon Storage Unit	600	2.7	Diesel Engine Drive
C2	Beaumont Storage Unit	1,000	4.4	Generator
M12	Banning Storage Unit	950	4.2	Generator
	Total	**6,400**	**28.3**	

TABLE 7-2 AVAILABLE EMERGENCY RESERVOIR STORAGE		
Available Reservoirs	Total Aboveground Storage (MG)	Total Aboveground Storage (AF)
Brinton Reservoir	8.0	24.6
C2 Tank	0.22	0.7
C3 Tank	0.06	0.2
C4 Tank	0.05	0.2
C5 Tank	0.05	0.2
Mountain Tank	0.025	0.1
Receiving	0.024	8.0
San Gorgonio Reservoir No. 1	2.60	6.1
San Gorgonio Reservoir No. 2	2.00	3.1
San Gorgonio Reservoir No. 3	1.00	4.6
Southwest Reservoir	1.50	6.4
Sunset Reservoir No. 1	2.1	6.4
Sunset Reservoir No. 2	2.1	6.4
Total	**19.7**	**67.0**

7.1.3 Stages of Action

The City's WSCP includes four stages of action to progressively reduce water consumption within its Water Service Area during an increasingly dramatic water supply shortage. **Table 7-3** shows a rationing plan that the City could adopt to achieve the reduction goal listed for each stage. The rationing plan includes voluntary and mandatory rationing, which will be required based on the causes, severity, and anticipated duration of the water supply shortage. In the event that a water shortage is caused by catastrophic outage or failure of City water system facilities, the water shortage percentage will be determined by the percentage of the City's service area served by the facilities that are out of service as a result of the outage or failure. Said percentage will be verified by the Superintendent of Water/Wastewater.

The Superintendent of Water/Wastewater routinely monitors the City's water supply and demand. If any water supply shortage conditions are observed, then the Superintendent of Water/Wastewater will recommend implementing a stage of action, as listed in **Table 7-3** below.

During all stages of a water shortage, the Water Operations Superintendent will monitor the supply and demand for water on a daily basis to determine the level of conservation required and notify the City Council of the necessity for the implementation or termination of each stage of action. Each declaration of the City Council's implementation or termination of a water conservation stage shall be published at least once in a newspaper of general circulation within the City's Water Service Area. A copy of the City's Draft Resolution to Declare a Water Shortage Emergency is included in **Appendix N** herein.

The City's mechanism for determining reductions in water use based on the rationing stages consists of comparing meter readings while a rationing stage is in effect to the meter readings from prior to implementation of the rationing stage.

TABLE 7-3 RATIONING STAGES AND REDUCTION GOALS			
Shortage	**Stage of Action[(1)]**	**Reduction Goal**	**Type of Program**
Up to 15%	1	15%	Voluntary
15% to 25%	2	25%	Mandatory
25% to 35%	3	35%	Mandatory
35% to 50%	4	50%	Mandatory

(1) Determined by the City's Superintendent of Water/Wastewater and implemented or terminated by City Council action.

Stage of Action 1. Stage 1 occurs when the City of Banning is able to meet all of the water demands of its customers within the immediate future. During this stage, the City recommends voluntary conservation measures. All water users will be advised to use water wisely, prevent the waste or unreasonable use of water, and reduce water consumption to levels necessary for ordinary domestic and commercial purposes.

Stage of Action 2. Stage 2 occurs when a sudden and unexpected water supply shortage occurs that prevents the City from meeting the water demands of its customers. If this should occur, the City Council would immediately hold a public hearing wherein water service customers will have the opportunity to protest and to present their respective needs to the City Council. No public hearing would be required in the event of a breakage or failure of a dam, pump, pipeline, or conduit. At the public hearing, the Council may declare a water shortage emergency condition, and the following mandatory rules and regulations will be in effect immediately following such declaration:

- Washing driveways, parking lots, other hard surfaced areas, or building exteriors at any time, except to alleviate immediate fire hazards, is prohibited;
- Parks, golf courses, and school grounds are to be irrigated during nighttime hours only, between sunset and sunrise;
- Lawn watering and landscape irrigation, including construction meter use, is prohibited between the hours of 10:00 AM to 5:00 PM;

- Running water shall not be used for washing privately owned vehicles. A bucket may be used for the washing of vehicles, and only hoses with shut-off nozzles may be used for rinsing;
- Restaurants are requested to not provide drinking water to patrons except by request;
- Commercial nurseries shall use water only during the hours from midnight to 6:00 AM. Irrigation of propagation beds and watering of livestock is permitted as necessary during any hours; and
- Golf courses using reclaimed water are exempted from these restrictions.

Stage of Action 3. If, after Stage 2 has been implemented, further reductions in water consumption are required, Stage 3 will be declared following a public hearing, as described for Stage 2. Water supply and demand will be continuously monitored by the Water Operations Superintendent. The City Council will declare an emergency water supply shortage, and the following mandatory water conservation measures will apply:

- Parks and schools shall be watered on alternate days during the hours between sunset to sunrise, the schedule of which shall be set following the public hearing;
- Golf courses that utilize domestic water from the City's water system may irrigate greens only during the hours between sunset to sunrise. Golf courses using reclaimed water are exempted from this restriction;
- Other lawn watering, landscape irrigating, and construction water use are restricted as follows: customers with even numbered street addresses may water only on even numbered days, and customers with odd numbered street addresses may water only on odd numbered days. No watering or irrigating shall be done between the hours of 10:00 AM and 5:00 PM on any day;
- Washing down driveways, parking lots, or other paved surfaces is prohibited;
- Washing vehicles is restricted to commercial car wash establishments which recycle their water;
- Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains, and artificial lakes is prohibited;

- Restaurants shall not serve drinking water to patrons except by request;
- No new construction water meter permits shall be issued by the City;
- Construction metered water shall not be used for earth work or road construction purposes;
- Watering livestock is permitted as necessary during any hours; and
- Commercial nurseries may use water only between the hours of midnight and 6:00 AM. Irrigation of propagation beds is permitted as necessary during any hours. Commercial nurseries using reclaimed water are exempted from this restriction.

Stage of Action 4. Stage 4 will be implemented if water shortage conditions continue or worsen and measures to reduce water use required by Stage 3 are not adequate. Following a declaration by the City Council that an emergency water supply shortage due to a major failure in a supply or distribution facility, the following mandatory water conservation measures will apply:

- Watering of parks, school grounds, and golf courses is prohibited, except by reclaimed water;
- Watering of lawn and irrigating of landscape is prohibited;
- Washing down driveways, parking lots, or other paved surfaces is prohibited;
- Washing vehicles is prohibited, except when done by commercial car washing establishments using recycled or reclaimed water;
- Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains, and artificial lakes is prohibited;
- Restaurants shall not serve drinking water to patrons except by request;
- No new construction water meter permits shall be issued by the City;
- All existing construction meters will be turned off and locked; and
- Commercial nurseries shall discontinue all watering and irrigating. Those utilizing reclaimed water are exempted from this restriction. Livestock watering is permitted as necessary.

7.1.4 Implementation

During all stages of a water shortage, the Water Operations Superintendent will monitor the supply and demand for water on a daily basis to determine the level of conservation required and will notify the City Council of the necessity for the implementation or termination of each stage. Each declaration of the City Council's implementation or termination of a water conservation stage shall be published at least once in a newspaper of general circulation.

7.1.5 Penalties

Violation of any mandatory restriction or requirement of City Ordinance No. 1040 constitutes a misdemeanor. Conviction of this misdemeanor could result in imprisonment in the county jail for not more than thirty days, a fine of not more than $1000, or both such fine and imprisonment.

In addition to criminal penalties, violators of the mandatory restrictions or of City Ordinance No. 1040 are subject to civil action initiated by the City, as summarized below:

First Violation: The City will issue a written notice of violation to the water user.

Second Violation: For a second violation within a 12-month period, a one-month surcharge of 25% of the previous month's water bill will be imposed.

Third Violation: For a third violation within a 12-month period, a one-month penalty surcharge of 50% of the previous month's water bill will be imposed. In addition to the surcharge, the City may install a flow-restricting device at the meter at the expense of the violator.

Subsequent Violations: For any subsequent violation within 24 calendar months after a fist violation, water service will be discontinued. Service will not be restored until the Water Operations Superintendent has determined that the water user has provided reasonable assurances that future violations will not occur.

7.1.6 Determining Water Shortage Reductions

All of the City's water connections are metered; therefore, the City relies upon water meters readings to record the production and consumption of water. Consumption reduction would be measured by tracking any decrease in water production.

7.1.7 Revenue and Expenditure Impacts

The City's water department's principal source of operating revenue is from collection of water rates. A 50% reduction in water consumption would have a large impact on the water department's revenue. Revenue loss could be partially offset by penalties collected for violations of mandatory restrictions. Provisions for an emergency reserve were accounted for in the City's current water rates and water service connection fee. At a minimum, this reserve should maintain a 60-day operating period.

CHAPTER 8

DEMAND MANAGEMENT MEASURES

CHAPTER 8
DEMAND MANAGEMENT MEASURES

Water Code

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) …a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances
(ii) Metering
(iii) Conservation pricing
(iv) Public education and outreach
(v) Programs to assess and manage distribution system real loss
(vi) Water conservation program coordination and staffing support
(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California", dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

8.1 REQUIREMENTS

The section of the California Water Code (CWC) addressing demand management measures (DMMs) was significantly modified in 2014 based on recommendations from the Independent Technical Panel (ITP) to the Legislature. The ITP was formed by DWR to provide information and recommendations to DWR and the state Legislature on new demand management measures,

technologies, and approaches to water use efficiency. In its report to the Legislature, the ITP recommended that the UWMP Act be amended to simplify, clarify, and update the demand management measures reporting requirements. The ITP recommended, and the legislature enacted, streamlining the retail water agency requirements from 14 specific measures to six more general requirements plus an "other" category. These categories are set forth in CWC Section 10631(f)(1)(B).

8.2 IMPLEMENTATION

The City of Banning is committed to implementing water conservation programs and encourages its customers to conserve water whenever possible. The following paragraphs describe the water demand management measures (DMMs) that the City has implemented over the past five years, as well as those that will be implemented in order to ensure that the City achieves its urban water use target in 2020.

8.2.1 Water Waste Prevention Ordinances

City Ordinance No. 1039 was adopted by the City Council in 1991, prohibiting the waste of water. Ordinance No. 1039 describes actions that are considered a waste of water and the subsequent penalties if a violation were to occur. In 1998, this Ordinance was incorporated into City Ordinance No. 1231.

In 2006, Assembly Bill No. 1881 was passed, requiring local agencies, beginning January 1, 2010, to adopt a model water efficiency landscape ordinance that is at least as effective as the State's model water efficiency landscape ordinance. The City Council adopted Resolution No. 2010-06 on January 26, 2010 to meet this requirement.

Most recently, the City adopted Ordinance No. 1489 pertaining to drought water conservation. This ordinance sets forth mandatory prohibitions and additional restrictions on water use during drought conditions to comply with the executive orders issued by Governor Brown pertaining to the declared drought emergency and with the emergency water conservation regulations promulgated by the State Water Resources Control Board.

Copies of Ordinance No. 1489 and Resolution No. 2010-06 are included in **Appendix K** herein.

8.2.2 Metering

All of the City's water service connections, for all customer sectors, are metered. The City has investigated the feasibility of separately metering each of the multifamily dwelling units in its Water Service Area; however, it determined that doing so is not feasible. Additionally, the City has installed dedicated landscape irrigation meters for Sun Lakes Country Club, Caltrans, the City park system, and City school district facilities. The City will continue to meter all new water service connections.

The City is considering a transition to either a fixed base or drive-by Automatic Meter Read (AMR) system that allows the City to monitor each individual customer account for water conservation.

The fixed system involves placing antennas throughout the City that would collect data from the water meters at set intervals. The data would then be downloaded to the City's system and transferred to a desktop computer. The data is computed for individual users for billing purposes or for alerting the City if a set water use threshold has been exceeded, signaling a possible leak on the property. If this condition arises, the owner of the property would be notified by either email or phone call.

The drive-by system is similar to the fixed base system, but instead of using a network of antennas, meter readings are picked up by driving by the meters and then downloading the readings after returning to the office. This delays the ability to collect the information immediately and be able to alert the customer of possible leaks within the shortest amount of time. The implementation of either AMR system would facilitate the review of water records and evaluation of effectiveness of conservation programs.

8.2.3 Conservation Pricing

The City has a three-tiered increasing rate structure that applies to all customers. The City is currently investigating the potential of a fixed or drive-by Automatic Meter Read (AMR) system that allows the City to monitor each individual customer account for water conservation. These potential systems are described in **Section 8.2.2** above.

8.2.4 Public Education and Outreach

The City has initiated several water conservation programs to educate its water service customers in regards to various approaches to conserve water. At City Hall, water conservation pamphlets are displayed year-round as well as at public city-wide events. Public Works Department staff plan to visit school classrooms and make presentations on water conservation and distribute brochures with additional conservation information. The Public Works Superintendent is in continuous contact with the staff of Sun Lakes Country Club golf course to manage water more efficiently. The City intends to continue to expand public education on water resources.

Additionally, the City has a program in which Public Works staff visits local schools to make presentations on water conditions in the San Gorgonio Pass area, emphasizing the value of water and water conservation. Educational brochures are also made available to the students.

8.2.5 Programs to Assess and Manage Distribution System Real Loss

The City has prepared a water audit for reporting year 2015 in accordance with CWC Section10631(e)(3), using methods and a worksheet developed by the American Water Works Association (AWWA). Based on said water audit, a copy of which is included in **Appendix G** herein, the City's water system losses were approximately 738 acre-feet in 2015.

Based on City records, water losses have varied over the years, and losses during 2010 through 2014 are listed in **Table 8-1** below.

TABLE 8-1
DISTRIBUTION SYSTEM WATER LOSSES (AF/yr)

Year	Quantity (AF/yr)	Percent of Total
2010	812	9.7
2011	944	11.2
2012	557	6.5
2013	811	9.3
2014	860	10.2
2015	738	11.0

As part of the City's normal operations, the City repairs major leaks to the distribution system as soon as possible after they are discovered. Further, under the City's capital improvement plan, old leaking pipes are continually being replaced.

8.2.6 Water Conservation Program Coordination and Staffing Support

The City's Superintendent of Water/Wastewater serves as a part-time water conservation coordinator. The City's Public Works staff also assists with coordinating conservation efforts and providing public information about water conservation. Should the need arise, the City will designate a full-time water conservation coordinator, designate additional staffing support, or both.

8.2.7 Other Demand Management Measures

In addition to the DMMs described above, the City posts water conservation tips and other information on its website, www.ci.banning.ca.us. The City provides additional conservation information and answers questions from its customers upon request. The City has developed a hotline for customer use in reporting leaks, overwatering, and other misuse of water.

8.3 PLANNED IMPLEMENTATION TO ACHIEVE URBAN WATER USE TARGET

As described in **Chapter 4** herein, the City's compliance year 2015 water use is 196 gallons per capita per day (GPCD), which demonstrates that the City has met its interim urban water use target of 283 GPCD and is on track to meet its urban water use target of 252 GPCD by 2020.

Although the City's urban water use is already below its urban water use target of 252, it will still need to meet this target in compliance year 2020, and the City plans to continue its conservation efforts described herein for at least the next five years.

FIGURES

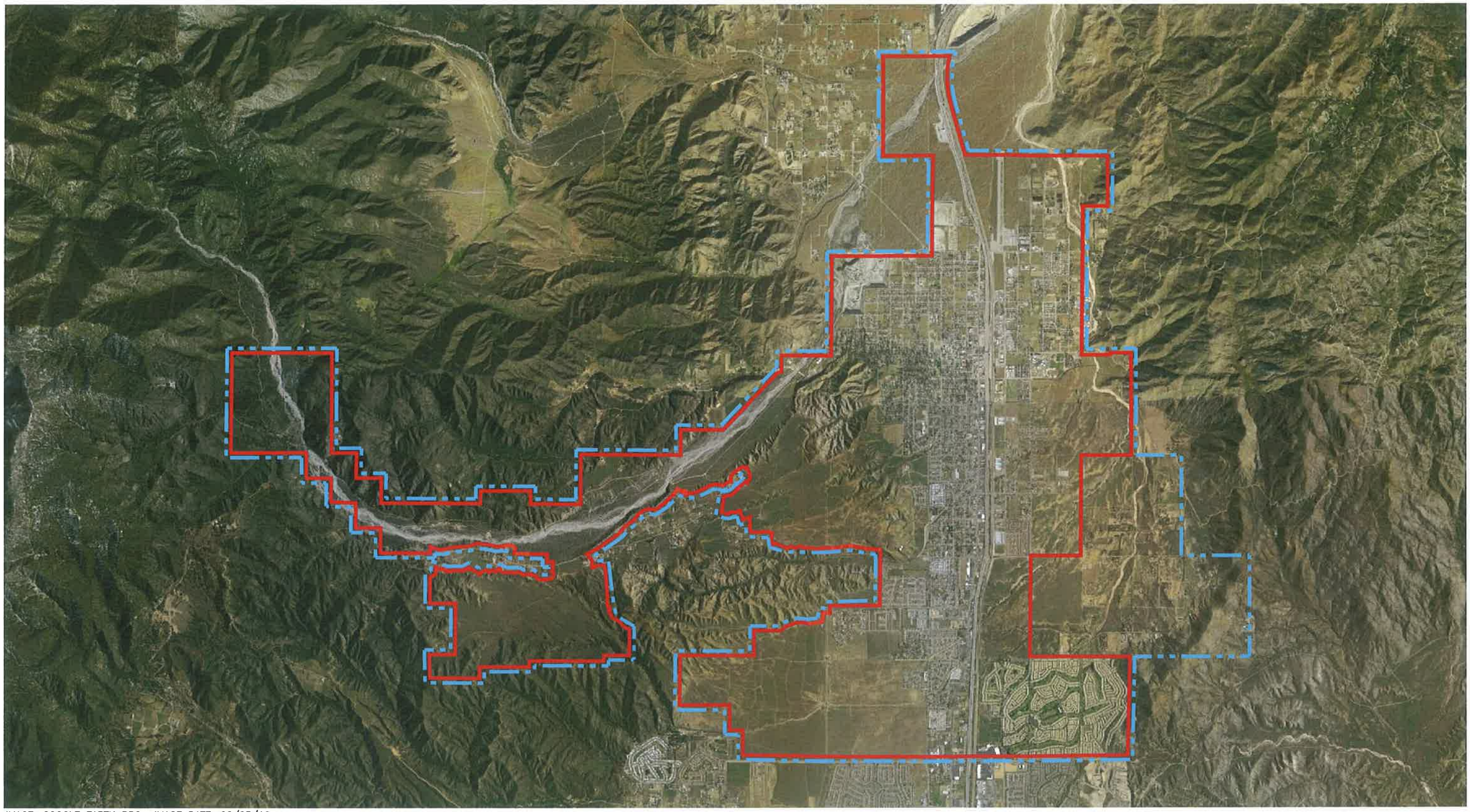

IMAGE: GOOGLE EARTH PRO IMAGE DATE: 02/05/16

LEGEND:

- CITY OF BANNING
- WATER SERVICE AREA

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 — 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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CITY OF BANNING

2015 URBAN WATER MANAGEMENT PLAN

CITY BOUNDARY AND WATER SERVICE AREA

FIGURE 1

SCALE: 1"=5000' DATE: 04/07/16 DRAWN BY: TMW CHECKED BY: VEM W.O.: 1036-1

1036-1F1.DWG

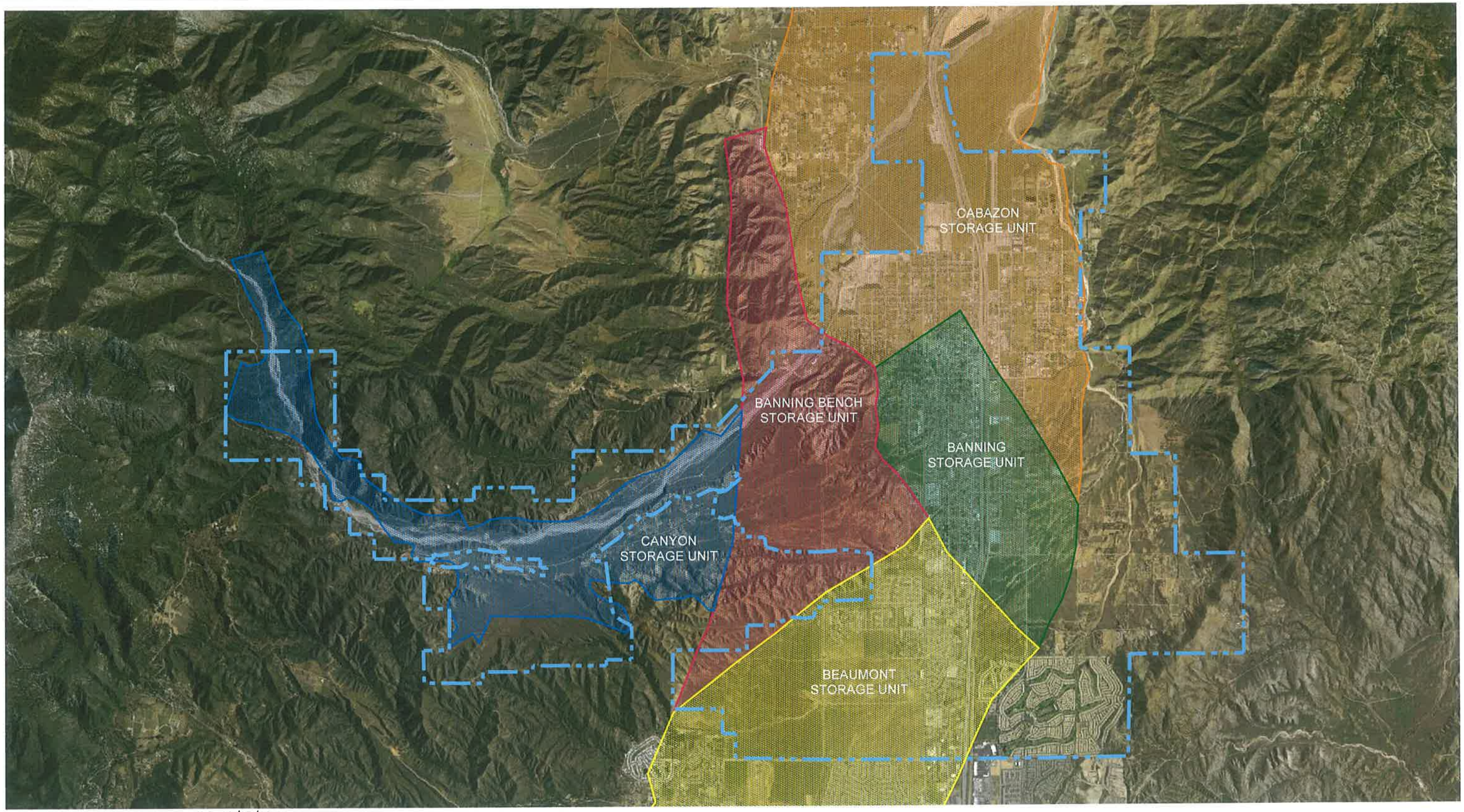

IMAGE: GOOGLE EARTH PRO IMAGE DATE: 02/05/16

LEGEND:

- WATER SERVICE AREA
- BANNING BENCH STORAGE UNIT
- BANNING STORAGE UNIT
- BEAUMONT STORAGE UNIT
- CABAZON STORAGE UNIT
- CANYON STORAGE UNIT

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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CITY OF BANNING

2015 URBAN WATER MANAGEMENT PLAN

GROUNDWATER BASIN STORAGE UNIT BOUNDARIES

FIGURE 2

SCALE: 1"=5000' DATE: 04/07/16 DRAWN BY: TMW CHECKED BY: VEM W.O.: 1036-1

1036-1F2.DWG

APPENDIX A

CALIFORNIA URBAN WATER MANAGEMENT PLANNING ACT
AND
APPLICABLE SECTIONS OF THE CALIFORNIA WATER CONSERVATION ACT

California Water Code Division 6, Part 2.6.
Chapter 1. General Declaration and Policy §10610-10610.4
Chapter 2. Definitions §10611-10617
Chapter 3. Urban Water Management Plans
Article 1. General Provisions §10620-10621
Article 2. Contents of Plans §10630-10634
Article 2.5. Water Service Reliability §10635
Article 3. Adoption And Implementation of Plans §10640-10645
Chapter 4. Miscellaneous Provisions §10650-10656

Chapter 1. General Declaration and Policy

SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. “Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses,

reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that

share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

Article 2. Contents of Plan

SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of

water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single-dry water year.

(C) Multiple-dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(3) (A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(4) (A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

(g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water

use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(i) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan may, but is not required to, include any of the following information:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

(b) The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has

submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are

appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Article 2.5. Water Service Reliability

SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.

After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

(b) (1) Notwithstanding Section 10231.5 of the Government Code, the department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part.

The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(2) A report to be submitted pursuant to paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Chapter 4. Miscellaneous Provisions

SECTION 10650-10656

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26

(commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

California Water Code Division 6, Part 2.55.

Chapter 1. General Declarations and Policy §10608-10608.8
Chapter 2. Definitions §10608.12
Chapter 3. Urban Retail Water Suppliers §10608.16-10608.44
Chapter 4. Agricultural Water Suppliers §10608.48
Chapter 5. Sustainable Water Management §10608.50
Chapter 6 Standardized Data Collection §10608.52
Chapter 7 Funding Provisions §10608.56-10608.60
Chapter 8 Quantifying Agricultural Water Use Efficiency §10608.64

Chapter 1. General Declarations and Policy

SECTION 10608-10608.8

10608. The Legislature finds and declares all of the following:

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to

January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2 Definitions

SECTION 10608.12

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3 Urban Retail Water Suppliers

SECTION 10608.16-10608.44

10608.16.(a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20.(a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in paragraph (1) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method

described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the

Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

(2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph(3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24.(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in

paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26.(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the conservation of that military installation under federal Executive Order 13514.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit

an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28.(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans

submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42.(a) The department shall review the 2015 urban water management plans and report to the Legislature by July 1, 2017, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

(b) A report to be submitted pursuant to subdivision (a) shall be submitted in compliance with Section 9795 of the Government Code.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use at facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

Chapter 4 Agricultural Water Suppliers

SECTION 10608.48

10608.48.(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5 Sustainable Water Management

Section 10608.50

10608.50.(a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

Chapter 6 Standardized Data Collection

SECTION 10608.52

10608.52.(a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

Chapter 7 Funding Provisions

Section 10608.56-10608.60

10608.56.(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

10608.60.(a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

Chapter 8 Quantifying Agricultural Water Use Efficiency

SECTION 10608.64

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

APPENDIX B

2015 UWMP STANDARDIZED TABLES

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA3310006	City of Banning	10,648	6,709
	TOTAL	10,648	6,709
NOTES:			

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* *drop down list*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☑	Water Supplier is also a member of a Regional Alliance	Other
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES: City of Banning is a member of the San Gorgonio Pass Regional Water Alliance.			

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
San Gorgonio Pass Water Agency
NOTES:

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	30,491	35,730	40,969	46,207	51,446	56,685
NOTES: Refer to Table 2-2 of 2015 UWMP.						

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family	Includes all residential	Drinking Water	3,300
Commercial		Drinking Water	1,705
Industrial		Drinking Water	92
Institutional/Governmental		Drinking Water	53
Landscape		Drinking Water	524
Landscape	Well M7	Raw Water	202
Sales/Transfers/Exchanges to other agencies		Drinking Water	95
Losses		Drinking Water	738
		TOTAL	6,709
NOTES: "Single Family" includes all residential demand.			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)* ***Drop down list*** *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
		2020	2025	2030	2035	2040-opt
Single Family	Includes all existing res.	4,482	4,683	4,882	5,082	5,295
Single Family	Proposed res. develop.	1,609	1,983	2,288	2,649	2,988
Commercial		2,281	2,382	2,484	2,586	2,694
Industrial		94	99	103	107	111
Institutional/Governmental		63	66	69	71	74
Landscape	Potable	739	779	818	859	903
Landscape	Non-Potable	205	207	210	211	212
Losses		1,042	1,122	1,194	1,272	1,351
	TOTAL	10,515	11,321	12,048	12,837	13,628

NOTES: Water provided to other agencies (High Valleys Water District and Banning Heights Mutual Water Company) is also included in the existing residential use listed above.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	6,709	10,515	11,321	12,048	12,837	13,628
Recycled Water Demand* *From Table 6-4*	2,207	2,869	3,089	3,287	3,503	3,719
TOTAL WATER DEMAND	8,916	13,384	14,410	15,335	16,340	17,347
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES:						

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	738
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES:	

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

Table 5-1 Baselines and Targets Summary
Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*2001*	*2010*	*315*	*283*	*252*
5 Year	*2006*	*2010*	*298*		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance

Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
196	283				0	196	196	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES:

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Beaumont	1483	1170	2136	2729	1675
Alluvial Basin	Banning	1345	1260	1747	1393	527
Alluvial Basin	Banning Bench	1319	1644	1701	1001	1208
Alluvial Basin	Cabazon	499	455	11	787	787
Alluvial Basin	Banning Canyon	3808	4046	3147	2558	2462
	TOTAL	8,454	8,575	8,742	8,468	6,659
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Banning	Metered	2,207	City of Banning	Banning WWTP	Yes	
Total Wastewater Collected from Service Area in 2015:		2,207				
NOTES:						

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

☐ No wastewater is treated or disposed of within the UWMP service area.
The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Banning WWTP	Ponds	At WWTP Site		Percolation ponds	No	Secondary, Disinfected - 23	2,207			
						Total	2,207	0	0	0

NOTES:

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☐ Recycled water is not used and is not planned for use within the service area of the supplier.
The supplier will not complete the table below.

Name of Agency Producing (Treating) the Recycled Water:	City of Banning
Name of Agency Operating the Recycled Water Distribution System:	City of Banning
Supplemental Water Added in 2015	
Source of 2015 Supplemental Water	

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation								
Landscape irrigation (excludes golf courses)	Includes golf courses	Tertiary	0	0	1,680	1,680	1,680	1,680
Golf course irrigation								
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*	To Cabazon Storage Unit	Secondary, Disinfected - 23	2,207	2,869	1,409	1,607	1,823	2,039
Surface water augmentation (IPR)*								
Direct potable reuse								
Other *(Provide General Description)*								
		Total:	2,207	2,869	3,089	3,287	3,503	3,719

**IPR - Indirect Potable Reuse*

NOTES:

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☐	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		**2010 Projection for 2015**	**2015 Actual Use**
Agricultural irrigation			
Landscape irrigation (excludes golf courses)			
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	*Landscape (incl. golf)*	1,680	0
	Total	1,680	0
NOTES: Planned recycled water facilities have not yet been constructed,			

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
Expand WWTP	Construct tertiary treatment facilities	2025	1,680
		Total	1,680
NOTES:			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Agency *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
Add additional rows as needed						
NOTES:						

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Groundwater		6,709	Drinking Water	
Purchased or Imported Water	SWP Water	694	Raw Water	
Total		7,403		0
NOTES:				

Table 6-9 Retail: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*									
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		**2020**		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Groundwater		10,941		10,820		10,704		10,600		10,600	
Purchased or Imported Water	SWP Water	2,718		2,718		2,718		2,718		2,718	
Recycled Water				1,680		1,680		1,680		1,680	
Total		13,659	0	15,218	0	15,102	0	14,998	0	14,998	0

NOTES: Quantities of groundwater listed do not include the 46,774 AF that the City of Banning currently has in storage in the Beaumont Storage Unit. Quantities of SWP water received by the City are recharged to the Beaumont Basin for storage in the City's Beaumont Basin storage account for the City's subsequent extraction and use. Quantities of recycled water available beginning in 2025 are based on the assumption that the City's WWTP expansion project has been completed and that the associated tertiary treatment facilities are operational.

Table 7-1 Retail: Basis of Water Year Data			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☐ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Average Year	2001	15585	100%
Single-Dry Year	2007	15585	100%
Multiple-Dry Years 1st Year	2012	16785	100%
Multiple-Dry Years 2nd Year	2013	16785	100%
Multiple-Dry Years 3rd Year	2014	16193	100%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES:			

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	13,659	15,218	15,102	14,998	14,998
Demand totals *(autofill from Table 4-3)*	13,384	14,410	15,335	16,340	17,347
Difference	275	808	(233)	(1,342)	(2,349)
NOTES: Demand totals shown herein appear to include quantities of SWP water used for groundwater recharge (2,718 AF/yr). Supply totals shown herein do not include the 46,774 AF that the City currently has in storage in the Beaumont Storage Unit.					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	13,659	12,538	13,422	13,318	13,318
Demand totals	10,515	11320	12,047	12,837	13,629
Difference	3,144	1,218	1,375	481	(311)
NOTES: Refer to Table 6-5 in Chapter 6 of the City's 2015 UWMP.					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	13,659	12,538	13,422	13,318	13,318
	Demand totals	10,515	11320	12,047	12,837	13,629
	Difference	3,144	1,218	1,375	481	(311)
Second year	Supply totals	13,659	12,538	13,422	13,318	13,318
	Demand totals	10,515	11320	12,047	12,837	13,629
	Difference	3,144	1,218	1,375	481	(311)
Third year	Supply totals	13,659	12,538	13,422	13,318	13,318
	Demand totals	10,515	11320	12,047	12,837	13,629
	Difference	3,144	1,218	1,375	481	(311)
Fourth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES:						

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
Add additional rows as needed		
1	Up to 15%	Voluntary, reduction goal 15%
2	15% to 25%	Mandatory, reduction goal 25%
3	25% to 35%	Mandatory, reduction goal 35%
4	35% to 50%	Mandatory, reduction goal 50%
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
1	Landscape - Other landscape restriction or prohibition	Voluntary Stage	No
2	Landscape - Limit landscape irrigation to specific times	Mandatory Stage	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	Mandatory Stage	Yes
2	CII - Restaurants may only serve water upon request	Mandatory Stage	Yes
2	Other - Require automatic shut of hoses	Mandatory Stage	Yes
3	Landscape - Limit landscape irrigation to specific days	Mandatory Stage	Yes
3	Landscape - Limit landscape irrigation to specific times	Mandatory Stage	Yes
3	Other - Prohibit use of potable water for washing hard surfaces	Mandatory Stage	Yes
3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Mandatory Stage	Yes
3	Pools and Spas - Require covers for pools and spas	Mandatory Stage	Yes
3	Other water feature or swimming pool restriction	Mandatory Stage	Yes
3	Other - Prohibit use of potable water for construction and dust control	Mandatory Stage	Yes
3	CII - Restaurants may only serve water upon request	Mandatory Stage	Yes
4	Landscape - Prohibit all landscape irrigation	Mandatory Stage	Yes
4	Other - Prohibit use of potable water for washing hard surfaces	Mandatory Stage	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Mandatory Stage	Yes
4	Other water feature or swimming pool restriction	Mandatory Stage	Yes
4	CII - Restaurants may only serve water upon request	Mandatory Stage	Yes
4	Other - Prohibit use of potable water for construction and dust control	Mandatory Stage	Yes
NOTES:			

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
1, 2, 3, 4	Expand Public Information Campaign	
1, 2, 3, 4	Provide Rebates on Plumbing Fixtures and Devices	
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	13,791	13,791	13,791
NOTES:			

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Beaumont	☑	☑
	☐	☐
	☐	☐
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Riverside County	☑	☑
	☐	☐

APPENDIX C

2015 UWMP CHECKLIST

Checklist Arranged by Water Code Section

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 4.2
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	Chapter 4
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 4.3
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 4.4
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	Not Applicable
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Section 4.1
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	Not Applicable
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Appendix H
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Section 1.2.2
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 1.2.3

10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 6.4 and Chapter 8
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	Section 1.2.3
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	Section 1.3
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 2.2
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 2.4
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Section 2.5
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 2.5
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 2.6
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Chapter 5
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 5.1
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 5.1
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 5.1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Section 5.1 and Appendix I
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Section 5.1
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of	System Supplies	Section 6.2.4	Section 5.1

	groundwater pumped by the urban water supplier for the past five years			
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Section 5.1
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Sections 6.1 and 6.2
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Section 6.2
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Section 6.2
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Section 6.4.1
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 3.1
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Section 3.2
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Section 8.2
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	Not Applicable
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 6.4.2
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 6.4.3
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	Not Applicable
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use	System Supplies	Section 2.5.1	Section 1.2.3

	projections from that source.			
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	Not Applicable
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 3.3
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Chapter 7
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Section 6.2
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Section 7.1.2
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 7.1.3
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 7.1.3
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 7.1.5
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 7.1.7
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Appendix N
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Section 7.1.6
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 5.3
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of	System Supplies (Recycled Water)	Section 6.5.2	Section 5.3.1

	wastewater collected and treated and the methods of wastewater disposal.			
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Section 5.3.1
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	Section 5.3.2
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	Sections 5.3.1 and 5.3.2
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	Section 5.3.1
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Section 5.3.3
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Section 5.3.2
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 6.3
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 6.2
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 1.2.3
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	Section 1.2
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	Section 1.2 Section 1.3 Appendix D Appendix E

	about the plan.			
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Appendix D
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Appendix E
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	Appendix E
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 1.2.3 Appendix E
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Appendix E
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Section 1.2.2

APPENDIX D

- **DOCUMENTATION OF 60-DAY NOTICE TO CITIES AND COUNTIES WITHIN WHICH BANNING PROVIDES WATER SERVICE AND TO OTHER INTERESTED PARTIES**

- **PUBLIC HEARING NOTICES**

- **PUBLIC COMMENTS ON THE DRAFT 2015 UWMP AND RESPONSES THERETO**

DOCUMENTATION OF 60-DAY NOTICE TO CITIES AND COUNTIES WITHIN WHICH BANNING PROVIDES WATER SERVICE AND TO OTHER INTERESTED PARTIES

City of Banning
Public Works Department

February 18, 2016

Steve Weiss, AICP, Planning Director
Riverside County Planning Department
P.O. Box 1409
Riverside, CA 92502-1409

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Weiss:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

City of Banning will hold a public hearing to consider, and to receive public comments on, its draft 2015 UWMP. The public hearing will be held a minimum of 60 days from the date of this letter at the City's offices located at 99 East Ramsey Street, Banning CA 92220. A public notice stating the specific date, time, and location of the public hearing will be issued 30 days prior to said hearing.

All interested parties are invited to attend the public hearing and to comment on City of Banning's draft 2015 UWMP. Alternatively, interested parties may submit written comments to the City. At least 30 days prior to the public hearing, a draft copy of City of Banning's 2015 Urban Water Management Plan will be made available at the City of Banning Public Works Department, 99 East Ramsey Street, Banning CA 92220.

Sincerely,

Art Vela, P.E.
Acting Director of Public works

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3130 • Fax (951) 922-3141

City of Banning
Public Works Department

February 18, 2016

Bill Blankenship
Building Industry Association
of Southern California
3891 11th St.
Riverside, CA 92501

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Blankenship:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

City of Banning will hold a public hearing to consider, and to receive public comments on, its draft 2015 UWMP. The public hearing will be held a minimum of 60 days from the date of this letter at the City's offices located at 99 East Ramsey Street, Banning CA 92220. A public notice stating the specific date, time, and location of the public hearing will be issued 30 days prior to said hearing.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Calvin Louie
Cabazon Water District
P.O. Box 297
Cabazon, CA 92230

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Louie:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

John Covington
Morongo Band of Mission Indians
47350 Foothill Road
Banning, CA 92220

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Covington:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Eric Fraser
Beaumont Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Fraser:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3130 • Fax (951) 922-3141

City of Banning
Public Works Department

February 18, 2016

Jeff Davis, General Manager
San Gorgonio Pass Agency
1210 Beaumont Avenue
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Davis:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

City of Banning will hold a public hearing to consider, and to receive public comments on, its draft 2015 UWMP. The public hearing will be held a minimum of 60 days from the date of this letter at the City's offices located at 99 East Ramsey Street, Banning CA 92220. A public notice stating the specific date, time, and location of the public hearing will be issued 30 days prior to said hearing.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Dawn Jorge, Recording Secretary
Beaumont Basin Watermaster
560 Magnolia Avenue
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Ms. Jorge:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

City of Banning will hold a public hearing to consider, and to receive public comments on, its draft 2015 UWMP. The public hearing will be held a minimum of 60 days from the date of this letter at the City's offices located at 99 East Ramsey Street, Banning CA 92220. A public notice stating the specific date, time, and location of the public hearing will be issued 30 days prior to said hearing.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3130 • Fax (951) 922-3141

City of Banning
Public Works Department

February 18, 2016

Steve Romberg
Banning Heights Mutual Water Company
7091 Bluff Street
Banning, CA 92220

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Romberg:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

City of Banning will hold a public hearing to consider, and to receive public comments on, its draft 2015 UWMP. The public hearing will be held a minimum of 60 days from the date of this letter at the City's offices located at 99 East Ramsey Street, Banning CA 92220. A public notice stating the specific date, time, and location of the public hearing will be issued 30 days prior to said hearing.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Stan Houghton
High Valleys Water District
47781 Twin Pines Road
Banning, CA 92220

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Houghton:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Joe Zoba
Yucaipa Valley Water District
P.O. Box 730
Yucaipa, CA 92399-0730

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Zoba:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

City of Banning will hold a public hearing to consider, and to receive public comments on, its draft 2015 UWMP. The public hearing will be held a minimum of 60 days from the date of this letter at the City's offices located at 99 East Ramsey Street, Banning CA 92220. A public notice stating the specific date, time, and location of the public hearing will be issued 30 days prior to said hearing.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3130 • Fax (951) 922-3141

City of Banning
Public Works Department

February 18, 2016

George Jorritsma
South Mesa Water Company
391 West Avenue L
Calimesa, CA 92320-1225

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Jorritsma:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Greg Hohman
Pardee Homes
10880 Wilshire Boulevard, Suite 1900
Los Angeles, CA 90024

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Hohman:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3130 • Fax (951) 922-3141

City of Banning
Public Works Department

February 18, 2016

Pete Pitassi
Diversified Pacific
10621 Civic Center Drive
Rancho Cucamonga, CA 91730

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Mr. Pitassi:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

City of Banning
Public Works Department

February 18, 2016

Elizabeth Urtiaga
Acting City Manager
City of Beaumont
550 East Sixth Street
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan
Notice Pursuant to Section 10621(b) of the California Water Code

Dear Ms. Urtiaga:

The purpose of this letter is to provide notice that the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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Sincerely,

Art Vela, P.E.
Acting Director of Public Works

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3130 • Fax (951) 922-3141

PUBLIC HEARING NOTICES

THE PRESS-ENTERPRISE

1825 Chicago Ave, Suite 100
Riverside, CA 92507
951-684-1200
951-368-9018 FAX

PROOF OF PUBLICATION
(2010, 2015.5 C.C.P)

Publication(s): The Press-Enterprise

PROOF OF PUBLICATION OF

Ad Desc.:

I am a citizen of the United States. I am over the age of eighteen years and not a party to or interested in the above entitled matter. I am an authorized representative of THE PRESS-ENTERPRISE, a newspaper in general circulation, printed and published daily in the County of Riverside, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Riverside, State of California, under date of April 25, 1952, Case Number 54446, under date of March 29, 1957, Case Number 65673, under date of August 25, 1995, Case Number 267864, and under date of September 16, 2013, Case Number RIC 1309013; that the notice, of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

04/18, 04/25/2016

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Date: Apr 25, 2016

At: Riverside, California

Legal Advertising Representative, The Press-Enterprise

BANNING, CITY OF
99 E RAMSEY ST
BANNING, CA 92220

Ad Number: 0010155187-01

P.O. Number:

Ad Copy:

NOTICE OF PUBLIC HEARING
CITY OF BANNING 2015
URBAN WATER MANAGEMENT PLAN

PURSUANT TO LAW, notice is hereby given of a Public Hearing before the City Council and the Banning Utility Authority of the City of Banning to be heard on May 24, 2016 at 5:00 p.m. at the Banning Civic Center Council Chambers, 99 E. Ramsey St., Banning, California, to consider and receive comments on the City of Banning Draft 2015 Urban Water Management Plan.

ALL INTERESTED PARTIES are invited to attend said hearing and present oral or written testimony on the matter or to send written comments to the City Clerk, P.O. Box 998, Banning, CA 92220. The City anticipates that the draft 2015 Urban Water Management Plan will be available for public review beginning April 19, 2016 at the office of the City Clerk or at the Engineering Division of the Public Works Department located at 99 E. Ramsey Street. This document may also be viewed on-line at www.ci.banning.ca.us/draft2015uwmp.

Note: If you challenge this matter in the court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City of Banning at or prior to the public hearing. Questions regarding this matter should be directed to the City of Banning, Public Works Department at (951) 922-3130.

BY ORDER OF THE CITY CLERK of the City of Banning, California.

s/ Marie A. Calderon, City Clerk
City of Banning, California

DATED: April 13, 2016

PUBLISH: April 18, 2016
April 25, 2016

Printed at: 10:22 am
On: Friday , Apr 15, 2016

Ad #: 0010155187
Order Taker: kgribbin

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Classified Advertising
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Fax #:

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Publication: PE Riverside, PE.com

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Amount Due:	**$197.80**

Ad Copy:

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BY ORDER OF THE CITY CLERK of the City of Banning, California.

s/ Marie A. Calderon, City Clerk
City of Banning, California

DATED: April 13, 2016

PUBLISH: April 18, 2016
April 25, 2016

City of Banning
Public Works Department

April 13, 2016

Steve Weiss, AICP, Planning Director
Riverside County Planning Department
4080 Lemon Street
Riverside, CA 92502

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Weiss:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Prior to adoption of its 2015 UWMP, the City of Banning will hold a public hearing to consider, and to receive public comments on, its Draft 2015 UWMP. The public hearing will be held at the City's offices located at 99 East Ramsey Street, Banning, CA 92220 and is scheduled for Tuesday, May 24, 2016 at 5:00 p.m. A public notice stating the specific date, time, and location of the public hearing will be published prior to said hearing. We would value the receipt of your comments prior to May 24, 2016.

The Draft 2015 UWMP will be made available at the City of Banning Public Works Department, 99 East Ramsey Street, Banning CA 92220 on April 19, 2016.

The Final 2015 UWMP will return to City Council with a recommendation for adoption at the City Council's regular meeting scheduled for June 14, 2016.

If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Jeff Davis
San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan

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Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Calvin Louie
Cabazon Water District
P.O. Box 297
Cabazon, CA 92230

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Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Bill Blankenship
Building Industry of
Southern California
3891 11th St.
Riverside, Ca 92501

Subject: City of Banning 2015 Urban Water Management Plan

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Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

John Covington
Morongo Band of Mission Indians
47350 Foothill Road
Banning, CA 92220

Subject: City of Banning 2015 Urban Water Management Plan

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Sincerely,

Arturo Vela, P.E.
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Public Works Department

April 13, 2016

Eric Fraser
Beaumont Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Fraser:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Prior to adoption of its 2015 UWMP, the City of Banning will hold a public hearing to consider, and to receive public comments on, its Draft 2015 UWMP. The public hearing will be held at the City's offices located at 99 East Ramsey Street, Banning, CA 92220 and is scheduled for Tuesday, May 24, 2016 at 5:00 p.m. A public notice stating the specific date, time, and location of the public hearing will be published prior to said hearing. We would value the receipt of your comments prior to May 24, 2016.

The Draft 2015 UWMP will be made available at the City of Banning Public Works Department, 99 East Ramsey Street, Banning CA 92220 on April 19, 2016.

The Final 2015 UWMP will return to City Council with a recommendation for adoption at the City Council's regular meeting scheduled for June 14, 2016.

If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Dawn Jorge, Recording Secretary
Beaumont Basin Watermaster
560 Magnolia Avenue
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan

Dear Ms. Jorge:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Stan Houghton
High Valleys Water District
47781 Twin Pines Road
Banning, CA 92220

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Houghton:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Steve Romberg
Banning Heights Mutual Water Company
7091 Bluff Road
Banning, CA 92220

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Romberg:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Prior to adoption of its 2015 UWMP, the City of Banning will hold a public hearing to consider, and to receive public comments on, its Draft 2015 UWMP. The public hearing will be held at the City's offices located at 99 East Ramsey Street, Banning, CA 92220 and is scheduled for Tuesday, May 24, 2016 at 5:00 p.m. A public notice stating the specific date, time, and location of the public hearing will be published prior to said hearing. We would value the receipt of your comments prior to May 24, 2016.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Joe Zoba
Yucaipa Valley Water District
P.O. Box 730
Yucaipa, CA 92399-0730

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Zoba:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

George Jorritsma
South Mesa Water Company
391 West Avenue L
Calimesa, CA 92320-1225

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Jorritsma:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Prior to adoption of its 2015 UWMP, the City of Banning will hold a public hearing to consider, and to receive public comments on, its Draft 2015 UWMP. The public hearing will be held at the City's offices located at 99 East Ramsey Street, Banning, CA 92220 and is scheduled for Tuesday, May 24, 2016 at 5:00 p.m. A public notice stating the specific date, time, and location of the public hearing will be published prior to said hearing. We would value the receipt of your comments prior to May 24, 2016.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Pete Pitassi
Diversified Pacific
10621 Civic Center Drive
Rancho Cucamonga, CA 91730

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Pitassi:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Elizabeth Gibbs-Urtiaga
Acting City Manager
City of Beaumont
550 East Sixth Street
Beaumont, CA 92223

Subject: City of Banning 2015 Urban Water Management Plan

Dear Ms. Gibbs-Urtiaga:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Prior to adoption of its 2015 UWMP, the City of Banning will hold a public hearing to consider, and to receive public comments on, its Draft 2015 UWMP. The public hearing will be held at the City's offices located at 99 East Ramsey Street, Banning, CA 92220 and is scheduled for Tuesday, May 24, 2016 at 5:00 p.m. A public notice stating the specific date, time, and location of the public hearing will be published prior to said hearing. We would value the receipt of your comments prior to May 24, 2016.

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Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Gregory J. Hohman, P.E.
Hohman Development Services, Inc.
1125 Essex Lane
Newport Beach, CA 92660

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Hohman:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

City of Banning
Public Works Department

April 13, 2016

Jeff Chambers
Pardee Homes
1250 Corona Pointe Court, Suite 600
Corona, CA 92879

Subject: City of Banning 2015 Urban Water Management Plan

Dear Mr. Chambers:

As stated in the previous notice we provided, dated February 18, 2016, the City of Banning is revising its Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Prior to adoption of its 2015 UWMP, the City of Banning will hold a public hearing to consider, and to receive public comments on, its Draft 2015 UWMP. The public hearing will be held at the City's offices located at 99 East Ramsey Street, Banning, CA 92220 and is scheduled for Tuesday, May 24, 2016 at 5:00 p.m. A public notice stating the specific date, time, and location of the public hearing will be published prior to said hearing. We would value the receipt of your comments prior to May 24, 2016.

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If your agency would like to learn more about the City of Banning 2015 UWMP, please contact me at (951)922-3130.

Sincerely,

Arturo Vela, P.E.
Director of Public Works/
City Engineer

PUBLIC COMMENTS ON THE
DRAFT 2015 UWMP AND RESPONSES THERETO

The following paragraphs are in response to comments on the City of Banning 2015 Urban Water Management Plan, which were received via email by City of Banning on June 9, 2016 from Greg Hohman of Pardee Homes. The numbered responses below correspond to the numbering added to the comments from Pardee Homes, as shown on the attached copy of said comments.

- **Response to Comment 1**

  Based on the *Water Supply Assessment for the Butterfield Specific Plan*, dated December 2011 (Butterfield WSA) and the *Water Supply Assessment Rancho San Gorgonio Specific Plan*, dated September 30, 2015 (RSG WSA), our calculations to determine the quantities of projected water demands for the City of Banning included the demands set forth in **Table 1** below for the Butterfield Ranch Specific Plan and the Rancho San Gorgonio Specific Plan developments.

Table 1
City Of Banning
Water Demands for Proposed Specific Plan Developments

	2020	2025	2030	2035	2040
Butterfield [1]	1,587	1,908	2,239	2,633	2,972
Rancho San Gorgonio [2]	22	75	49	16	16
Total [3]	**1,609**	**1,983**	**2,288**	**2,649**	**2,988**

[1] These quantities are based on the net projected project water demand (minus conservation savings) set forth in Tables 1.6.1 and 5.3.2.4 of the Butterfield WSA.

[2] These quantities are based on the net increase in water demand resulting from the project, as set forth in Table 4-11 of the RSG WSA.

[3] These quantities represent the total projected water demand for the Butterfield Specific Plan and the Rancho San Gorgonio Specific Plan and are included in Table 3-1 of the 2015 UWMP under the "Proposed Specific Plan Developments" column.

To address your concern, additional text pertaining to the Butterfield Ranch Specific Plan and the Rancho San Gorgonio Specific Plan has been added to Section 2.6 and its subsections in the 2015 UWMP.

- **Response to Comment 2**

  As shown in **Table 1**in the above **Response to Comment 1**, net quantities of water needed for the Rancho San Gorgonio Specific Plan decrease after 2025. This is due to quantities of water that are estimated to be recharged due to the project, as well as additional recycled water and return flows from irrigation that are expected to result from the project, as described in the RSG WSA. As these quantities increase between 2025 and 2040, net water demands decrease during that same period. These decreases in net project water demand account partially for the projected water demands in the 2015 UWMP being lower than those projected in the Butterfield WSA.

  The remaining differences in the projections from 2020 to 2040 between the 2015 UWMP and the Butterfield WSA resulted from our using a factor of 220 gallons per capita per day (gpcd) for non-specific plan development to estimate future demands for the 2015 UWMP, while the Butterfield WSA used a factor that accounted for water use up to the City's urban water use target of 252 gpcd, as was done in the City's 2010 UWMP.

The City's urban water use target remains at 252 gpcd. The City's actual water use for 2015 was 196 gpcd; therefore, assuming that the City will continue its conservation efforts into the future, while accounting for some increase in per capita water use, we used a factor of 220 gpcd.

- **Response to Comment 3a**

Banning's 2015 UWMP does not include the City's balance in its Beaumont Basin storage account (46,774 acre-feet) as a source of supply; however, the UWMP does include the annual projected quantity of 2,718 AF of groundwater recharge to the Beaumont Basin as a source of supply (refer to Table 5-4 of the UWMP). Although the City continues to purchase State Water Project (SWP) water and recharge same to the Beaumont Basin, growth in the City's Beaumont Basin storage account is not accounted for in the UWMP, as a conservative approach. This approach considers the water in the storage account as a backup supply for use in the event that there is a demand that cannot be met by the City's other sources of water supply.

- **Response to Comment 3b**

Text pertaining to the Beaumont Basin in Section 5.1.1 of the 2015 UWMP has been modified for clarity.

- **Response to Comment 4a**

The estimated recharge quantity of 2,718 acre-feet per year (AF/yr) is based on a draft Regional Water Allocation Agreement for Water Imported by the San Gorgonio Pass Water Agency based on a water retailer's sphere of influence within the SGPWA service area. The allocation agreement identifies that the City of Banning would receive 27.3% of the SGPWA Table A allocation which has been allocated by DWR in the amount of 17,300 AF/yr. SGPWA's Table A allocation is subject to the reliability of the SWP water deliveries, which the City's 2015 UWMP states that 58% was used (based on DWR's 2013 Final SWP Reliability Report). It should be noted that the draft allocation agreement has not been adopted by SGPWA, although it does provide a methodology for water supply planning related to imported water deliveries from SGPWA.

Based on the above, the estimated annual recharge quantity was determined as follows:

17,300 AF/yr X 57.5% X 27.3% = 2,718 AF/yr

- **Response to Comment 4b**

The text of Section 6.2 of the 2015 UWMP has been modified to clarify the basis for the quantities used in the water supply and demand projections.

- **Response to Comment 4c**

Although the City's WWTP expansion project is not on its original schedule, 2025 is considered a very conservative estimate of when the project facilities will be operational. The City is currently working on a funding plan for the project, and although a specific date has not yet been set, it is likely that the expansion will be online before 2025.

- **Response to Comment 5**

  Table 7-2 is one of a series of tables in Appendix B, which are standardized tables required by the California Department of Resources (DWR). Table 7-2 is autofilled from data in other tables in Appendix B. In particular, the supply totals are autofilled from data in Table 6-9 and the demand totals are autofilled from data in Table 4-3. In turn, Table 4-3 is autofilled from data entered into Tables 4-1 and 4-2. Due to an ambiguity in DWR's data entry format, data entered in Tables 4-1, 4-2, and 6-9 resulted in some quantities of projected supplies and demands being double-counted. This has been corrected; however, the numbers in Table 7-2 still do not match the numbers in Table 6-4 of the UWMP because Table 7-2 includes potential recycled water supplies that are anticipated to be available beginning in 2025, as well as projected quantities of secondary treated wastewater that are recharged to the Cabazon Storage Unit, while these quantities are not included in Table 6-4 of the UWMP. The tables in Appendix B of the UWMP have been replaced with the corrected tables.

I. Demand Projections

The Draft 2015 UWMP specifically identifies Pardee's Butterfield Project as one of two "Proposed Specific Plan Developments" which are used to project future population and water supply demands. (See Draft 2015 UWMP section 2.6.1; see also Table 3-1.)

1

* **Recommended Revision:** The introductory sentence of Section 2.6 should specify that, "pursuant to development agreements with Pardee Homes, the water supply required to serve the Butterfield project's projected new demands is committed and is not available to serve other demands." Both section 2.6.1 and section 2.6.2 should specify the amount of projected demand for the Butterfield project, specifically and separate from the Rancho San Gorgonio project, as a basis for the combined number on Table 3-1.

The Draft 2015 UWMP projects a similar demand in 2020 (10,515 AF) as does the 2011 Butterfield WSA (10,183). However, in later years beginning in 2030, the 2015 UWMP projects significantly less demand than the Butterfield WSA does, with a difference of more than 1,500 AFY by 2040. On its face, these demand projections do not add up, especially in light of the addition of the massive new Rancho San Gorgonio project. A significant portion of the previously identified projected demand must have been abandoned, or the demand calculations (demand/unit) must have been modified as a result of increased efficiency or conservation, to support these projections. We cannot determine this from the information provided in the UWMP.

2

* **Recommended Revision:** Provide an explanation for the reduced demand projections.

II. Supply Projections

a Like the 2010 UWMP, the Draft 2015 UWMP does not include the Beaumont Storage Account as a source of supply. However, the Draft 2015 UWMP does not project growth in the amount in the storage account, despite the fact that the City continues to request, purchase and take delivery of imported water. This is a more conservative analysis, which is OK, but should be explained.

3

b In one location (page 5-3), the 2015 UWMP incorrectly describes the City's rights under the judgment beginning in 2014. The City is entitled to 31.43 of the unused overlying production – a number to be determined by the Watermaster annually – plus any water in storage. However, the correct calculation appears to be used in Table 5-4.

* **Recommended Revisions:** Provide an explanation for not projecting growth in the storage account. Revise the text at the bottom of page 5-3 to correctly describe the City's annual rights in the Beaumont Basin (see Butterfield WSA § 6.1.5.9), in addition to its right to extract water in storage.

a The Draft 2015 UWMP indicates that imported water supplies are assumed to be 2,718 AFY, which is greater than projected in the WSA (2,595) AFY, without explanation and without analysis of the reliability of the supply. Historical deliveries do not appear to support the increased number. Given the substantial impact that the drought has had on the reliability of surface water, more explanation is required.

4

* **Recommended Revision:** Explain why the increase in the average annual quantity of imported water (over that projected in 2010) is justified. Has the City revised its application to purchase SWP water

b from the SGPWA? Also, Tables 6-2, 6-4 and 6-5 may create confusion because no differences are shown in supply between dry and wet years. It would be beneficial to include a short explanation of the fact that the numbers projected for groundwater are based on the average annual (or safe) yield of each of the groundwater subbasins, which necessarily takes into account the reliability of these basins. The same is true with the "SWP water". The projected available imported supply is calculated based on the reliability of the supply across all year types. Again, this is OK because the amount projected is an average annual quantity. Further, because the City does not take direct delivery of the water, fluctuations in the reliability of SWP are moderated by the City's conjunctive use operations.

4, continued

c

The UWMP has only a very limited discussion of recycled water which appears to come entirely from the City's 2006 Recycled Master Plan. It assumes that Phase I of the development of tertiary capacity will not be completed until 2025 and at that time 1,680 AF will be available for direct (irrigation) use. This is a 10-year delay from prior projections.

* **Recommended Revision:** Provide further explanation for the delay. Also, consider discussing the fact that the City's Cabazon supply provides an alternative, non-potable source of supply.

III. Miscellaneous

5

Draft 2015 UWMP Appendix B, Table 7-2 contains numbers that are inconsistent with the corresponding Table 6-4. The numbers on Table 7-2 appear to be in error.

CITY OF BANNING

M E M O R A N D U M

QUESTIONS RAISED ON THE CITY OF BANNING 2015 URBAN WATER MANAGEMENT PLAN AT THE CITY COUNCIL WORKSHOP ON MAY 24, 2016

1. Does the UWMP deal with the Chromium-6 issue?

   Chromium-6 is dealt with as a water quality issue. It does not affect supply.

2. Do the projections include the Pardee and Rancho San Gorgonio projects?

   If so, will there be enough water for these projects?

   Yes, the UWMP projections do include the Pardee and Rancho San Gorgonio Projects.

   Yes, there is enough water as long as residential demand is held at 220 gallons per capita per day or less through 2035. The City is currently at 196 gallons per capita per day. Additionally, the City has approximately 46,774 acre feet of water in its reserve storage account in the Beaumont Basin, which will provide sufficient additional water supplies beyond 2040.

3. How often is the UWMP updated? What if there are substantial changes to the City's situation. For example, Integrated Regional Water Management or formal allocation?

   The standard for updating the UWMP is every five years. It can be amended sooner if something substantial changes that would require it.

4. The UWMP states there is a 47,000 acre feet reserve. Is it physically there?

   How do we know it is not being overdrawn?

   Yes, the water is physically there. The Beaumont Basin is closely monitored. The City of Banning actually has a reserve storage account with a capacity of 80,000 acre feet. We are currently storing approximately 46,774 acre-feet in said storage account now.

QUESTION RAISED ON THE CITY OF BANNING 2015 URBAN WATER MANAGEMENT PLAN AT THE PUBLIC HEARING ON MAY 24, 2016

5. If the City has water for thousands of new homes why are the current residents having to conserve water?

   Based on a series of Executive Orders by Governor Brown, beginning in 2014, California is currently in a state of emergency due to severe drought conditions. As a result of said executive orders, water conservation is required throughout the state of California. Water suppliers who do not meet minimum conservation standards face steep fines from the state. Additionally, water conservation is not measured based on the total water use in the City, but rather the average gallons used per person per day.

AGENDA
SPECIAL CITY COUNCIL MEETING
CITY OF BANNING
BANNING, CALIFORNIA

May 24, 2016
1:00 p.m.

Banning Civic Center
Council Chambers
99 E. Ramsey St.

I. CALL TO ORDER

- Roll Call – Councilmembers Franklin, Miller, Moyer, Peterson, Mayor Welch

II. PUBLIC COMMENTS – *On Items Not on the Agenda*

A five-minute limitation shall apply to each member of the public who wishes to address the Mayor and Council on a matter not on the agenda. No member of the public shall be permitted to "share" his/her five minutes with any other member of the public. (Usually, any items received under this heading are referred to staff or future study, research, completion and/or future Council Action.) (See last page. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

III. WORKSHOP REPORTS

1. Budget Workshop for Fiscal Year 2016/17 and 2017/18 ..... **1**

1) City Overview – Michael Rock, City Manager
2) Public Works Department – CIP – Art Vela, Public Works Director/City Engineer
3) Electric Utility Department – Fred Mason, Electric Utility Director
4) Police Department – Alex Diaz, Police Chief
5) Community Services Department – Heidi Meraz, Community Services Director
6) Community Development Department – Brian Guillot, Community Development Director
7) Administrative Services Department – Rochelle Clayton, Administrative Services Director/Deputy City Manager
8) Department of the City Manager – Michael Rock, City Manager

2. Urban Water Management Plan Workshop (ORAL)
Staff Report – Art Vela, Public Works Director

IV. ADJOURNMENT

The City of Banning promotes and supports a high quality of life that ensures a safe and friendly environment, fosters new opportunities and provides responsive, fair treatment to all and is the pride of its citizens.

Pursuant to amended Government Code Section 54957.5(b) staff reports and other public records related to open session agenda items are available at City Hall, 99 E. Ramsey St., at the office of the City Clerk during regular business hours, Monday through Friday, 8 a.m. to 5 p.m.

NOTICE: Any member of the public may address this meeting of the Mayor and Council on any item appearing on the agenda by approaching the microphone in the Council Chambers and asking to be recognized, either before the item about which the member desires to speak is called, or at any time during consideration of the item. A five-minute limitation shall apply to each member of the public, unless such time is extended by the Mayor. No member of the public shall be permitted to "share" his/her five minutes with any other member of the public.

Any member of the public may address this meeting of the Mayor and Council on any item which does not appear on the agenda, but is of interest to the general public and is an item upon which the Mayor and Council may act. A five-minute limitation shall apply to each member of the public, unless such time is extended by the Mayor. No member of the public shall be permitted to "share" his/her five minutes with any other member of the public. The Mayor and Council will in most instances refer items of discussion which do not appear on the agenda to staff for appropriate action or direct that the item be placed on a future agenda of the Mayor and Council. However, no other action shall be taken, nor discussion held by the Mayor and Council on any item which does not appear on the agenda, unless the action is otherwise authorized in accordance with the provisions of subdivision (b) of Section 54954.2 of the Government Code.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the City Clerk's Office (951) 922-3102. **Notification 48 hours prior to the meeting** will enable the City to make reasonable arrangements to ensure accessibility to this meeting. [28 CFR 35.02-35.104 ADA Tile II]

AGENDA
REGULAR MEETING
CITY OF BANNING
BANNING, CALIFORNIA

May 24, 2016
6:00 p.m.

Banning Civic Center
Council Chambers
99 E. Ramsey St.

The following information comprises the agenda for a regular meeting of the City Council; a joint meeting of the Banning City Council, the City Council Sitting in Its Capacity of a Successor Agency and the Banning Utility Authority; and a Scheduled Meeting of the Banning Utility Authority.

Per City Council Resolution No. 2010-38 matters taken up by the Council before 9:00 p.m. may be concluded, but no new matters shall be taken up after 9:00 p.m. except upon a unanimous vote of the council members present and voting, but such extension shall only be valid for one hour and each hour thereafter shall require a renewed action for the meeting to continue.

I. CALL TO ORDER

- Invocation
- Pledge of Allegiance
- Roll Call – Councilmembers Franklin, Miller, Moyer, Peterson, Mayor Welch

II. REPORT ON CLOSED SESSION

III. PUBLIC COMMENTS

PUBLIC COMMENTS – *On Items Not on the Agenda*

A five-minute limitation shall apply to each member of the public who wishes to address the Mayor and Council on a matter not on the agenda. No member of the public shall be permitted to "share" his/her five minutes with any other member of the public. (Usually, any items received under this heading are referred to staff or future study, research, completion and/or future Council Action.) (See last page. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

CORRESPONDENCE: Items received under this category may be received and filed or referred to staff for future research or a future agenda.

The City of Banning promotes and supports a high quality of life that ensures a safe and friendly environment, fosters new opportunities and provides responsive, fair treatment to all and is the pride of its citizens.

VI. **ANNOUNCEMENTS/REPORTS** *(Upcoming Events/Other Items if any)*

- City Council
- City Committee Reports
- Report by City Attorney
- Report by City Manager

V. **CONSENT ITEMS**

(The following items have been recommended for approval and will be acted upon simultaneously, unless a member of the City Council wishes to remove an item for separate consideration.)

Motion: To approve Consent Items 1 through 6
Items to be pulled ____, ____, ____, ____ for discussion.
(Resolutions require a recorded majority vote of the total membership of the City Council)

1. Approval of Minutes – Special Meeting – 05/10/16 *(Closed Session)* **1**
2. Approval of Minutes – Regular Meeting – 05/10/16 . . . . . **3**
3. Resolution No. 2016-44, Establishing Time Limits for Conduct of Business at City Council Meetings and Repealing Resolution No. 2010-38. . . . . **35**
4. Adoption of Resolution No. 2016-45, Establishing an Ad Hoc 2+2 Committee with the City of Beaumont to Discuss Cannabis Regulation and Resolution No. 2016-46, Establishing an Ad Hoc 2+2 Committee with the City of Beaumont to Discuss Transit Operational Issues. **43**
5. Report of Investments for March 2016. . . . . **51**

- **Open for Public Comments**
- **Make Motion**

RECESS REGULAR CITY COUNCIL MEETING AND CALL TO ORDER A JOINT MEETING OF THE CITY COUNCIL, THE CITY COUNCIL SITTING IN ITS CAPACITY OF A SUCCESSOR AGENCY AND THE BANNING UTILITY AUTHORITY

I. **REPORTS OF OFFICERS**

1. Review and Requested Direction concerning the Draft Demand Letter to the Banning Chamber of Commerce requiring payment of overdue utility bills and requiring compliance with other terms of its lease with the Successor Agency. **59**

(Staff Report – Anthony R. Taylor, City Attorney)

Recommendations: **1) That the City Council, Utility Authority Board and Successor Agency Board review the attached draft demand letter requiring the Banning Chamber of Commerce pay its overdue utility bills and requiring it comply with the terms of its lease with the Successor Agency; and 2) Provide comments and direction to the City Attorney on the attached demand letter.**

2. FY 2015/16 Mid-Year Budget Review and Adjustments . . . . . 64 a
(Staff Report –Rochelle Clayton, Deputy City Manager/Administrative Services Director)

Recommendations: **1) That the City Council approve Resolution No. 2016-47, the Banning Utility Authority Resolution No. 2016-08 UA, and the Successor Agency Resolution No. 2016-03 SA, authorizing the Administrative Services Director to make necessary budget adjustments to implement the mid-year analysis.**

Adjourn Joint Meeting.

CALL TO ORDER A SCHEDULED MEETING OF THE BANNING UTILITY AUTHORITY

I. BANNING UTILITY AUTHORITY (BUA)

Roll Call: Boardmembers Franklin, Miller, Moyer, Peterson, Chairman Welch

PUBLIC HEARING

1. Receive and File Comments related to the 2015 Urban Water Management Plan 65
(Staff Report – Art Vela, Public Works Director)

Recommendation: **The Banning Utility Authority Receive and file comments related to the 2015 Urban Water Management Plan.**

BUA ADJOURNMENT - Next regular meeting: Tuesday, June 14, 2016.

BANNING FINANCING AUTHORITY (BFA) – no meeting.

RECONVENE REGULAR CITY COUNCIL MEETING

VI. REPORTS OF OFFICERS

1. Resolution No. 2016-34, Renewing the Contract for the Operation and Maintenance of the City of Banning's Landscape Maintenance District ("LMD") No. 1 69
(Staff Report – Art Vela, Public Works Director)

Recommendation: **Adopt Resolution No. 2016-34, Renewing the Contract for the Operation and Maintenance of the City of Banning's Landscape Maintenance District ("LMD") No. 1 with Artistic Maintenance, Inc. of Lake Forest, California, in the amount of $71,440.00 for Fiscal Year 2016/17.**

VII. PUBLIC HEARING

1. Public Hearing regarding City Council Elections by Districts. 79
(Staff Report – Anthony R. Taylor, City Attorney)

Recommendations: **A) Receive public testimony regarding electoral districts for city council elections, with or without a mayor elected at-large; and B) Provide direction to staff regarding any action to be taken at future scheduled public hearings, if the Council agrees to the same, concerning district elections on June 6, 2016 and June 28, 2016.**

VIII. ITEMS FOR FUTURE AGENDAS

New Items –

Pending Items – City Council

1. Housing Element *(2016)*

(Note: Dates attached to pending items are the dates anticipated when it will be on an agenda. The item(s) will be removed when completed.)

IX. ADJOURNMENT

Pursuant to amended Government Code Section 54957.5(b) staff reports and other public records related to open session agenda items are available at City Hall, 99 E. Ramsey St., at the office of the City Clerk during regular business hours, Monday through Friday, 8 a.m. to 5 p.m.

NOTICE: Any member of the public may address this meeting of the Mayor and Council on any item appearing on the agenda by approaching the microphone in the Council Chambers and asking to be recognized, either before the item about which the member desires to speak is called, or at any time during consideration of the item. A five-minute limitation shall apply to each member of the public, unless such time is extended by the Mayor. No member of the public shall be permitted to "share" his/her five minutes with any other member of the public.

Any member of the public may address this meeting of the Mayor and Council on any item which does not appear on the agenda, but is of interest to the general public and is an item upon which the Mayor and Council may act. A five-minute limitation shall apply to each member of the public, unless such time is extended by the Mayor. No member of the public shall be permitted to "share" his/her five minutes with any other member of the public. The Mayor and Council will in most instances refer items of discussion which do not appear on the agenda to staff for appropriate action or direct that the item be placed on a future agenda of the Mayor and Council. However, no other action shall be taken, nor discussion held by the Mayor and Council on any item which does not appear on the agenda, unless the action is otherwise authorized in accordance with the provisions of subdivision (b) of Section 54954.2 of the Government Code.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the City Clerk's Office (951) 922-3102. **Notification 48 hours prior to the meeting** will enable the City to make reasonable arrangements to ensure accessibility to this meeting. [28 CFR 35.02-35.104 ADA Tile II]

APPENDIX E

- **RESOLUTION ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN**
- **DOCUMENTATION OF SUBMITTAL OF FINAL 2015 UWMP TO CITIES AND COUNTIES WITHIN WHICH BANNING PROVIDES WATER SERVICE AND TO OTHER INTERESTED PARTIES**
- **DOCUMENTATION OF FINAL UWMP SUBMITTAL TO CALIFORNIA STATE LIBRARY**
- **DOCUMENTATION OF FINAL UWMP SUBMITTAL TO DWR**

RESOLUTION ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

RESOLUTION NO. 2016-10 UA

A RESOLUTION OF THE BANNING UTILITY AUTHORITY OF BANNING, CALIFORNIA, ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN AND APPROVING ITS SUBMITTAL TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES

WHEREAS, according to the Urban Water Management Planning Act, an urban water supplier is defined as a supplier, publicly or privately owned, that either provides over 3,000 acre-feet of water annually for municipal purposes or serves more than 3,000 customers; and

WHEREAS, urban water suppliers are required to assess the reliability of its water sources over a 20 year planning horizon considering normal and dry years and include said assessment in an Urban Water Management Plan ("UWMP"); and

WHEREAS, the UWMP must be adopted, after public review and hearing, and filed with the California Department of Water Resources ("DWR"); and

WHEREAS, the City of Banning is an urban water supplier; and

WHEREAS, the City of Banning has prepared its 2015 UWMP in compliance with California Water Code and the 2015 Urban Management Plans Guidebook for Urban Water Suppliers, circulated for public review and held a workshop and public hearing; and

WHEREAS, on June 14, 2016 the Banning Utility Authority approved the UWMP and its submittal to the DWR for final approval.

NOW, THEREFORE, BE IT RESOLVED by the Banning Utility Authority of the City of Banning as follows:

SECTION 1. The Banning Utility Authority adopts Resolution No. 2016-10 UA approving the 2015 Urban Water Management Plan.

SECTION 2. The Public Works Director is authorized to file the 2015 Urban Water Management Plan with the California Department of Water Resources.

PASSED, APPROVED AND APPROVED this 14th day of June, 2016.

Arthur L. Welch, Chairman
Banning Utility Authority

ATTEST:

Marie A. Calderon, Secretary

APPROVED AS TO FORM AND LEGAL CONTENT:

Anthony R. Taylor, Authority Counsel
Aleshire & Wynder, LLP

CERTIFICATION:

I, Marie A. Calderon, Secretary of the Banning Utility Authority of the City of Banning, California, do hereby certify that the foregoing Resolution No. 2016-10 UA was duly adopted by the Banning Utility Authority of the City of Banning, California, at a scheduled meeting thereof held on the 14th day of June, 2016, by the following vote, to wit:

AYES:	Boardmembers Franklin, Moyer, Chairman Welch
NOES:	None
ABSTAIN:	None
ABSENT:	Boardmembers Miller, Peterson

Marie A. Calderon, Secretary
Banning Utility Authority

CERTIFIED TO BE A TRUE AND CORRECT COPY OF THE ORIGINAL DOCUMENT ON FILE IN THE OFFICE OF THE CITY CLERK.

BY Marie A. Calderon
TITLE City Clerk
DATE 6-20-16

DOCUMENTATION OF SUBMITTAL OF FINAL 2015 UWMP TO CITIES AND COUNTIES WITHIN WHICH BANNING PROVIDES WATER SERVICE AND TO OTHER INTERESTED PARTIES

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Steve Weiss, AICP Planning Director
Riverside County Planning Department
4080 Lemon Street
Riverside, CA 92502

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Weiss:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-Riv Cnty

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Jeff Davis
San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Davis:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-SGPWA

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Calvin Louie
Cabazon Water District
Post Office Box 297
Cabazon, CA 92230

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Louie:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-CWD

Enclosure: PDF of Final 2015 UWMP on Compact Disc

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Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Bill Blankenship
Building Industry of
Southern California
3891 11th Street
Riverside, CA 92501

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Blankenship:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-BISC

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

John Covington
Morongo Band of Mission Indians
47350 Foothill Road
Banning, CA 92220

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Covington:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-MBMI

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Eric Fraser
Beaumont Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Fraser:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-BCVWD

Enclosure: PDF of Final 2015 UWMP on Compact Disc

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Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Dawn Jorge, Recording Secretary
Beaumont Basin Watermaster
560 Magnolia Avenue
Beaumont, CA 92223

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Ms. Jorge:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-BBW

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Stan Houghton
High Valleys Water District
47781 Twin Pines Road
Banning, CA 92220

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Houghton:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-HVWD

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Steve Romberg
Banning Heights Mutual Water Company
7091 Bluff Road
Banning, CA 92220

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Romberg:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

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- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-BHMWC

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Joe Zoba
Yucaipa Valley Water District
Post Office Box 730
Yucaipa, CA 92399-0730

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Zoba:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-YVWD

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

George Jorritsma
South Mesa Water Company
391 West Avenue L
Calimesa, CA 92320-1225

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Jorritsma:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-SMWC

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Pete Pitassi
Diversified Pacific
10621 Civic Center Drive
Rancho Cucamonga, CA 91730

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Pitassi:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

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- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-DivPac

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Elizabeth Gibbs-Urtiaga
Acting City Manager
City of Beaumont
550 East Sixth Street
Beaumont, CA 92223

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Ms. Gibbs-Urtiaga:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-Beaumont

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Gregory J. Hohman, P.E.
Hohman Development Services, Inc.
1125 Essex Lane
Newport Beach, CA 92660

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Hohman:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-HDS

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

KRIEGER & STEWART
Engineering Consultants

June 21, 2016 1036-1

Jeff Chambers
Pardee Homes
1250 Corona Pointe Court, Suite 600
Corona, CA 92879

Subject: City of Banning's 2015 Urban Water Management Plan

Dear Mr. Chambers:

The City of Banning (City) adopted its 2015 Urban Water Management Plan (UWMP) at a scheduled meeting of the Banning Utility Authority held on June 14, 2016.

On behalf of the City, we submit to you a copy of the City's Final 2015 UWMP in PDF on the enclosed compact disc. Said document is also available for review at the following locations:

- Online at: www.ci.banning.ca.us/2015uwmp
- In person at: City of Banning
  99 East Ramsey Street
  Banning, CA 92220

Sincerely,

KRIEGER & STEWART

Victoria E. Morrell

VEM/nr
1036-1-Final Sbmtl Ltr-Pardee

Enclosure: PDF of Final 2015 UWMP on Compact Disc

3602 University Avenue, Riverside, California 92501-3331
Tel: (951) 684-6900 • Fax: (951) 684-6986 • www.kriegerandstewart.com

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Sign up and start saving in your first week of shipping.
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Tracking

Tracking Summary

Print Help

Select a tracking number to see the full tracking detail.

1Z9444E90395751086 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivery

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

Notify me with Updates »
Change Delivery »

Shipping Information

To:
PARDEE HOMES
JEFF CHAMBERS
1250 CORONA POINTE COURT
STE 600
CORONA, CA, 928791779, US

Service

UPS Ground

1Z9444E90399283076 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivery

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

Notify me with Updates »
Change Delivery »

Shipping Information

To:
HOHMAN DEVELOPMENT SERVICES, INC.
GREGORY HOHMAN
1125 ESSEX LANE
NEWPORT BEACH, CA,
926605615, US

Service

UPS Ground

1Z9444E90395823061

Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

Notify me with Updates »

Change Delivery »

Shipping Information

To:
CITY OF BEAUMONT
ELIZABETH GIBBS-URTIAGA
550 EAST SIXTH STREET
ACTING CITY MANAGER
BEAUMONT, CA, 922232253, US

Service

UPS Ground

1Z9444E90398971057

Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

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Label Created On:
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Shipping Information

To:
DIVERSIFIED PACIFIC
PETE PITASSI
10621 CIVIC CENTER DRIVE
RANCHO CUCAMONGA, CA, 917303804, US

Service

UPS Ground

1Z9444E90397327040

Add Description

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Shipping Information

To:
SOUTH MESA WATER COMPANY
GEORGE JORRITSMA
391 W. AVENUE L
CALIMESA, CA, 923201225, US

Service

UPS Ground

1Z9444E90399491038

Add Description

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Shipping Information

To:
YUCAIPA VALLEY WATER DISTRICT
JOE ZOBA
12770 2ND STREET
YUCAIPA, CA, 923995600, US

Service

UPS Ground

1Z9444E90399063027

Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

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06/21/2016

Notify me with Updates »

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Shipping Information

To:
BANNING HEIGHTS MUTUAL WATER CO.
STEVE ROMBERG
7091 BLUFF RD
BANNING, CA, 922201592, US

Service

UPS Ground

1Z9444E90399643016

Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

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Shipping Information

To:
HIGH VALLEYS WATER DISTRICT
STAN HOUGHTON
47781 TWIN PINES ROAD
BANNING, CA, 922209658, US

Service

UPS Ground

1Z9444E90399831009 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
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Change Delivery »

Shipping Information

To:
BEAUMONT BASIN WATERMASTER
DAWN JORGE
560 MAGNOLIA AVENUE
BEAUMONT, CA, 922232258, US

Service

UPS Ground

1Z9444E90398226997 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

Notify me with Updates »

Change Delivery »

Shipping Information

To:
BEAUMONT CHERRY VALLEY WATER DIST
ERIC FRASER
560 MAGNOLIA AVENUE
BEAUMONT, CA, 922232258, US

Service

UPS Ground

1Z9444E90398430980 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

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Shipping Information

To:
MORONGO BAND OF MISSION INDIANS
JOHN COVINGTON
47350 FOOTHILL ROAD
BANNING, CA, 922202885, US

Service

UPS Ground

1Z9444E90399042979 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
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Shipping Information

To:
BUILDING INDUSTRY OF SOUTHERN CALIF
BILL BLANKENSHIP
3891 11ST STREET
RIVERSIDE, CA, 925013523, US

Service

UPS Ground

1Z9444E90398662962 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

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Change Delivery »

Shipping Information

To:
CABAZON WATER DISTRICT
CALVIN LOUIE
14618 BROADWAY ST.
CABAZON, CA, 922304127, US

Service

UPS Ground

1Z9444E90395890953 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

Notify me with Updates »

Change Delivery »

Shipping Information

To:
SAN GORGONIO PASS WATER AGENCY
JEFF DAVIS
1210 BEAUMONT AVE
BEAUMONT, CA, 922231506, US

Service

UPS Ground

1Z9444E90399326949 Add Description

Order Processed: Ready for UPS | Shipped | In Transit | Out for Delivery | Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

Notify me with Updates »

Change Delivery »

Shipping Information

To:
RIVERSIDE COUNTY PLANNING DEPT
STEVE WEISS, AICP PLANNING DIRECTOR
4080 LEMON STREET
RIVERSIDE, CA, 925013609, US

Service

UPS Ground

Tracking results provided by UPS: 06/21/2016 6:39 P.M. Eastern Time

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DOCUMENTATION OF FINAL UWMP SUBMITTAL
TO CALIFORNIA STATE LIBRARY

KRIEGER & STEWART, INCORPORATED
Engineering Consultants
3602 University Avenue
RIVERSIDE, CA 92501
(951) 684-6900

LETTER OF TRANSMITTAL

DATE	JOB NO.
June 21, 2016	1036-1

ATTENTION: Coordinator, Urban Water Management Plans

RE: City of Banning
2015 Urban Water Management Plan

TO: California State Library
Government Publications Section

914 Capitol Mall

Sacramento, CA 95814

WE ARE SENDING YOU VIA UPS THE FOLLOWING ITEMS:

COPIES	DATE	DESCRIPTION
1	5/2016	CD containing PDF of 2015 Urban Water Management Plan

THESE ARE TRANSMITTED: FOR YOUR USE

REMARKS:

The 2015 Urban Water Management Plan is also available for download from the City's website at www.ci.banning.ca.us/2015uwmp.

COPY TO: _____

SIGNED: Victoria E. Morrell/nr

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Tracking Detail

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1Z9444E90397570938 Add Description

Updated: 06/21/2016 6:38 P.M. Eastern Time

Order Processed: Ready for UPS → Shipped → In Transit → Out for Delivery → Delivered

A UPS shipping label has been created. Once the shipment arrives at our facility, the tracking status--including the scheduled delivery date--will be updated.

Label Created On:
06/21/2016

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Change Delivery »

Additional Information

Reference Number(s):	1036-1
Shipment Category:	Package
Shipped/Billed On:	06/21/2016
Weight:	1.00 lb

Need more information?

Get Help

Shipping Information

To:
CALIFORNIA STATE LIBRARY
COORDINATOR
914 CAPITOL MALL
URBAN WATER MANAGEMENT PLANS
SACRAMENTO, CA, 958144814, US

Service

UPS Ground



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DOCUMENTATION OF FINAL UWMP SUBMITTAL TO DWR

PLACEHOLDER FOR

DOCUMENTATION OF FINAL UWMP SUBMITTAL TO DWR

APPENDIX F

CLIMATE AND EVAPOTRANSPIRATION DATA

BEAUMONT #2, CALIFORNIA (040609)

Period of Record Monthly Climate Summary

Period of Record : 08/01/1939 to 01/20/2015

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	60.3	63.1	65.8	71.9	78.6	87.5	95.5	95.0	90.1	80.1	69.0	61.7	76.6
Average Min. Temperature (F)	38.4	38.8	39.9	42.7	47.5	52.2	58.2	58.8	55.5	49.1	42.9	39.2	46.9
Average Total Precipitation (in.)	3.52	3.40	3.12	1.44	0.55	0.14	0.23	0.27	0.51	0.65	1.72	2.26	17.81
Average Total SnowFall (in.)	1.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.8
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 97.7% Min. Temp.: 97.3% Precipitation: 99.1% Snowfall: 99% Snow Depth: 98.9%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

California Irrigation Management Information System (CIMIS)

CIMIS Monthly Average ETo Report

Rendered in ENGLISH Units.
Printed on Friday, April 08, 2016

Average ETo Values by Station

Stn Id	Stn Name	CIMIS Region	Jan (in)	Feb (in)	Mar (in)	Apr (in)	May (in)	Jun (in)	Jul (in)	Aug (in)	Sep (in)	Oct (in)	Nov (in)	Dec (in)	Total (in)
239	Hemet	SCV	2.28	2.61	4.20	4.98	6.68	7.17	7.88	7.55	6.09	4.12	2.64	1.94	58.14

CIMIS Region Abbreviations		
BIS - Bishop	CCV - Central Coast Valleys	ICV - Imperial/Coachella Valley
LAB - Los Angeles Basin	MBY - Monterey Bay	NCV - North Coast Valleys
NEP - Northeast Plateau	SAV - Sacramento Valley	SBE - San Bernardino
SFB - San Francisco Bay	SJV - San Joaquin Valley	SFH - Sierra Foothill
SCV - South Coast Valleys		

March Global Release: Tue, 19 Apr 2016, 11:00 AM EDT

Climate at a Glance

NCEI added Alaska climate divisions to its nClimDiv dataset on Friday, March 6, 2015, coincident with the release of the February 2015 monthly monitoring report. For more information on this data, please visit the Alaska Climate Divisions FAQ.

Time Series

U.S.

Choose from the options below and click "Plot" to create a time series graph.

Please note, **Degree Days** *are not available for* **Agricultural Belts**, **NWS Regions**, **Alaska** *and* **Cities**; **Palmer Indices** *are not available for* **NWS Regions**, **Alaska** *and* **Cities**.

Parameter:	Precipitation
Time Scale:	12-Month
Month:	September
Start Year:	1901
End Year:	2016
State/Region:	California
Climate Division/City:	CD 6. South Coast Drainage

Options

- ☑ **Display Base Period** — Start: 1901 End: 2016
- ☐ **Display Trend** — ◉ per Decade ○ per Century — Start: 1895 End: 2016
- ☐ **Smoothed Time Series** — ◉ Binomial Filter ○ LOESS

Plot

Move mouse towards an axis until highlighted. Left-click mouse to **pan**. *Shift key + left-click to* **zoom**.

Download:

DATES	VALUE	RANK	ANOMALY (17.60") 1901-2015 BASE PERIOD
190010 - 190109	19.17"	79	1.57"
190110 - 190209	12.76"	31	-4.84"
190210 - 190309	20.15"	80	2.55"
190310 - 190409	10.98"	16	-6.62"
190410 - 190509	24.99"	97	7.39"
190510 - 190609	22.87"	92	5.27"
190610 - 190709	26.43"	103	8.83"
190710 - 190809	17.67"	73	0.07"
190810 - 190909	23.33"	93	5.73"
190910 - 191009	17.61"	71	0.01"
191010 - 191109	22.53"	87	4.93"
191110 - 191209	15.11"	55	-2.49"
191210 - 191309	13.73"	38	-3.87"
191310 - 191409	26.36"	102	8.76"
191410 - 191509	26.31"	101	8.71"
191510 - 191609	24.01"	96	6.41"
191610 - 191709	17.21"	69	-0.39"
191710 - 191809	18.99"	78	1.39"
191810 - 191909	14.75"	51	-2.85"

191910 - 192009	16.62"	65	-0.98"
192010 - 192109	14.93"	52	-2.67"
192110 - 192209	25.63"	100	8.03"
192210 - 192309	14.69"	49	-2.91"
192310 - 192409	10.14"	11	-7.46"
192410 - 192509	11.82"	24	-5.78"
192510 - 192609	17.70"	75	0.10"
192610 - 192709	23.67"	95	6.07"
192710 - 192809	13.85"	41	-3.75"
192810 - 192909	13.80"	40	-3.80"
192910 - 193009	14.28"	47	-3.32"
193010 - 193109	14.97"	54	-2.63"
193110 - 193209	22.77"	91	5.17"
193210 - 193309	13.76"	39	-3.84"
193310 - 193409	11.47"	22	-6.13"
193410 - 193509	22.47"	86	4.87"
193510 - 193609	14.95"	53	-2.65"
193610 - 193709	28.07"	104	10.47"
193710 - 193809	25.32"	99	7.72"
193810 - 193909	16.82"	67	-0.78"
193910 - 194009	15.24"	57	-2.36"
194010 - 194109	38.01"	115	20.41"
194110 - 194209	16.16"	60	-1.44"
194210 - 194309	22.75"	90	5.15"
194310 - 194409	21.01"	82	3.41"
194410 - 194509	17.06"	68	-0.54"
194510 - 194609	14.73"	50	-2.87"
194610 - 194709	13.95"	43	-3.65"
194710 - 194809	9.71"	9	-7.89"
194810 - 194909	12.28"	28	-5.32"
194910 - 195009	12.79"	32	-4.81"

195010 - 195109	10.33"	12	-7.27"
195110 - 195209	28.75"	105	11.15"
195210 - 195309	12.95"	33	-4.65"
195310 - 195409	16.32"	63	-1.28"
195410 - 195509	14.12"	45	-3.48"
195510 - 195609	14.68"	48	-2.92"
195610 - 195709	13.65"	37	-3.95"
195710 - 195809	29.24"	107	11.64"
195810 - 195909	8.95"	6	-8.65"
195910 - 196009	12.12"	26	-5.48"
196010 - 196109	7.56"	3	-10.04"
196110 - 196209	21.19"	83	3.59"
196210 - 196309	12.39"	29	-5.21"
196310 - 196409	11.30"	19	-6.30"
196410 - 196509	15.36"	58	-2.24"
196510 - 196609	16.66"	66	-0.94"
196610 - 196709	23.58"	94	5.98"
196710 - 196809	13.25"	34	-4.35"
196810 - 196909	31.01"	108	13.41"
196910 - 197009	11.16"	18	-6.44"
197010 - 197109	14.24"	46	-3.36"
197110 - 197209	9.15"	8	-8.45"
197210 - 197309	22.74"	89	5.14"
197310 - 197409	15.58"	59	-2.02"
197410 - 197509	16.60"	64	-1.00"
197510 - 197609	12.55"	30	-5.05"
197610 - 197709	10.81"	15	-6.79"
197710 - 197809	37.11"	113	19.51"
197810 - 197909	22.64"	88	5.04"
197910 - 198009	29.09"	106	11.49"
198010 - 198109	12.26"	27	-5.34"
198110 - 198209	18.83"	77	1.23"

198210 - 198309	35.68"	112	18.08"
198310 - 198409	10.98"	16	-6.62"
198410 - 198509	13.40"	35	-4.20"
198510 - 198609	21.31"	84	3.71"
198610 - 198709	10.01"	10	-7.59"
198710 - 198809	17.57"	70	-0.03"
198810 - 198909	10.38"	13	-7.22"
198910 - 199009	9.10"	7	-8.50"
199010 - 199109	17.69"	74	0.09"
199110 - 199209	22.18"	85	4.58"
199210 - 199309	32.96"	110	15.36"
199310 - 199409	14.11"	44	-3.49"
199410 - 199509	32.28"	109	14.68"
199510 - 199609	13.45"	36	-4.15"
199610 - 199709	16.31"	62	-1.29"
199710 - 199809	37.22"	114	19.62"
199810 - 199909	11.35"	20	-6.25"
199910 - 200009	13.87"	42	-3.73"
200010 - 200109	17.65"	72	0.05"
200110 - 200209	6.44"	2	-11.16"
200210 - 200309	18.79"	76	1.19"
200310 - 200409	10.41"	14	-7.19"
200410 - 200509	34.55"	111	16.95"
200510 - 200609	16.22"	61	-1.38"
200610 - 200709	5.79"	1	-11.81"
200710 - 200809	15.18"	56	-2.42"
200810 - 200909	12.09"	25	-5.51"
200910 - 201009	20.28"	81	2.68"
201010 - 201109	25.01"	98	7.41"
201110 - 201209	11.44"	21	-6.16"
201210 - 201309	8.40"	5	-9.20"

201310 - 201409	7.71"	4	-9.89"
201410 - 201509	11.50"	23	-6.10"

APPENDIX G

CITY OF BANNING WATER AUDIT REPORT FOR REPORTING YEAR 2015

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

American Water Works Association.
Copyright © 2014, All Rights Reserved.

? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Banning
Reporting Year: 2015 (1/2015 - 12/2015)

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ----------> | Pcnt: | Value:

Volume from own sources:	8	6,709.700	acre-ft/yr	4				acre-ft/yr
Water imported:	n/a	0.000	acre-ft/yr					acre-ft/yr
Water exported:	n/a	0.000	acre-ft/yr					acre-ft/yr
WATER SUPPLIED:		**6,709.700**	acre-ft/yr					

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

Pcnt: | Value:

Billed metered:	10	5,971.300	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	10	0.000	acre-ft/yr			
Unbilled unmetered:	8	0.010	acre-ft/yr		0.010	acre-ft/yr
AUTHORIZED CONSUMPTION:		**5,971.310**	acre-ft/yr			

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

738.390 acre-ft/yr

Apparent Losses

Pcnt: | Value:

Unauthorized consumption:	7	0.010	acre-ft/yr		0.010	acre-ft/yr
Customer metering inaccuracies:	10	0.000	acre-ft/yr			acre-ft/yr
Systematic data handling errors:	8	0.010	acre-ft/yr		0.010	acre-ft/yr
Apparent Losses:		**0.020**	acre-ft/yr			

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:		**738.370**	acre-ft/yr			
WATER LOSSES:		**738.390**	acre-ft/yr			

NON-REVENUE WATER

NON-REVENUE WATER: **738.400** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	145.5	miles
Number of active AND inactive service connections:	10	10,649	
Service connection density:		73	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	8	90.0	psi

COST DATA

Total annual cost of operating water system:	7	$11,115,016	$/Year	
Customer retail unit cost (applied to Apparent Losses):	8	$2.27	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	4	$988.81	$/acre-ft	☑ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 80 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Total annual cost of operating water system

APPENDIX H

2015 SB X7-7 VERIFICATION FORM

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	9,606	Acre Feet
	2008 total volume of delivered recycled water		Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES: Current population estimate based on DOF data, and population projections based on DOF data and Southern California Association of Governments (SCAG) document: Draft Program Environmental Impact Report for the 2016 Regional Transportation	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	2001	24,639
Year 2	2002	25,662
Year 3	2003	27,608
Year 4	2004	28,055
Year 5	2005	28,250
Year 6	2006	28,234
Year 7	2007	28,193
Year 8	2008	28,551
Year 9	2009	28,751
Year 10	2010	29,603
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2006	28,234
Year 2	2007	28,193
Year 3	2008	28,551
Year 4	2009	28,751
Year 5	2010	29,603
2015 Compliance Year Population		
2015		30,491
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	10,032			-		-	10,032
Year 2	2002	9,808			-		-	9,808
Year 3	2003	10,043			-		-	10,043
Year 4	2004	10,424			-		-	10,424
Year 5	2005	9,427			-		-	9,427
Year 6	2006	10,245			-		-	10,245
Year 7	2007	10,245			-		-	10,245
Year 8	2008	9,606			-		-	9,606
Year 9	2009	9,259			-		-	9,259
Year 10	2010	8,485			-		-	8,485
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**9,757**
5 Year Baseline - Gross Water Use								
Year 1	2006	10,245			-		-	10,245
Year 2	2007	10,245			-		-	10,245
Year 3	2008	9,606			-		-	9,606
Year 4	2009	9,259			-		-	9,259
Year 5	2010	8,485			-		-	8,485
5 year baseline average gross water use								**9,568**
2015 Compliance Year - Gross Water Use								
2015		6,710	-		-		-	**6,710**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	Water System
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2001	10,032		10,032
Year 2	2002	9,808		9,808
Year 3	2003	10,043		10,043
Year 4	2004	10,424		10,424
Year 5	2005	9,427		9,427
Year 6	2006	10,245		10,245
Year 7	2007	10,245		10,245
Year 8	2008	9,606		9,606
Year 9	2009	9,259		9,259
Year 10	2010	8,485		8,485
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2006	10,245		10,245
Year 2	2007	10,245		10,245
Year 3	2008	9,606		9,606
Year 4	2009	9,259		9,259
Year 5	2010	8,485		8,485
2015 Compliance Year - Water into Distribution System				
2015		6,710		6,710

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year *Fm SB X7-7 Table 3*		Surface Reservoir Augmentation					Groundwater Recharge			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	2001			-		-			-	-
Year 2	2002			-		-			-	-
Year 3	2003			-		-			-	-
Year 4	2004			-		-			-	-
Year 5	2005			-		-			-	-
Year 6	2006			-		-			-	-
Year 7	2007			-		-			-	-
Year 8	2008			-		-			-	-
Year 9	2009			-		-			-	-
Year 10	2010			-		-			-	-
Year 11	0			-		-			-	-
Year 12	0			-		-			-	-
Year 13	0			-		-			-	-
Year 14	0			-		-			-	-
Year 15	0			-		-			-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2006			-		-			-	-
Year 2	2007			-		-			-	-
Year 3	2008			-		-			-	-
Year 4	2009			-		-			-	-
Year 5	2010			-		-			-	-
2015 Compliance - Indirect Recycled Water Use										
2015				-		-			-	-

**Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

NOTES: City of Banning is not deducting indirect recycled water; therefore, this table does not apply to City of Banning's 2015 Urban Water Management Plan.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	24,639	10,032	363
Year 2	2002	25,662	9,808	341
Year 3	2003	27,608	10,043	325
Year 4	2004	28,055	10,424	332
Year 5	2005	28,250	9,427	298
Year 6	2006	28,234	10,245	324
Year 7	2007	28,193	10,245	324
Year 8	2008	28,551	9,606	300
Year 9	2009	28,751	9,259	287
Year 10	2010	29,603	8,485	256
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**315**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	28,234	10,245	324
Year 2	2007	28,193	10,245	324
Year 3	2008	28,551	9,606	300
Year 4	2009	28,751	9,259	287
Year 5	2010	29,603	8,485	256
5 Year Average Baseline GPCD				**298**
2015 Compliance Year GPCD				
2015		30,491	6,710	**196**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	315
5 Year Baseline GPCD	298
2015 Compliance Year GPCD	196
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
315	**252**
NOTES:	

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**0**

NOTES: City of Banning used Target Method 1 to determine its urban water use target; therefore, this table does not apply to the City.

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
298	283	252	**252**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
252	315	**284**
NOTES:		

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)* Enter "0" if Adjustment Not Used: Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
196	284	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	196	196	**YES**
NOTES:								

APPENDIX I

STIPULATION FOR ENTRY OF JUDGMENT ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN, DATED FEBRUARY 4, 2004

ORIGINAL COPY

JOSEPH S. AKLUFI (Bar No. 68619)
AKLUFI AND WYSOCKI
3403 Tenth Street, Suite 610
Riverside, California 92501
(909)682-5480 Office
(909)682-2619 Fax

Attorneys for Plaintiff, SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

NO FILING FEE REQUIRED PER GOVERNMENT CODE, SEC. 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB - 4 2004

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF RIVERSIDE, RIVERSIDE COURT

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY, a public agency,

Plaintiff,

vs.

CITY OF BANNING, a municipal corporation; BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district; YUCAIPA VALLEY WATER DISTRICT, a county water district; PLANTATION ON THE LAKE LLC, a California limited liability company; SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association; SOUTH MESA MUTUAL WATER COMPANY, a mutual water company; CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company; OAK VALLEY PARTNERS LP, a Texas limited partnership; SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation; SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation; MANHEIM, MANHEIM & BERMAN, a California General Partnership; WALTER M. BECKMAN, individually and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990; THE ROMAN CATHOLIC BISHOP of San Bernardino,

CASE NO. RIC 389197

STIPULATION FOR ENTRY OF JUDGMENT ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN

AKLUFI AND WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

a California corporation; MERLIN PROPERTIES, LLC; LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991; and DOES 1 through 500, inclusive,

Defendants.

I. STIPULATING PARTIES IDENTIFIED

The following parties, and each of them, agree to the terms of this Stipulation:

Plaintiff:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Overlying Defendants:

1. SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association
2. CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company
3. OAK VALLEY PARTNERS LP, a Texas limited partnership
4. SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation
5. SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation
6. MANHEIM, MANHEIM & BERMAN, a California general partnership
7. WALTER M. BECKMAN, individually, and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990
8. THE ROMAN CATHOLIC BISHOP of San Bernardino, a California corporation
9. MERLIN PROPERTIES, LLC
10. LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991
11. PLANTATION ON THE LAKE LLC, a California limited liability company

Appropriating Defendants:

1. CITY OF BANNING, a municipal corporation
2. BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district
3. SOUTH MESA MUTUAL WATER COMPANY, a mutual water company
4. YUCAIPA VALLEY WATER DISTRICT, a county water district

///

AKLUFI AND WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

II. RECITALS

WHEREAS, plaintiff is a joint powers public agency, formed in 2001 for the purpose, among others, of preparing and implementing a Water Resources Management Plan for the San Timoteo Watershed and the waters tributary thereto, including the Beaumont Basin, in order to conserve local water supplies, improve surface and subsurface water quality and quantity, and to protect and enhance groundwater storage, for the benefit of the public;

WHEREAS, the Beaumont Basin, also known as the Beaumont Storage Unit, is the common source of water supply for appropriative water uses within the communities of Banning, Beaumont, Cherry Valley and Calimesa, and for various overlying uses including, but not limited to, golf courses and related facilities and agricultural production, including egg production and related agricultural irrigation uses;

WHEREAS, the maximum quantity of water which can be produced from the Beaumont Basin, at safe yield, is currently estimated to be 8650 acre feet per year, and the total groundwater production from the Beaumont Basin has exceeded and continues to exceed its safe yield;

WHEREAS, much of the land area within and adjacent to the Beaumont Basin is proposed to be intensively developed with residential, commercial and industrial uses, which will place additional demands on local water resources;

WHEREAS, it is estimated that the Beaumont Basin has the capability of storing more than 200,000 acre feet of water for overlying and appropriative use by water users within and

RIVERSIDE, C. ORNIA 92501
(909) 682-5480

adjacent to the Beaumont Basin;

WHEREAS, the plaintiff proposes to invest substantial public funds to construct facilities that will enable the storage of water within the Beaumont Basin, in addition to the storage that occurs naturally;

WHEREAS, the Overlying and Appropriating Defendants wish to secure the provision and availability of a reliable, affordable, long-term water supply for the area within plaintiff's jurisdiction, making reasonable and beneficial use of the native groundwater in the Beaumont Basin, and other local water resources, promoting the importation of water into the area, and storage of such water, and local surface waters, in the Beaumont Basin;

WHEREAS, the Overlying Defendants believe that it is in their best interest to enter into this Stipulation and be subject to the attached Judgment, rather than continue to litigate the safe yield of the Beaumont Basin, the quantity of their overlying rights, both historical and unexercised, the rights they may have to use the storage volume existing beneath their respective lands, and other issues;

WHEREAS, in order to protect existing overlying and appropriative uses and to justify and protect the public investment necessary to utilize the available groundwater storage capacity in the Beaumont Basin, it is necessary to adjudicate the Beaumont Basin and to define the respective water rights of the overlying and appropriative producers of groundwater.

NOW, THEREFORE, the undersigned parties, and each of them, hereby agree to the following Stipulated Terms.

AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

III. STIPULATED TERMS

1. Form of Judgment: Judgment may be filed and entered in the form attached hereto as Exhibit "1" and made a part hereof.

2. Fees and Costs: Each party shall bear its own costs, attorneys fees and litigation expenses arising out of this adjudication.

3. Waiver: Notice of entry of judgment, the right to trial, stay of execution and appeal, is hereby waived, except as expressly set forth in the Judgment.

4. Binding Effect: This Stipulation and all obligations herein, shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto.

5. Construction and Interpretation: No adverse construction or interpretation of this Stipulation shall be made under the Civil Code simply because the parties drafted or participated in the drafting of this Stipulation. The terms of the Judgment shall be interpreted to further the purposes of this Stipulation.

6. Jurisdiction and Venue: The Superior Court of California in and for the County of Riverside shall have jurisdiction of this matter. In the event of any litigation arising out of this Stipulation, venue shall conclusively be deemed to lie in the County of Riverside.

7. Advice of Counsel: The undersigned each have had the opportunity to consult with or have consulted with their own legal counsel regarding this Stipulation and all matters set forth herein, or have knowingly waived the right to do so.

RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: 1/6/04

By _____
President, Board of Directors

CITY OF BANNING

Dated: 12/23/03

By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____

By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____

By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____

By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____

By _____
President, Board of Directors

ARLUFI AND WYSOCKI
3403 TEN... REET, SUITE 610
RIVERSIDE, ...LIFORNIA 92501
(909) 682-3480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: July 3, 2003 By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____ By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____ By _____
President, Board of Directors

RIVERSIDE, FORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: 10/1/03 By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____ By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____ By _____
President, Board of Directors

AKLUFI AND WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: 7/30/03 By James H Krueger
~~President, Board of Directors~~
Manager of Meadows Management Company LLC, Manager

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____ By _____
President, Board of Directors

RIVERSIDE, C. ORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____ By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: June 27, 2003 By Lenardo Alexander
President, Board of Directors

ARLUFI AND WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: 6-27-03

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____

By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: 7-31-2003

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____

By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

...SOFF AND WYSOCKI
3403 TENTH ...T, SUITE 610
RIVERSIDE, C... ORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____

By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: July 8, 2003

By Thomas C. Gustafson
~~President~~, ~~Board of Directors~~
CHIEF Executive Officer

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____ By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____ By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____ By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____ By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____ By Michael Marboim
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____ By Dottie Berman

Dated: 7-23-03

Walter M. Beckman

WALTER M. BECKMAN

Dated: 7-23-03

Walter M. Beckman

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

Dated: _____

_____

CECIL MERLE MURRAY

MERLIN PROPERTIES, LLC

Dated: _____

By _____

Dated: _____

_____

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: _____

_____

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

3403 TENTH ST, SUITE 610
RIVERSIDE, CA 92501
(909) 682-5480

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: _____

_____

JUDGE OF THE SUPERIOR COURT

Dated: _____

WALTER M. BECKMAN

Dated: _____

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

THE ROMAN CATHOLIC BISHOP of San Bernardino, a California corporation

Dated: 9/18/03

By Msgr. Gerald M. Fogg

MERLIN PROPERTIES, LLC

Dated: _____

By _____

Dated: _____

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: _____

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: _____

_____

JUDGE OF THE SUPERIOR COURT

Dated: _____

WALTER M. BECKMAN

Dated: _____

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

THE ROMAN CATHOLIC BISHOP of San Bernardino, a California corporation

Dated: _____

By _____

MERLIN PROPERTIES, LLC

Dated: July 31, 2003

By Paul L Rushmer

Dated: _____

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: _____

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

3403 TENTH ST[illegible], SUITE 610
RIVERSIDE, C[illegible]IA 92501
(909) [illegible]-5480

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: _____

JUDGE OF THE SUPERIOR COURT

Dated: _____

WALTER M. BECKMAN

Dated: _____

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

Dated: _____

CECIL MERLE MURRAY

MERLIN PROPERTIES, LLC

Dated: _____ By _____

Dated: 7-23-03

Leonard M. Stearns

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: 7-23-03

Dorothy D. Stearns

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: FEB - 4 2004

GARY TRANBARGER

JUDGE OF THE SUPERIOR COURT

ORIGINAL COPY

JOSEPH S. AKLUFI (Bar No. 68619)
AKLUFI AND WYSOCKI
3403 Tenth Street, Suite 610
Riverside, California 92501
(909)682-5480 Office
(909)682-2619 Fax

Attorneys for Plaintiff, SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

NO FILING FEE REQUIRED PER GOVERNMENT CODE, SEC. 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB - 4 2004

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF RIVERSIDE, RIVERSIDE COURT

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY, a public agency,

Plaintiff,

vs.

CITY OF BANNING, a municipal corporation; BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district; YUCAIPA VALLEY WATER DISTRICT, a county water district; PLANTATION ON THE LAKE LLC, a California limited liability company; SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association; SOUTH MESA MUTUAL WATER COMPANY, a mutual water company; CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company; OAK VALLEY PARTNERS LP, a Texas limited partnership; SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation; SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation; MANHEIM, MANHEIM & BERMAN, a California General Partnership; WALTER M. BECKMAN, individually and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990; THE ROMAN CATHOLIC BISHOP of San Bernardino,

CASE NO. RIC 389197

JUDGMENT PURSUANT TO STIPULATION ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN

AKLUFI AND WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

a California corporation; MERLIN PROPERTIES, LLC; LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991; and DOES 1 through 500, inclusive,

Defendants.

I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction

The complaint herein was filed on February 20, 2003, seeking an adjudication of water rights, injunctive relief and the imposition of a physical solution. The defaults of certain defendants have been entered, and certain other defendants dismissed. Other than defendants who have been dismissed or whose defaults have been entered, all defendants have appeared herein. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation for Judgment

Stipulation for Entry of Judgment has been filed by and on behalf of all defendants who have appeared herein.

3. Definitions

As used in this Judgment, these terms shall have the following meanings:

A. Appropriator or Appropriator Parties: the pumpers identified in Exhibit "C" attached hereto.

B. Appropriator's Production Right: consists of an Appropriator's share of Operating Yield, plus (1) any water acquired by an Appropriator from an Overlying Producer or other Appropriator pursuant to this Judgment, (2) any water

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(909) 682-5480

withdrawn from the Appropriator's storage account, (3) and New Yield created by the Appropriator.

C. Appropriative Water: the amount of Safe Yield remaining after satisfaction of Overlying Water Rights.

D. Appropriative Water Right: each Appropriator's share of Appropriative Water, such share expressed as a percentage as shown on Exhibit "C".

E. Beaumont Basin or Beaumont Storage Unit: the area situated within the boundaries shown on Exhibit "A" attached hereto.

F. Conjunctive Use: the storage of water in a Groundwater Basin for use at a later time.

G. Groundwater: water beneath the surface of the ground within the zone below the water table in which soil is saturated with water.

H. Groundwater Basin: an area underlain by one or more permeable formations capable of furnishing a substantial water supply.

I. Groundwater Storage Agreement: a standard form of written agreement between the Watermaster and any Person requesting the storage of Supplemental Water.

J. Groundwater Storage Capacity: the space available in a Groundwater Basin that is not utilized for storage or regulation of Safe Yield and is reasonably available for Stored Water and Conjunctive Use.

K. Minimal Producer: any Producer who pumps 10 or fewer acre feet of Groundwater from the Beaumont Basin per year.

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L. New Yield: increases in yield in quantities greater than historical amounts from sources of supply including, but not limited to, capture of available storm flow, by means of projects constructed after February 20, 2003, as determined by the Watermaster.

M. Operating Yield: the maximum quantity of water which can be produced annually by the Appropriators from the Beaumont Basin, which quantity consists of Appropriative Water plus Temporary Surplus.

N. Overdraft: a condition wherein the total annual production from a Groundwater Basin exceeds the Safe Yield thereof.

O. Overlying Parties: the Persons listed on Exhibit "B", who are owners of land which overlies the Beaumont Basin and have exercised Overlying Water Rights to pump therefrom. Overlying Parties include successors in interest and assignees.

P. Overlying Water Rights: the quantities decreed to Overlying Parties in Column 4 of Exhibit "B" to this Judgment.

Q. Overproduction: by an Appropriator, measured by an amount equal to the Appropriator's actual annual production minus the Appropriator's Production Right. By a new overlying producer, an amount equal to what the overlying producer pumped during the year.

R. Party (Parties): any Person(s) named in this action, or who has intervened, or has become subject to this Judgment either through stipulation, trial or otherwise

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S. Person: any individual, partnership, association, corporation, governmental entity or agency, or other organization.

T. Physical Solution: the physical solution set forth in Part V of this Judgment.

U. Produce, Producing, Production, Pump or Pumping: the extraction of groundwater.

V. Producer or Pumper: any Person who extracts groundwater.

W. Recycled Water: has the meaning provided in Water Code Section 13050(n) and includes other nonpotable water for purposes of this Judgment.

X. Safe Yield: the maximum quantity of water which can be produced annually from a Groundwater Basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage. The Safe Yield of the Beaumont Basin is 8650 acre feet per year in each of the ten (10) years following entry of this Judgment.

Y. San Timoteo Watershed Management Authority: a joint powers public agency whose members are the Beaumont-Cherry Valley Water District, the City of Beaumont, the South Mesa Mutual Water Company and the Yucaipa Valley Water District.

Z. Stored Water: Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

AA. Supplemental Water: water imported into the

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Beaumont Basin from outside the Beaumont Basin including, without limitation, water diverted from creeks upstream and tributary to Beaumont Basin and water which is recycled and useable within the Beaumont Basin.

BB. Temporary Surplus: the amount of groundwater that can be pumped annually in excess of Safe Yield from a Groundwater Basin necessary to create enough additional storage capacity to prevent the waste of water.

CC. Watermaster: the Person appointed by the Court to administer and enforce the Physical Solution.

4. List of Exhibits

The following exhibits are attached to this Judgment and made a part hereof:

Exhibit "A" -- "Location Map of Beaumont Basin"
Exhibit "B" -- "Overlying Owners and Their Water Rights"
Exhibit "C" -- "Appropriators and Their Water Rights"
Exhibit "D" -- "Legal Description of Lands of the Overlying Parties"
Exhibit "E" -- "Location of Overlying Producer Parcels and Boundary of the Beaumont Basin"

II. INJUNCTIONS

1. Injunction Against Unauthorized Production of Beaumont Basin Water

Each party herein is enjoined, as follows:

A. Overlying Parties: Each defendant who is an Overlying Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any five-year period hereafter in excess of five times the share of the Safe Yield assigned to the Overlying Parties as set

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forth in Column 4 of Exhibit "B", as more fully described in the Physical Solution.

B. Appropriator Parties: Each defendant who is an Appropriator Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any year hereafter in excess of such party's Appropriator's Production Right, except as additional annual Production may be authorized by the provisions of the Physical Solution.

2. Injunction Against Unauthorized Storage or Withdrawal of Stored Water

Each and every Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from storing Supplemental Water in the Beaumont Basin for withdrawal, or causing withdrawal of water stored by that Party, except pursuant to the terms of a written Groundwater Storage Agreement with the Watermaster and in accordance with Watermaster Rules and Regulations. Any Supplemental Water stored in the Beaumont Basin, except pursuant to a Groundwater Storage Agreement, shall be deemed abandoned and not classified as Stored Water.

III. DECLARATION AND ADJUSTMENT OF RIGHTS

1. Overlying Rights

The Overlying Parties are currently exercising Overlying Water Rights in the Beaumont Basin. As shown on Exhibit "B", the aggregate Projected Maximum Production of water from the Beaumont Basin pursuant to Overlying Water Rights is 8610 acre feet and the Overlying Water Rights are individually decreed, in Column 4 of Exhibit "B", for each Overlying Party. The Overlying Parties

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shall continue to have the right to exercise their respective Overlying Water Right as set forth in Column 4 of Exhibit "B" except to the extent their respective properties receive water service from an Appropriator Party, as contemplated by Paragraph III.3 of this Judgment.

2. Appropriator's Share of Operating Yield

Each Appropriator Party's share of Operating Yield is shown on Exhibit "C". Notwithstanding any other provision of this Judgment, each Appropriator Party may use its Appropriator's Production Right anywhere within its service area.

3. Adjustment of Rights

A. The Overlying Parties shall have the right to exercise their respective Overlying Water Rights except as provided in this Paragraph 3.

B. To the extent any Overlying Party requests, and uses its Exhibit "B", Column 4 water to obtain water service from an Appropriator Party, an equivalent volume of potable groundwater shall be earmarked by the Appropriator Party which will serve the Overlying Party, up to the volume of the Overlying Water Right as reflected in Column 4 of Exhibit "B" attached hereto, for the purpose of serving the Overlying Party. The intent of this provision is to ensure that the Overlying Party is given credit towards satisfying the water availability assessment provisions of Government Code, Section 66473.7 et seq. and Water Code, Section 10910 et seq. or other similar provisions of law, equal to the amount of groundwater earmarked hereunder.

C. When an Overlying Party receives water service as

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provided for in subparagraph III.3.B the Overlying Party shall forebear the use of that volume of the Overlying Water Right earmarked by the Appropriator Party. The Appropriator Party providing such service shall have the right to produce the volume of water foregone by the Overlying Party, in addition to other rights otherwise allocated to the Appropriator Party.

D. Should the volume of the Overlying Water Right equal or exceed the volume of potable groundwater earmarked as provided in subparagraph 3.B, the Appropriator Party which will serve the Overlying Party shall (i) impose potable water charges and assessments upon the Overlying Party and its successors in interest at the rates charged to the then-existing regular customers of the Appropriator Party, and (ii) not collect from such Overlying Party any development charge that may be related to the importation of water into the Beaumont Basin. The Appropriator Party which will serve the Overlying Party pursuant to Subparagraph III.3.B shall also consider, and negotiate in good faith regarding, the provision of a meaningful credit for any pipelines, pump stations, wells or other facilities that may exist on the property to be served.

E. In the event an Overlying Party receives Recycled Water from an Appropriator Party to serve an overlying use served with groundwater, the Overlying Water Right of the Overlying Party shall not be diminished by the receipt and use of such Recycled Water. Recycled Water provided by an Appropriator Party to an Overlying Party shall satisfy the

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criteria set forth in the California Water Code including, without limitation, the criteria set forth in Water Code Sections 13550 and 13551. The Appropriator Party which will serve the Recycled Water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of Recycled Water service pursuant to the terms of this subparagraph; provided, however, that such right of use by the Appropriator Party shall no longer be valid if the Recycled Water, provided by the Appropriator Party to the Overlying Party, does not satisfy the requirements of Sections 13550 and 13551 and the Overlying Party ceases taking delivery of such Recycled Water.

F. Nothing in this Judgment is intended to impair or adversely affect the ability of an Overlying Party to enter into annexation or development agreements with any Appropriator Party.

G. Oak Valley Partners LP ("Oak Valley") is developing its property pursuant to Specific Plans 216 and 216A adopted by the County of Riverside ("County") in May 1990, and Specific Plan 318 adopted by the County in August, 2001, (Specific Plans 216, 216A and 318 are collectively referred to as the "Specific Plans"). The future water supply needs at build-out of the Specific Plans will greatly exceed Oak Valley's Projected Maximum Production, as reflected in Exhibit "B" to the Judgment, and may be as much as 12,811 acre feet per year. Oak Valley has annexed the portion of its property now within the City of Beaumont into the Beaumont-Cherry Valley Water District ("BCVWD"), and is in

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the process of annexing the remainder portion of its property into the Yucaipa Valley Water District ("YVWD"), in order to obtain retail water service for the development of the Oak Valley property pursuant to the Specific Plans (for purposes of this subparagraph BCVWD and YVWD are collectively referred to as the "Water Districts", and individually as a "Water District"). YVWD covenants to use its best efforts to finalize the annexation of the Oak Valley property within the Calimesa City limits. Oak Valley, for itself and its successors and assigns, hereby agrees, by this stipulation and upon final annexation of its property by YVWD, to forbear from claiming any future, unexercised, overlying rights in excess of the Projected Maximum Production of Exhibit "B" of 1806 acre feet per year. As consideration for the forbearance, the Water Districts agree to amend their respective Urban Water Management Plans ("UWMP") in 2005 as follows: BCVWD agrees that 2,400 acre feet per year of projected water demand shall be included for the portion of Oak Valley to be served by BCVWD in its UWMP, and YVWD agrees to include 8,000 acre feet per year of projected water demand as a projected demand for the portion of Oak Valley to be served by YVWD in its UWMP by 2025. The Water Districts agree to use their best judgment to accurately revise this estimate to reflect the projected water demands for the UWMP prepared in 2010. Furthermore, the Water Districts further agree that, in providing water availability assessments prior to 2010, as required by Water Code §10910 and water supply verifications as required by Government Code §§66455.3 and

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66473.7, or any similar statute, and in maintaining their respective UWMP, each shall consider the foregoing respective projected water demand figures for Oak Valley as proposed water demands. The intent of the foregoing requirements is to ensure that Oak Valley is credited for the forbearance of its overlying water rights and is fully accounted for in each Water District's UWMP and overall water planning. The Water Districts' actions in performance of the foregoing planning obligations shall not create any right or entitlement to, or priority or allocation in, any particular water supply source, capacity or facility, or any right to receive water service other than by satisfying the applicable Water District's reasonable requirements relating to application for service. Nothing in this subparagraph G is intended to affect or impair the provision of earmarked water to Overlying Parties who request and obtain water service from Appropriator Parties, as set forth in subparagraph III.3.B, above.

H. Persons who would otherwise qualify as Overlying Producers based on an interest in land lying within the City of Banning's service area shall not have the rights described in this Paragraph III.3.

4. Exemption for Minimal Producers

Unless otherwise ordered by the Court, Minimal Producers are exempt from the provisions of this Judgment.

IV. CONTINUING JURISDICTION

Full jurisdiction, power and authority is retained and reserved to the Court for purposes of enabling the Court, upon

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application of any Party, by a motion noticed for at least a 30-day period (or consistent with the review procedures of Paragraph VII.6 herein, if applicable), to make such further or supplemental order or directions as may be necessary or appropriate for interim operation of the Beaumont Basin before the Physical Solution is fully operative, or for interpretation, or enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to the provisions hereof consistent with the rights herein decreed; except that the Court's jurisdiction does not extend to the redetermination of (a) Safe Yield during the first ten years of operation of the Physical Solution, and (b) the fraction of the share of Appropriative Water of each Appropriator.

V. THE PHYSICAL SOLUTION

1. Purpose and Objective

In accordance with the mandate of Section 2 of Article X of the California Constitution, the Court hereby adopts, and orders the parties to comply with, a Physical Solution. The purpose of the Physical Solution is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Beaumont Basin, to facilitate conjunctive utilization of surface, ground and Supplemental Waters, and to satisfy the requirements of water users having rights in, or who are dependent upon, the Beaumont Basin. Such Physical Solution requires the definition of the individual rights of all Parties within the Beaumont Basin in a manner which will fairly allocate the native water supplies and which will provide for equitable sharing of costs of Supplemental Water.

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2. Need for Flexibility

The Physical Solution must provide maximum flexibility and adaptability in order that the Watermaster and the Court may be free to use existing and future technological, social, institutional and economic options. To that end, the Court's retained jurisdiction shall be utilized, where appropriate, to supplement the discretion granted herein to the Watermaster.

3. Production and Storage in Accordance With Judgment

This Judgment, and the Physical Solution decreed herein, address all Production and Storage within the Beaumont Basin. Because the Beaumont Basin is at or near a condition of Overdraft, any Production outside the framework of this Judgment and Physical Solution will potentially damage the Beaumont Basin, injure the rights of all Parties, result in the waste of water and interfere with the Physical Solution. The Watermaster shall bring an action or a motion to enjoin any Production that is not in accordance with the terms of this Judgment.

4. General Pattern of Operation

One fundamental premise of the adjudication is that all Producers shall be allowed to pump sufficient water from the Beaumont Basin to meet their respective requirements. Another fundamental premise of the adjudication is that Overlying Parties who pump no more than the amount of their Overlying Water Right as shown on Column 4 of Exhibit "B" hereto, shall not be charged for the replenishment of the Beaumont Basin. To the extent that pumping exceeds five (5) times the share of the Safe Yield assigned to an Overlying Party (Column 4 of Exhibit "B") in any five (5) consecutive years, or the share of Operating Yield

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Right of each Appropriator Party, each such Party shall provide funds to enable the Watermaster to replace such Overproduction.

5. Use of Available Groundwater Storage Capacity

A. There exists in the Beaumont Basin a substantial amount of available Groundwater Storage Capacity. Such Capacity can be reasonably used for Stored Water and Conjunctive Use and may be used subject to Watermaster regulation to prevent injury to existing Overlying and Appropriative water rights, to prevent the waste of water, and to protect the right to the use of Supplemental Water in storage and Safe Yield of the Beaumont Basin.

B. There shall be reserved for Conjunctive Use a minimum of 200,000 acre feet of Groundwater Storage Capacity in the Beaumont Basin provided that such amount may be reduced as necessary to prevent injury to existing water rights or existing uses of water within the Basin, and to prevent the waste of water. Any Person may make reasonable beneficial use of the Groundwater Storage Capacity for storage of Supplemental Water; provided, however, that no such use shall be made except pursuant to a written Groundwater Storage Agreement with the Watermaster. The allocation and use of Groundwater Storage Capacity shall have priority and preference for Producers within the Beaumont Basin over storage for export. The Watermaster may, from time-to-time, redetermine the available Groundwater Storage Capacity.

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VI. ADMINISTRATION

1. Administration and Enforcement by Watermaster

The Watermaster shall administer and enforce the provisions of this Judgment and any subsequent order or instructions of the Court.

2. Watermaster Control

The Watermaster is hereby granted discretionary powers to develop and implement a groundwater management plan and program for the Beaumont Basin, which plan shall be filed with and shall be subject to review and approval by, the Court, and which may include water quantity and quality considerations and shall reflect the provisions of this Judgment. Except for the exercise by Overlying Parties of their respective Rights described in Column 4 of Exhibit "B" hereto in accordance with the provisions of the Physical Solution, groundwater extractions and the replenishment thereof, and the storage of Supplemental Water, shall be subject to procedures established and administered by the Watermaster. Such procedures shall be subject to review by the Court upon motion by any Party.

3. Watermaster Standard of Performance

The Watermaster shall, in carrying out its duties and responsibilities herein, act in an impartial manner without favor or prejudice to any Party or purpose of use.

4. Watermaster Appointment

The Watermaster shall consist of a committee composed of persons nominated by the City of Banning, the City of Beaumont, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company and the Yucaipa Valley Water District, each of

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which shall have the right to nominate one representative to the Watermaster committee who shall be an employee of or consultant to the nominating agency. Each such nomination shall be made in writing, served upon the other parties to this Judgment and filed with the Court, which shall approve or reject such nomination. Each Watermaster representative shall serve until a replacement nominee is approved by the Court. The nominating agency shall have the right to nominate that representative's successor.

5. Powers and Duties of the Watermaster

Subject to the continuing supervision and control of the Court, the Watermaster shall have and may exercise the following express powers, and shall perform the following duties, together with any specific powers, authority, and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the Court in the exercise of its continuing jurisdiction:

A. Rules and Regulations: The adoption of appropriate rules and regulations for the conduct of Watermaster affairs, copies of which shall be provided to all interested parties.

B. Wellhead Protection and Recharge: The identification and management of wellhead protection areas and recharge areas.

C. Well Abandonment: The administration of a well abandonment and well destruction program.

D. Well Construction: The development of minimum well construction specifications and the permitting of new wells.

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E. Mitigation of Overdraft: The mitigation of conditions of uncontrolled overdraft.

F. Replenishment: The acquisition and recharge of Supplemental Water.

G. Monitoring: The monitoring of groundwater levels, ground levels, storage, and water quality.

H. Conjunctive Use: The development and management of conjunctive-use programs.

I. Local Projects: The coordination of construction and operation, by local agencies, of recharge, storage, conservation, water recycling, extraction projects and any water resource management activity within or impacting the Beaumont Basin.

J. Land Use Plans: The review of land use plans and coordination with land use planning agencies to mitigate or eliminate activities that create a reasonable risk of groundwater contamination.

K. Acquisition of Facilities: The purchase, lease and acquisition of all necessary real and personal property, including facilities and equipment.

L. Employment of Experts and Agents: The employment or retention of such technical, clerical, administrative, engineering, accounting, legal or other specialized personnel and consultants as may be deemed appropriate. The Watermaster shall maintain records allocating the cost of such services as well as all other expenses of Watermaster administration.

M. Measuring Devices: Except as otherwise provided

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by agreement the Watermaster shall install and maintain in good operating condition, at the cost of the Watermaster, such necessary measuring devices or meters as Watermaster may deem appropriate. Such devices shall be inspected and tested as deemed necessary by the Watermaster and the cost thereof borne by the Watermaster. Meter repair and retesting will be a Producer expense.

N. Assessments: The Watermaster is empowered to levy and collect the following assessments:

(1) Annual Replenishment Assessments

The Watermaster shall levy and collect assessments in each year, in amounts sufficient to purchase replenishment water to replace Overproduction by any Party.

(2) Annual Administrative Assessments

a. Watermaster Expenses: The expenses of administration of the Physical Solution shall be categorized as either "General Watermaster Administration Expenses", or "Special Project Expenses".

i. General Watermaster Administration Expenses: shall include office rent, labor, supplies, office equipment, incidental expenses and general overhead. General Watermaster Administration Expenses shall be assessed by the Watermaster equally against the Appropriators who have appointed representatives to the Watermaster.

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ii. Special Project Expenses: shall include special engineering, economic or other studies, litigation expenses, meter testing or other major operating expenses. Each such project shall be assigned a task order number and shall be separately budgeted and accounted for. Special Project Expenses shall be allocated to the Appropriators, or portion thereof, on the basis of benefit.

O. Investment of Funds; Borrowing: The Watermaster may hold and invest Watermaster funds as authorized by law, and may borrow, from time-to-time, amounts not exceeding annual receipts.

P. Contracts: The Watermaster may enter into contracts for the performance of any of its powers.

Q. Cooperation With Other Agencies: The Watermaster may act jointly or cooperate with other local, state and federal agencies.

R. Studies: The Watermaster may undertake relevant studies of hydrologic conditions and operating aspects of the management program for the Beaumont Basin.

S. Groundwater Storage Agreements: The Watermaster shall adopt uniform rules and a standard form of agreement for the storage of Supplemental Water, provided that the activities undertaken pursuant to such agreements do not injure any Party.

T. Administration of Groundwater Storage Capacity: Except for the exercise by the Overlying Parties of their

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respective Overlying Water Rights described in Part III, above, in accordance with the provisions of the Physical Solution, all Groundwater Storage Capacity in the Beaumont Basin shall be subject to the Watermaster's rules and regulations, which regulations shall ensure that sufficient storage capacity shall be reserved for local projects. Any Person or entity may apply to the Watermaster to store water in the Beaumont Basin.

U. Accounting for Stored Water: The Watermaster shall calculate additions, extractions and losses and maintain an annual account of all stored water in the Beaumont Basin, and any losses of water supplies or Safe Yield resulting from such stored water.

V. Accounting for New Yield: Recharge of the Beaumont Basin with New Yield water shall be credited to the Party that creates the New Yield. The Watermaster shall make an independent scientific assessment of the estimated New Yield created by each proposed project. New Yield will be allocated on an annual basis, based upon monitoring data and review by the Watermaster.

W. Accounting for Acquisitions of Water Rights: The Watermaster shall maintain an accounting of acquisitions by Appropriators of water otherwise subject to Overlying Water Rights as the result of the provision of water service thereto by an Appropriator.

X. Annual Administrative Budget: The Watermaster shall prepare an annual administrative budget for public review, and shall hold a public hearing on each such budget

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prior to adoption. The budget shall be prepared in sufficient detail so as to make a proper allocation of the expenses and receipts. Expenditures within budgeted items may thereafter be made by the Watermaster as a matter of course.

Y. Redetermining the Safe Yield: The Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of this Judgment.

6. Reports and Accounting

(a) Production Reports: Each Pumper shall periodically file, pursuant to Watermaster rules and regulations, a report showing the total production of such Pumper from each well during the preceding report period, and such additional information as the Watermaster may reasonably require.

(b) Watermaster Report and Accounting: The Watermaster shall prepare an annual report of the preceding year's operations, which shall include an audit of all assessments and Watermaster expenditures.

7. Replenishment

Supplemental Water may be obtained by the Watermaster from any source. The Watermaster shall seek the best available quality of Supplemental Water at the most reasonable cost for recharge in the Basin. Sources may include, but are not limited to:

(a) Recycled Water;

(b) State Water Project Water;

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(c) Other imported water.

Replenishment may be accomplished by any reasonable method including:

(a) Spreading and percolation, or injection of water in existing or new facilities; and/or

(b) In-lieu deliveries for direct surface use, in lieu of groundwater extraction.

VII. MISCELLANEOUS PROVISIONS

1. Designation of Address for Notice and Service

Each Party shall designate, in writing to the plaintiff, the name and address to be used for purposes of all subsequent notices and service herein, such designation to be delivered to the plaintiff within 30 days after the Judgment has been entered. The plaintiff shall, within 45 days after judgment has been entered, file the list of designees with the Court and serve the same on the Watermaster and all Parties. Such designation may be changed from time-to-time by filing a written notice of such change with the Watermaster. Any Party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by the Watermaster. The Watermaster shall maintain, at all times, a current list of Parties to whom notices are to be sent and their addresses for purposes of service. The Watermaster shall also maintain a full current list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall be available to any Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (i) the Party's attorney of record; or (ii) if the Party does not have an

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attorney of record, the Party itself at the address on the Watermaster list.

2. Intervention After Judgment

Any Person who is neither a Party to this Judgment nor a successor or assignee of a Party to this Judgment may seek to become a party to this Judgment by filing a petition in intervention.

3. Interference with Pumping

Nothing in this judgment shall be deemed to prevent any party from seeking judicial relief against any other party whose pumping activities constitute an unreasonable interference with the complaining party's ability to extract groundwater.

4. Successors and Assigns

This Judgment and all provisions herein shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto.

5. Severability

The provisions of this Judgment are severable. If any provision of this Judgment is held by the Court to be illegal, invalid or unenforceable, that provision shall be excised from the Judgment. The remainder of the terms of the Judgment shall remain in full force and effect and shall in no way be affected, impaired or invalidated by such excision. This Judgment shall be reformed to add, in lieu of the excised provision, a provision as similar in terms to the excised provision as may be possible and be legal, valid and enforceable.

6. Review Procedures

Any action, decision, rule or procedure of the Watermaster

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pursuant to this Judgment shall be subject to review by the Court on its own motion or on timely motion by any Party, as follows:

A. Effective Date of Watermaster Action: Any order, decision or action of the Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

B. Notice of Motion: Any Party may, by a regularly-noticed motion, petition the Court for review of the Watermaster's action or decision pursuant to this Judgment. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to the Watermaster, together with the service fee established by the Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. The Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by the Watermaster according to Part VII, paragraph 1, above. A Party's obligation to serve the notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

C. Time for Motion: A motion to review any Watermaster action or decision shall be filed within 90 days after such Watermaster action or decision, except that motions to review Watermaster assessments hereunder shall be filed within 30 days of mailing of notice of the assessment.

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D. De Novo Nature of Proceeding: Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

E. Decision: The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon the Watermaster and the Parties.

Dated: FEB - 4 2004

GARY TRANBARGER

JUDGE OF THE SUPERIOR COURT

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APPENDIX J

CITY OF BANNING RECYCLED WATER MASTER PLAN

City of Banning

Recycled Water Master Plan

FINAL
September 2006

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CITY OF BANNING

RECYCLED WATER MASTER PLAN

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LIST OF ABBREVIATIONS

Abbreviation	Description
ac-ft/yr	acre-feet per year
ADD	Average Day Demand
cf	Cubic feet
Carollo	Carollo Engineers
City	City of Banning
CIP	Capital improvement program
DIP	Ductile Iron Pipe
du/ac	Dwelling unit per acre
EIR	Environmental Impact Report
ET	evapotranspiration
ft/s	feet per second
ft/kft	feet per thousand feet
ft/yr	feet per year
gal	gallon
gpd/ac	Gallons per day per acre
HGL	Hydraulic Grade Line
I-10	Interstate 10
MDD	Maximum Day Demand
mgd	million gallons per day
mi	mile
MCL	Maximum Contaminant Level
MMD	Maximum Month Demand
msl	mean sea level
MWDSC	Metropolitan Water District of Southern California
PHD	Peak Hour Demand
PSs	Pump Stations
sf	square feet
SWP	State Water Project
USD	Unified School District
VFD	Variable Frequency Drive
WDF	Water Demand Factor
WWTP	Wastewater Treatment Plant
Zone	Pressure Zone

1.0 INTRODUCTION

1.1 Authorization

This report has been prepared in accordance with the consulting engineering agreement for the water, sewer, and recycled water master plan update project between the City of Banning (City) and Carollo Engineers (Carollo), dated March 14, 2006. This report represents the findings of the work conducted for Task C (Water Reuse Master Plan Update). The findings of tasks A (Water Master Plan Update) and Task B (Sewer Master Plan Update) are presented in separate reports.

1.2 Purpose and Objectives

1.2.1 Purpose

The purpose of this Recycled Water Master Plan is to define the capital improvements required to serve recycled water customers where feasible in the City of Banning (City).

1.2.2 Objectives

The objectives of this Recycled Water Master Plan are:

1. Identify the potential recycled water customers and their demands in the City.
2. Define planning and evaluation criteria for the recycled water distribution system.
3. Size and optimize the location of the recycled water distribution system pipelines and facilities.
4. Prepare a capital improvement program including phasing and cost estimates for the proposed recycled water system.

1.3 Background

The City recognized a need to provide irrigation water to customers in 1991, when the City conducted a study to evaluate the feasibility of constructing an irrigation water system [1]. At that time, the City had been experiencing a high growth rate and irrigation water demands had increased substantially due to completion of the Sun Lakes Development, a planned residential community with golf courses. Other major irrigation water users were identified as well, such as municipal parks, industrial and commercial areas, and freeway landscaping. Due to economic feasibility constraints, the irrigation water system has not been developed yet.

During the last decade, the City has experienced an increased level of land use planning activities that will result in increased water demands and water supply cost. Five new residential developments that are currently being planned within City's service area will further increase the City's water supply needs. These developments are:

- Five Bridges Project by Lennar
- Pardee Project by Pardee Homes
- Black Bench Project by SunCal Companies
- Loma Linda Project (Banning Bench)
- BDS Project south of I-10

These developments are depicted on Figure 2.1. The City understands the need for a recycled water distribution system to supply irrigation water to these proposed projects to reduce the increase in potable water supply needs. The recycled water system for these new developments will also provide opportunities to convert some existing large volume users potable water customers to recycled water. By providing recycled water for landscape irrigation, limited groundwater supplies can be dedicated to domestic uses.

1.3.1 Previous Studies

CM Engineering Associates, Inc. completed a report titled "*Irrigation Water Project Feasibility Study*" [1] in July 1991 that evaluated the feasibility of constructing an irrigation water system using the City's existing Well R-1 and treated wastewater from the City's wastewater treatment plant to serve the Sun Lakes' golf course, Interstate 10 freeway landscapes, municipal parks, and other industrial/ commercial areas. The report concluded that a water main along Lincoln Street could deliver irrigation water to the Sun Lakes golf course and other identified landscaped areas south of Interstate 10. A preliminary cost estimate was prepared for the proposed irrigation water system, including pipelines, pumping and storage facilities. Estimates for the upgrade to the City's wastewater treatment plant to tertiary treatment were not provided.

Montgomery Watson Harza (MWH) completed a report titled "*Irrigation Water Feasibility Study*" [2] in January 2003 that updated the cost estimates contained in the 1991 CM Engineering Associates report. The MWH report also included some preliminary cost estimating for upgrading the City's wastewater treatment plant to tertiary treatment.

In addition, MWH completed a draft report titled "*Update of the Banning Wastewater Treatment Facility Expansion*" [3] in March 2006 that evaluated process alternatives for the phased expansion of the treatment plant to produce recycled water of acceptable quality for landscape irrigation and other uses.

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STAGECOACH TOWN USA
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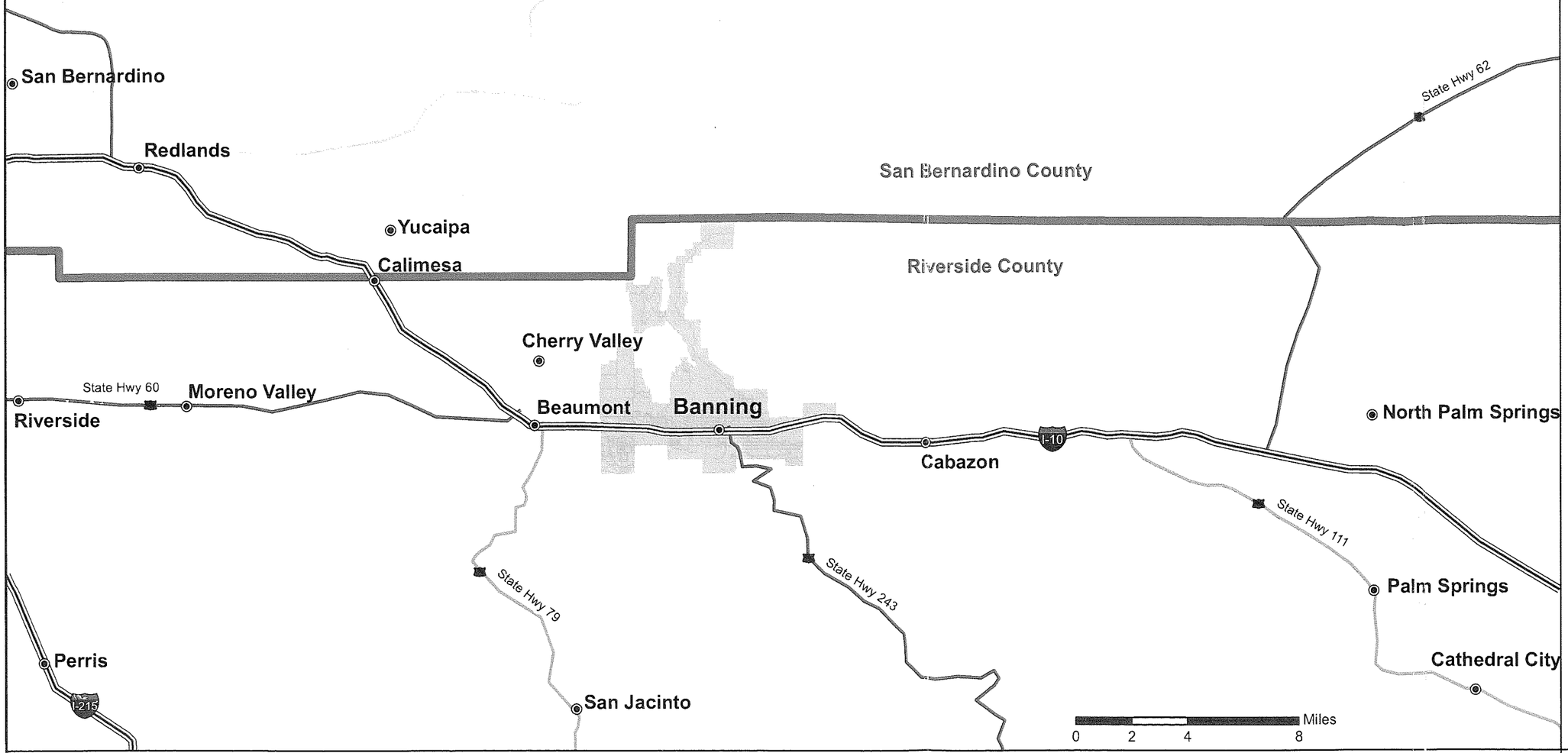
N

Figure 1.1 - Vicinity Map and Study Area



Legend

- Cities
- State Highways
- Interstates
- Streets
- Study Area
- County Line

Note:

1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

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City of Banning, CA - Recycled Water Master Plan

August 2006

The "*Water Master Plan Update*" [4] prepared by NBS Lowry and Associates in 1994, did not consider the use of recycled water for irrigation purposes, and all system analysis and all recommended improvements were based on potable water supply only.

A "*Water System Hydraulic Modeling Report*"[19], prepared by MWH in May 2002, updated the City's Water Master Plan but did not consider the use of recycled water. A subsequent update of the City's water system model is in progress by MWH.

Wildermuth Environmental Inc. prepared the City's "*2005 Urban Water Management Plan*" [5], which identified that the recycled water production was about twice the potential recycled water demand in 2005, and continues to increase at a much higher rate than the recycled water demand. It also mentioned the need for the wastewater treatment plant upgrade to meet Title 22 tertiary treatment standards.

1.4 Study Area

The study area of this recycled water master plan includes the area within the existing city limits. The City is located in the northwest portion of Riverside County and is situated along Interstate 10 approximately 30 east of the City of Riverside and 25 miles west of Palm Springs. The study area is shown on Figure 1.1.

The City encompasses approximately 25 square miles and has a current population of approximately 29,000. Approximately 8 square miles or 32 percent of the City's service area is currently developed. The City is growing rapidly and has an estimated build-out population of nearly 100,000. The five near-term developments as indicated on Figure 2.1 have a combined area of nearly 4 square miles and are projected to increase the City's population by 31,000 to 60,000. Hence, the City's population is projected to continue to growth significantly after the completion of these developments.

1.5 Scope of Work

The scope of work for this Recycled Water Master Plan Update consists of the following tasks:

1) Data Collection and Review

2) Recycled Water Supply and Demand Assessment

3) Database Creation and Population

4) Supply and Production Demand Curves

5) Recycled Water Model and Distribution System

1.6 Acknowledgements

Carollo Engineers wishes to acknowledge and thank all of the City's staff for their support and assistance in completing this project. Special thanks go to Paul Toor (Public Utilities Director), George Thacker (Assistant Director for Water and Wastewater Utility), John Holub (Operations and Maintenance Technician), and Jerry Aguilar (GIS Manager).

1.7 Project Staff

The following Carollo Engineers staff members were principally involved in this project:

David Prasifka, P.E.	: Partner-In-Charge
Dennis Wood, P.E.	: Technical Review
Jonathan Howard, P.E.	: Technical Review
Inge Wiersema, P.E.	: Project Engineer/Project Manager
Dan Aruta, P.E.	: Staff Engineer
Chris Graf	: Staff Engineer
Coleen Sullivan	: Technical Staff/GIS

2.0 LAND USE AND RECYCLED WATER DEMANDS

This Section describes the City's land use and the estimated recycled water demands, which are based upon the City's land use plans. The land use discussion is divided into existing land use, specific plan land use for the near-term developments, and general plan land use for the City's ultimate land use. The recycled water demand discussion is divided into water demand factors, peaking factors, potential customers, and concludes with a recycled water demand summary.

2.1 Land Use

The existing, near-term, and build out land use types in the City described in this Section are based on the City's General Plan [6] , parcel information [7], aerial photography [8], and the specific plans for Five Bridges [9], Pardee [10], Black Bench [11], Loma Linda [12], and BDS [13]. The land use designations that are described in these documents are summarized below.

- ✓ **Residential - Rural.** This land use category includes all residential designations that have a density of 0-1 dwelling units per acre (du/ac).
- ✓ **Residential - Very Low Density.** This land use category includes all residential designations that have a density of 1-2 dwelling units per acre (du/ac). Based on this definition, this category includes the following land use designations: Very Low Density Residential [6]; Residential [13]; and PA-12, PA-13, and PA-15 [11].
- ✓ **Residential - Low Density.** This land use category includes all residential designations that have a density of 2-5 dwelling units per acre (du/ac). Based on this definition, this category includes the following land use designations: Low Density Residential [6], PA-1 through PA-11, PA-14, and PA-16 through PA-18 [11]; Minimum residential area of 6,000 square foot and greater [9]; Residential Areas 4, 8, 18, 24, 31, 33, 46, 47, 52, 53, 60, and 61 [10]; and Residential Areas 1, 3, 4, and 5 [12].
- ✓ **Residential - Medium Density.** This land use category includes all residential designations that have a density of 5-9 dwelling units per acre (du/ac). Based on this definition, this category includes the following land use designations:
- ✓ **Residential - High Density.** This land use category includes all residential designations that have a density of 9-20 dwelling units per acre (du/ac). Based on this definition, this category includes the following land use designations:
- ✓ **Commercial.** This land use category includes markets, service stations, restaurants, office buildings, hospitals, car washes, and other commercial service establishments.

- ✓ **Industrial.** This land use category includes all service industry and manufacturing establishments. This City does not include any heavy industry or water intensive industrial customers.

- ✓ **Public.** This land use category includes various types of public facilities, such as schools, libraries, office buildings, parking structures, and recreational areas. The (recycled) water demand in this category varies greatly.

- ✓ **Streets and Right-of-Way.** This land use category includes all major streets, flood control channels, powerline easements, and freeway right-of-ways, such as Interstate 10. Small residential streets are included in the gross residential area.

- ✓ **Airport.** This category includes the airport buildings, runways, and all airport related industrial and commercial areas. These include the Airport Operations District, the Airport Clear Zone District, the Airport Facilities District, and the Airport Planned Development areas.

2.1.1 Existing Land Use

The City of Banning has approximately 4,901 acres of development area, which equals to about 21 percent of the City's service area. An aerial view of the City, that depicts the location of the existing developments [8], is shown on Figure 2.1. This figure shows that the majority of the developments are located along Interstate 10, while the non-developed areas are mostly located north of Interstate 10 and are partially covered with steep hillsides of the San Bernardino Mountains. The land use distribution of the existing developments is summarized in Table 2.1. As shown on this table, the majority (63 percent) of the developed areas are residential land use categories, while the remaining 37 percent of the developments are public, industrial, and commercial land uses.

Table 2.1 Existing Land Use Summary Recycled Water Master Plan City of Banning

Land Use Category	Area (acres)	Area (%)
Rural Residential	335	7%
Very Low Residential	373	8%
Low Residential	1,440	29%
Medium Residential	767	16%
High Residential	170	3%
Commercial	666	14%
Industrial	773	16%
Public	378	8%
Total	**4,901**	**100%**

City of Banning, CA
Recycled Water Master Plan

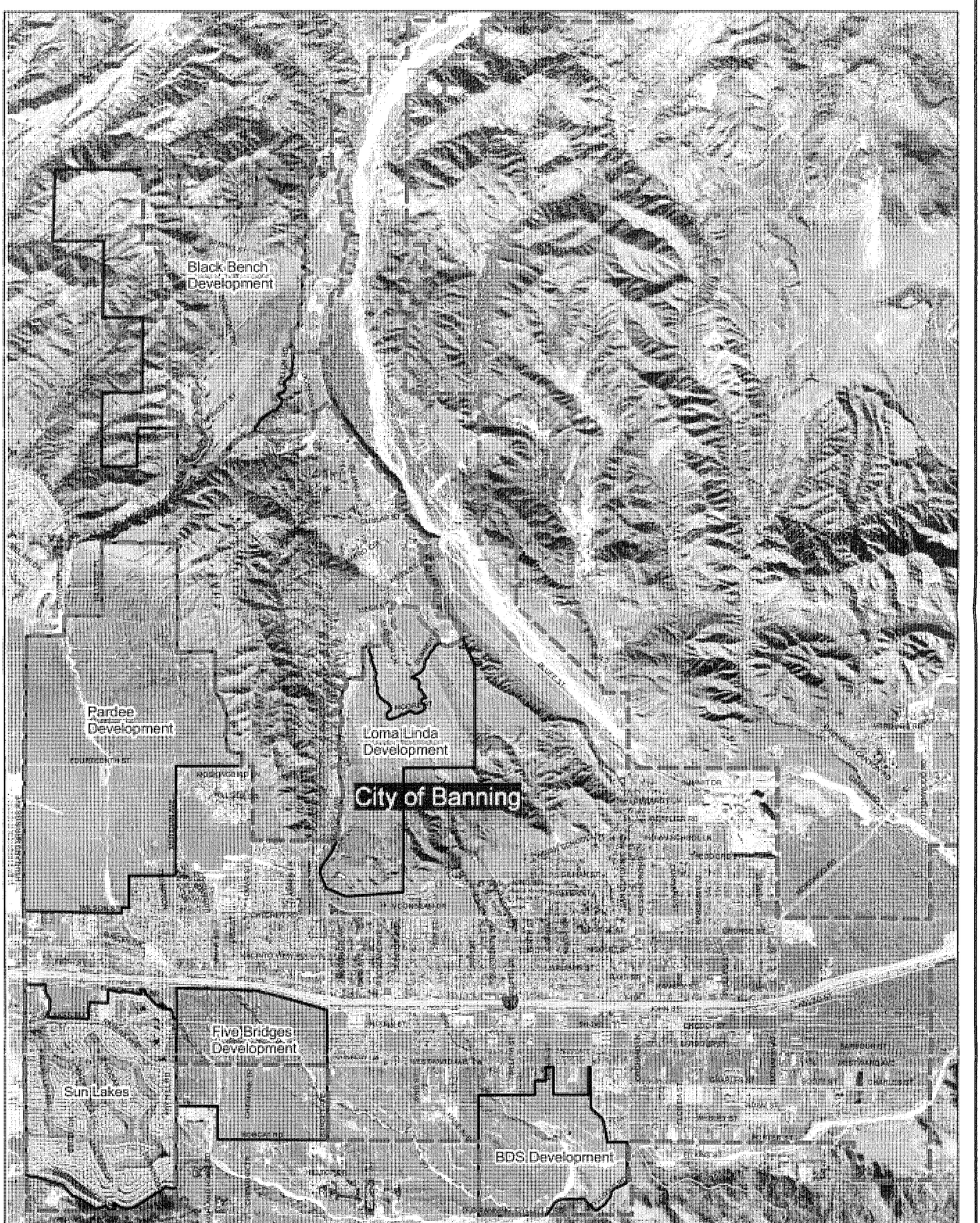

Figure 2.1 - Aerial View

Note:

1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

N

0 1,250 2,500 5,000 Feet

Legend

- I-10
- Streets
- City Boundary

2.1.2 Specific Plan Land Use

As mentioned in Section 1, the City has recently received five Specific Plans that describe the land use plans for proposed developments within the City boundaries. The five specific plans cover a combined area of approximately 3,270 acres, which equals approximately 14 percent of the City's service area. The developments and their respective planning areas and the distribution of the planned 10,308 dwelling units are as follows:

- ✓ Black Bench : 1,500 dwelling units
- ✓ Sunset : 2,160 dwelling units
- ✓ BDS : 481 dwelling units
- ✓ Pardee : 5,224 dwelling units
- ✓ Loma Linda : 944 dwelling units

The specific plan boundaries are depicted on Figure 2.1. The land use distribution of these five specific plans is summarized in Table 2.2, while details are included in **Appendix B**.

Table 2.2 Specific Plan Land Use Summary
Recycled Water Master Plan
City of Banning

Development/ Land Use Category	Phase 1		Build Out	
	Area (acres)	Area (%)	Area (acres)	Area (%)
Black Bench				
Very Low Residential	0	0%	104	15%
Low Residential	111	42%	387	57%
Public	o	0%	13	2%
Parks	26	10%	52	8%
Fire Modification Zone	126	48%	126	19%
Black Bench Total	**264**	**100%**	**683**	**100%**
BDS				
Very Low Residential	140	100%	372	100%
BDS Total	**140**	**100%**	**372**	**100%**
FIVE BRIDGES				
Low Residential	68	46%	204	45%
Medium Residential	39	27%	118	26%
High Residential	14	10%	43	9%
Commercial	0	0%	37	8%
Parks	26	17%	51	11%
Five Bridges Total	**147**	**100%**	**455**	**100%**

Table 2.2 Specific Plan Land Use Summary (Continued) Recycled Water Master Plan City of Banning				
Development/ Land Use Category	Phase 1		Build Out	
	Area (acres)	Area (%)	Area (acres)	Area (%)
PARDEE				
Low Residential	102	25%	389	30%
Medium Residential	31	8%	564	44%
Commercial	0	0%	36	3%
Public	5	1%	32	2%
Parks	26	6%	52	4%
Golf Course	220	54%	220	17%
Pardee Total	**409**	**100%**	**1,293**	**100%**
LOMA LINDA				
Low Residential	26	9%	79	17%
Medium Residential	36	13%	107	23%
Commercial	0	0%	12	3%
Public	0	0%	10	2%
Parks	37	13%	74	16%
Golf Course	185	65%	185	40%
Loma Linda Total	**284**	**100%**	**467**	**100%**
GRAND TOTAL	**1,243**		**3,270**	

Note: For the phasing of parks and golf courses, it is assumed that 50 percent of parks and 100 percent of golf course would be developed in Phase 1.

As listed in Table 2.2, the development of these specific plan areas is divided into two periods, Phase 1 and Build Out. Phase 1 is anticipated to be completed around year 2010, while build out conditions are projected to be reached around year 2030. The combined area of Phase 1 is approximately 1,243 acres, or 38 percent of the entire specific plans area at build out (3,270 acres).

2.1.3 General Plan

The ultimate land use for the City's service area is specified in the City's General Plan, which was adopted by City Council [6]. The City's general plan differentiates 27 land categories. For the purpose of this master plan, these categories are consolidated into ten generic land use designations, as shown on Figure 2.2. The areas of these ten land use categories are calculated from the City's GIS and are summarized in Table 2.3.

City of Banning, CA
Recycled Water Master Plan

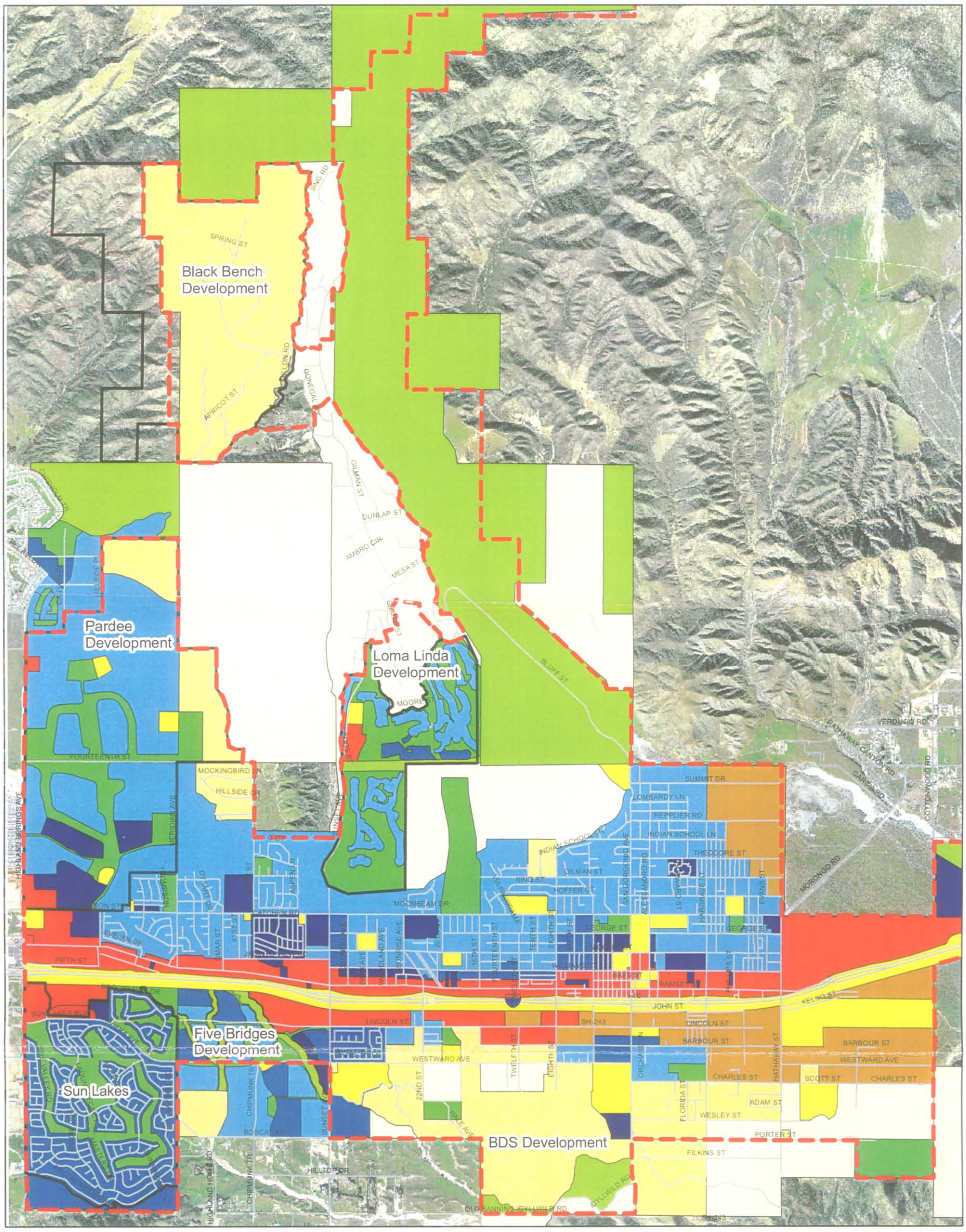

Figure 2.2 - General Plan Land Use

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General Plan Residential	Other Land Uses	
Rural (RR)	Commercial (C)	I-10
Very Low Density (VLDR)	Industrial (I)	Streets
Low Density (LDR)	Public (P)	City Boundary
Medium Density (MDR)	Open Space Nature (OS-N)	
High Density (HDR)	Open Space Parks (OS-Pk)	

Note:

1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

0 1,300 2,600 5,200 Feet

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Table 2.3 General Plan Land Use Summary Recycled Water Master Plan City of Banning		
Land Use Category	**Area (acres)**	**Area (%)**
Rural Residential	6,759	29%
Very Low Residential	2,369	10%
Low Residential	3,385	14%
Medium Residential	1,099	5%
High Residential	510	2%
Commercial	1,090	5%
Industrial	773	3%
Public	1,061	4%
Open Space - Parks	1,292	5%
Open Space - Nature	5,288	22%
Total	**23,628**	**100%**

As shown in Table 2.3, residential land use categories cover 60 percent of the City's service area, while natural open space is the second largest land use, covering about 22 percent of the City's service area.

As shown on Figure 2.2, the majority of the areas that are not currently developed or part of the specific plans, are designated as natural open space and rural residential and cover hillsides of the San Bernardino Mountains.

2.2 Population

The City's population will increase significantly with the addition of the five new developments. The total developed area and the project population for Phase 1 and Built Out conditions are summarized in Table 2.4. This table shows that the five developments will increase the population to about 60 percent of the City's built out population, while covering only 31 percent of the City's service area. Hence, the development of the remaining areas will primarily consist of lower density land use types, such as LDR and AR. Based on 2.9 people per dwelling unit, the average density of the remaining development beyond the planning horizon of this master plan is approximately 0.9 du/ac.

Table 2.4 Population Projections Recycled Water Master Plan City of Banning				
Area Description	**Area (acres)**	**Area (%)**	**Population (ppl)**	**Population (%)**
Existing Development	4,901	21%	28,982	29%
5 Developments - Phase 1	598	3%	7,239	7%
5 Developments - Phase 2 to Build Out	1,911	8%	21,913	22%
Remaining Development	16,218	69%	41,651	42%
Total	**23,628**	**100%**	**99,785**	**100%**

2.3 Demand Estimating Parameters

The recycled water demand estimates presented in Section 2 are based on various assumptions and criteria. These factors are discussed below.

2.3.1 Irrigation Season

The amount of water required for potential landscape irrigation customers is directly dependent on precipitation and evapotranspiration. Net irrigation demand is defined as the difference between evapotranspiration (ET) and rainfall, adjusted for irrigation efficiency and leaching factors.

The following formula was used to calculate the amount of evapotranspiration from landscaped areas in Banning:

$$ET_L = K_L * ET_0$$

where:

ET_L = Evapotranspiration of landscaped areas (in inches)

K_L = Landscaped area crop coefficient

ET_0 = Reference evapotranspiration (in inches)

The estimated average monthly landscape irrigation needs based on calculated evapotranspiration and average rainfall is presented in Table 2.5. As shown in this table, the rainfall in the months of January, February, March and December exceed the evapotranspiration. Hence, these months are excluded from the irrigation season. Based on this historical data the irrigation season is defined by the eight-month annual period from April through November. It is assumed that the proposed recycled water distribution system will only operate during the defined eight-month irrigation season.

2.3.2 Demand Factors

As described in detail in Section 2, the water demand factor used in this master plan to estimate recycled water demands is 3,650 gpd/ac. Based on discussion with City staff, it is assumed that the potential recycled water use for commercial and industrial users is insignificant.

Table 2.5 Average Monthly Landscape Irrigation Needs Recycled Water Master Plan City of Banning					
	Month	ET[(1)] (inches)	Rainfall[(2)] (inches)	Irrigation Needed[(3)] (inches)	Irrigation Needed[(4)] (%)
	January	2.28	3.76	0	
	February	2.66	3.44	0	
	March	3.80	3.12	0.9	
Irrigation Season	April	4.82	1.36	4.7	10%
	May	5.43	0.63	6.5	14%
	June	6.00	0.16	7.9	17%
	July	6.60	0.23	8.6	18%
	August	6.32	0.22	8.3	17%
	September	4.89	0.51	5.9	12%
	October	3.70	0.60	4.2	9%
	November	2.69	1.65	1.4	3%
	December	2.34	2.09	0.3	
Annual Total		**51.5**	**17.8**	**48.7**	**100%**
Irrigation Season Total		**40.5**	**5.4**	**47.5**	**100%**

Notes:
(1) Source: California Irrigation Management Information System, Average Yearly ET_0 Report, U.C. Riverside Station [16]. Adjusted for landscape irrigation coefficient, k_L.
(2) Source: Western Regional Climate Center, Station No. 040609, Beaumont, CA. 1948-2005 [17].
(3) [Evapotranspiration - Rainfall] * 1.15 / 0.85. Where 0.85 = 85% Irrigation Efficiency Factor (Average value from Carlos and Guitjens, University of Nevada) and 1.15 = 15% Leaching Fraction (Average value from Ayers and Westcot, "Water Quality for Agriculture", Food and Agriculture Organization of the United Nations).
(4) Current month net irrigation requirement divided by total net irrigation requirement.

2.3.3 Peaking Factors

The following peaking factors are used for the hydraulic analysis and sizing of the City's recycled water system:

- ✓ Maximum Month Demand (MMD) factor
- ✓ Maximum Day Demand (MDD) factor
- ✓ Peak Hour Demand (PHD) factor for 8-hr irrigation
- ✓ Peak Hour Demand (PHD) factor for 12-hr irrigation
- ✓ Peak Hour Demand (PHD) factor for 24-hr irrigation

These peaking factors are based on the following assumptions and calculations:

The MMD factor is based on the assumption that irrigation will occur during an 8-month period or 244 days, from April through November. As listed in Table 3.1, the month of July is the month with the greatest irrigation needs. Based on annual and maximum month irrigation needs, MMD peaking factor is calculated as follows:

$$\text{Maximum Month Peak Factor} = \frac{8.6 \text{ inches/month}}{47.5 \text{ inches/year}} * 12 \text{ months/year} = 2.17$$

The MDD factor is based on typical demand variation in hot summer months. Historical records from water companies in Southern California show that the MDD is approximately 20 to 30 percent higher than the MDD. As the majority of the increase is caused by an increase irrigation use, a MDD factor of 1.30 is used in this master plan.

The 8-hr PHD factor for golf courses, parks, and schools is based on an 8-hour irrigation period, which equates to a peaking factor of 3.0 (24 hours / 8 hours). Irrigation of parks and schools areas is assumed to take place between 10 PM and 6 AM. The irrigation of golf courses is assumed to take place slightly earlier, between 8 PM and 4 AM, to allow the greens to dry before golfers show up.

The 12-hr PHD factor for Caltrans irrigation is based on a 12-hour irrigation period, which equates to a peaking factor of 2.0 (24 hours / 12 hours). The irrigation of Caltrans right-of-ways is assumed to take place between 6 AM and 6 PM.

The 24-hr PHD factor for Golfcourse irrigation is based on a 24-hour constant delivery of recycled water to the golf course ponds. This delivery pattern equates to a peaking factor of 1.0 (24 hours / 24 hours).

2.4 Recycled Water Demands

The recycled water demand estimates used in this master plan are based on land use type, irrigated area, water demand factors, and peaking factors. These factors are discussed below, followed with a summary of potential recycled water customers.

2.4.1 Recycled Water Demand Factors

A water demand factor (WDF) is the estimated amount of water usage for a certain land use type. WDFs are typically expressed in gallons per day per acre (gpd/ac). These factors are used to estimate the average day demand (ADD) for existing and potential customers by multiplying the WDF with the total number of acres.

This study assumes that recycled water is only used for irrigation purposes. Recycled water demand factors used in previous studies are summarized below.

- ✓ Willdan Associates prepared a master water plan for the City in 1983 which calculated the following irrigation demands: 4,000 gallons per day per acre (gpd/ac) for industrial land use, and 3,500 gpd/ac for schools and parks [14].

- ✓ James Smith, consulting engineer, developed a master water plan for the Presley Property in the City in 1985 in which the average demand factor of 4,400 gpd/ac was used [15].

- ✓ CM Engineering Associates, compiled one year's worth of actual metered water consumption data for the Sun Lakes Development in 1991. This study calculated an average water consumption of 4,477 gpd/ac, which was very close to the Presley Master Plan design factor.

- ✓ Pardee Homes provided the City a detailed breakdown of irrigation water demands for its proposed Banning Tract development in March 2006 that used demand factors of 3,500 gpd/ac and 4,400 gpd/ac for parks and an estimated irrigation water demand for a proposed golf course that results in a demand factor of 3,683 gpd/ac.

For this project, a new irrigation water demand factor is calculated based on the local net irrigation needs. The net irrigation needs is estimated to be 4.1 ft/yr based on historical evapotranspiration and rainfall data in the City's service area. This calculation is described in detail in Section 3. The water demand factor is calculated as follows:

$$\text{Water Demand Factor} = \frac{4.1 \text{ ft/yr} * 43{,}560 \text{ sf/ac} * 7.48 \text{ gal/cf}}{365 \text{ days/yr}} = 3{,}623 \text{ gpd/ac}$$

Carollo's calculated irrigation demand factor of 3,623 gpd/ac is consistent with Pardee's golf course irrigation factor. For planning purposes, an irrigation demand factor of 3,650 gpd/ac is used to estimate the City's potential irrigation water demands in this master plan.

2.4.2 Peaking Factors

It is important to consider the variability of water demands when evaluating system hydraulics and sizing water system facilities and pipelines. Water demands vary both seasonally and hourly. Water demands are typically higher than average on hot summer days, primarily due to increased water demands for irrigation. On cool winter days, water demands are lower than average due to lower temperatures and increased precipitation, which significantly reduces irrigation demands. Peaking factors are used to account for these demand fluctuations. Peaking factors are determined by dividing the water demand for a selected period by the average day demand (ADD). In this master plan, the following two seasonal peaking factors are used:

- ✓ Maximum Month Demand (MMD) = MMD/ADD

- ✓ Maximum Day Demand (MDD) = MDD/ADD

In addition, water demands vary throughout a 24-hour period. In residential areas, demand peaks typically occur in the morning and late afternoon. Areas with automatic sprinkler systems used for irrigation typically see peak demand periods late at night through the early morning hours. An hourly water use curve, also knows as diurnal curve, is used to describe and simulate water demands throughout the day. In this master plan, the following three diurnal curves are used:

- ✓ Irrigation of Parks and School areas = 8 hours per day from 10 PM to 6 AM
- ✓ Irrigation of Golf Courses = 24 hours per day from midnight to midnight
- ✓ Irrigation of Caltrans right-of-way areas = 12 hours per day from 6 AM to 6 PM

The peaking factors used in this master plan are summarized in Table 2.6, while the assumptions and calculations of these factors are described in more detail in Section 3.

Table 2.6 Peaking Factors
Recycled Water Master Plan
City of Banning

Demand Condition	Specific Peaking Factor	Composite Peaking Factor
Average Day Demand (ADD)	-	1.00 * ADD
Maximum Month Demand (MMD)	2.17 * ADD	2.17 * ADD
Max Day Demand (MDD)	1.30 * MMD	2.82 * ADD
Peak Hour Demand (PHD)		
8 hour irrigation[1]	3.0 * MDD	8.46 * ADD
12 hour irrigation[2]	2.0 * MDD	5.64 * ADD
24 hour irrigation[3]	1.0 * MDD	2.82 * ADD

1) Schools and Parks (10 PM - 6 AM)
2) Caltrans (6 AM - 6 PM)
3) Golfcourses (0 AM-0 AM);

2.4.3 Potential Customers

It is assumed that recycled water will be treated and distributed for irrigation use only. Sufficient landscape irrigation water demand from existing and future customers is available to allow for beneficial use of the treated wastewater from the City's wastewater treatment plant or satellite plants. Areas suitable for irrigation with recycled water include golf courses, commercial and industrial planting areas, greenbelts, freeway landscaping, parks, playgrounds and schoolyards. Potential customers need to meet the following three criteria to qualify for recycled water for irrigation use:

1) Their location shall be near a recycled water distribution pipeline or in proximity of other potential customers.

2) Their ADD exceeds 10,000 gpd. Potential customers with ADD less than 10,000 gpd may be eligible if their location is near a recycled water pipeline.

3) All irrigation areas should be located within City limits.

Based on these criteria, 18 potential recycled water customers were identified. These users can be divided into two categories; 1) current potable water customers that could convert to recycled water for their irrigation needs, and 2) future customers such as parks and golf courses identified in the specific plans. The location of these potential customers are depicted on Figure 2.3, while their estimated recycled water demands are summarized in Table 2.7.

Table 2.7 Potential Recycled Water Customers and Demands
Recycled Water Master Plan
City of Banning

ID	Customer Name	Irrigation Area[1] (acres)	Demand Factor (gpd/ac)	Annual Demand (afy)	Max Day Demand (gpm)	Peak Hour Demand (gpm)
Existing Potable Water Customers						
1	Sun Lakes Development	199	4,868[2]	1,085	1,900	1,900
2	CalTrans along I-10	200	3,650	818	1,432	2,864
3	Gilman Historic Ranch	59	3,650	241	422	1,267
4	Banning High School	40	3,650	164	286	859
5	Dysart Park	20	3,650	82	143	430
6	Rehab & Counseling Center	20	3,650	82	143	430
7	Lions Park	9	3,650	37	65	195
8	Sylvan Park	8	3,650	32	56	168
9	Neighborhood Park	8	3,650	31	54	161
10	Repplier Park	7	3,650	28	49	146
11	Deutsch Company Park	5	3,650	20	36	107
12	Roosevelt Williams Park	5	3,650	19	34	102
13	Mountain Avenue Park	3	3,650	13	22	67
14	Banning Unified School District	3	3,650	12	21	64
Future Developments				2,664		
15	Loma Linda Development	259[4]	3,650	1,059	1,854	2,914
16	Pardee Development	272	3,686	1,123	1,967	2,723
17	Five Bridges Development	51	3,650	210	367	1,102
18	Black Bench	113	3,650	463	810	2,430
18	Black Bench - Fire Zone	42	1,217[3]	57	101	302
Total		**1,245**	**1,323**	2912 5576	**5,575**	**9,763**

(1) Source data: [6], [7], [8], and [18].
(2) Based on historical usage records.
(3) Based on drought tolerant vegetation (33% of turf water usage) in the first 50 foot of the 150 foot fire modification zone.
(4) This excludes the greenspace along the steep slopes in the southern portion of the development.

2.4.4 Recycled Water Demand Summary

To prioritize the potential recycled water customers, a prioritization matrix was developed to consider: 1) the potential recycled water demand, 2) the proximity to the proposed recycled water backbone system, and 3) the estimated unit cost. The unit cost, expressed in dollar per acre-ft, reflect the annual capital cost of the pipelines required to serve the customer from the backbone system assuming a 30-year useful life. The backbone system consists of the pipelines from the Banning WWTP to the two proposed reservoirs as shown on Figure 2.4. The cost of the backbone system is proportionally divided over the potential customers based on their demands.

To prioritize the connection of potential recycled water customers, a ranking scheme was developed based on the range in demand, distance to the backbone system and unit cost. The ranking criteria used are summarized in Table 2.8.

Table 2.8 Ranking Criteria
Recycled Water Master Plan
City of Banning

Ranking Criteria	Ranking 1	Ranking 2	Ranking 3
Potential Demand (acre-ft/yr)	<100	100-300	>300
Distance to Backbone System (mi)	>1.0	0.5-1.0	<0.5
Unit Cost ($/acre-ft).	>$800	$500-$800	<$500

As shown in this table, a customer is assigned a ranking of 1, 2, or 3 for each of the criteria. Hence, each customer is assigned a ranking score ranging between 3 and 9, depending on the customers demand, distance to the backbone system and unit cost. Based on the total score, the customers are divided into three priority groups:

- ✓ Priority 1: Customers with a ranking score equal or greater than 7
- ✓ Priority 2: Customers with a ranking score equal to 6
- ✓ Priority 3: Customers with a ranking score equal or less than 5

It is recommended that customers with Priority 1 be connected first, followed by customers with Priority 2 and 3, if feasible. The results of the analysis are presented in Table 2.9.

City of Banning
Recycled Water Master Pan

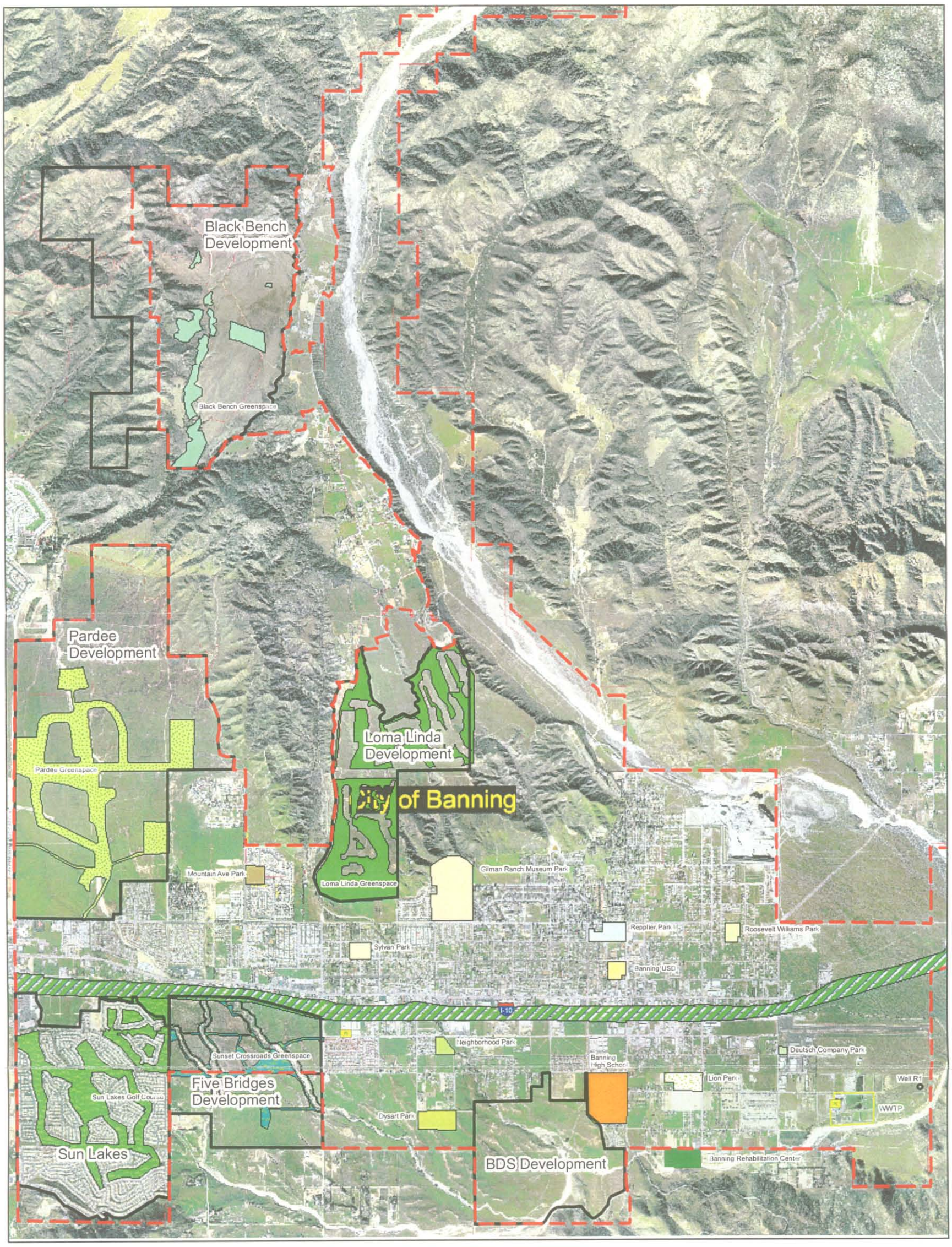

Figure 2.3 - Potential Recycled Water Customers Locations

Legend

- CALTRANS (1)
- Gilman Ranch Museum Park (2)
- Banning High School (3)
- Dysart Park (4)
- Rehab & Counseling Center (5)
- Lions Park (6)
- Sylvan Park (7)
- Neighborhood Park (8)
- Repplier Park (9)
- Deutsch Company Park (10)
- Roosevelt Williams Park (11)
- Mountain Ave Park (12)
- Banning USD (13)
- Loma Linda Greenspace (14)
- Pardee Greenspace (15)
- Sun Lakes Golf Course (16)
- Sunset Crossroads Greenspace (17)
- Black Bench Greenspace (18)
- Pump Stations
- Well R1
- Wastewater Treatment Plant
- I-10
- City Boundary

N

0 1,250 2,500 5,000 Feet

Note:

1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

Table 2.9 Prioritization of Recycled Water Customers Recycled Water Master Plan City of Banning						
ID	Customer Name	Demand (ac-ft/yr)	Distance to Backbone (mi)	Unit Cost ($/acre-ft)	Overall Ranking	Priority
14	Loma Linda Development	1,059	0.3	$306	9	1
1	CalTrans along I-10	818	0.7	$278	8	1
3	Banning High School	164	0.3	$361	8	1
9	Repplier Park	28	0	$297	7	1
10	Deutsch Company Park	20	0	$300	7	1
8	Neighborhood Park	31	0.1	$318	7	1
16	Sun Lakes Development	1,085	1.2	$261	7	1
15	Pardee Development	1,123	2.2	$360	7	1
2	Gilman Historic Ranch	241	0.9	$540	6	2
17	Five Bridges Development	210	0.7	$436	6	2
12	Mountain Avenue Park	13	0.1	$756	6	2
6	Lions Park	37	0.4	$902	6	2
7	Sylvan Park	32	0.3	$956	6	2
5	Rehab & Counseling Center	82	0.5	$692	5	2
4	Dysart Park	82	0.6	$748	5	2
18	Black Bench	520	2.6	$781	6	2
13	Banning USD	12	0.2	$1,120	5	2
11	Roosevelt Williams Park	19	0.7	$2,344	4	3

5,576 - 19 = 5,557

As shown in Table 2.9, it can be concluded that it is cost-effective to serve most of the customers, with the exception of Roosevelt Williams Park (Priority 3). Customers with a high priority (Priority 1) are Loma Linda Development, CalTrans along I-10, Banning High School, Repplier Park, Deutsch Company Park, Neighborhood Park, Sun Lakes Development, and Pardee Development. It should be noted that recycled water service to the Black Bench development would be more costly than presented in Table 2.9, as the unit cost exclude the 700 hp pump station and energy cost required to deliver recycled water to this development, which is located 1,000-1,500 feet above the existing City. This customer is therefore included in phase 3 (see Table 7.1).

Recycled water service to Roosevelt Williams Park is relatively expensive due to its small demand (19 ac-ft/yr) and relatively long pipeline (0.7 miles). Based on the high unit cost, this customer is excluded from the backbone system and alternative analyses presented in Section 6. The recycled water demands of the customers that are included in the alternative analyses presented in Section 6 are summarized in Table 2.10.

Table 2.10 Recycled Water Demand Projections Summary Recycled Water Master Plan City of Banning					
Customers	Irrigation Area		Build Out Demand		
	(acre)	(percent)	ADD (ac-ft/yr)	ADD (mgd)	MDD (mgd)
Existing Potable Water Users	578	44%	2,644	2.4	6.7
Specific Plan Developments	738	56%	2,911	2.6	7.3
Total	**1,316**	**100%**	**5,555**	**5.0**	**14.0**

Note: All values exclude Roosevelt Park.

The irrigation water demands from the Black Bench and Pardee developments could potentially be served with untreated State Water Project (SWP) water from a pipeline that ends near the northwestern portion of the City's service area. The feasibility of using untreated SWP for these developments is evaluated in Section 6.

As listed in Table 2.10, approximately 44 percent of the potential recycled water demands identified are existing potable water customers that could be converted to recycled water, while the remaining 56 percent of demand is associated with the near-term future developments. As mentioned in the population discussion, only 31 percent of the City's service area will be developed after the completion of the five near-term developments. Hence, an increase in recycled water demands beyond the projected 5.0 mgd or 5,555 ac-ft/yr should be anticipated and system sizing should accommodate this future growth potential.

3.0 RECYCLED WATER SUPPLIES

This Section includes a discussion of the following recycled water supply sources:

- ✓ Banning Wastewater Treatment Plant (WWTP)
- ✓ Groundwater Well R-1
- ✓ Untreated State Water Project (SWP) water
- ✓ Loma Linda Satellite Plant
- ✓ Black Bench Satellite Plant
- ✓ Intercepted Storm Flow

The locations of these potential recycled water sources are depicted on Figure 3.1. This section concludes with a comparison of the available recycled water supplies and the projected recycled water demands.

3.1 Banning Wastewater Treatment Plant

The Banning WWTP is located in the southeast portion of the City will be the primary source for recycled water. The quantity of recycled water that can supply current demands depends on the available wastewater and plant capacity. The existing plant has a rated capacity of 3.6 mgd, and currently treats average flows of approximately 2.8 mgd to secondary standards. The treatment process includes screening, grit removal, primary clarification, trickling filters, and secondary clarifiers. Anaerobic digesters and sludge drying beds are used for sludge stabilization and dewatering. The headworks, completed in 1999, was sized for an ultimate capacity of 7.8 mgd [2]. The plant currently discharges its effluent to percolation ponds.

According to Title 22 of the California Code of Regulations, recycled water to be used for unrestricted irrigation of public spaces must be filtered and disinfected to tertiary standards. To meet the tertiary standards, the current treatment process needs to be substantially upgraded including filters or microfiltration, and disinfection either with chlorination or ultraviolet light [2].

The existing secondary treatment plant operates on an unsteady state mode; it treats the normal diurnal influent wastewater flows as they peak and ebb throughout the day. A new tertiary treatment process will operate on a steady state mode, and potentially reduce the amount of equalization storage required as presented in this report. Inter-plant flows between secondary treatment and tertiary treatment will need to be equalized. This can be accomplished by sending intermediate effluent from the secondary treatment process to an equalization basin before sending flow to tertiary treatment.

After recycled water is produced by tertiary treatment, it will be stored on-site for the distribution system. On-site storage for recycled water can consist of a lined earthen reservoir with a floating cover.

The plant currently discharges its effluent to percolation ponds; it is assumed that when the recycled water system is in operation the primary disposal method will be the recycled water system. Up to one hundred percent of the plant effluent can be used to produce recycled water. The percolation ponds may be used during periods when the effluent flow exceeds the recycled water demand. The WWTP upgrade to a total capacity of 5.1 mgd is currently under design.

3.2 Groundwater Well R-1

When the City conducted a study to evaluate the feasibility of constructing an irrigation water system in 1991, a new groundwater well, Well R-1, was identified as the initial source for irrigation water. This well has a potential discharge capacity of 1,500 gallons per minute (gpm) [1]. This well is located 0.2 miles east of the WWTP near the intersection of Hathaway Street and Westward Avenue (see Figure 3.1).

With the increase in potential recycled water demands associated with the new developments, the capacity of Well R-1 is no longer sufficient to supply all the existing and future potential customers with recycled water. The Banning Wastewater Treatment Plant will be the primary source for producing the major supply of recycled water to all the potential customers, while groundwater pumped from Well R-1 has been identified as a secondary source. Due to its close proximity to the WWTP, it is assumed that the City would connect this well with the recycled water pump station forebay at the WWTP.

3.3 Untreated State Project Water

A third potential recycled water source is untreated State Water Project (SWP) water. There is a 36-inch diameter SWP pipeline, the East Branch Extension Pipeline, which delivers untreated SWP water to the Noble Creek Spreading Grounds. The location of the spreading grounds is shown on Figure 3.1. As shown in this figure, the pipeline ends in the City of Beaumont, approximately 2 miles west of the City's northwest boundary.

Although this pipeline is sized to deliver SWP water for groundwater recharge, it is assumed that this pipeline would have sufficient capacity to convey untreated SWP water to the northern portions of the City. The potential use of this source to serve the irrigation demands in the Pardee and Black Bench developments, with a combined demand of 1,643 ac-ft/yr or 4.1 mgd under MDD conditions, is evaluated in Section 6. The availability of this supply would also need to be confirmed with the San Gorgonio Pass Water Agency (Pass Agency). Based on a velocity of 5 feet per second (ft/s), the irrigation demand of the Black Bench development would require approximately 18 percent of the pipeline capacity under MDD conditions.

City of Banning
Recycled Water Master Pan

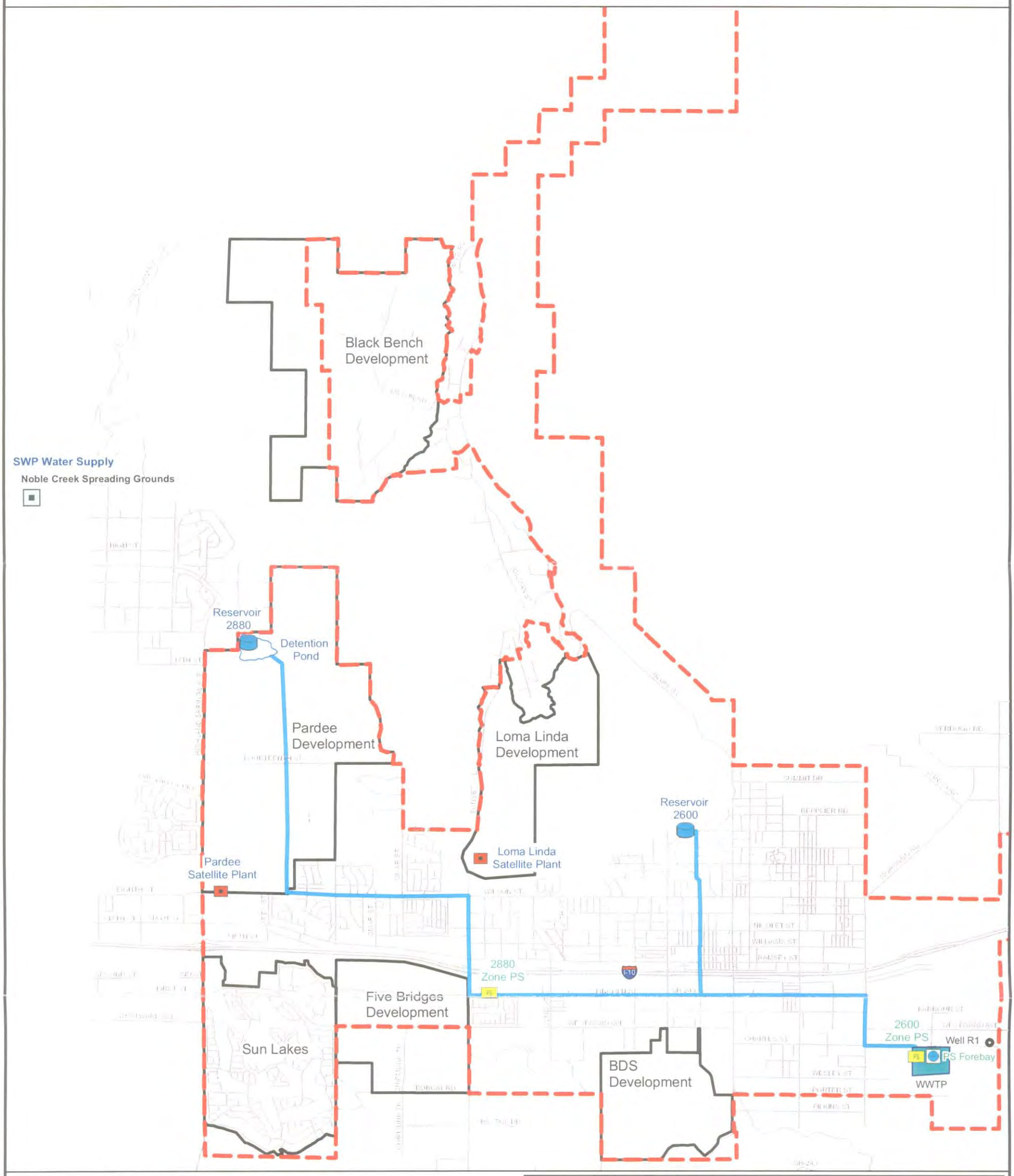

Figure 3.1 - Recycled Water Supply Sources

carollo engineers

Note:
1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

3.4 Loma Linda Satellite Plant

The Sewer Master Plan that is currently being developed includes an evaluation of the use of satellite WWTPs in combination with the planned Banning WWTP upgrade and expansion. One of the alternatives considers the construction of a satellite WWTP for the Loma Linda development. This plant would be located near the intersection of Sunset Avenue and Wilson Street, where it can collect all the future wastewater flows of the Loma Linda and Black Bench developments.

The Loma Linda development consist of 944 dwelling units and has a projected wastewater flow of 0.08 mgd and 0.27 mgd under Phase 1 and Build Out conditions, respectively. The Black Bench development consist of 1,499 dwelling units and has a projected wastewater flow of 0.11 mgd and 0.41 mgd under Phase 1 and Build Out conditions, respectively. Hence, this satellite plant could serve approximately 0.68 mgd or 760 acre-ft of recycled water demand per year.

It should be noted that this recycled water supply capacity is in lieu of the supply from the Banning WWTP, as the expansion includes the projected sewer flows from the Loma Linda and Black Bench developments. A satellite plant could provide a benefit to the recycled water and sewer distribution systems, as local recycled demands could be served directly from the satellite plant as it avoids the need for sewer transmission capacity to the WWTP and conveyance and pumping of recycled water from the WWTP to the irrigation customers in the development.

3.5 Pardee Satellite Plant

Similarly to the Loma Linda Satellite Plant, this plant would provide for a local supply of recycled water for the Pardee Development. This plant would be located near the intersection of Wilson Street and Highland Springs Avenue (east of Highland Springs Road in the vicinity of Smith Creek), where it can collect all the future wastewater flows of this new development. With 5,224 dwelling units, this development has a projected wastewater flow of 0.22 mgd and 1.36 mgd under Phase 1 and Build Out conditions, respectively. Hence, this satellite plant could serve approximately 1,526 acre-ft of recycled water demand per year.

3.6 Intercepted Storm Flow

There is an existing detention pond located in the northern portion of the Pardee Development (see Figure 3.1). This detention pond could be used to capture storm flow from the areas north of the Pardee development. The approximate amount of storm flow that could be captured would need to be evaluated as well as its water quality characteristics, if intercepted storm flow would be considered as a supply source for the recycled water system. The ground elevation near the detention ponds is approximately 2,880 ft msl. Based on an estimated useful area of 25 acres and an average depth of 10

feet, the volume of the pond is estimated at 80 MG. As the availability of this supply source would greatly depend upon rainfall, it is not likely that this would directly contribute to the recycled water supply mix under MDD conditions. This source is therefore not included in the supply summary presented in Section 3.7. Based on discussions with City staff it is assumed that a recycled water reservoir tank would be located at the detention pond site to serve the 2880 Zone. The remainder of the site could be used to construct a detention pond that could be used for 1) groundwater recharge and 2) supplemental supply for the recycled water system if sufficient storm water runoff is available that meets water quality standards. It is recommended that the use of intercepted storm flow as recycled water supply source is investigated in more detail.

3.7 Supply and Demand Summary

The potential recycled water supplies and their capacities are summarized in Table 3.1.

Table 3.1 Recycled Water Supplies and Demand Comparison
Recycled Water Master Plan
City of Banning

Supply Source	Phase 1 Capacity (mgd)	Ultimate Capacity (mgd)
WWTP existing capacity	3.6	3.6
WWTP current expansion	1.5	1.5
WWTP future expansions thru 2030 (1)	n/a	0.7
WWTP future expansions thru Build Out (2)	n/a	3.1
Satellite Plant - Loma Linda(3)	0.2	0.7
Satellite Plant - Pardee	0.2	1.4
Groundwater Well R-1	2.2	2.2
Untreated SWP water(4)	0.2	1.5
Total(5)	**7.6**	**12.6**

(1) Based on the average wastewater flow projected for year 2030 of 7.9 mgd [22].
(2) Based on the average wastewater flow projected for build out of 11.0 mgd [22].
(3) Based on combined wastewater flow from Loma Linda and Black Bench developments.
(4) Capacity is based on the combined recycled water demand of the Pardee and Black Bench developments. The use of this source would need to be confirmed with the Pass Agency. The feasibility of this source is analyzed in Section 6.
(5) Total excludes the capacity of the two satellite plants to avoid double counting.

As shown in Table 3.1, the available recycled supply under build out conditions is 12.6 mgd, while the projected ADD under build out conditions is 4.5 mgd (see Table 2.9). This recycled water supply surplus is consistent with the City's 2005 Urban Water Management Plan [5]. However, the projected MDD under build out conditions is 12.6 mgd, which indicates that the recycled water demand potential slightly exceeds the available supplies. The City could supplement the difference with additional SWP supply.

Based on this comparison, it can be concluded that the City has the potential to use all its recycled water produced at the upgraded WWTP and Well R-1. To offset the need for domestic supplies, the City has excellent opportunities to maximize the use of recycled water to serve the irrigation demands in the new developments and convert existing potable water customers, where most beneficial as identified Table 2.8.

4.0 PLANNING CRITERIA AND ASSUMPTIONS

This section includes a description of the planning criteria and assumptions used in this master plan to size and evaluate the recycled water distribution system and associated facilities. Items discussed are; regulatory requirements, demand estimating parameters, hydraulic parameters, and construction standards. This section concludes with a summary of cost estimating assumptions.

4.1 Regulatory Requirements

The recycled water distribution system should be designed to protect public health and safety in conformance with the guidelines and requirements of California Code of Regulations, Title 22, Division 4, Chapter 3, Article 1 through 10, Sections 60301 through 60355, the Riverside County Department of Health Services and the City of Banning.

The Regional Water Quality Control Board should issue the Discharge Order. The Riverside County Department of Health Services should also inspect the user sites and issue user permits.

4.1.1 Water Quality

According to Title 22 of the California Code of Regulations, recycled water to be used for unrestricted irrigation of golf courses, commercial planting areas, greenbelts, freeway landscaping, parks, playgrounds and schoolyards must be filtered and disinfected to tertiary standards to allow for full body contact. Irrigation water shall not come in contact with drinking fountains and picnic tables.

To meet tertiary water quality standards at the Banning WWTP, the treatments process at the plant would need to be substantially upgraded including filters or microfiltration, and disinfection either with chlorination or ultraviolet light [2].

Based on analysis of samples taken from Well R-1, it can be concluded that this source meets Title 22 requirements for irrigation water use, provided that groundwater is disinfected. A comparison of sampling at Well R-1 and Well C-6 is presented in Table 4.1.

Table 4.1 Groundwater Quality Comparison Recycled Water Master Plan City of Banning

Constituent	MCL	Unit	Well R-1	Well C-6
Nitrate (as NO_3)	45(1)	mg/l	2.0	7.4
Total Dissolved Solids (TDS)	500(2)	mg/l	307	220

Source: Average values from water quality records for 4th Quarter 2005 and 1st and 2nd Quarters of 2006.
(1) National Primary Drinking Water Standard
(2) National Secondairy Drinking Water Standard

Based on these test results it appears that the percolation ponds at the nearby wastewater treatment plant are not impacting the water quality of Well R-1.

4.1.2 AWWA Design Standards

The American Water Works Association has guidelines and requirements in their Manual of Water Supply Practices on Dual Water Systems (AWWA M24) that focuses on the following when planning a recycled water system [20]:

- ✓ Protect and maintain public health
- ✓ Define limitations and conditions for use of non-potable, recycled water
- ✓ Control improper use of non-potable, recycled water
- ✓ Prevent cross connection with potable water systems
- ✓ Provide physical separation from potable water systems conforming to similar standards for separation for potable water and sewer systems
- ✓ Incorporate design and construction standards
- ✓ Establish safeguards to minimize the effects of human carelessness

4.2 Hydraulic Parameters

Hydraulic planning criteria and assumptions discussed in this subsection are; network configuration, standard pipeline sizes, system pressures, pipeline velocity, pipeline headloss, storage sizing criteria, and pump station sizing criteria.

4.2.1 Network Configuration

The distribution system will consist of a network of pressurized pipelines. The configuration will comprise a single transmission main, the backbone system, that connects the City's WWTP with the gravity storage reservoirs in each pressure zone.

The backbone system will provide turnouts to connect smaller distribution system pipelines that will serve individual customers or groups of customers. The two alternative alignments for the backbone transmission main are evaluated in Section 6.

All recycled water system pipelines are sized to meet PHD.

4.2.2 Standard Pipeline Sizes

Pipeline sizes are based on the City's standard diameters as listed in Table 4.3. The non-standard 20-inch diameter pipeline is considered as an alternative to 24-inches with respect to potential cost savings. As shown in Table 4.3, the smallest pipeline considered is 8-inches in diameter.

Table 4.3 Standard Pipeline Sizes Recycled Water Master Plan City of Banning	
Pipe Diameter	**Type Size**
8 inches	Standard Size
12 inches	Standard Size
16 inches	Standard Size
20 inches	Non-standard Size
24 inches	Standard Size
30 inches	Standard Size

4.2.3 System Pressures

The system pressure in a recycled water system is typically designed to be slightly lower than the system pressure in the potable water system pipelines that are located in close vicinity of the recycled water pipelines to reduce the risk of contamination in the event of a pipeline break and low disinfectant residual in the recycled water system. However, this requirement can often not be met due to the following two reasons:

1) System pressure in potable water systems vary and pressure zone boundaries of potable and recycled water systems often do not overlap.

2) It is preferred to maintain a minimum pressure in the recycled water system of approximately 60 psi to meet the operating requirements for most sprinkler systems. However, the minimum pressure in potable water systems is typically 40 psi.

As the chance of cross contamination is minimal due to disinfection and a minimum horizontal separation of 10 feet between potable and recycled water pipelines, it is assumed that the recycled water system does not need to be coordinated with the existing potable water system pressure ranges.

The minimum system pressure used for pipeline sizing in this master plan is 60 psi under PHD conditions. The maximum system pressure is 200 psi, to avoid the need for more costly high-pressure class pipelines.

4.2.4 Pipeline Velocities

The maximum pipe velocity should not exceed 6 ft/s under PHD conditions with the entire distribution network in service.

4.2.5 Pipeline Headloss

The maximum headloss should not exceed 5 feet per thousand feet (ft/kft) under PHD conditions with the entire distribution network in service.

4.2.6 Storage Sizing Criteria

To operate a recycled water system with gravity reservoirs that is supplied from the Banning WWTP, three types of storage are required. These are:

1) Storage required to attenuate the hourly variation in wastewater flow and to provide a constant recycled water supply. With wastewater flows primarily occurring during the day and recycled water demands during the night, this storage component can be significant. The presence of primary or secondary storage at the WWTP will greatly affect the volume required for this storage component, which will typically be provided as a pump station forebay.

2) Storage reservoirs required to buffer demand fluctuations under MDD conditions, including the difference between PHD and MDD. The volume required for this storage component is highly dependent upon the hourly variation of the customers' demand, or the composite diurnal curve of each pressure zone.

3) Storage volume required protecting reservoirs from complete drainage. This "dead" storage provides operational flexibility and it protects pumps from pumping air, which can cause cavitation problems.

The first storage component, PS forebay storage, was calculated based on hourly production flows from the City's WWTP for May 24, 2006 [21], during which a total of 3.1 mgd of wastewater was produced. These wastewater flows were normalized to 5.2 mgd, to predict the wastewater flow variation under build out conditions.

The second storage component, gravity storage, is calculated based on the estimated water demand of the potential customers and their associated diurnal patterns. By comparing the hourly demand fluctuation with the available recycled water supply from the WWTP and Well R-1, the storage volume can be determined. The total gravity storage volume is divided over the two pressure zones based on the their proportional demand.

The third storage component, dead storage, is required for both the PS forebay and gravity storage. The depth of all reservoirs is increased by 10 feet to account for dead storage, with a maximum storage tank height of 32 feet.

It should be noted that recycled water systems do not require storage for fire flow or emergencies, as the potable water system storage is sized for these components.

4.2.7 Pump Station Sizing Criteria

Two pump station sizing criteria were used for the system analysis in this master plan, depending on the location of reservoir storage.

1) Alternatives with gravity reservoir storage have the benefit that reservoirs provide additional supply during the peak hours of MDD (reservoir drainage) and provide buffer capacity during the minimum hours of MDD (reservoir filling). This allows

pump station sizing for the average hour demand of MDD. Hence, all pump stations that pump into a zone with gravity storage are sized for MDD.

2) Alternatives without gravity reservoir storage do not provide the benefit of additional supply from reservoirs during the peak hours of MDD. Hence, all pump stations that pump into a zone without gravity storage (closed system) need to be sized for PHD.

It is assumed that booster stations do not require backup pumping capacity for emergencies, as irrigation water supply could temporary be interrupted and the existing customers could fall back on their potable water connection if needed. The golf courses planned in the new developments are assumed to use their lakes for operational storage, which should also provide operational flexibility during temporary pump station failures.

4.3 Construction Standards

4.3.1 Pipeline Materials

The City's preferred pipeline materials are Ductile Iron Pipe (DIP) and C200 Steel pipelines. It is assumed that all pipelines are DIP, with the exception of pipelines that require a pressure rating above 150 psi.

4.3.2 Construction Techniques

The majority of the pipeline network will use open trench construction methods in all places practical. Crossings of all channels, freeways, major arterials, and train tracks will be accomplished utilizing trenchless construction techniques.

4.4 Cost Estimating Assumptions

The construction and capital cost presented in this master plan do not include the cost for facilities required serve recycled water within the development areas, such as storage, booster pumping, land, and pipelines.

4.4.1 Cost Index

Cost estimates presented in this master plan are based on the current engineering and news record (ENR) cost index for the Los Angeles metropolitan area of 8,547 published in June, 2006. Future adjustments of cost estimates presented in this report can be estimated by increasing the estimated capital cost by the ratio of the future ENR to 8,547.

4.4.2 Unit Cost

The preparation of cost estimates presented in this report are based on the assumptions and unit construction costs listed in Table 4.4.

Table 4.4 Cost Estimating Assumptions Recycled Water Master Plan City of Banning		
Category	**Description**	**Assumption**
Pipelines	***Diameter***	***Unit Cost ($/lineal ft)***
	8 inches	$ 106
	12 inches	$ 126
	16 inches	$ 152
	20 inches	$ 189
	24 inches	$ 242
	30 inches	$ 268
	36 inches	$ 340
Storage Reservoirs	***Volume (MG)***	***Unit Cost ($/gallon)***
	<1	$ 2.10
	1-3	$ 1.60
	3-5	$ 1.30
	5-10	$ 1.10
Pump Stations	***Capacity (hp)***	***Unit Cost ($/hp)***
	<100	$ 6,200
	100-500	$ 4,130
	600-1000	$ 3,100
	1000-2000	$ 2,580
Land Acquisition	***Area (acres)***	***Unit Cost ($/acre)***
	All	$350,000
Mark-ups	***Category***	***Mark-up (%)***
	Contingency	30% of Capital Cost (CC)
	Engineering, Design and Construction Mgmt	15% of CC + Contingency
	Legal and Administration	10% of CC + Contingency
Special Pipelines Construction	***Construction Condition***	***Mark-up (%)***
	Pipelines in dirt terrain	80 % of standard unit cost
	Jack-and-Bore Crossings	150 % of standard unit cost
	Tunneling	300 % of standard unit cost
Amortization	***Category***	***Unit***
	Interest	5 %
	Depreciation Period	30 years

Land acquisition cost estimates are included for gravity reservoirs and booster stations. The land area required for storage reservoirs is based on the use of cylindrical tanks with 100-foot clearance around the tank to allow space for on-site pump stations, electrical and operational equipment, and access roads. Booster stations are assumed to require 0.5 acres per facility. Land acquisition costs for the satellite plants are not included.

It should be noted that the cost of wastewater treatment is not included in this study. For the purpose of alternatives comparison it is assumed that the cost of the regional plant upgrade is comparable with cost of constructing satellite plants. A detailed cost comparison of these treatment options is included in the Banning Sewer Master Plan.

5.0 MODEL DEVELOPMENT

5.1 Model Creation

For the purpose of this master plan, a hydraulic model was created in H_2OMAP Water Version 6.0. The model creation consisted of the following steps:

- ✓ Digitizing the distribution system pipelines
- ✓ Input of model demands and diurnal curves
- ✓ Input of model facilities and associated attribute data
- ✓ Determination of pressure zones boundaries and hydraulic grade lines (HGLs)
- ✓ Setup of Model Scenarios, Demand Sets, and Facility Sets
- ✓ Sizing of pipelines and facilities for various alternatives

The model creation steps and the data used in the model are described in more detail below. It should be noted that the model was not calibrated because the entire network consists of proposed pipelines and facilities.

5.2 Recycled Water Demands

All potential recycled water customers listed in Table 2.6 were modeled as separate demand nodes. The maximum month demand (in gpm) of each customer was input as a "base demand", while the 24-hour diurnal pattern was input to simulate the demand variation during the day. The diurnal curves scale the demand per hour from maximum month demand to maximum day demand by multiplying the base demand with a 1.3 peaking factor and the hourly factor associated with the customer's diurnal pattern.

For example, the maximum month demand of Repplier Park is 37.5 gpm and irrigation is assumed to occur during an 8-hour period from 10 PM to 6 AM (see Table 2.5). With an aggregate peaking factor of 3.9 (1.3 MDD/MMD * 3.0 PHD/MDD), the simulated model demand varies from 0 gpm (between 6 AM and 10 PM) to 146 gpm during irrigation hours.

The model includes five demand sets that were used to simulate the following demand conditions:

1) MDD under Build Out conditions
2) MDD under Phase 1 conditions
3) MDD under Build Out conditions with one satellite WWTP for the Loma Linda Development

4) MDD under Build Out conditions with one satellite WWTP for the Pardee Development

5) MDD under Build Out conditions with satellite WWTPs for the Loma Linda and Pardee Developments

The demand sets 3, 4, and 5, were used to determine the recycled water system benefits by using satellite plants for the Loma Linda and Pardee developments. The demands of these developments were reduced in these demand sets as the projected wastewater flows for these satellite WWTPs were lower than the projected recycled water demands. More details on this analysis is included in Section 6.

5.3 Recycled Water Supplies

The Banning WWTP was modeled as a fixed grade node with a HGL of 2,127 feet above mean sea level (msl), which is the approximate ground elevation of the WWTP site. This source was connected with a booster pump to feed the recycled water distribution system.

The groundwater well, Well R-1, is not included in the model, as it is assumed that this well will directly discharge into the pump station forebay at the WWTP. The pump station modeled at the WWTP simulates the combined flow of these two supply sources.

Two satellite WWTPs are modeled to evaluate the impact on the sizing of the recycled water system. These satellite plants are located at the southern portion of the Loma Linda and Pardee developments to capture the wastewater generated by these developments. The HGL of the fixed grade nodes that represent the Loma Linda and Pardee satellite WWTPs are 2,665 and 2,584 feet msl, respectively, which correspond to the approximate ground elevation of the sites. The pump stations at these sites are sized to pump the estimated wastewater flow of the plants.

The SWP supply is modeled as a fixed grade node with a HGL of 2,910 ft msl at the location of the Noble Creek Spreading Grounds. The East Branch Extension Pipeline that feeds these spreading grounds is not included in the model. A pump station is modeled to feed the pipeline to the Black Bench development.

5.4 Recycled Water System

The recycled water system was digitized by connecting the WWTP with the potential recycled water customers. The network configuration consists one backbone transmission pipeline that starts at the WWTP and continues west to the Sunset Lakes and Pardee developments. The remaining customers are connected to this backbone system with smaller, dead-end, distribution system pipelines. The recycled water system does not include any looping for redundancy, as temporary interruptions of recycled water supply are considered acceptable. The backbone system also extends to the gravity reservoirs that are proposed along the San Bernardino foothills, as discussed in Section 5.4.1.

5.4.1 Pressure Zones

The proposed recycled water system includes three pressure zones. The HGL of these zones was determined by the range in ground elevations and the minimum and maximum system pressure criteria of 60 psi and 200 psi, respectively.

A lower maximum pressure would be preferred, however, this would result in more pressure zones, requiring additional booster stations and reservoirs. The pressure zone characteristics are summarized in Table 5.1.

Table 5.1 Pressure Zone Characteristics Recycled Water Master Plan City of Banning

Pressure Zone HGL (ft msl)	Ground Elevation Range (ft msl)	Static Pressure Range (ft msl)
2600	2,127 - 2,450	65 - 205
2880	2,405 - 2,711	60 - 193
3400(1)	2,910 - 3,180	212 - 294
4100	3,360 - 3,927	75 - 320

(1): The 3400 Zone is recommended for the upper portions of the Loma Linda and Pardee developments.

It should be noted that the Zone 4100 is required to serve the Black Bench development. Due to the large variation in ground elevation, the southern portion of this development would need to be served through a pressure reducing station to avoid excessive system pressures.

5.4.2 Pipelines

The recycled water system pipelines were digitized to connect the recycled water supply sources with the potential customers using the shortest routes possible. Due to the location of the WWTP on the far eastern portion of the City's service area, the pipeline diameters of the backbone decrease gradually in westerly direction as the design flow rate decreases. Distribution system pipelines branch in both north and south directions to serve customers. The distribution system pipeline characteristics are summarized in Table 5.2.

As listed in Table 5.2, the recycled water model includes 37 miles of pipeline, ranging from 8-inch to 30-inch in diameter. This includes all pipelines required to evaluate the various alternatives. As not all pipeline routes evaluated are part of the proposed system, the model pipeline length exceeds the length presented in the Capital Improvement Program (CIP) of this master plan.

Table 5.2 Pipeline Characteristics Recycled Water Master Plan City of Banning				
Pipeline Diameter (in)	Pipeline Length (mi)			
	Zone 2600	Zone 2880	Zone 4100	Total
8	0.4	0.4		0.8
12	2.8	2.5		5.3
16	2.1	9.1	6.0	17.2
24		4.4		4.4
30		0.8		0.8
36	8.0	0.7		8.7
Total	**13.3**	**17.9**	**6.0**	**37.1**

It should be noted that the pipeline distribution includes all potential pipelines includes, and is different from the proposed system configuration included in the Capital Improvement Program (CIP) of this master plan (Section 7).

5.4.3 Reservoir Storage

The hydraulic model includes two gravity reservoirs for zones 2600 and 2880. A gravity reservoir is not considered cost-effective for Zone 4100. Hence, it is recommended that this zone be operated as a hydro-pneumatic zone.

The total required storage volume for the City under build out conditions was calculated to be 1.4 MG. Approximately 0.4 MG of this storage is required to buffer the wastewater flow fluctations at the plant. It is assumed that this storage will be provided at the suction side of the 2600 Zone Pump Station as a pumping forebay. The remaining 1.0 MG was divided amongst the Zone 2600 and Zone 2880 reservoirs based on the proportional demand of each pressure zone.

All gravity reservoirs are modeled as circular tanks with a diameter that corresponds to the required volume with a tank height of 22 feet. Subsequently, 10 feet was added to provide for dead storage, resulting in a total tank height of 32 feet. The gravity reservoir characteristics are summarized in Table 5.3.

Table 5.3 Reservoir Characteristics Recycled Water Master Plan City of Banning				
Reservoir	Diameter (ft)	Height (ft)	Operational Volume[1] (MG)	Total Volume[2] (MG)
Equalization at WWTP	61	32	0.7	1.0
Zone 2600	51	32	0.5	0.7
Zone 2880	41	32	0.3	0.5
Total	**n/a**	**n/a**	**1.5**	**2.2**

(1) Based on a reservoir height of 22 feet.
(2) Based on a reservoir height of 32 feet.

5.4.4 Pumping Stations

The hydraulic model includes a large number of booster pumping stations and pump curves that were used to evaluate various system configurations. Depending upon the system alternative, certain pump stations and pump curves are selected (activated) to model the appropriate system conditions, while other facilities are excluded from the model runs. The pump stations and their respective modeled design points are summarized in Table 5.4.

It should be noted that the pump curves are created such that they reflect variable frequency drive (VFD) pumps to limit the variation in discharge head, while operating over significant demand fluctuations. It is recommended that the City evaluate the option to use VFDs in the preliminary design stage of the booster pumping stations.

Table 5.4 Pump Station Characteristics
Recycled Water Master Plan
City of Banning

Pump Station	From Zone	To Zone	Alternative	Flow (gpm)	Head (ft)
Zone 2600 PS	WWTP	2600	1A	8,900	490
			1B	8,900	490
Zone 2880 PS	2600	2880	1A	7,200	310
			1B	7,200	310
Zone 2600 PS	WWTP	2600	2A	8,900	490
			2B	13,000	490
			2C	15,500	490
Zone 2800 PS	2600	2880	2A	7,200	310
			2B & 2C	11,300	310
Zone 2600 PS	WWTP	2600	3A	7,000	490
			3B	7,900	490
			3C	6,100	490
			3D	8,900	490
Zone 2800 PS	2600	2880	3A	5,400	310
			3B	6,300	310
			3C	4,400	310
			3D	7,200	310
Zone 2600 PS	WWTP	2600	4A/4B	8,900	490
			4C	11,600	490
			4D	8,900	490
Zone 2880 PS	2600	2880	4A/4B	7,200	310
			4C	9,900	310
			4D	7,200	310
Zone 2880 PS	SWP	2880	5A	1,000	150
			5B	3,800	150
Zone 3000 PS(1)	2880	3000	All	3,000	120
			4C	5,700	120
Zone 3400 PS(1)	3000	3400	All	3,000	400
			4C	5,700	400
Zone 3400 PS(2)	3000	3400	All	4,500	520
Zone 4100 PS	SWP	4100	4A, 4B & 5B	2,800	1200
	3400	4100	4C	2,800	700

(1) To Loma Linda Development (Zone 3000 is the assumed HGL of golf course ponds, Zone 3400 is to serve demand)
(2) To Pardee Development (Zone 3400 is to serve demand in the upper portion of the development).

6.0 SYSTEM ANALYSIS

This section describes the hydraulic analysis performed to define the proposed recycled water system. This section consists of a discussion of the evaluation methodology, the alternative analysis, and concludes with a proposed recycled water system layout. The phasing of the system components and cost estimates of the proposed system are presented in Section 7, the Capital Improvement Program. It should be noted that the cost estimates and system configurations presented in this Section are for comparison purposes and should not be used as a reference for the proposed system layout.

6.1 Evaluation Methodology

The evaluation methodology used to determine the most cost-effective and operational recycled water system is based on the evaluation of a number of alternatives that represent various system configurations. This process is schematically shown in Figure 6.1, while the location of the various system components are shown on Figure 6.2.

As shown in Figure 6.1, the evaluation methodology is based on a progressive process in the sense that the conclusion from the first analysis is used in the second analysis, etc. This methodology was used to reduce the number of variables amongst the alternatives and maintain a clear picture of the impact of one particular variable. For example, two backbone alignments were evaluated in the first analysis. The best alignment was then used in the second analysis, which then evaluates the best storage configuration.

To provide a consistent basis for the comparison of alternatives, capital cost estimates were prepared for the entire distribution system of each alternative using the cost estimating assumptions described in section 4.5.

In addition, a unit cost in dollars per ac-ft of recycled water served ($/ac-ft) was calculated to compare alternatives where the total system demand varies. Unit costs are a better comparison base than capital cost only. The results of the alternatives evaluation are discussed below. Two types of unit cost are calculated for alternatives that involve separate recycled water systems for one or more developments. These alternatives include 1) a system wide unit cost where total cost of the City's recycled water system is divided by the total City-wide recycled water demand, and 2) a developers unit cost where the cost the recycled water backbone system for the development is divided by the development's recycled water demand. It should be noted that the development cost does not include in-tract distribution pipelines, reservoirs, and satellite treatment plants.

All alternatives are evaluated under build out conditions, as the ultimate system demand determines the system sizing. The phasing of facilities is discussed in Section 7.

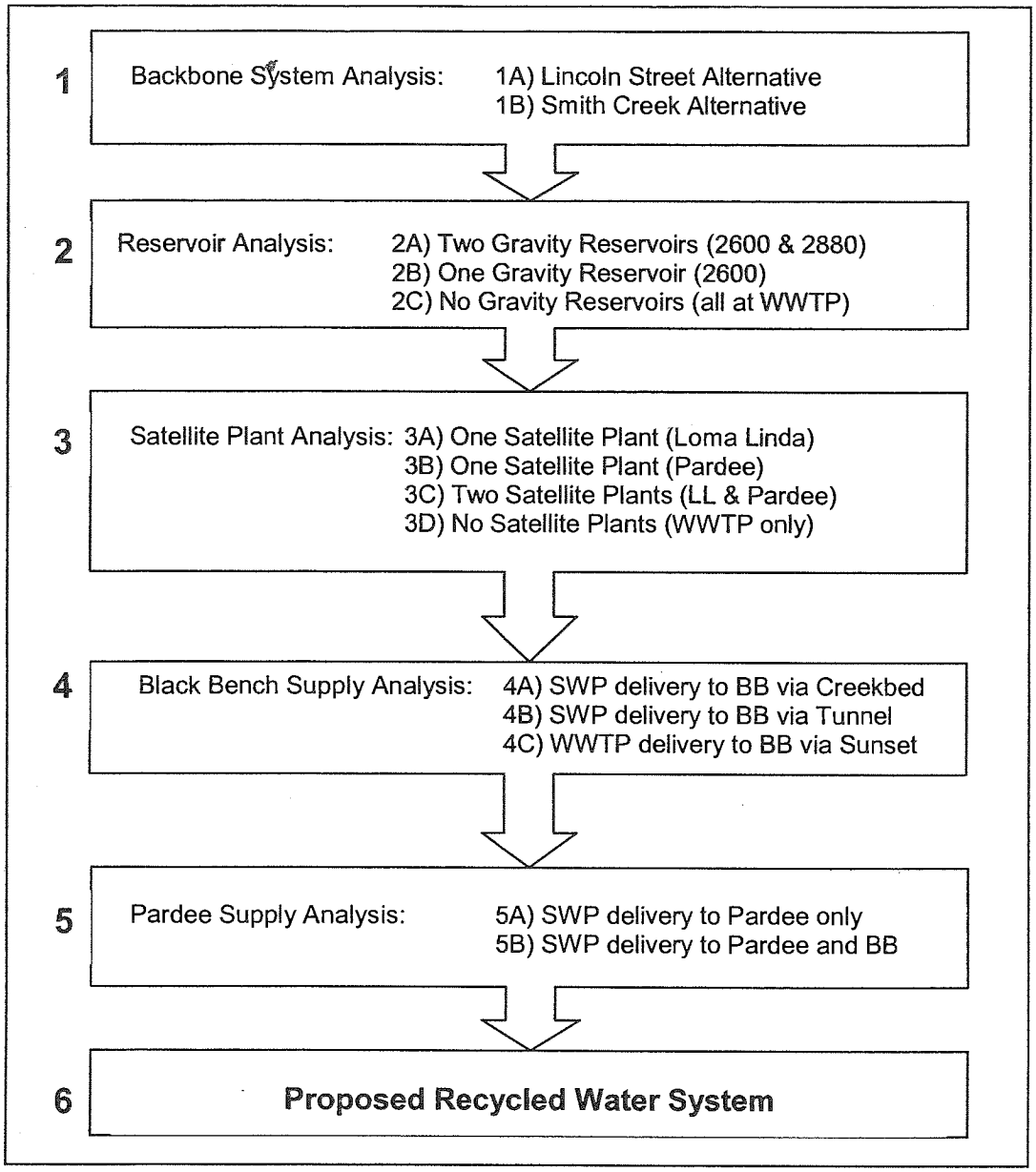

Figure 6.1 Alternatives Evaluation Process

City of Banning
Recycled Water Master Pan

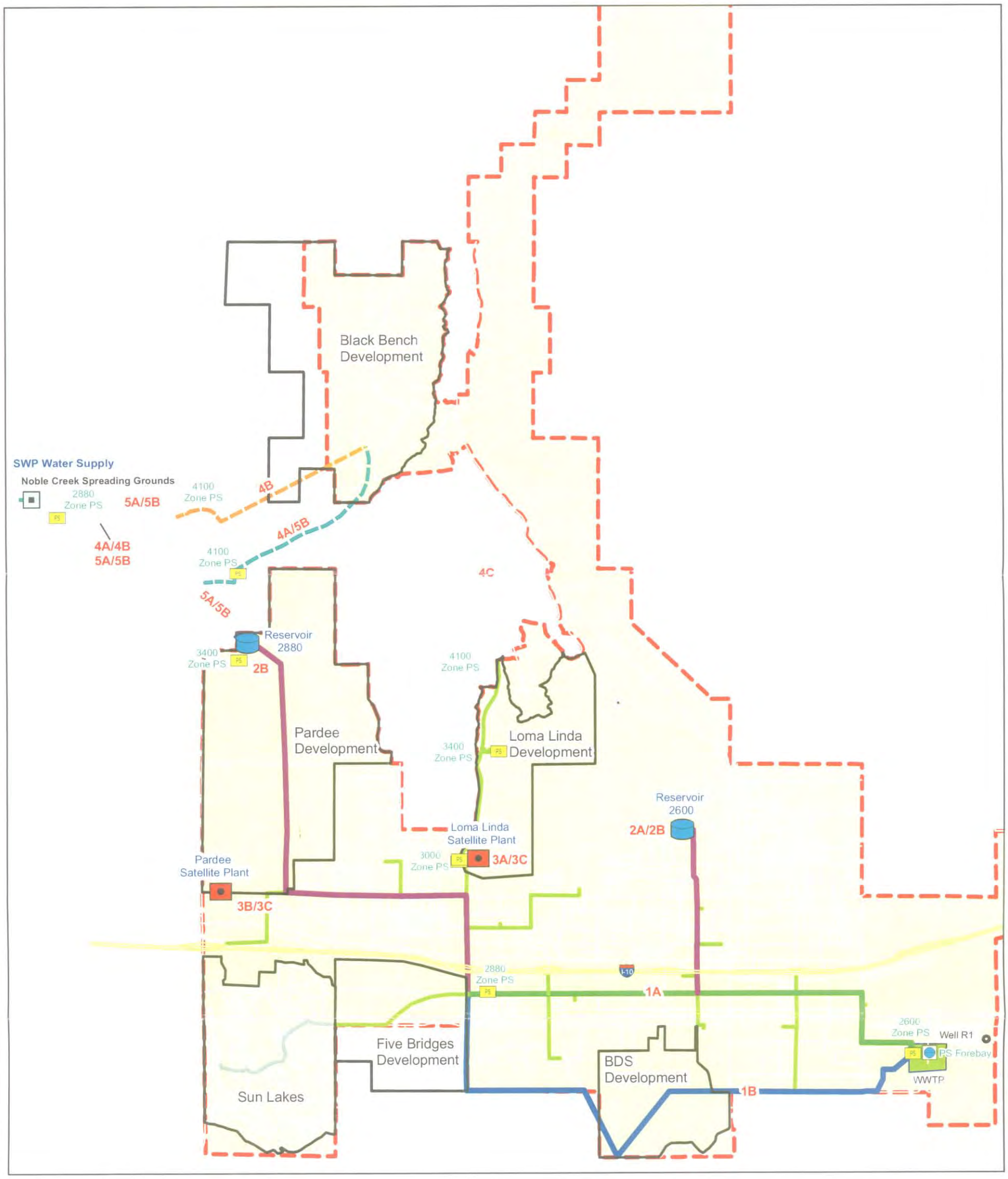

Figure 6.2 - Overview of Alternatives System Components

carollo engineers

Note
1. This map contains data from the City of Banning GIS
2. This map is intended for display and planning purposes only

N

0 1,600 3,200 6,400 Feet

- Distribution System Pipeline
- Reservoir Feedlines
- Lincoln Street Backbone
- Smith Creek Backbone
- Existing Pipe
- Noble Creek SG
- Gravity Reservoirs
- Satellite Plants
- Well R1
- Pump Stations
- PS Forebay
- Banning WWTP
- I-10
- Streets
- City Boundary

6.2 Backbone Analysis

The first analysis performed with the recycled water model was to determine the most cost-effective alignment for the recycled water backbone system. Determining the alignment of this transmission main is a critical first step since it determines the sizing and length of all remaining distribution system pipelines. The two alternatives considered for the analysis were:

- ✓ Alternative 1A - Lincoln Street alignment
- ✓ Alternative 1B - Smith Creek alignment

The location of these alignments is depicted on Figure 6.2. The pipelines and facilities required for each alternative to serve all the potential recycled water customers, as listed in Table 2.6, were input in the model. A separate model scenario was created for each of the alternative to size the pipelines and facilities such that the planning criteria (see Section 4) were met.

Both alternatives include a 30-inch diameter backbone pipeline, 16-inch diameters that connect to the gravity reservoirs in the 2600 and 2880 zones, the 2600 PS at the WWTP, and a 2880 PS to supply the 2880 Zone. In addition, the 3400 Zone PS to the upper portions of the Loma Linda and Pardee Developments are included. Based on the Loma Linda topography and land use plan, it is assumed that recycled water will first be pumped to the Loma Linda Golf Course lakes at an approximate HGL of 3000 ft and subsequently pumped to the 3400 Zone to serve the customers. It is assumed that the 3400 Zone PS for the Pardee development be located near Reservoir 2880 at the detention pond site. These alternatives do not include the facilities, pipelines, and demands of the 4100 Zone (Black Bench Alternative), as supply to this Zone is considered not feasible based on the analysis presented in Table 2.8.

A description of the system configuration for the alternatives and a summary of the estimated cost are discussed below, while system schematics are included in Appendix C and detailed cost estimates are included in Appendix D.

6.2.1 Alternative 1A - Lincoln Street Alignment

The 3.9 miles (mi) backbone system in the Lincoln Street Alternative consists of a 30-inch diameter pipeline that runs north from the Banning WWTP along Scott Street to Charles Street, where it continues west to Hathaway Street. The pipeline runs north on Hathaway Street, and then continues west along Lincoln Street until it reaches Sunset Avenue. The 2880 Zone PS would be located along Lincoln Street between 22nd Street and Sunset Avenue.

Two reservoir feed/drain pipelines, with a combined length of 5.5 mi, are connected to the backbone system. The 16-inch diameter 2600 Zone reservoir pipeline starts at the intersection of 4th Street and Lincoln Street and runs for about 1.3 mi north along 4th Street. The 2880 Zone reservoir pipeline starts at the intersection of Lincoln Street and Sunset Avenue, where one major distribution pipeline branches off from the backbone system to feed the Sunset Lakes Golf Course and the Five Bridges development. The 24-inch diameter reservoir pipeline runs north for about 0.8 mi along Sunset Avenue, crosses Interstate 10, continues to the intersection with Wilson Street, where it reduces to a 20-inch diameter pipeline and continues west for approximately 1.4 miles to the intersection of Wilson Street and Highland Home Road. From this intersection, the pipeline is reduced to 16-inch in diameter and continues north for about 2.0 mi. The 2880 Zone reservoir pipelines has a combined length of 4.2 miles.

The distribution system consists of 8.0 miles pipeline that ranges from 8-inch to 20-inch in diameter. This does not include distribution system pipelines within the development areas and excludes the 12-inch diameter pipeline in the Sunlakes Development (see Figure 6.3).

The total pipeline length of this alternative is 17.3 miles, including 5.1 miles of construction in dirt terrain. Approximately 5.1 miles of these pipelines could be constructed in dirt terrain, with a 20 percent construction cost discount per Table 4.4.

This alternative includes five pumping stations: the 2600 Zone PS at the regional WWTP (1500 hp), the 2880 Zone PS along Lincoln Street (800 hp), the 3000 Zone PS to Loma Linda (125 hp), the 3400 Zone PS to Loma Linda (400 hp), and the 3400 Zone PS to Pardee (800 hp).

The reservoirs included in this alternative are a 0.4 MG forebay at the WWTP, a 0.6 MG Zone 2600 Reservoir, and a 1.0 MG Zone 2880 Reservoir. . This does not include storage capacity for the demands in the development areas, which is likely to be provided in golf course lakes.

It is assumed that 5.4 acres of land would need to be acquired for the two reservoir sites, the 2880 Zone PS along Lincoln Street, the 3000 Zone PS to the Loma Linda golf course ponds, and the two 3400 Zone PSs to the upper portions of the Loma Linda and Pardee Developments. This does not include land for treatment facilities, equalization storage at the regional plant, or operational storage to serve the recycled water demands in the development areas.

6.2.2 Alternative 1B - Smith Creek Alignment

The 4.9 mi backbone system in the Smith Creek Alternative consists of a 30-inch diameter pipeline that runs in southwest direction from the Banning WWTP to intersection of Hathaway Street and Porter Street. The pipeline continues west along Porter Street until it reaches San Gorgonio Avenue, where it continues further west to follow the proposed sewer main alignment that crosses Montgomery Creek. Once it reaches the westside of

the creek, the pipeline continues west along Bobcat Road to Sunset Avenue. The 2880 Zone PS would be located along Sunset Avenue between Bobcat Road and Westward Avenue. The backbone pipeline continues further west from the discharge side of the pump station to Sunset Avenue, where it turns north and ends at the intersection with Lincoln Street.

Two reservoir feed/drain pipelines, with a combined length of 6.5 mi, are connected to the backbone system. The 16-inch diameter 2600 Zone reservoir pipeline starts at the intersection of San Gorgonio Avenue and Porter Street and runs north along San Gorgonio Avenue for about 0.5 mi, then west along Westward Avenue for about 0.2 mi, and then north again along 4th Street for about 0.7 mi. The 2600 Zone reservoir pipeline has a combined length of 2.3 miles. The 2880 Zone reservoir pipeline is identical to Alternative 1A and has a combined length of 4.2 miles.

The distribution system consists of 9.0 miles pipeline that ranges from 8-inch to 20-inch in diameter.

The total pipeline length of this alternative is 20.3 miles. Approximately 10.2 miles of these pipelines could be constructed in dirt terrain, with a 20 percent construction cost discount per Table 4.4. The total length of jack-and-bore crossing under the riverbed is estimated at 1,200 lineal feet, which has a 50 percent construction cost mark-up per Table 4.4.

This alternative also includes the five PSs listed for Alternative 1A. One exception would be the location of the 2880 Zone PS along Sunset Avenue, instead of Lincoln Street.

The reservoirs and land acquisition requirements included in this alternative are the same as listed for Alternative 1A.

6.2.3 Recommendation

The estimated construction cost, land acquisition cost, total capital cost, and unit cost are summarized in Table 6.1. Detailed cost estimates are included in Appendix D.

As shown in table 6.1, the Lincoln Street alternative is more cost effective. This cost difference is solely due to a difference in overall pipeline length, with 17.3 mi for the Lincoln Street Alternative and 20.3 mi for the Smith Creek Alternative. Also, the Smith Creek alternative has a higher potential for environmental impacts due to the creek crossing. Because the Lincoln Street Alternative does not have any major concerns that would justify the cost difference, this alternative is selected as the preferred alignment and is used for further analysis.

Table 6.1 Backbone Analysis Results Recycled Water Master Plan City of Banning		
System Component	**Alternative 1A Lincoln Street ($ million)**	**Alternative 1B Smith Creek ($ million)**
Pipelines	$16.0	$17.6
Reservoir Storage	$4.6	$4.6
Pump Stations	$10.6	$10.6
Total Construction Cost	**$31.2**	**$32.8**
Land Acquisition	$1.9	$1.9
Mark-ups	$19.5	$20.5
Total Capital Cost	**$52.7**	**$55.2**
Total Demand (ac-ft/yr)	5,035	5,035
Unit Cost ($/ac-ft)	**$680**	**$713**

Note: All numbers excludes wastewater treatment cost.

6.3 Reservoir Analysis

Recycled water storage is required to buffer the hourly fluctuation in recycled water demands and the available recycled water supply from the Banning WWTP under MDD conditions. To calculate the required storage, a spreadsheet was developed that compares the available recycled water supply and the estimated recycled water demands in 15-minute intervals for a duration of 11 days. Historical wastewater flows from the Banning wastewater treatment plant were used to simulate the variation in supply [21].

The difference between supply and demand is compensated with storage. The maximum cumulative storage between a fill and a drain cycle determines the total required storage volume. The calculated reservoir size is verified with a graph that presents the variation in recycled water demands and storage volume over the 11-day period. Once this graph shows a repetitive pattern of fill and drain cycles, the calculation is balanced. The storage calculation considers the following parameters:

- ✓ Stage of development (Phase 1 or Build Out)
- ✓ Diurnal curve for each customer (8-hr irrigation for Parks and Schools; 12-hr irrigation for Caltrans, and 24-hr delivery to Golf Courses)
- ✓ Wastewater flow rates based historical data (3.1 mgd for Phase 1 and normalized to 5.2 mgd for Build Out)
- ✓ Potential use of Groundwater Well R-1 (1,500 gpm or 2.2 mgd)
- ✓ Potential use of State Water Project (SWP) water to compensate supply shortfall.

The calculated storage volume for Phase 1 and Build Out conditions are summarized in Table 6.2. These volumes refer to total system storage and does not specify the zoning or location of the storage reservoirs.

Table 6.2 Storage Volumes
Recycled Water Master Plan
City of Banning

Storage Component	Phase 1 (MG)	Build Out (MG)
PS Forebay Storage at WWTP[1]	0.6	1.0
Operational System Storage[1]	0.3	1.2
Subtotal - City Storage	***0.9***	***2.2***
On-site Operational Storage at Golf Courses[2]	8.0	8.0
Total System Storage	**8.9**	**10.2**

(1) Does include dead storage.
(2) Does not include dead storage and excludes Black Bench storage (1.4 MG)

It should be noted that all three alternatives are based on the assumption that golf courses receive a constant amount of recycled water (24-hr delivery) and that the required storage for golf courses (8.0 MG) should be provided as on-site storage in lakes. Hence, the total required operational storage to be constructed by the City is 2.0 MG under build out conditions. As shown in Table 6.2, 1.0 MG of this storage needs to be constructed at the WWTP to buffer the fluctuations in wastewater flows and allow a constant recycled water delivery. The remaining 1.0 MG is needed to buffer the fluctuation in recycled water demands during the day.

To determine the most cost-effective location to construct operational storage, the following three alternatives were evaluated:

- ✓ Alternative 2A - Two Gravity Reservoirs (Zone 2600 and 2880)
- ✓ Alternative 2B - One Gravity Reservoir (Zone 2600)
- ✓ Alternative 2C - No Gravity Storage (all storage is located at the WWTP).

The hydraulic model was used to size the pipelines and pump stations for each alternative. The Lincoln Street Alignment was used in all alternatives as the backbone system. A description of the system configuration for the alternatives and a summary of the estimated cost are discussed below, while system schematics are included in Appendix C and detailed cost estimates are included in Appendix D. The locations of the gravity reservoirs are depicted on Figure 6.2.

6.3.1 Alternative 2A - Two Gravity Reservoirs

This alternative includes forebay storage at the Banning WWTP (1.0 MG) and gravity storage in Zone 2600 (0.7 MG) and Zone 2880 (0.5 MG). The distribution of the gravity storage is prorated based on the proportional demand of each zone.

The system configuration in this alternative is identical to system configuration of Alternative 1A, the Lincoln Street Backbone System.

6.3.2 Alternative 2B - One Gravity Reservoir

This alternative includes forebay storage at the Banning WWTP (1.0 MG) and gravity storage in Zone 2600 (1.2 MG). As there would not be any gravity storage in Zone 2880, this zone would be operated as a closed system. This alternative requires land acquisition for only one reservoir site and avoids the need for the feed/drain pipeline to Reservoir 2880. However, the 2880 Zone PS in this alternative are designed to deliver PHD instead of MDD, and should be equipped with a pump station that is designed to deliver PHD instead of MDD and is preferably equipped with variable frequency drive (VFD) pumps to maintain a fairly constant discharge pressure.

The system configuration is similar to system configuration of Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 15.3 miles versus 17.3 miles in Alternative 1A.
- ✓ The estimated required land is 3.6 acres versus 5.4 acres in Alternative 1A.
- ✓ The 2880 Zone booster station is 1250 hp versus 800 hp in Alternative 1A.

6.3.3 Alternative 2C - No Gravity Reservoirs

This alternative does not include any gravity reservoirs and all system storage (2.2 MG) would be located at the Banning WWTP. As a result, both Zone 2600 and Zone 2880 would be operated as closed systems. This alternative requires no land acquisition for reservoir sites and avoids the need for reservoir feed/drain pipelines. However, the pump stations in this alternative are sized to deliver PHD instead of MDD, and should be equipped with VFD pumps to maintain a fairly constant discharge pressure.

The system configuration is similar to system configuration of Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 14.6 miles versus 17.3 miles in Alternative 1A.
- ✓ The estimated required land is 2.0 acres versus 5.4 acres in Alternative 1A.
- ✓ The 2600 Zone booster station is 2500 hp versus 1500 hp in Alternative 1A.

- ✓ The 2880 Zone booster station is 1250 hp versus 800 hp in Alternative 1A.

6.3.4 Recommendation

The estimated construction cost, land acquisition cost, total capital cost, and unit cost are summarized in Table 6.3. Detailed cost estimates are included in Appendix D.

Table 6.3 Reservoir Analysis Results Recycled Water Master Plan City of Banning

System Component	Alternative 2A 2 Reservoirs ($ million)	Alternative 2B 1 Reservoir ($ million)	Alternative 2C No Reservoirs ($ million)
Pipelines	$16.0	$15.2	$13.8
Reservoir Storage	$4.6	$4.0	$3.5
Pump Stations	$10.6	$12.1	$12.7
Total Construction Cost	**$31.2**	**$31.4**	**$30.0**
Land Acquisition	$1.9	$1.3	$0.7
Mark-ups	$19.5	$19.6	$18.7
Total Capital Cost	**$52.7**	**$52.3**	**$49.4**
Total Demand (ac-ft/yr)	5,035	5,035	5,035
Unit Cost ($/ac-ft)	**$680**	**$675**	**$638**

Note: All numbers excludes wastewater treatment cost.

As shown in table 6.3, it is more cost-effective to construct larger pump stations than gravity reservoir storage, even if these reservoirs can be located fairly close to the customers. However, the benefit of gravity reservoirs for system operations is not expressed in these costs. Operating a closed pressurized water distribution system with large demand fluctuations, such as a recycled water system, is not desirable from an operational standpoint. The use of VFD pumps may reduce the pressure fluctuations, however, pumps are anticipated to continuously ramp up and down when customers turn their irrigation sprinklers systems on and off. This causes wear and tear on pumps. In addition, potential pressure spikes may cause problems at customer connections. Based on the operational constraints of closed systems, it is considered justifiable to recommend the construction of two gravity reservoirs at an incremental cost of less than $300,000 annually. Hence, alternative 2A is the preferred alternative.

6.4 Satellite Plant Analysis

The third analysis performed with the recycled water model was to determine the cost impact on the recycled water system if one or two satellite WWTPs were to be constructed to treat wastewater from the Pardee and/or Loma Linda developments. The locations of these satellite plants are depicted on Figure 6.2.

The primary advantage of using a satellite WWTP for the wastewater treatment and recycled water supply is the fact that this reduces the amount of wastewater and recycled water conveyance, as well as recycled water pumping cost. With the Banning WWTP located on the eastern end of the City's service area and the developments located on the northwestern side of the City's service area, use of satellite plant could reduce conveyance as much as 12 miles (6 miles for sewer and 6 miles for recycled water).

The sewer master plan that is currently being prepared includes a detailed cost analysis for these satellite plants. The analysis in this master plan is limited to the recycled water system components, including the recycled water pumping forebay and all downstream facilities and pipelines. The four alternatives considered for the analysis were:

- ✓ Alternative 3A - One Satellite WWTP at the Loma Linda Development
- ✓ Alternative 3B - One Satellite WWTP at the Pardee Development
- ✓ Alternative 3C - Two Satellite WWTPs at the Loma Linda and Pardee Developments
- ✓ Alternative 3D - No Satellite WWTPs, all wastewater flow is treated at the (expanded) Banning WWTP.

The hydraulic model was used to size the pipelines and pump stations for each alternative. Per the recommendations of the first and second analyses, the Lincoln Street Alignment was used in all alternatives as the backbone system and both gravity storage reservoirs were included. A description of the system configuration for the alternatives and a summary of the estimated cost are discussed below, while system schematics are included in Appendix C and detailed cost estimates are included in Appendix D.

6.4.1 Alternative 3A - One Satellite WWTP at Loma Linda

This alternative includes one satellite WWTP for the Loma Linda Development. The projected wastewater flow of this plant is 0.7 mgd under build out conditions (see Section 3.4). The remaining wastewater flow of the City would be treated at the Banning WWTP. The projected capacity of this plant under this alternative is 7.1 mgd (7.8 - 0.7).

With the objective to reduce conveyance through pipelines, it is assumed that the Loma Linda recycled water system would operate as a separate isolated recycled water system. This means that the recycled water demand that can be served is limited to the available supply. However, the estimated recycled water demand of the Loma Linda Golf Course is 1,059 acr-ft/yr or 0.95 mgd, which is greater than the available supply. The difference would need to be supplemented with potable water supply. An annual supply and demand balance is included in Appendix F. This balance shows that the average annual demand that can be served from the satellite plant is 477 ac-ft/yr, an overall system reduction of 582 ac-ft/yr. It is assumed that reservoir storage would not be required because the satellite

plant would pump its recycled water directly into the on-site storage (lake) at the Loma Linda Golf Course.

The system configuration of this alternative is similar to system configuration of Alternative 1A, with the exception of the following components:

- ✓ The 2600 Zone booster station is 1250 hp versus 1500 hp in Alternative 1A.
- ✓ The 2880 Zone booster station is 500 hp versus 800 hp in Alternative 1A.
- ✓ The 3000 Zone booster station to Loma Linda is 100 hp versus 125 hp in Alternative 1A.
- ✓ The 3400 Zone booster station to Loma Linda is 100 hp versus 300 hp in Alternative 1A.
- ✓ The potential demand is 4,453 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.4.2 Alternative 3B- One Satellite WWTP at Pardee

This alternative includes one satellite WWTP for the Pardee Development. The projected wastewater flow of this plant is 1.4 mgd under build out conditions. The remaining wastewater flow of the City would be treated at the Banning WWTP. The projected capacity of this plant under this alternative is 6.4 mgd (7.8 - 1.4).

Due to the location of Reservoir 2880, it is assumed that the Pardee Satellite Plant would feed into the City-wide recycled water system through the Zone 2880 Reservoir feedline. This means that the entire recycled water demand of the Pardee development (1,123 acr-ft/yr) can be served as it would not be limited to the available supply from the Satellite Plant.

An annual supply and demand balance is included in Appendix F. This balance shows that the average annual demand that can be served from the satellite plant is 872 ac-ft/yr, and that 251 ac-ft/yr would need to be supplemented from the regional WWTP.

The system configuration is similar to the system configuration of Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 17.7 miles versus 17.3 miles in Alternative 1A.
- ✓ The 2600 Zone booster station is 1250 hp versus 1500 hp in Alternative 1A.
- ✓ The 2880 Zone booster station is 700 hp versus 800 hp in Alternative 1A.
- ✓ An additional 2880 Zone booster station of 150 hp would be required to serve the 2880 Zone from the Pardee Satellite Plant.

6.4.3 Alternative 3C- Two Satellite WWTPs at Loma Linda and Pardee

This alternative includes two satellite WWTPs for the Loma Linda and the Pardee developments. Under build out conditions, the projected wastewater flow of these plants is 0.7 mgd and 1.4 mgd, respectively. The remaining wastewater flow of the City would be treated at the Banning WWTP. The projected capacity of this plant under this alternative is 5.7 mgd (7.8 - 0.7 - 1.4).

Similarly to Alternatives 3A and 3B, it is assumed that the Loma Linda recycled water systems would operate as a separate isolated recycled water system, while the Pardee recycled water system would be connected with the City's system-wide recycled water system. This means that the recycled water demand that can be served is limited to the available supply. As described under Alternatives 3A, the average annual demand that can be served with an isolated system for the Loma Linda development is 4,453 ac-ft/yr, an overall system reduction of 582 ac-ft/yr. In addition, the regional WWTP would need to supplement 251 ac-ft/yr to the Pardee development to compensate for the difference between it wastewater supply and recycled water demand.

The system configuration is similar to the system configuration of Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 17.6 miles versus 17.3 miles in Alternative 1A.
- ✓ The 2600 Zone booster station is 1,000 hp versus 1500 hp in Alternative 1A.
- ✓ The 2880 Zone booster station is 500 hp versus 800 hp in Alternative 1A.
- ✓ The 3000 Zone booster station to Loma Linda is 100 hp versus 125 hp in Alternative 1A.
- ✓ The 3400 Zone booster station to Loma Linda is 100 hp versus 300 hp in Alternative 1A.
- ✓ The potential demand is 4,453 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.4.4 Alternative 3D - No Satellite WWTPs

This alternative does not include any satellite WWTPs, and it is assumed that all wastewater flow would be treated at the Banning WWTP. The projected capacity of this plant is 7.8 mgd.

The system configuration in this alternative is identical to system configuration of Alternative 1A, the Lincoln Street Backbone System. The potential recycled water system demand of this alternative is 5,035 ac-ft/yr.

6.4.5 Recommendation

The estimated construction cost, land acquisition cost, total capital cost, and unit cost are summarized in Table 6.4. Detailed cost estimates are included in Appendix D. These costs are based on the total system cost and the total system demand. Table 6.5 summarizes the cost estimates of the backbone facilities required to serve the developments only. Details are included in Appendix E.

Table 6.4 Satellite Plant Analysis Results - City-wide Cost
Recycled Water Master Plan
City of Banning

System Component	Alt. 3A Loma Linda ($ million)	Alt. 3B Pardee ($ million)	Alt. 3C LL & Pardee ($ million)	Alt. 3D No Sat. Plants ($ million)
Pipelines	$15.6	$16.0	$15.5	$16.0
Reservoir Storage	$4.6	$4.6	$4.6	$4.6
Pump Stations	$8.5	$11.1	$8.5	$10.6
Total Construction Cost	**$28.7**	**$31.8**	**$28.6**	**$31.2**
Land Acquisition	$1.9	$1.9	$1.9	$1.9
Mark-ups	$18.5	$19.9	$17.9	$19.5
Total Capital Cost	**$49.9**	**$53.5**	**$48.3**	**$52.7**
Total Demand (ac-ft/yr)	4,453	5,035	4,453	5,035
Unit Cost ($/ac-ft)	**$728**	**$691**	**$706**	**$680**

Note: All numbers excludes wastewater treatment cost.

Table 6.5 Satellite Plant Analysis Results - Development Cost
Recycled Water Master Plan
City of Banning

System Component	Alt. 3A Loma Linda ($ million)	Alt. 3B Pardee ($ million)	Alt. 3C LL & Pardee ($ million)	Alt. 3D No Sat. Plants ($ million)
Pipelines	$1.1	$1.1	$2.1	n/a
Reservoir Storage	$0.0	$0.0	$0.0	n/a
Pump Stations	$1.8	$2.5	$4.2	n/a
Total Construction Cost	**$2.8**	**$3.6**	**$6.4**	**n/a**
Land Acquisition	$0.4	$0.2	$0.5	n/a
Mark-ups	$1.8	$2.2	$4.0	n/a
Total Capital Cost	**$4.9**	**$6.0**	**$10.9**	**n/a**
Total Demand (ac-ft/yr)	477	872	1,349	n/a
Unit Cost ($/ac-ft)	**$674**	**$448**	**$524**	**n/a**

Note: All numbers excludes wastewater treatment cost.

As shown in Table 6.4, the most cost-effective options are Alternatives 3B and 3D. The alternatives that include a separate recycled water system served from the Loma Linda satellite WWTP (Alternatives 1A and 1C) are less attractive based on a unit cost comparison. The difference is caused by the relative substantial reduction in recycled water demand (582 ac-ft/yr), while the pipeline cost are nearly the same due to the short distance (900 lineal ft) between the Loma Linda Satellite WWTP and the proposed backbone system. As the treatment cost for the satellite plant are not included in the cost comparisons, it is expected that the total unit cost with treatment for Alternative 3B would be higher than the unit cost of Alternative 3D. In addition, satellite plants are typically not preferred due to neighborhood concerns related to odor and esthetics, and other issues such as finding an appropriate site for the plant in a new development and increased operational complexity.

Based on these considerations, it is recommended that the City implements the system configuration of Alternative 3D.

6.5 Black Bench Supply Analysis

The fourth analysis performed with the recycled water model was to determine the cost effectiveness of serving the Black Bench development with recycled water. This development is in relatively close proximity to a SWP pipeline, the East Branch Extension Pipeline, which delivers untreated SWP water to the Noble Creek Spreading Grounds.

As discussed in Section 3, the potential recycled water demand in the City under MDD conditions exceeds the available recycled water supply. It would therefore be beneficial to connect the untreated SWP supply to the City's recycled water system, and further reduce the potable water supply needs. The following three alternatives were identified for this analysis:

- ✓ Alternative 4A - SWP water delivery to Black Bench through a pipeline along Smith Creek.
- ✓ Alternative 4B - SWP water delivery to Black Bench through a pipeline and tunnel
- ✓ Alternative 4C - WWTP delivery to Black Bench through a pipeline along Sunset Avenue.

The location of the SWP pipeline, the spreading grounds, and the pipeline alignments involved in these alternatives are depicted on Figure 6.2.

The hydraulic model was used to size the pipelines and pump stations for each alternative. Per the recommendations of the first three analyses, the Lincoln Street Alignment was used in all alternatives as the backbone system, both gravity storage reservoirs were included, and all developments are supplied from the WWTP (no satellite plants). A description of the system configuration for the alternatives and a summary of the estimated cost are

discussed below, while system schematics are included in Appendix C and detailed cost estimates are included in Appendix D.

6.5.1 Alternative 4A - SWP to Black Bench through a pipeline

This alternative includes a recycled water system for the Black Bench development that would be served with untreated SWP water through a 3.9-mile 16-inch diameter pipeline. This pipeline would start at the Noble Creek Spreading Grounds and then continue east along Dutton Street to Bellflower Avenue, where it would continue south to Cherry Valley Boulevard. The pipeline would run south east along Cherry Valley Boulevard and then continue east along Grand Plaza where it would branch off in the northeast direction along Smith Creek to the southwestern portion of the Black Bench development. It should be noted that this may cause environmental concerns and would require an Environmental Impact Report (EIR). This pipeline would serve the entire Black Bench demand, which is estimated at 520 ac-ft/yr.

As discussed in Section 5.4.1, the proposed HGL to serve this development is 4,100 ft msl. As the spreading grounds are located at a ground elevation of approximately 2,190 ft msl, a booster station would be required. Based on an average irrigation period of 8 hours, this development would require approximately 1.4 MG in storage. However, to avoid additional pipelines to a site with a ground elevation of nearly 4100 ft msl, it is recommended that the booster station and pipelines that would supply this development be sized to deliver peak hour demand.

The remaining portion of the system configuration is similar to recycled water system proposed for Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 21.2 miles versus 17.3 miles in Alternative 1A.
- ✓ A 1250 hp booster station would be required to feed the 4100 Zone.
- ✓ The estimated required land is estimated at 5.9 acres versus 5.4 acres in Alternative 1A, to accommodate the installation of the booster station to Zone 4100.
- ✓ The potential demand is 5,555 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.5.2 Alternative 4B - SWP to Black Bench through a pipeline and tunnel

This alternative includes a recycled water system for the Black Bench development that would be served with untreated SWP water through a 3.0-mile 16-inch diameter pipeline, of which approximately 4,000 lineal feet would needed to be tunneled. This pipeline would start at the Noble Creek Spreading Grounds and then continue east along Dutton Street to Bellflower Avenue, cross Bellflower Avenue, and continue further east along Frontier Trail. The pipeline would branch in northeast direction to the southwestern portion of the Black

Bench development. This last portion of the pipeline would require tunneling due to topography, as shown on Figure 6.2.

Similarly to Alternative 4A, this pipeline would serve 520 ac-ft/yr to the Black Bench development.

The remaining portion of the system configuration is similar to recycled water system proposed for Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 20.3 miles versus 17.3 miles in Alternative 1A.
- ✓ A 1250 hp booster station would be required to feed the 4100 Zone.
- ✓ The estimated required land is estimated at 5.9 acres versus 5.4 acres in Alternative 1A, to accommodate the installation of the booster station to Zone 4100..
- ✓ The potential demand is 5,555 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.5.3 Alternative 4C - WWTP delivery to Black Bench through a pipeline

This alternative includes a recycled water system for the Black Bench development that would be served with from the Banning WWTP through a 2.6-mile 16-inch diameter pipeline, that would be connected to the 2880 Zone. This pipeline would start just north of the intersection of Wilson Street and Sunset Avenue and then continue north along Sunset Avenue to the intersection with Bluff Street. The pipeline would continue further north along Bluff Street to Kendal Road, where it would connect with the southeastern portion of the Black Bench development.

Similarly to Alternative 4A, this pipeline would serve 520 ac-ft/yr to the Black Bench development.

The remaining portion of the system configuration is similar to recycled water system proposed for Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 19.9 miles versus 17.3 miles in Alternative 1A.
- ✓ The 2600 Zone booster station is 2000 hp versus 1500 hp in Alternative 1A.
- ✓ The 2880 Zone booster station is 1000 hp versus 800 hp in Alternative 1A.
- ✓ The 3000 Zone booster station to Loma Linda is 1250 hp versus 125 hp in Alternative 1A.
- ✓ The 3400 Zone booster station to Loma Linda is 700 hp versus 300 hp in Alternative 1A.

- ✓ A 1250 hp booster station would be required to feed the 4100 Zone.
- ✓ The estimated required land is estimated at 5.9 acres versus 5.4 acres in Alternative 1A, to accommodate the installation of the booster station to Zone 4100.
- ✓ The potential demand is 5,555 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.5.4 Recommendation

The estimated construction cost, land acquisition cost, total capital cost, and unit cost are summarized in Table 6.6. Detailed cost estimates are included in Appendix D. These costs are based on the total system cost and the total system demand. Table 6.7 summarizes the cost estimates of the backbone facilities required to serve the developments only. Details are included in Appendix E.

Table 6.6 SWP Supply Analysis Results - City-wide Cost
Recycled Water Master Plan
City of Banning

System Component	Alt. 4A ($ million)	Alt. 4B (million)	Alt. 4C ($ million)
Pipelines	$19.2	$19.7	$18.1
Reservoir Storage	$4.6	$4.6	$4.6
Pump Stations	$13.7	$13.7	$21.1
Total Construction Cost	**$37.5**	**$38.0**	**$43.8**
Land Acquisition	$2.1	$2.1	$2.1
Mark-ups	$23.4	$23.7	$27.4
Total Capital Cost	**$63.0**	**$63.8**	**$73.2**
Total Demand (ac-ft/yr)	5,555	5,555	5,555
Unit Cost ($/ac-ft)	**$738**	**$747**	**$858**

Note: All numbers excludes wastewater treatment cost.

Table 6.7 SWP Supply Analysis Results - Development Cost Only Recycled Water Master Plan City of Banning			
System Component	Alt. 4A ($ million)	Alt. 4B (million)	Alt. 4C ($ million)
Pipelines	$3.1	$4.6	$2.1
Reservoir Storage	$3.9	$3.9	$1.8
Pump Stations	$0.0	$0.0	$0.0
Total Construction Cost	**$7.0**	**$8.4**	**$3.9**
Land Acquisition	$0.2	$0.2	$0.2
Mark-ups	$4.4	$5.3	$2.5
Total Capital Cost	**$11.6**	**$13.9**	**$6.6**
Total Demand (ac-ft/yr)	520	520	520
Unit Cost ($/ac-ft)	**$1,445**	**$1,738**	**$823**

Note: All numbers excludes wastewater treatment cost.

As shown in Table 6.6, the most cost-effective alternative to serve the Black Bench development is Alternative 4C, which delivers recycled water from the regional WWTP via the Sunset Avenue alignment to the development.

It should be noted that the unit cost to serve this development is relatively high compared to the other alternatives due to the far distance to the remaining portion of the recycled water system or the SWP supply (3-4 miles) and the booster stations (700-1250 hp) required to serve customers at the high elevation of this development.

6.6 Pardee Supply Analysis

The fifth analysis performed with the recycled water model was to determine the cost effectiveness of serving the Pardee development with recycled water. This development is in relatively close proximity to a SWP pipeline, the East Branch Extension Pipeline, which delivers untreated SWP water to the Noble Creek Spreading Grounds.

As discussed in Section 3, the potential recycled water demand in the City under MDD conditions exceeds the available recycled water supply. It would therefore be beneficial to connect the untreated SWP supply to the City's recycled water system, and further reduce the potable water supply needs. The following three alternatives were identified for this analysis:

- ✓ Alternative 5A - SWP water delivery to Pardee from the Noble Ground Spreading Ground to Reservoir 2880.
- ✓ Alternative 5B - SWP water delivery to Pardee and Black Bench from the Noble Ground Spreading Ground to Reservoir 2880.
- ✓ Alternative 5C - No SWP water delivery to Pardee or Black Bench

The location of the SWP pipeline, the spreading grounds, and the pipeline alignments involved in these alternatives are depicted on Figure 6.2.

The hydraulic model was used to size the pipelines and pump stations for each alternative. Per the recommendations of the first three analyses, the Lincoln Street Alignment was used in all alternatives as the backbone system, both gravity storage reservoirs were included, and all developments are supplied from the WWTP (no satellite plants). A description of the system configuration for the alternatives and a summary of the estimated cost are discussed below, while system schematics are included in Appendix C and detailed cost estimates are included in Appendix D.

6.6.1 Alternative 5A - SWP to Pardee only

This alternative includes a recycled water system for the Pardee development that would be served with untreated SWP water through a 2.5-mile 12-inch diameter pipeline. This pipeline would start at the Noble Creek Spreading Grounds and then continue east along Dutton Street to Bellflower Avenue, where it would continue south to Cherry Valley Boulevard. The pipeline would run south east along Cherry Valley Boulevard and then continue further south along Canyon Plaza till it reaches Reservoir 2880. This pipeline is sized to serve the entire Pardee demand, which is estimated at 1,123 ac-ft/yr.

The spreading grounds are located at a ground elevation of approximately 2,910 ft msl. Although this is higher than the high water level of Reservoir 2880, a booster station would be required due to a high point of approximately 2,990 feet msl near the intersection of Dutton Street and Bellflower Avenue.

The remaining portion of the system configuration is similar to recycled water system proposed for Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 19.8 miles versus 17.3 miles in Alternative 1A.
- ✓ A 50 hp booster station would be required to feed the 2880 Zone Reservoir from the spreading grounds.
- ✓ The estimated required land is estimated at 5.9 acres versus 5.4 acres in Alternative 1A, to accommodate the installation of the second 2880 Zone booster station.
- ✓ The potential demand is 5,555 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.6.2 Alternative 4B - SWP to Pardee and Black Bench

This alternative includes a recycled water system for the Pardee and Black Bench developments that would be served with untreated SWP water. The same 2.5-mile pipeline would be required to connect the SWP supply source with Reservoir 2880. Due to the increased demand, the majority of this pipeline would be upsized to a 20-inch diameter. In addition, a pipeline would be required to connect to the Black Bench development. This

pipeline is assumed to connect from the intersection of Bel Air Drive and Grand Plaza via the Smith Creek to the southwestern portion of Black Bench (same as Alternative 4A). This 1.9-mile pipeline would be 16-inch in diameter.

These pipelines are sized to serve the entire Pardee and Black Bench demand, which is estimated at 1,643 ac-ft/yr.

Two booster stations would be required to deliver SWP water to these developments. One booster station would pump water from the Spreading Grounds to Reservoir 2880, while the second station would pump to the 4100 Zone that serves the Black Bench development.

The remaining portion of the system configuration is similar to recycled water system proposed for Alternative 1A, with the exception of the following components:

- ✓ The entire distribution system including the backbone system is 21.7 miles versus 17.3 miles in Alternative 1A.
- ✓ A 200 hp booster station would be required to feed the 2880 Zone Reservoir from the spreading grounds.
- ✓ A 1250 hp booster station would be required to feed the 4100 Zone Reservoir from the 2880 Zone.
- ✓ The estimated required land is estimated at 6.4 acres versus 5.4 acres in Alternative 1A, to accommodate the installation of the second 2880 Zone booster station and the 4100 Zone booster station.
- ✓ The potential demand is 5,555 ac-ft/yr versus 5,035 ac-ft/yr in Alternative 1A.

6.6.3 Alternative 5C - No SWP delivery to Pardee or Black Bench

This alternative does not include SWP water supply and does not include the Black Bench development.

The system configuration in this alternative is identical to system configuration of Alternative 1A, the Lincoln Street Backbone System. The potential recycled water system demand of this alternative is 5,035 ac-ft/yr.

6.6.4 Recommendation

The estimated construction cost, land acquisition cost, total capital cost, and unit cost are summarized in Table 6.8. Detailed cost estimates are included in Appendix D. These costs are based on the total system cost and the total system demand. Table 6.9 summarizes the cost estimates of the backbone facilities required to serve the developments only. Details are included in Appendix E.

Table 6.8 Pardee Supply Analysis Results - City-wide Cost Recycled Water Master Plan City of Banning			
System Component	**Alternative 5A SWP to Pardee ($ million)**	**Alternative 5B SWP to Pardee & BB ($ million)**	**Alternative 5C No SWP Delivery ($ million)**
Pipelines	$17.7	$19.9	$16.0
Reservoir Storage	$10.9	$14.7	$4.6
Pump Stations	$4.6	$4.6	$10.6
Total Construction Cost	**$33.2**	**$39.2**	**$31.2**
Land Acquisition	$2.1	$2.2	$1.9
Mark-ups	$20.8	$24.5	$19.5
Total Capital Cost	**$56.1**	**$65.9**	**$52.7**
Total Demand (ac-ft/yr)	5,035	5,555	5,035
Unit Cost ($/ac-ft)	**$724**	**$772**	**$680**

Note: All numbers excludes wastewater treatment cost.

Table 6.9 Pardee Supply Analysis Results - Development Cost Only Recycled Water Master Plan City of Banning			
System Component	**Alternative 5A SWP to Pardee ($ million)**	**Alternative 5B SWP to Pardee & BB ($ million)**	**Alternative 5C No SWP Delivery ($ million)**
Pipelines	$2.6	$2.6	n/a
Reservoir Storage	$0.3	$2.4	n/a
Pump Stations	$0.0	$4.7	n/a
Total Construction Cost	**$2.9**	**$0.0**	**n/a**
Land Acquisition	$0.2	$0.4	n/a
Mark-ups	$1.8	$3.2	n/a
Total Capital Cost	**$4.8**	**$16.1**	**n/a**
Total Demand (ac-ft/yr)	1,123	1,643	n/a
Unit Cost ($/ac-ft)	**$279**	**$638**	**n/a**

Note: All numbers excludes wastewater treatment cost.

As shown in Table 6.8, it is more cost-effective to serve the Pardee development with SWP water (Alternative 5A) than with recycled water from the WWTP (Alternative 5C). It should be noted that treatment cost of SWP water is not included in the comparison.

Although there is a cost difference between Alternatives 5A and 5C, and the treatment cost of SWP water are not included in the comparison, it is recommended that the City further investigate the options to use SWP as a non-potable water supply source. As listed in Table 3.1, the City's recycled water demand exceeds the projected supply, and additional sources are therefore required. Without additional supplies, the City could only serve 90 percent of the potential 5,035 ac-ft/yr of recycled water demand, which actually increases the unit cost of Alternative 5C to $756/ac-ft. Hence, if the impact of available supplies is considered, it is more cost-effective to implement Alternative 5A than Alternative 5C. By

implementing the system configuration of Alternative 5A, SWP water would be delivered at Reservoir 2880, which can benefit the entire 2880 Zone.

6.7 Proposed Recycled Water System

Based on the alternative evaluation presented herein, a combination of Alternatives 4C and 5A has been selected as the recommended recycled water system configuration for the City taking into account economic and non-economic considerations.

The proposed recycled water system consists of a backbone system along Lincoln Street, two gravity storage reservoirs in Zone 2600 and Zone 2880, and a connection with the SWP supply to the Pardee Development, and supply to Black Bench via the Sunset Avenue alignment. This alternative does not include any Satellite Plants.

The SWP supply would connect the Noble Creek Spreading Grounds with Reservoir 2880 in the northern portion of the Pardee Development. This additional supply source is crucial for the development of the City's recycled water system, as the City would have a supply shortfall of 4.7 mgd without the use of SWP water through year 2030. To provide flexibility for future expansions of the recycled water system and/or supply to a potential future water treatment plant, it is recommended that the pipeline from the SWP connection to Reservoir 2880 be sized to deliver at least 8.0 mgd or 5,500 gpm, which would require a 24-inch diameter pipeline.

The proposed recycled water system configuration is shown on Figure 6.3.

City of Banning
Recycled Water Master Pan

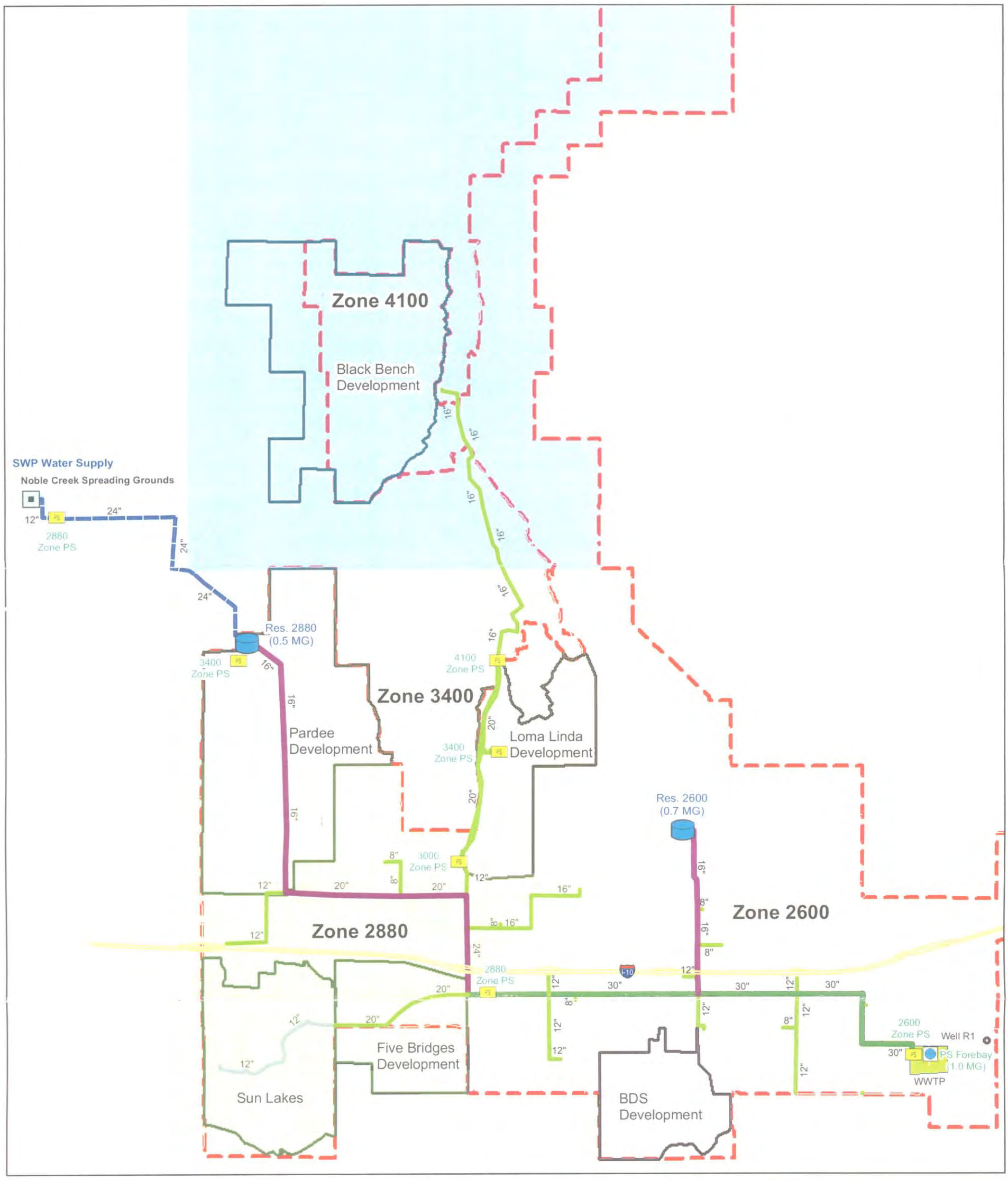

Figure 6.3 - Proposed Recycled Water System

Pipelines
Type
- State Water Project Pipeline
- Reservoir Feedlines
- Lincoln Street Backbone
- Distribution System Pipelines
- Existing Pipe

Pressure Zones
Zone
- 4100
- 3400
- 2880
- 2600

- Gravity Reservoirs
- Noble Creek SG
- Pump Stations
- PS Forebay
- Well R1
- I-10
- Streets
- Banning WWTP
- City Boundary

N

Feet
0 1,650 3,300 6,600

Note:
1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

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7.0 CAPITAL IMPROVEMENT PLAN

The objective of this Section is to present the City's recycled water capital improvement program (CIP). This CIP consists of the phasing, cost estimates, and the allocation of project cost for the recommended recycled water system as defined in Section 6. The purpose of this CIP is to provide the City with a guideline for the planning and budgeting of its recycled water system, which will assist the City to accommodate future growth as it offsets the need for some of the projected potable water supplies. Due to the increasing scarcity and cost of potable water cost in Southern California, it is recommended that the City work closely with the upcoming development agencies to implement this CIP and continue to provide a reliable water supply to the City's customers.

7.1 Phasing of Improvements

The recommended improvements are divided into two development stages, Phase 1, and Build Out. The Phase 1 system consists of the infrastructure needed to serve the first phase of the five new developments and the Priority 1 customers. These customers were assigned a high ranking as discussed in Section 2 and summarized in Table 2.7. This stage also includes the following three Priority 2 customers:

1) Banning USD, because this customer can be served from the pipeline that serves Repplier Park, a Priority 1 customer.

2) Five Bridges development, because this customer can be served from the pipeline that serves Sun Lakes Golf Course, a Priority 1 customer.

3) Mountain Avenue Park, because this customers is located along the Reservoir 2880 Feed/Drain pipeline.

The Build Out system consists of the remaining infrastructure components to serve the Priority 2 customers. The demand of the Build Out system is divided into Phase 2 and Phase 3. Phase 2 includes all remaining customers and the build out demand of the five developments, with the exception of the Black Bench development, which is included in Phase 3. It should be noted that Roosevelt Williams Park (Priority 3) is not included in the proposed system. Future recycled water system expansions to serve this and other potential customers that are not identified in this master plan may be desirable beyond the planning horizon of this report. The phasing of demands is summarized in Table 7.1, while the phasing of the proposed system is shown on Figure 7.1.

Table 7.1 Phasing of Recycled Water Customers Recycled Water Master Plan City of Banning					
ID	Customer Name	Demand (ac-ft/yr)	Ranking[1]	Priority[1]	Phasing
14	Loma Linda - Phase 1[2]	316	9	1	1
1	CalTrans along I-10	818	8	1	1
3	Banning High School	164	8	1	1
9	Repplier Park	28	7	1	1
10	Deutsch Company Park	20	7	1	1
8	Neighborhood Park	31	7	1	1
16	Sun Lakes Development	1085	7	1	1
15	Pardee - Phase 1[2]	179	7	1	1
17	Five Bridges - Phase 1[2]	63	6	2	1
12	Mountain Avenue Park	13	6	2	1
13	Banning USD	12	5	2	1
TOTAL PHASE 1 DEMAND		***3,238***			
14	Loma Linda - Phase 2[2]	742	9	1	2
15	Pardee Developm. - Phase 2[2]	943	7	1	2
17	Five Bridges - Phase 2[2]	146	6	2	2
2	Gilman Historic Ranch	241	6	2	2
6	Lions Park	37	6	2	2
7	Sylvan Park	32	6	2	2
5	Rehab & Counseling Center	82	5	2	2
4	Dysart Park	82	5	2	2
TOTAL PHASE 2 DEMAND		***1,797***			
18	Black Bench Development	520	6	2	3
TOTAL PHASE 3 DEMAND		***520***			
11	Roosevelt Williams Park	19	4	3	not included
TOTAL POST PHASE 3 DEMAND		***19***			

(1) From Table 2.8.
(2) Phase 1 and Phase 2 demands are prorated by area using the data presented in Tables 2.2 and 2.6.

7.2 Cost Estimates

The estimated construction cost, land acquisition cost, total capital cost, and unit cost are summarized in by Phase in Table 7.2, while detailed cost estimates are included in Appendix D. It should be noted that unit costs for recycled water do not include treatment cost, which are evaluated in the Sewer Master Plan.

As shown in Table 7.2 and Figure 7.2, the majority of the recycled water system is included in Phase 1. However, it is anticipated that the increase of demand will occur more gradually, which results in a more even distribution of demands between Phase 1 and Phase 2.

City of Banning
Recycled Water Master Pan

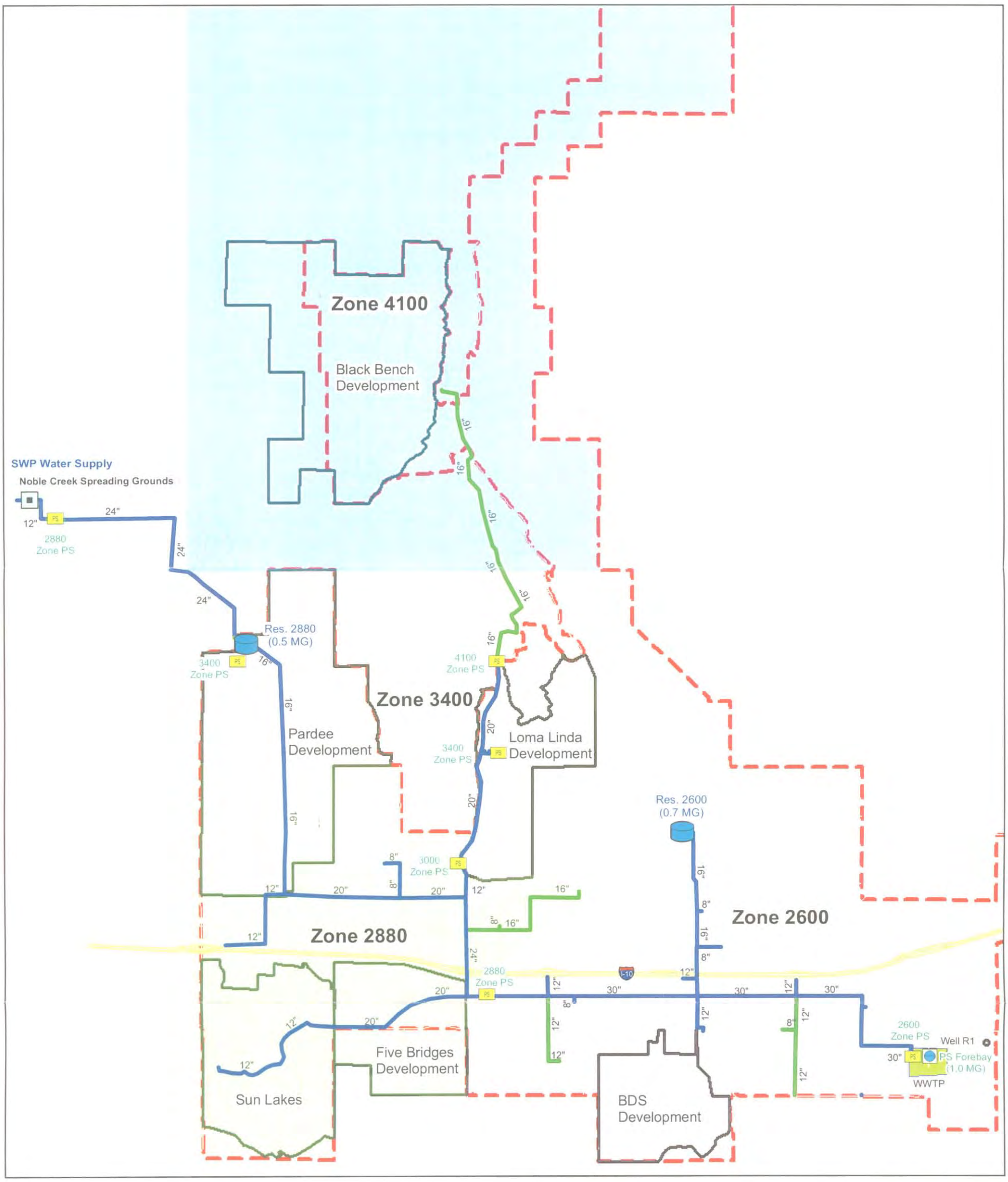

Figure 7.1 - Phasing of Proposed Recycled Water System

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Note:
1. This map contains data from the City of Banning GIS.
2. This map is intended for display and planning purposes only.

Table 7.2 Phasing of Recycled Water Cost Recycled Water Master Plan City of Banning				
System Component	**Phase 1 ($ million)**	**Phase 2 ($ million)**	**Phase 3 ($ million)**	**Build Out ($ million)**
Pipelines	$18.3	$2.1	$2.1	$22.5
Reservoir Storage	$4.6	$0.0	$0.0	$4.6
Pump Stations	$6.1	$5.1	$2.2	$13.4
Total Construction Cost	**$29.1**	**$7.1**	**$4.3**	**$40.5**
Land Acquisition	$2.1	$0.0	$0.2	$2.2
Mark-ups	$18.2	$4.5	$2.7	$25.3
Total Capital Cost	**$49.3**	**$11.6**	**$7.2**	**$68.0**
Total Demand (ac-ft/yr)	3,238	1,797	520	5,555
Unit Cost ($/ac-ft)	**$990**	**$420**	**$896**	**$797**

As a result, the unit cost of the Phase 1 system is much higher ($990/ac-ft) than the unit cost of the Phase 2 expansion ($420/ac-ft), and the Phase 3 expansion ($896/ac-ft). The weighted average unit cost of the proposed recycled water system is $797/ac-ft (not including treatment cost).

Although this unit cost is higher than the cost of imported potable water, it is expected that the potable water costs will exceed the $797/ac-ft within the next five or ten years due to potable water rate increases, particularly in Southern California where water supply is limited and rapid growth is forecasted for the next decades.

Hence, the cost of recycled water will become very attractive in the near term, as these cost are expected to remain constant, not including the effects of inflation or changes in interest rate. In addition, the investment in a recycled water system is extremely beneficial to the City as it reduces the need for additional potable water supply sources.

7.3 Distribution of Construction Cost

The distribution of construction and land acquisition cost for the proposed system under build out conditions is graphically presented in Figure 7.3. As shown in Figure 7.3, pipelines contribute to the majority of the overall system cost.

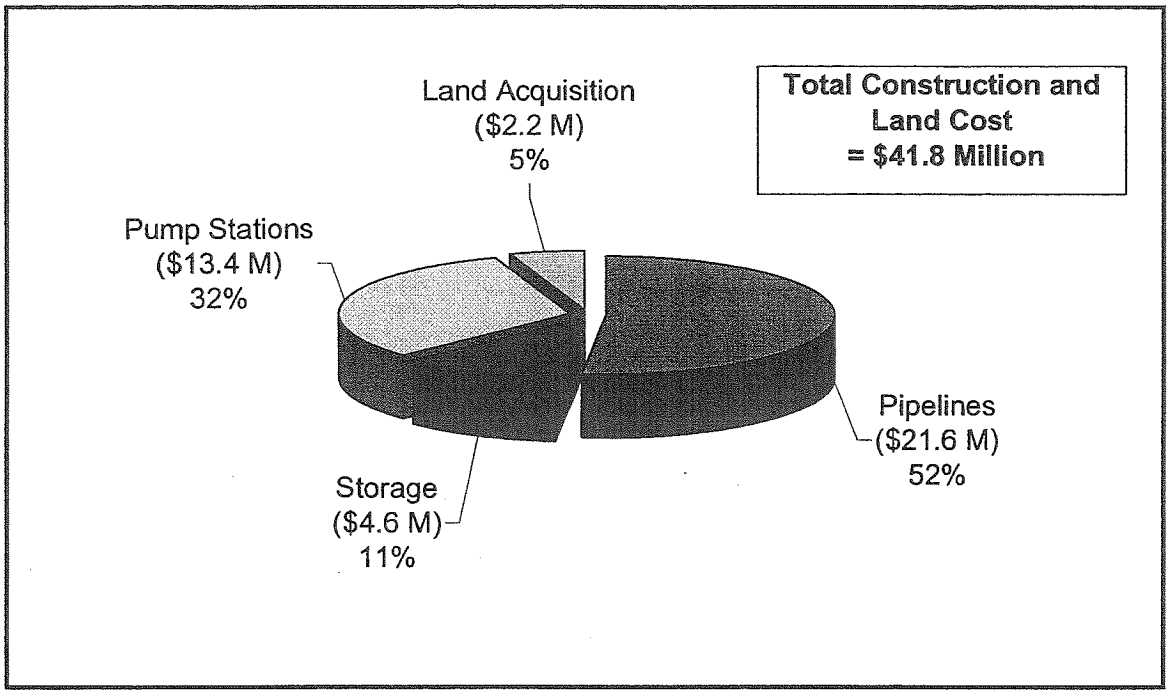

Figure 7.3 Distribution of System Construction and Land Acquisition Cost

7.4 Allocation of Capital Cost

The overall recycled water system cost can be allocated to the various developments and other small customers based on their proportional demand. This allocation is presented in Table 7.3. The allocation of treatment cost is included in the Sewer Master Plan.

Table 7.3 Allocation of Capital Cost
Recycled Water Master Plan
City of Banning

Customer	Demand (ac-ft/yr)				Capital Cost ($ million)			
	Phase 1	Phase 2	Phase 3	Total	Phase 1	Phase 2	Phase 3	Total
Loma Linda	644	414	-	1,058	$9.8	$2.7	-	$12.5
Pardee	356	767	-	1,123	$5.4	$5.0	-	$10.4
Five Bridges	68	141	-	209	$1.0	$0.9	-	$1.9
Black Bench	-	-	520	520	-	-	$7.2	$7.2
Other City Customers	2,171	474	-	2,645	$33.0	$3.1	-	$36.1
Total	**3,238**	**1,797**	**520**	**5,555**	**$49.3**	**$11.6**	**$7.2**	**$68.0**

APPENDIX K

WATER CONSERVATION ORDINANCE AND RESOLUTION

ORDINANCE NO. 1489

ORDINANCE NO. 1489

AN ORDINANCE OF THE CITY OF BANNING, CALIFORNIA, RELATED TO WATER CONSERVATION DURING CALIFORNIA'S STATE OF EMERGENCY DUE TO DROUGHT CONDITIONS

WHEREAS, on January 17, 2014 Governor Jerry Brown ("Governor") issued a proclamation of a state of emergency under the California Emergency Services Act based on California's drought conditions and continued the state of emergency by issuing a proclamation on April 25, 2014; and

WHEREAS, on April 1, 2015, the Governor issued Executive Order No. B-29-15 imposing mandatory water use reductions which also provides direction to the State Water Resources Control Board ("SWRCB") to impose restrictions on water use to achieve a statewide 25 percent reduction in potable urban water use; and

WHEREAS, California's water supplies continue to be severely depleted, severe drought conditions continue to present urgent challenges, and new expedited actions are needed to reduce the harmful impacts of the drought; and

WHEREAS, on April 7, 2015, the SWRCB proposed a mandatory Regulatory Framework that apportions water reductions according to consumption. The SWRCB revised the apportionment of water reductions on April 18 and April 28th. The conservation savings for all urban water suppliers are now allocated across nine tiers of increasing levels of residential water use ("R-GPCD") to reach the statewide 25 percent reduction mandate. Agencies in Tier 8, including the City of Banning, having residential water use of 179.4 R-GPCD, must reduce water use by 32 percent between June 2015 to February 2016, as compared to the same periods in 2013; and

WHEREAS, on May 5, 2015 the SWRCB adopted Article 22.5, Drought Emergency Water Conservation ("Drought Regulation") which includes a prohibition against certain irrigation practices and an order that all urban water suppliers reduce their total potable water production by a defined percentage which has been applied to each urban water supplier; and

WHEREAS, the intention of the proposed ordinance is to facilitate the implementation of the requirements of the SWRCB Drought Regulation as well as to provide additional tools to achieve the City's required reduction of 32 percent.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BANNING AS FOLLOWS:

Section 1. Incorporation of Recitals. All of the foregoing Recitals are true and correct and are incorporated herein and made an operative part of this Ordinance.

Section 2. Public Hearing. A Public Hearing was conducted on May 26, 2015 at 5:00 p.m., in the Council Chamber located at 99 E. Ramsey Street, Banning, CA 92220 and all written and oral testimony has been incorporated into the record.

Section 3. The City Council hereby adopts Ordinance No. 1489, Drought Water Conservation in order to preserve the public health and safety by conserving water during the ongoing drought and to comply with Governor Jerry Brown's Executive Order and the State Water Resource Control Board Drought Regulation.

Section 4. Ordinance No. 1489 requires the following:

A. Mandatory Prohibitions: The following mandatory prohibitions as required by the State Water Resource Control Board Drought Regulation are hereby adopted for the period provided in the Executive Order (the "Water Emergency"). The Ordinance prohibits the following:

1. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures.
2. The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.
3. The application of potable water to driveways and sidewalks.
4. The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system.
5. The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall.
6. The serving of beverages other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased.
7. The irrigation with potable water of ornamental turf on public street medians.
8. The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

B. Additional Water Restrictions: The following additional water restrictions shall apply during the Water Emergency:

1. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language
2. Commercial, industrial and institutional properties, such as campuses, golf courses and cemeteries shall implement water efficiency measures to reduce potable water usage in an amount consistent with the reduction target.

3. No person shall empty and refill a swimming pool except to prevent or repair structural damage or to comply with health regulations.
4. Parks and schools shall be watered on alternate days during the hours between sunset and sunrise.
5. Lawn watering and landscape irrigating including, construction water use, are restricted as follows: customers with even numbered street addresses shall water only on Monday, Wednesday, and Friday and customers with odd numbered street addresses shall water only Tuesday, Thursday and Sunday. Watering and irrigating shall occur between sunset and sunrise.
6. Broken sprinklers shall be repaired within 24 hours of notification, and leaks shall be repaired as soon as practicable.

C. Recommended Practices: The following practices are recommended during the Water Emergency:

1. The City of Banning strongly encourages Home Owner Associations ("HOA") and other enforcement agencies to suspend code enforcement and fines for brown turf areas and encourage the replacement of turf areas with drought tolerant landscaping.
2. Planting of spray irrigated annual flower beds is strongly discouraged.
3. Irrigation of non-functional ornamental turf, such as parkways is strongly discouraged.
4. Installation of irrigation smart controllers is strongly encouraged.
5. Use of pool covers when not in use, especially during summer months is strongly encouraged.
6. Over-seeding is strongly discouraged.

D. Civil Penalties: Violations of this Ordinance shall be subject to the following penalties:

1. First Violation. For a first violation, the City shall issue a written notice of violation to the water user.
2. Second Violation. For a second violation, within a twelve month period, a one month surcharge of 25 percent of the previous month's water bill will be imposed.
3. Third Violation. For a third violation, within a twelve month period, a one month surcharge of 50 percent of the previous month's water bill will be imposed.
4. At the discretion of the City Manager, subsequent violations will continue with a penalty as described in Civil Penalties No. 3 or a penalty of up to $500 per day for which the violation occurs.

Section 5. CEQA. The Board finds that adopting and enforcing mandatory restrictions on water use in order to comply with SWRCB requirements is exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15268 and Public Resources Code Section 21080(b)(I) as a ministerial action.

Section 6. The Mayor shall sign this ordinance and the City Clerk shall attest thereto and shall publish it or a summary of it in a newspaper printed and published within the City, and thereafter this ordinance shall be in force and effect according to law.

PASSED, APPROVED AND ADOPTED this 9th day of June, 2015.

Deborah Franklin

Deborah Franklin, Mayor

ATTEST:

Marie A. Calderon

Marie A. Calderon,
City Clerk of the City of Banning

APPROVED AS TO FORM AND LEGAL CONTENT:

(see attached page)

David J. Aleshire, City Attorney
Aleshire & Wynder, LLP

CERTIFICATION:

I, Marie A. Calderon, City Clerk of the City of Banning, California, do hereby certify that Ordinance No. 1489 was duly introduced at a regular meeting of the City Council of the City of Banning, California held on the 26th day of May, 2015, and was duly adopted at a regular meeting of said City Council on the 9th day of June, 2015 by the following vote, to wit:

AYES:	Councilmembers Miller, Moyer, Welch, Mayor Franklin
NOES:	None
ABSENT:	Councilmember Peterson
ABSTAIN:	None

Marie A. Calderon

Marie A. Calderon, City Clerk
City of Banning, California

PASSED, APPROVED AND ADOPTED this 9th day of June, 2015.

Deborah Franklin, Mayor

ATTEST:

Marie A. Calderon,
City Clerk of the City of Banning

APPROVED AS TO FORM AND LEGAL CONTENT:

David J. Aleshire, City Attorney
Aleshire & Wynder, LLP

CERTIFICATION:

I, Marie A. Calderon, City Clerk of the City of Banning, California, do hereby certify that Ordinance No. 1489 was duly introduced at a regular meeting of the City Council of the City of Banning, California held on the 26th day of May, 2015, and was duly adopted at a regular meeting of said City Council on the 9th day of June, 2015 by the following vote, to wit:

AYES:	Councilmembers Miller, Moyer, Welch, Mayor Franklin
NOES:	None
ABSENT:	Councilmember Peterson
ABSTAIN:	None

Marie A. Calderon, City Clerk
City of Banning, California

RESOLUTION NO. 2010-06

City of Banning
Office of the City Clerk

January 27, 2010

Mr. Simon Eching
California Department of Water Resource
Water Use and Efficiency Branch
P.O. Box 942836
Sacramento, CA 94236-0001

Subject: Water Conservation in Landscaping Act (AB 1881)

Dear Mr. Eching:

As required by AB 1881, enclosed with this letter is a certified copy of City Council Resolution No. 2010-06 adopted on January 26, 2010 making certain findings that the City's adopted landscaping ordinance and water conservation ordinance are as effective as the State's model water efficiency landscape ordinance.

If you have questions regarding this correspondence, please contact Zai Abu Bakar, Community Development Director at (951) 922-3131.

Regards,

Marie A. Calderon
City Clerk

encl.

99 E. Ramsey St. • P.O. Box 998 • Banning, CA 92220-0998 • (951) 922-3102 • Fax (951) 922-3128

RESOLUTION NO. 2010-06

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BANNING MAKING CERTAIN FINDINGS THAT THE CITY'S WATER EFFICIENT LANDSCAPE ORDINANCE IS AS EFFECTIVE AS THE STATE'S MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO) IN CONNECTION WITH AB 1881 WATER CONSERVATION IN LANDSCAPING ACT.

WHEREAS, California is experiencing its third consecutive year of sustained drought and historically drought has been a part of the California environment; and

WHEREAS, it is estimated that about half of urban water use is from landscape irrigation; and

WHEREAS, Assembly Bill (AB) 1881 the *Water Conservation in Landscaping Act* was approved by the Governor of the State of California on September 28, 2006; and

WHEREAS, AB 1881 requires local agencies to adopt a water efficient landscape ordinance by January 1, 2010, or the State's Model Water Efficient Landscape Ordinance prepared by the Department of Water Resources shall apply; and

WHEREAS, on February 14, 2006 the City Council for the City of Banning adopted new zoning regulations by approving Ordinance No. 1339; the new zoning regulations include Chapter 17.32 *Landscaping Standards* that correspond to the requirements of AB 1881. Additionally, Chapter 13.16 *Water Conservation* and Chapter 13.24 *Stormwater Code* of the municipal code contain elements that correspond to the various requirements of AB 1881; and

WHEREAS, the City now desires to notify the Department of Water Resources of compliance with AB 1881 requirements;

NOW THEREFORE BE IT RESOLVED, that the City Council of the City of Banning does hereby find, determine, and resolve as follows:

1. That the adopted regulations codified in Chapter 17.32 *Landscaping Standards,* Chapter 13.16 *Water Conservation,* and Chapter 13.24 *Stormwater Code,* copies of which are included as Exhibit "A" of this resolution and specifically detailed in the comparison chart listed below, are at least as effective in conserving water as the State's Model Water Efficient Landscape Ordinance.

2. That the City Clerk is directed to submit a copy of this resolution to the Department of Water Resources in accordance with the requirements of AB 1881.

CERTIFIED TO BE A TRUE AND CORRECT COPY OF THE ORIGINAL DOCUMENT ON FILE IN THE OFFICE OF THE CITY CLERK.

BY Marie A. Calderon

TITLE City Clerk

DATE 1-27-10

Comparison Chart

AB 1881 Requirement	Corresponding City Code/Program
65595. (a) (1) To the extent funds are appropriated, not later than January 1, 2009, by regulation, the department shall update the model water efficient landscape ordinance adopted pursuant to Chapter 1145 of the Statutes of 1990, after holding one or more public hearings. The updated model ordinance shall be based on the recommendations set forth in the report prepared pursuant to Chapter 682 of the Statutes of 2004 and shall meet the requirements of Section 65596. (c) On or **before January 1, 2010, a local agency shall adopt** one of the following: (1) **A water efficient landscape ordinance** that is, based on evidence in the record, at least as effective in conserving water as the updated model ordinance adopted by the department pursuant to subdivision (a). (2) The updated model ordinance described in paragraph (1). (d) If the local agency has not adopted, on or before January 1, 2010, a water efficient landscape ordinance pursuant to subdivision (c), the updated model ordinance adopted by the department pursuant to subdivision (a) shall apply within the jurisdiction of the local agency as of that date, shall be enforced by the local agency, and shall have the same force and effect as if adopted by the local agency.	The Zoning Code as adopted on February 14, 2006 contains Chapter 17.32 *Landscaping Standards* that corresponds with the requirements of AB 1881; also, Chapter 13.16 *Water Conservation* adopted in 1965.
65596. The updated model ordinance adopted pursuant to Section 65595 shall do all the following in order to reduce water use: (a) **Include provisions for water conservation** and the appropriate use and groupings of plants that are well-adapted to particular sites and to particular climatic, soil, or topographic conditions. The model ordinance shall not prohibit or require specific plant species, but it may include conditions for the use of plant species or encourage water conserving plants. However, the model ordinance shall not include conditions that have the effect of prohibiting or requiring specific plant species.	17.32.070; Chapter 13.16
(b) **Include a landscape water budget component** that establishes the maximum amount of water to be applied through the irrigation system, based on climate, landscape size, irrigation efficiency, and plant needs.	17.32.090
(c) **Promote the benefits** of consistent local ordinances in neighboring areas.	17.32.030(A)
(d) Encourage the capture and **retention of stormwater** onsite to improve water use efficiency or water quality.	13.24.120
(e) Include **provisions for the use of automatic irrigation systems** and irrigation schedules based on climatic conditions, specific terrains and soil types, and other environmental	17.32.030(H)

conditions. The model ordinance shall include references to local, state, and federal laws and regulations regarding standards for water-conserving irrigation equipment. The model ordinance may include climate information for irrigation scheduling based on the California Irrigation Management Information System.	
(f) Include **provisions for onsite soil assessment** and soil management plans that include grading and drainage to promote healthy plant growth and to prevent excessive erosion and runoff, and the use of mulches in shrub areas, garden beds, and landscaped areas where appropriate.	17.32.090(A)(8)
(g) **Promote the use of recycled water** consistent with Article 4 (commencing with Section 13520) of Chapter 7 of Division 7 of the Water Code.	17.32.090
(h) Seek to **educate water users** on the efficient use of water and the benefits of doing so.	17.32.100
(i) Address regional differences, including fire prevention needs.	17.32.160(A); 17.32.170(C); 8.16.020
(j) Exempt landscaping that is part of a registered historical site.	13.16.030(D)(3)
(k) Encourage the use of **economic incentives** to promote the efficient use of water.	13.08.040 – escalating commodity charge.
(*l*) Include provisions for **landscape maintenance practices** that foster long-term landscape water conservation. Landscape maintenance practices may include, but are not limited to, performing routine irrigation system repair and adjustments, conducting water audits, and prescribing the amount of water applied per landscaped acre.	17.32.050
(m) Include provisions to **minimize landscape irrigation overspray** and runoff.	17.32.090
65598. Any model ordinance adopted pursuant to this article shall **exempt cemeteries** from all provisions of the ordinance except those set forth in subdivisions (h), (k), and (*l*) of Section 65596. In adopting language specific to cemeteries, the department shall recognize the special landscape management needs of cemeteries.	13.16.030(D)(2)
535. (a) A water purveyor shall require as a condition of new retail water service on and after January 1, 2008, the installation of **separate water meters** to measure the volume of water used exclusively for landscape purposes.	Include in conditions of approval for applicable projects.

PASSED, APPROVED, AND ADOPTED this 26th day of January, 2010.

Barbara F. Hanna, Mayor Pro Tem
City of Banning

APPROVED AS TO FORM AND
LEGAL CONTENT:

David J. Aleshire, City Attorney
Aleshire & Wynder, LLP

ATTEST:

Marie A. Calderon, City Clerk
City of Banning

CERTIFICATION:

I, Marie A. Calderon, City Clerk of the City of Banning, California, do hereby certify that the foregoing Resolution No. 2010-06, was duly adopted by the City Council of the City of Banning, California, at a regular meeting thereof held on the 26th day of January, 2010.

AYES:	Councilmembers Franklin, Hanna, Machisic, Robinson
NOES:	None
ABSTAIN:	None
ABSENT:	Mayor Botts

Marie A. Calderon, City Clerk
City of Banning, California

Exhibit "A"
to
Resolution No. 2010-06

Copies of municipal code:

Chapter 17.32 *Landscaping Standards*
Chapter 13.16 *Water Conservation*
Chapter 13.24 *Stormwater Code (including Ordinance No. 1415 amending Chapter 13.24)*

Chapter 17.32

LANDSCAPING STANDARDS

Sections:

Article I.
General Provisions

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17.32.020 Application.
17.32.030 General regulations.
17.32.040 Setback and parkway treatments.
17.32.050 Installation and maintenance.
17.32.060 Removal or destruction of trees.

Article II.
Water Conservation

17.32.070 Purpose and definitions.
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17.32.090 Landscape documentation package.
17.32.100 Public education.
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17.32.120 Fees for initial review and program monitoring.
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Article IV.
Landscape Design Guidelines

17.32.140 Purpose.
17.32.150 Applicability.
17.32.160 General guidelines.
17.32.170 Installation and maintenance.

Article I.
General Provisions

17.32.010 Purpose.

The purpose of this chapter is to establish landscaping regulations that are intended to:

A. Protect and preserve the natural environment in the City of Banning, and to incorporate green space, vegetation, and shade into the urban landscape.

B. Enhance the aesthetic appearance of development in all areas of the City by providing standards for quality, quantity and functional aspects of landscaping and landscape screening.

C. Reduce the heat and glare generated by development

D. Increase the compatibility between residential land uses and those abutting commercial and industrial land uses.

E. Provide privacy within residential developments, and to provide privacy on the perimeter of residential areas from various residential, commercial or other uses outside of the development.

F. Protect the public health, safety and welfare by minimizing the impact of all forms of physical and visual pollution, controlling soil erosion, screening incompatible land uses, preserving the integrity of neighborhoods, and enhancing pedestrian, cyclist and vehicular traffic and safety.

G. Increase the liveability of the City of Banning for children, adults, and visitors. (Zoning Ord. dated 1/31/06, § 9108.01.)

17.32.020 Application.

A. A concept landscaping plan shall be submitted as part of a planning permit application. The concept plan shall meet the intent of this chapter by exhibiting a generalized design layout which adequately demonstrates the desired landscaping program in terms of location, size/scale, function, theme and other attributes.

B. The concept plan shall provide the review authority with a clear understanding of the landscaping program prior to the preparation of a detailed, comprehensive landscaping plan. All landscaping plans must take into account the preservation of natural features including hills, topography, trees, shrubs, wildlife habitat, etc. The landscaping plan should refer to such natural elements, and enhance rather than detract from such elements.

C. Landscaping plans shall rely primarily on indigenous plant and tree species which are suitable to the local climate and soil types, rather than relying on foreign or invasive species which often compete with, and displace local species. The use of indige-

nous plant, shrub and tree types is also important in providing continuity of habitat for wildlife species, including local birds. The use of invasive species which have proven to be detrimental to flora species native to Southern California are strongly discouraged in all landscaping plans. Such species include the tamarisk (or salt cedar tree), and the Russian olive. Likewise many plants and trees from other areas (such as the tropics or the American southeast) have much greater water requirements than native species, and the planting and maintenance of such flora species will undermine the City's goal of water conservation. (Zoning Ord. dated 1/31/06, § 9108.02.)

17.32.030 General regulations.

A comprehensive landscaping plan shall be prepared following approval of the permit application by the review authority, and shall be submitted at the same time as the grading plan and related documents and reports. The landscape and irrigation plans shall be approved by the Community Development Department, and this department may obtain any necessary input from the Public Works Department. Landscaping requirements include the following:

A. Designs shall be in harmony with the surrounding environment.

B. Landscape design and construction shall emphasize drought-tolerant landscaping whenever and wherever possible.

C. A comprehensive landscape and irrigation plan shall include, but not be limited to:

1. List of all plants (common and Latin) including trees and shrubs;
2. Size of plants;
3. Location of plants;
4. Irrigation plan for the plants;
5. Hardscape;
6. Water elements;
7. Any other information deemed necessary by the City.

D. Planting of trees and shrubs shall comply with the following installation requirements:

1. Landscape areas shall include plant material and planting methods which are suitable for the soil of the site. The minimum percentage of plant sizes shall be as follows:

Trees:	20%, 36 inch box 50%, 24 inch box
Shrubs:	100%, 5 gallon
Groundcover:	100% coverage within 1 year

2. Trees and shrubs shall be planted so that at maturity they do not interfere with service lines, traffic safety sight area, and the basic property rights of adjacent property owners.

3. A variety of flowering trees, fragrant trees, and fruit trees, may all be included in the landscaping plan.

4. Trees planted near public rights-of-way shall have a limited deep root system and shall be installed so as to prevent physical damage to sidewalks, curbs, gutters and other public improvements.

5. Tree grates shall surround trees installed in paved areas or sidewalks. Trees with a deep root system shall be used in such areas.

F. Concrete mow strips are required to separate all turf areas from other landscaped areas in the commercial and industrial districts.

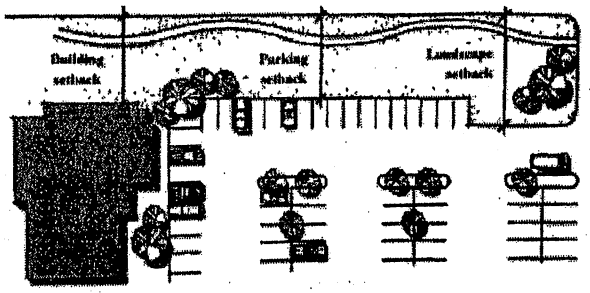
G. Inorganic groundcover shall be used in combination with live plants, and shall be used as an accent feature.

H. All landscaping shall include a water-efficient automatic irrigation system.

I. The front yards, and side yards visible from the public right-of-way, of all residential subdivisions shall be landscaped with trees, shrubs and groundcover. At a minimum, each front yard shall include 2 24 inch box trees, and sufficient shrubs and groundcover to provide full coverage within 2 years of installation. (Zoning Ord. dated 1/31/06, § 9108.03.)

17.32.040 Setback and parkway treatments.

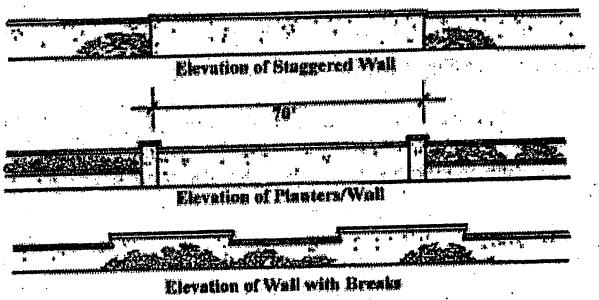
Landscape standards for setback and parkway areas shall include, but not be limited to:



A. Setback and parkway areas shall utilize uniform street tree plantings with complementary landscape materials.

B. Mounding or berming shall be incorporated within the overall design, with landscaped slopes not exceeding a three to one ratio, or four feet in height. A minimum of six feet of landscaping shall be placed on the exterior of perimeter walls and fences.

C. Walls and fences should be incorporated into the landscape design, including meandering walls, wall breaks, or openings where the design shall complement the landscaping of the adjacent development.



D. All designs shall insure compatibility with established setback and parkway areas, including transitions between landscape types and patterns.

E. Street trees shall be 24 inch box specimens or larger. (Zoning Ord. dated 1/31/06, § 9108.04.)

17.32.050 Installation and maintenance.

A. Landscaping shall be permanently maintained by the developer or his/her successors. All required landscaping shall be properly installed, irrigated, and inspected prior to the issuance of a Certificate of Occupancy.

B. Maintenance of approved landscaping shall consist of:

1. Regular watering;
2. Mowing;
3. Pruning;
4. Fertilizing;
5. Clearing of debris and weeds;
6. Removal and replacement of dead plants;
7. The repair and replacement of irrigation systems; and
8. The repair and replacement of integrated architectural features. (Zoning Ord. dated 1/31/06, § 9108.05.)

17.32.060 Removal or destruction of trees.

A. Removal of healthy, shade providing, and aesthetically valuable trees shall be strongly discouraged, and shall be in conformance with the policies and programs of the General Plan. A tree removal and replacement plan shall be required for the removal and replacement of all trees in excess of 50 years of age, unless their removal is required to protect the public health and safety.

B. Each tree that is removed in a new subdivision is considered a part of the common wealth of the citizens of Banning, is an important component of the habitat of surrounding wildlife, and is of value to the City. Each identified tree removed shall be replaced with at least one 36 inch box specimen tree, in addition to any other required landscaping. Individual single family residential lots of less than one-half acre and commercial tree farms shall be exempt from this provision. (Zoning Ord. dated 1/31/06, § 9108.06.)

Article II.
Water Conservation

17.32.070 Purpose and definitions.

A. In order to assure that the City's water resources are not significantly impacted by high water consuming landscape plans, the following standards for water efficiency shall be implemented for all landscaping plans required in this chapter, under Section 17.32.020, Applicability.

B. Definitions.

Anti-drain valve or check valve means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation sprinkler heads.

Application rate means the depth of water applied to a given area, measured in inches per hour. Also known as precipitation rate (sprinklers) or emission rate (drippers/microsprayers) in gallons per hour.

Applied water means the portion of water supplied by the irrigation system to the landscaping.

Automatic controller means a mechanical or solid-state timer, capable of operating valve stations to set the days and length of time of a water application.

Backflow prevention device means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

Conversion factor (0.62) means a number that converts the maximum applied water allowance from acre-inches per acre per year to gallons per square foot per year. The conversion factor is calculated as follows:

325,851 gallons/43,560 square feet/12 inches	= (0.62)
325,851 gallons	= one acre foot
43,560 square feet	= one acre
12 inches	= one foot

To convert gallons per year to 100 cubic feet per year, the common billing unit for water, divide gallons per year by 748. (748 gallons = 100 cubic feet.)

Ecological restoration project means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

Effective precipitation or usable rainfall means the portion of total natural precipitation that is used by the plants.

Emitter means drip irrigation fittings that deliver water slowly from the system to the soil.

Established landscape means the point at which plants in the landscape have developed roots into the soil adjacent to the root ball.

Establishment period means the first year after installing the plant in the landscape.

Estimated annual applied water use means the portion of the estimated annual total water use that is derived from applied water. The estimated annual applied water use shall not exceed the maximum applied water allowance.

Estimated total water use means the annual total amount of water estimated to be needed to keep the plants in the landscaped area healthy. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the types of plants, and the efficiency of the irrigation system.

ET adjustment factor means a factor of 0.6 that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A combined plant mix with a site-wide average 0.45 is the basis of the plant factor portion of this calculation. The irrigation efficiency for purposes of the ET adjustment factor is 0.75. Therefore, the ET adjustment factor (0.6) = (0.45/0.75).

Evapotranspiration means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time.

Flow rate means the rate at which water flows through pipes and valves (gallons per minute or cubic feet per second).

Hydrozone means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or nonirrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a nonirrigated hydrozone.

Infiltration rate means the rate of water entry into the soil expressed as a depth of water per unit of time (inches per hour).

Irrigation efficiency means the measurement of the amount of water beneficially used divided by the

amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of this chapter is 0.75. Greater irrigation efficiency can be expected from well-designed and maintained systems.

Landscape irrigation audit means a process to perform site inspections, evaluate irrigation systems, and develop efficient irrigation schedules.

Landscaped area means the entire parcel less the building footprint, driveways, nonirrigated portions of parking lots, hardscapes such as decks and patios, and other nonporous areas. Water features are included in the calculation of the landscaped area.

Lateral line means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

Main line means the pressurized pipeline that delivers water from the water meter to the valve or outlet.

Service line means the pressurized pipeline that delivers water from the water source to the water meter.

Maximum applied water allowance means for design purposes, the upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the ET adjustment factor, and the size of the landscaped area. The estimated applied water use shall not exceed the maximum applied water allowance.

Mined-land reclamation projects means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

Mulch means any material such as gravel, small rocks, pebbles, decorative sand, decomposed granite, bark, straw or other material left loose and applied to the soil surface for the beneficial purpose of reducing evaporation.

Operating pressure means the manufacturer's recommended pressure at which a system of sprinklers, bubblers, drippers or microsprayers is designed to operate.

Overhead sprinkler irrigation systems means those with high flow rates (pop-ups, impulse sprinklers, rotors, etc.)

Overspray means the water which is delivered beyond the landscaped area, wetting pavements, walks, structures, or other non-landscaped areas.

Plant factor means a factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of this chapter, the average plant factor of very low water using plants ranges from 0.01 to 0.10, for low water using plants the range is 0.10 to 0.35, for moderate water using plants the range is 0.35 to 0.60 and for high water using plants, the range is 0.60 to 0.90.

Rain sensing device means a system which automatically shuts off the irrigation system when it rains.

Record drawing or as-builts means a set of reproducible drawings which show significant changes in the work made during construction which are usually based on drawings marked up in the field and other data furnished by the contractor.

Recreational area means areas of active play or recreation such as sports fields, school yards, picnic grounds, or other areas with intense foot traffic.

Recreational turfgrass means turfgrass that serves as a playing surface for sports and recreational activities. Athletic fields, golf courses, parks and school playgrounds are all examples of areas hosting recreational turf grass.

Recreational turfgrass ET adjustment factor means a factor of 0.82 that, when applied to reference evapotranspiration, adjusts for the additional stress of high traffic on recreational turfgrass and the higher irrigation efficiencies of long range rotary sprinklers. These are the two major influences upon the amount of water that needs to be applied to a recreational landscape. A mixed cool/warm season turfgrass with a seasonal average of 0.7 is the basis of the plant factor portion of this calculation. The irrigation efficiency of long range sprinklers for purposes of the ET adjustment factor is 0.85. Therefore, the ET adjustment factor is 0.82 = 0.7/0.85.

Recycled water, reclaimed water or treated sewage effluent water means treated or recycled

waste water of a quality suitable for nonpotable uses such as landscape irrigation; not intended for human consumption.

Reference evapotranspiration or ETo means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year, and is an estimate of the evapotranspiration of a large field of cool-season grass that is well watered. Reference evapotranspiration is used as a basis of determining the maximum applied water allowances so that regional differences in climate can be accommodated. For purposes of this chapter, the following ETo zone map will be used. (See map attached to the ordinance codified in this chapter.)

Rehabilitated landscape means any relandscaping project whose choice of new plant material and/or new irrigation system components is such that the calculation of the site's estimated water use will be significantly changed. The new estimated water use calculation must not exceed the maximum applied water allowance calculated for the site using a 0.6 ET adjustment factor.

Runoff means water which is not absorbed by the soil or landscape to which it is applied and flows from the planted area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate), when there is a severe slope or when water is misapplied to hardscapes.

Soil moisture sensing device means a device that measures the amount of water in the soil.

Soil texture means the classification of soil based on the percentage of sand, silt and clay in the soil.

Sprinkler head means a device which sprays water through a nozzle.

Static water pressure means the pipeline pressure when water is not flowing.

Station means an area served by one valve or by a set of valves that operates simultaneously.

Turf means a surface layer of earth containing mowed grass with its roots. Perennial and Annual Ryegrass are cool season grasses. Hybrid and common Bermuda grass, are warm season grasses.

Valve means a device used to control the flow of water in the irrigation system.

Water conservation concept statement means a one-page checklist and a narrative summary of the project.

Water feature means any water applied to the landscape for non-irrigation decorative purposes. Fountains, streams, ponds and lakes are considered water features. Water features use more water than efficiently irrigated turf grass and are assigned a plant factor value of 1.1 for a stationary body of water and 1.2 for a moving body of water. (Zoning Ord. dated 1/31/06, § 9108.07(1).)

17.32.080 Applicability.

A. Except as provided in Section 17.32.030, this article shall apply to:

1. All new and rehabilitated landscaping for private, public, commercial and governmental development projects that require a permit; and
2. Developer-installed landscaping in single-family tracts and multifamily projects.

B. Projects subject to this section shall conform to the provisions in this section.

C. This section shall not apply to resident homeowner-provided landscaping at single-family residences. (Zoning Ord. dated 1/31/06, § 9108.07(2).)

17.32.090 Landscape documentation package.

A. Each landscape documentation package shall include the following elements, which are described below under "Elements of Landscape Documentation Package".

1. Water conservation concept statement;
2. Calculation of the maximum applied water allowance;
3. Calculation of the estimated applied water use;
4. Calculation of the estimated total water use;
5. Landscape design plan;
6. Irrigation design plan;
7. Grading design plan:
8. Soil analysis (optional);

9. Certificate of substantial completion. (To be submitted by certified landscape designer, auditor or landscape architect after installation of the project.)

B. Three copies of the landscape documentation package conforming to this chapter shall be submitted to the city. No permit shall be issued until the city reviews and approves the landscape documentation package. Prior to preparation and submission of the landscape documentation package, the preliminary landscape design shall be approved by the Planning Commission.

C. A copy of the approved landscape documentation package shall be provided to the property owner or site manager along with the record drawings and any other information normally forwarded to the property owner or site manager.

D. Upon completion of construction, a copy of the water conservation concept statement and the certificate of substantial completion shall be sent by the project manager to the water management specialist of the water district and city/county having jurisdiction.

ELEMENTS OF LANDSCAPE DOCUMENTATION PACKAGE

A. Water Conservation Concept Statement. Each landscape documentation package shall include a cover sheet, referred to as the water conservation statement similar to the following example. It serves as a checklist to verify that the elements of the landscape documentation package have been completed and has a narrative summary of the project.

SAMPLE WATER CONSERVATION CONCEPT STATEMENT

Project Site:_____ Case Number:_____

Project Location:_____

Landscape Architect/Irrigation Designer/Contractor:_____

Included in this project submittal package are: (Check to indicate completion)

_____1. Maximum Annual Applied Water Allowance:
Conventional Landscape: _____ 100 cubic feet/year
+ Recreational Turfgrass Landscape: _____ 100 cubic feet/year (if applicable)
Total Maximum Annual Applied Water Allowance:_____100 cubic feet/year ____

_____2. Estimated Annual Applied Water Use by Hydrozone:
Turfgrass: _____ 100 cubic feet/year
Recreational Turfgrass: _____ 100 cubic feet/year
Exotic Trees/Shrubs/Groundcovers: _____ 100 cubic feet/year
Desert Plants: _____ 100 cubic feet/year
Water features: _____ 100 cubic feet/year
Other _____: _____ 100 cubic feet/year ____

_____3. Estimated Annual Total Water Use:
_____ 100 cubic feet/year ____

_____4. Landscape Design Plan
_____5. Irrigation Design Plan
_____6. Grading Design Plan
_____7. Soil Chemical Analysis (Optional)

Description of Project: (Briefly describe the planning and design actions that are intended to achieve conservation and efficiency in water use.)

_____
_____
_____
_____
_____

Date:_____ Prepared by:_____

B. The Annual Maximum Applied Water Allowance

a. A project's annual maximum applied water allowance shall be calculated using the following formula:

MAWA = (ETo) (0.6) (LA) (0.62) where:

MAWA	=	Maximum applied water allowance (gallons per year)
Eto	=	Reference evaportranspiration (i.e., 75.0 inches per year)
0.6	=	ET adjustment factor
LA	=	Landscaped area (square feet)
0.62	=	Conversion factor (to gallons per square foot)

b. An example calculation of the annual maximum applied water allowance is:

Project site: Landscape area of fifty thousand square feet in Zone No. 3a of the City ETo Map.

MAWA = (ETo) (.6) (LA) (0.62)
= (75.0 inches) (.6) (50,000 square feet) (.62)

Maximum applied water allowance = 1,395,000 gallons per year, 1,865 hundred-cubic-feet per year (billing units), 4.28 acre feet/acre per year or 51.4≤ of water per year.

C. Estimated Annual Applied Water Use.

a. The annual estimated applied water use shall not exceed the annual maximum applied water allowance.
b. A calculation of the estimated annual applied water use shall be submitted with the landscape documentation package.

c. The estimated annual total water use for each hydrozone is calculated from the following formula:

EWU (hydrozones) (in 100 cubic feet) = (ETo) (PF) (HA) (.62)/748 (IE)

EWU (hydrozone)	=	Estimated water use (gallons per year)
Eto	=	Reference evapotranspiration (i.e., ETo Zone 3a = 75.00 inches per year)
PF	=	Plant factor (see definitions)
HA	=	Hydrozone area (square feet)
(.62)	=	Conversion factor
(IE)	=	Irrigation efficiency (see Section 17.04.070, Definitions)
748	=	Conversion to billing units (100 cubic feet)

D. Estimated Annual Total Water Use.

A calculation of the estimated annual total hydrozone water use shall be submitted with the landscape documentation package. The estimated annual total water use for the entire landscaped area equals the sum of the estimated annual water use (EWU) of all hydrozones in that landscaped area.

E. Landscape Design Plan.

A landscape design plan meeting the following requirements shall be submitted as part of the landscape documentation package.

a. Plant Selection and Grouping.

i. Any plants may be used in the landscape, providing the estimated annual applied water use recommended does not exceed the maximum annual applied water allowance and that the plants meet the specifications set forth in subsections (C)(5)(a)(ii), (iii) and (iv) of this section.

ii. Plants having similar water use shall be grouped together in distinct hydrozones.

iii. Plants shall be selected appropriately based upon their adaptability to the climate, geologic, and topographical conditions of the site. Protection and preservation of native species and natural areas is encouraged. The planting of trees is encouraged whenever it is consistent with the other provisions of this chapter.

iv. Fire prevention needs shall be addressed in areas that are fire prone. Information about fire prone areas and appropriate landscaping for fire safety is available from the fire marshal.

b. Water Features.

i. Recirculating water shall be used for decorative water features.

c. Landscape Design Plan Specifications.

The landscape design plan shall be drawn on project base sheets at a scale that accurately and clearly identifies:

i. Designation of hydrozones;
ii. Landscape materials, trees, shrubs, groundcover, turf and other vegetation. Planting symbols shall be clearly drawn and plants labeled by botanical name, common name, water use classification, container size, spacing and quantities of each group of plants indicated;
iii. Property lines and street names;
iv. Streets, driveways, walkways and other paved areas;
v. Pools, ponds, water features, fences and retaining walls;
vi. Existing and proposed buildings and structures including elevation, if applicable;
vii. Location of all overhead and underground utilities.
viii. Natural features including but not limited to rock outcroppings, existing trees and shrubs that will remain;
ix. Tree staking, plant installation, soil preparation details, and any other applicable planting and installation details;
x. A calculation of the total landscaped area;
xi. Designation of recreational areas.

F. Irrigation Design Plan.

An irrigation design plan meeting the following conditions shall be submitted as part of the landscape documentation package.

a. Irrigation Design Criteria.

i. Runoff and Overspray. Soil types and infiltration rate shall be considered when designing irrigation systems. All irrigation systems shall be designed to avoid runoff, low-head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways or structures. Proper irrigation equipment and schedules, including features such as repeat cycles, shall be used to closely match application rates to infiltration rates therefore minimizing runoff. Special attention shall be given to avoid runoff on slopes and to avoid overspray in planting areas with a width less than ten feet. No overhead sprinkler irrigation systems shall be installed in median strips or islands.
ii. Irrigation Efficiency. For the purpose of determining the maximum applied water allowance, irrigation efficiency is assumed to be 0.75. Mixed irrigation system types shall be designed, maintained and managed to meet or exceed an average of 0.75 efficiency.
iii. Equipment.
(A) Water Meters. Separate landscape water meters shall be installed for all projects except for single-family homes or any project with a landscaped area of less than two thousand five hundred square feet.
(B) Controllers. Automatic control systems (solar or electric) hall be required for all irrigation systems and must be able to accommodate all aspects of the design. Mechanical irrigation controllers are prohibited.
(C) Valves. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only plants with similar water use shall be used in that area
(D) Anti-drain (check) valves shall be installed in strategic points to prevent low-head drainage.

(E) Sprinkler Heads. Heads shall have application rates appropriate to the plant water use requirements within each control valve circuit. Sprinkler heads shall be selected for proper area coverage, application rate, matched precipitation rate nozzles, operating pressure, adjustment capability and ease of maintenance.

(F) Scheduling Aids—Soil Moisture Sensing Devices. It is required that soil moisture sensing devices be installed on all turfgrass sites exceeding 1.0 acres (43,560 square feet) of planted area.

(G) Scheduling Aids—ETo Controllers. It is recommended that ETo controllers be considered for installation on all sites.

(H) Equipment in Publicly Maintained Areas. Irrigation equipment in areas which may or will be maintained by the city shall conform to specifications of the city.

(I) Emitters. Emitters shall have consistent application rates appropriate to the plant water use requirements within each control valve circuit. Emitters shall be selected for specific area coverage (individual plants), application rates, operating pressure, adjustment capability and ease of maintenance.

b. Recycled Water.

i. The installation of recycled water irrigation systems (dual distribution systems) shall be required to allow for the current and future use of recycled water, unless a written exemption has been granted as described in the subsection (C)(6)(b)(ii) of this section.

ii. Irrigation systems shall make use of recycled water unless a written exemption has been granted by the water district having jurisdiction, stating that recycled water meeting all health standards is not available and will not be available in the foreseeable future.

iii. Recycled water irrigation systems shall be designed and operated in accordance with all local and state codes and be applicable to all of the provisions of this chapter.

c. Irrigation Design Plan Specifications.

Irrigation systems shall be designed to be consistent with hydrozones. The irrigation design plan shall be drawn on project base sheets. It shall be separate from, but use the same format as, the landscape design plan. The scale shall be the same as that used for the landscape design plan. The irrigation design plan shall accurately and clearly identify:

i. Location and size of separate water meters for the landscape;

ii. Location, type, and size of all components of the irrigation system, including automatic controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, and backflow prevention devices;

iii. Static water pressure at the point of connection to the water supply;

iv. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (psi) for each station;

v. Recycled water irrigation systems.

G. Grading Design Plan.

Grading design plans satisfying the city/county grading ordinance and the following conditions shall be submitted as part of the landscape documentation package.

a. A grading design plan shall be drawn on project base sheets. It shall be separate from but use the same format as the landscape design plan.
b. The grading design plan shall indicate finished configurations and elevations of the landscaped area, including the height of graded slopes, drainage patterns, pad elevations, and finish grade.

H. Soil Analysis.

A soil analysis satisfying the following conditions should be submitted as part of the landscape documentation package:

a. Determination of soil texture, indicating the available water holding capacity.
b. An approximate soil infiltration rate (either) measured or derived from soil texture/infiltration rate tables. A range of infiltration rates shall be noted where appropriate.
c. Measure of pH and total soluble salts.

I. Certification.

a. A licensed landscape architect, designer of record or designated city staff shall conduct a final field observation and shall provide a certificate of substantial completion to the city. The certificate shall specifically indicate that plants were installed as specified, that the irrigation system was installed as designed, and that an irrigation audit has been performed, along with a list of any observed deficiencies.
b. Certification shall be accomplished by completing a certificate of substantial completion and delivering it to the city, to the retail water supplier, and to the owner of record. A sample of such a form, which shall be provided by the city is:

EXAMPLE CERTIFICATE OF SUBSTANTIAL COMPLETION

Project Site:_____ Project Number:_____
Project
Location:_____

Preliminary Project Documentation Submitted: (Check indicating submittal)
____1. Total Maximum Applied Water Allowance:
_____ (100 cubic feet/year)

____2. Estimated Applied Water Use by Hydrozone:
Turfgrass: _____ 100 cubic feet/year
Recreational Turfgrass: _____ 100 cubic feet/year
Exotic Trees/Shrubs/Groundcovers: _____ 100 cubic feet/year
Desert Plants: _____ 100 cubic feet/year
Water features: _____ 100 cubic feet/year

Other _____: _____ 100 cubic feet/year

____3. Estimated Total Water Use:
_____ (100 cubic feet/year)

____4. Landscape Design Plan
____5. Irrigation Design Plan
____6. Grading Design Plan
____7. Soil Analysis (optional)

Post-Installation Inspection: (Check indicating substantial completion)

____A. Plants installed as specified
____B. Irrigation system installed as designed
____dual distribution system for recycled water
____minimum run-off or overspray

____Project submittal package and a copy of this certification has been provided to owner/manager and local water agency.

Comments:

I/we certify that work has been installed in accordance with the contract documents:

Contractor	Signature	Date	State License Number

I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the Water Efficient Landscape Ordinance and that the landscape planting and irrigation installation conform with the approved plans and specifications.

Landscape Architect	Signature	Date	State License Number

or Irrigation Designer/Consultant
or Licensed or Certified Professional in a Related Field

I/we certify that I/we have received all of the contract documents and that it is our responsibility to see that the project is maintained in accordance with the contract documents.

Owner	Signature	Date

(Zoning Ord. dated 1/31/06, § 9108.07(3).)

17.32.100 Public education.

A. Publications.

1. The city will, upon request, provide information to owners of all new, single family residential homes regarding the design, installation, and maintenance of water efficient landscapes.

2. Information about the efficient use of landscape water shall be provided to water users throughout the community.

B. Model Homes. At least one model home that is landscaped in each project consisting of eight or more homes shall demonstrate via signs and information, the principles of water efficient landscapes described in this chapter.

1. Signs shall be used to identify the model as an example of a water efficient landscape and featuring elements such as hydrozones, irrigation equipment, and others which contribute to the overall water efficient theme.

2. Information shall be provided about designing, installing, and maintaining water efficient landscapes. (Zoning Ord. dated 1/31/06, § 9108.07(4).)

17.32.110 Provisions for existing landscapes.

A. Water Management. All existing landscaped areas which use ground water and are over sixty thousand square feet, including golf courses, green belts, common areas, multifamily housing, schools, businesses, parks, and cemeteries shall have a landscape irrigation audit at least every five years unless granted an exemption by the City. At a minimum, the audit shall be in accordance with the California Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Audit Handbook, Department of Water Resources, Water Conservation Office (June, 1990), Version 5.5.)

B. Water Waste Prevention. Water waste resulting from inefficient landscape irrigation including run-off, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures shall be discouraged. Penalties for violation of these prohibitions shall be established. (Zoning Ord. dated 1/31/06, § 9108.07(5).)

17.32.120 Fees for initial review and program monitoring.

A. Fees for the purposes of meeting obligations under this chapter, the following fees are deemed necessary to review landscape documentation packages and monitor landscape irrigation audits and shall be imposed on the subject applicant, property owner or designee.

1. A landscape documentation package review fee will be due at the time initial project application submission to the planning and development department.

2. The project owner/developer must cause a landscape irrigation audit to be completed by a certified landscape irrigation auditor. No city fees will be due for the review of the audit by the planning and development department.

3. If a landscape documentation package is not submitted prior to the start of landscape construction work, for those persons required to submit a package, a late submittal fee of twice the review fee shall be required.

B. The city council, by resolution, shall establish the amount of the above fees in accordance with applicable law. (Zoning Ord. dated 1/31/06, § 9108.07(6).)

17.32.130 Appeals.

Decisions made by the Director may be appealed by an applicant, property owner(s), or designee(s) of any applicable project to the planning commission and thereafter the city council by an application in writing to the planning and development director and city clerk of the city council respectively within fifteen days from the date of notification of decision. (Zoning Ord. dated 1/31/06, § 9108.07(7).)

Article IV.
Landscape Design Guidelines

17.32.140 Purpose.

The design guidelines which follow are a reference to assist the designer in understanding the City's objectives for high quality landscaping. These guide-

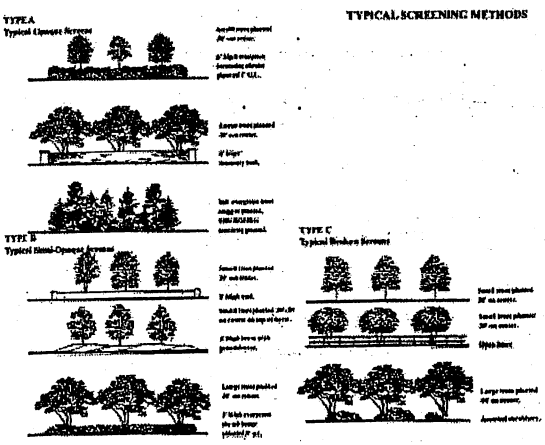
lines will be utilized during the design review process to encourage the highest level of design quality while at the same time providing the necessary flexibility to encourage creativity on the part of the project designers. (Zoning Ord. dated 1/31/06, § 9108.09(1).)

17.32.150 Applicability.

Any addition, remodelling, relocation or construction requiring a building permit subject to review by the Community Development Department, shall adhere to these guidelines unless exempted. (Zoning Ord. dated 1/31/06, § 9108.09(2).)

17.32.160 General guidelines.

A. Landscaping and open spaces should be designed as a central part of the site design, and should integrate development with the surrounding elements of the natural environment. Landscaping should enhance building design, public views and spaces, provide buffers and transitions, preserve and enhance wildlife habitat, provide shade and cooling, and provide screening from other nearby uses.



B. Landscape design should highlight the design theme through the use of arbors and trellises.

C. Landscaped areas should incorporate grasses and groundcovers; shrubs; and trees.

D. The following planting design concepts should be used whenever possible:

1. Trees to create canopies and shade, especially in parking areas;

2. Pots, vases, wall planters and raised planters;

3. Specimen trees used in informal groupings and rows at major focal points;

4. The use of flowering trees in informal groups to provide color;

5. The use of distinctive plants as focal points;

6. Berms, plantings and low walls to screen parking areas from public rights of way.

E. Landscaping should be installed at the base of buildings. Asphalt edges should be avoided.

F. Plantings should be planned to create a simple, non-uniform arrangement. (Zoning Ord. dated 1/31/06, § 9108.09(3).)

17.32.170 Installation and maintenance.

A. Trees, shrubs and vines should have body and fullness that is typical of the species.

B. Herbaceous and flat plant groundcovers should be planted no more than 12 inches on center, and woody, shrub groundcover should be planted no more than 3 feet on center.

C. Plant materials should be spaced so they do not interfere with lighting, and so they do not restrict access to fire hydrants or fire alarm boxes. Proper spacing should insure unobstructed access for vehicles and pedestrians. The following spacing standards should be used:



Use a variety of techniques to buffer non-residential uses.

1. 25 feet from the property corner at a street intersection to the center of the first tree or large shrub.

2. 15 feet between trees and large shrubs.

3. 15 feet between trees or large shrubs and fire hydrants.

4. 10 feet between trees or large shrubs and the edge of any driveway. (Zoning Ord. dated 1/31/06, § 9108.09(4).)

Chapter 13.16

WATER CONSERVATION

Sections:

13.16.010 Urban water management/conservation plan.

13.16.020 Restricting water use during water supply emergencies.

13.16.030 Water conservation using xeriscape principles.

13.16.010 Urban water management/conservation plan.

The City of Banning adopts the urban water management/conservation plan, a copy of which is on file in the office of the city clerk. (Code 1965, § 31-6.)

13.16.020 Restricting water use during water supply emergencies.

A. Definitions. As used in this section:

"Agency" means City of Banning.

"Council" means city council of the city.

"Emergency supply shortage" means any water shortage caused by an earthquake, loss of electrical power, pipe line breakage, or any other threatened or existing water shortage caused by a disaster or facility failure which results in city inability to meet the water demands of its customers.

"Water operations superintendent" means the water services supervisor of the city.

"Waste" means any unreasonable or nonbeneficial use of water, or any unreasonable method of use of water, as determined by the council, including, but not limited to, the specific uses prohibited and restricted by this section as hereinafter set forth.

"Water users" means any person, firm, partnership, association, corporation or political entity using water obtained from the water system of the city.

"Water" means water supplied by the city.

B. Noticed public hearing prior to mandatory conservation. Except when an emergency is caused by the breakage or failure of a dam, pump, pipeline or conduit, a noticed public hearing shall be held prior to the adoption of stages 2, 3 or 4 of the water supply plan for emergency supply shortage as set forth in subsections (C)(2), (C)(3) and (C)(4) of this section. Notice of the time and place of hearing shall be published at least seven days prior to the date of hearing in a newspaper printed, published, and circulated within the area in which the water supply is distributed, or if there is no such newspaper, in any newspaper printed, published, and circulated in the county in which the area is located.

C. Water supply plan for emergency supply shortage.

1. Stage No.1. Normal conditions: voluntary conservation measures. Normal conditions shall be in effect when the city is able to meet all the water demands of its customers in the immediate future. During normal conditions, all water users should continue to use water wisely, to prevent the waste or unreasonable use of water, and to reduce water consumption to that necessary for ordinary domestic and commercial purposes.

2. Stage No. 2. Water shortage alert: mandatory conservation measures. In the event of a sudden and unexpected water supply shortage which could prevent the city from meeting the water demands of its customers, the council shall immediately hold a public hearing at which consumers of the water supply shall have the opportunity to protest and to present their respective needs to the council. No public hearing shall be required in the event of a breakage or failure of a dam, pump, pipeline or conduit causing an immediate emergency. The council may then declare a water shortage emergency condition to prevail, and the following rules and regulations shall be in effect immediately following such declaration.

a. Washing driveways, parking lots, or other hard surfaced area, or building exteriors at any time, except to alleviate immediate fire hazards is prohibited;

b. Parks, golf courses and school grounds are to be irrigated during nighttime hours only, between sunset and sunrise;

c. Lawn watering and landscape irrigating, including construction meter use, is prohibited between the hours of 10:00 A.M. to 5:00 P.M.;

d. Running water shall not be used for washing privately owned vehicles. A bucket may be used for the washing of vehicles and only hoses equipped with shut-off nozzles may be used for rinsing;

e. Restaurants are requested not to provide drinking water to patrons except by request;

f. Commercial nurseries shall use water only during the hours from midnight to 6:00 A.M. Irrigation of propagation beds and watering of livestock is permitted as necessary during any hours.

g. Golf courses using reclaimed water are exempted from these restrictions.

3. Stage No. 3. Water shortage warning. The council may, following a public hearing as set forth in subsection B of this section, declare that an emergency water supply shortage exists, and that the agency is unable to meet all the water demands of its customers. Immediately thereafter, the following water conservation measures shall apply:

a. Parks and schools shall be watered on alternate days during the hours between sunset to sunrise, the schedule of which shall be set following the public hearing;

b. Golf courses which utilize domestic water from the city's domestic system may irrigate greens only during the hours between sunset to sunrise. Golf courses utilizing reclaimed water are exempted from this restriction;

c. Other lawn watering and landscape irrigating, including construction meter use, are restricted as follows: customers with even-numbered street addresses may water only on even-numbered days, customers with odd- numbered street addresses may water only on odd-numbered days, and no watering or irrigating shall be done between the hours of 10:00 A.M. and 5:00 P.M. on any day;

d. Washing down of driveways, parking lots, or other paved surfaces is prohibited;

e. Washing of vehicles is restricted to commercial car wash establishments which recycle their water;

f. Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains and artificial lakes is prohibited;

g. Restaurants shall not serve drinking water to patrons except by request;

h. No new construction meter permits shall be issued by the agency;

i. Construction metered water shall not be used for earth work or road construction purposes;

j. Water of livestock is permitted as necessary during any hours;

k. Commercial nurseries may use water only between the hours of midnight and 6:00 A.M. Irrigation of propagation beds is permitted as necessary during any hours. Commercial nurseries utilizing reclaimed water are exempted from this restriction.

4. Stage No. 4. Mandatory compliance. Water shortage emergency.

Following a declaration by the city council that an emergency water supply shortage due to a major failure in a supply of distribution facility exists, the following water conservation measures shall apply:

a. Watering of parks, school grounds and golf courses is prohibited, except by reclaimed water;

b. Watering of lawn and irrigating of landscape is prohibited;

c. Washing down of driveways, parking lots, or other paved surfaces is prohibited;

d. Washing of vehicles is prohibited, except when done by commercial car wash establishments using recycled or reclaimed water;

e. Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains and artificial lakes is prohibited;

f. No serving of drinking water by restaurants to patrons except by request;

g. No issuing of new construction meter permits by the city;

h. Turning off and locking all existing construction meters;

i. Discontinuing all watering and irrigating of commercial nurseries. Those utilizing reclaimed water are exempted from this restriction. Watering of livestock is permitted as necessary.

D. Council discretion to modify conservation measures upon a showing of necessity therefor. The specific requirements of each mandatory conservation stage shall be effective upon adoption by the

council following a public hearing, except that the council may modify or amend such requirements at the time of adoption upon a showing of the need for such modification or amendment.

E. Implementation and termination of mandatory compliance stages. The water operations superintendent of the city shall monitor the supply and demand for water on a daily basis to determine the level of conservation required by the implementation or termination of the water conservation stages, and shall notify the council of the necessity for the implementation or termination of each stage. Each declaration of the council implementing or terminating a water conservation stage shall be published at least once in a newspaper of general circulation, and shall remain in effect until the city council otherwise declares, as provided herein.

F. Exceptions. Application for exception permit. The water operations superintendent of the city may grant permits for uses of water otherwise prohibited thereby if he/she finds and determines that special circumstances make compliance not reasonably possible, or that restrictions herein would either:

1. Cause an unnecessary and undue hardship to the water user or the public; or

2. Cause an emergency condition affecting the health, sanitation, fire protection or safety of the water user or of the public.

Such exceptions may be granted only upon application therefor. Upon granting any such exception permit, the water operations superintendent may impose any conditions he/she determines to be just and proper.

G. Criminal proceedings for violation. The city council hereby declares that, pursuant to Water Code Section 377, it shall be a misdemeanor for any person to use or apply water contrary to or in violation of any mandatory restriction or requirement established by this section and, upon conviction thereof, that person, firm or corporation shall be punished by imprisonment in the county jail for not more than thirty days or a fine of not more than one thousand dollars or by both such fine and imprisonment.

H. Civil proceedings for violation. In addition to criminal penalties, violators of the mandatory provisions of this section shall be subject to civil action initiated by the city.

1. First violation. For a first violation, the city shall issue a written notice of violation to the water user violating the provisions of this chapter.

2. Second violation: twenty-five percent surcharge. For a second violation of this section within a twelve-month period, a one-month surcharge is hereby imposed in an amount equal to twenty-five percent of the previous month's water bill for the meter through which the wasted water was supplied.

3. Third violation: fifty percent surcharge; installation of flow restrictor. For a third violation of this section within a twelve-month period, a one-month penalty surcharge is hereby imposed in an amount equal to fifty percent of the previous month's water bill for the meter through which the wasted water was supplied. In addition to the surcharge, the agency may at its discretion install a flow-restricting device at such meter with a one-eighth-inch orifice for services up to one and one-half inch size, and comparatively sized restrictors for larger services, on the service of the customer at the premises at which the violation occurred, for a period of not less than forty-eight hours. The charge for installing a flow-restricting device shall be based upon the size of the meter and the cost of installation but shall not be less than twenty-five dollars. The charge for removal of the flow-restricting device and restoration of normal service shall be twenty-five dollars if restoration of normal service is performed during the hours of 7:00 A.M. to 3:30 P.M. on regular working days. If the removal of the flow-restricting device and restoration of normal service is made after regular working hours, on holidays or weekends, the restoration service charge shall be forty dollars.

4. Subsequent violations; discontinuance of service. For any subsequent violation of this section within the twenty-four calendar months after a first violation as provided in subsection (H)(1) of this section, the penalty surcharge provided in subsection (H)(3) of this section shall be imposed and the city shall discontinue water service to that customer at the premises or to the meter where the violation occurred. The charge for reconnection and restoration

of normal service shall be twenty-five dollars. Such restoration of service shall not be made until the water operations superintendent of the city has determined that the water user has provided reasonable assurances that future violations of this section by such user will not occur.

I. Notice.

1. For a first violation, written notice may be given to the customer personally or by certified mail.

2. If the penalty assessed is a surcharge for a second or third violation, notice may be given by certified mail.

3. If the penalty assessed is, or includes, the installation of a flow restrictor or the discontinuance of water service to the customer for any period of time whatever, notice of the violation shall be given in the following manner:

a. By giving written notice thereof by certified mail or to the customer personally; or

b. If he/she is absent from his/her place of residence and from his/her assumed place of business, by leaving a copy with some person of suitable age and discretion at either place, and sending a copy through the United States mail, certified, addressed to the customer at either his/her place of business or residence; or

c. If such place of residence and business cannot be ascertained, or a person of suitable age or discretion cannot be found, then by affixing a copy in a conspicuous place on the property where the failure to comply is occurring and also by delivering a copy to a person residing, if such person can be found, and also sending a copy through the United States mail, certified, addressed to the customer at the place where the property is situated.

4. Any notice provided hereunder shall contain, in addition to the facts of the violation, a statement of the possible penalties for each violation and a statement of the possible penalties for each violation and a statement informing the customer of his right to a hearing on the violation.

J. Hearing. Any customer against whom a penalty is levied pursuant to subsections G and H of this section shall have a right to a hearing, in the first instance by the water operations superintendent, with the right of appeal to the city council, on the merits of the alleged violation upon the written request of that customer within fifteen days of the date of infraction of the violation.

K. Reservation of rights. The rights of the city hereunder shall be cumulative to any other right of the city to discontinue service. All moneys collected by the department pursuant to any of the penalty provisions of this chapter shall be deposited in the operating fund as reimbursement for the city's costs and expenses of administering and enforcing this section.

L. Concurrent authority. The city manager, its water operations superintendent and designated employees, have the duty and are hereby authorized to enforce all provisions of this section, with the qualification that the city through enforcement of this section, the county as to unincorporated territory within the city, are recognized to have concurrent authority for, and shall have the primary responsibility for the control of water flowing in the streets where such occurs within their respective jurisdictions. (Code 1965, § 31-7.)

13.16.030 Water conservation using xeriscape principles.

A. Intent. Water is an increasingly limited and costly resource. It is the intent of this section to establish a water conservation plan to reduce water consumption in the landscape environment using xeriscape principles.

B. Definitions.

"Low water-using drought tolerant plant" includes species suited to our climate, requiring less water in order to grow well.

"Xeriscape" shall mean a combination of landscape features and techniques that in the aggregate reduce the demand for and consumption of water, including appropriate low water using plants, nonliving ground-cover, a low percentage of turf coverage, permeable paving and water conserving irrigation techniques and systems.

C. Applicability. The provisions of this section shall apply to all developments within the city including, but not limited to, the following:

1. All new residential developments (including townhomes and apartment projects) on parcels greater than seven thousand square feet;

2. Rehabilitated landscaping (for projects on parcels greater than ten thousand square feet) for industrial, commercial, institutional, multifamily and residential common areas of PUDs (Planned Unit Developments);

3. Interior remodels, tenant improvements and demolitions for any of the above projects;

4. Schools, parks, golf courses or similar public open spaces;

5. Water conservation landscape requirements shall apply to all new developments. New development applications shall include landscape plans which require final approval at the time of final project approval.

D. Exceptions. The provisions of this section shall not apply to those projects which have been approved or accepted as complete for processing prior to the effective date of the ordinance codified in this section; provided no material amendments or extensions are made to such previously approved projects. These provisions shall also not apply to the following:

1. Homeowner-provided landscaping at single-family and multifamily projects;

2. Cemeteries;

3. Registered historical sites;

4. Ecological restoration projects that do not require a permanent irrigation system;

5. Mined-land reclamation projects that do not require a permanent irrigation system.

E. Requirements.

1. Turf limitation. The maximum allowed turf and/or water area (expressed as percent of planted area) shall be twenty-five percent for industrial, commercial, residential developments with common area, institutions and public/semi-public developments. If turf is an essential part of development, such as playing fields for schools or public parks, a higher percentage will be allowed, and will be evaluated on an individual basis. No turf shall be allowed in median strips or in areas less than eight feet wide.

If a residential development has one or more model homes, it is required that at least one model home in the development be planted with drought tolerant plants and a maximum of twenty-five percent turf and/or water area. Additionally, developers shall provide buyers with sample landscape plans using low water-using plants and a maximum twenty-five percent turf area. The developer shall also provide information about outdoor water conservation by distributing pamphlets to buyers regarding this subject. Such pamphlets are available from local water districts and the state department of water resources. The county community development department will have samples of appropriate types of pamphlets available. Landscape and distribution of literature shall require approval by the community development department.

2. Types of plants in non-turf areas. At least ninety percent of the plants in non-turf areas shall be low water-requiring, drought-resistant plants as approved by the community development department. A small percentage of the planted area (up to ten percent) can be used for nondrought tolerant varieties if they are grouped together and can be irrigated separately.

3. Use of mulch. A minimum of two inches of mulch shall be added to the soil surface after planting. Nonporous material shall not be placed under the mulch.

4. Irrigation.

a. Sprinklers and sprays shall not be used in areas less than eight feet wide. Drip and bubbler shall be used that do not exceed one and one-half gallons per minute per device.

b. Sprinkler heads with a precipitation rate of .85" per hour or less shall be used in slopes exceeding fifteen percent to minimize runoff, or exceeding ten percent within ten feet of hardscape.

c. Valves and circuits shall be separated based on water use.

d. Drip or bubbler irrigation systems are required for trees with the exception of those which can be sustained by ground or rain water.

e. Sprinkler heads must have matched precipitation rates within each control valve circuit.

f. Serviceable check valves are required where elevation differential may cause low head drainage.

g. Sprinkler head spacing shall be designed for head-to-head coverage. The system should be designed for minimum runoff and overspray onto nonirrigated areas.

h. All irrigation systems shall be equipped with a controller capable of dual or multiple programming. Controllers must have multiple cycle start capacity and a flexible calendar program.

5. Ornamental ponds. Water bodies that are part of the landscaping for new developments shall be restricted. Unless the water body is an integral part of the operations of the new development, the surface area of the water body shall be counted as turf in the calculations for limitation of turf for the landscaped area. Fountains or other types of decorative bodies where water is sprayed into the air shall be discouraged. Some allowance will be made for fountains for ponds where reclaimed irrigation is used and the water supply is recirculated.

6. Landscape plans. Landscape plans shall indicate the total landscape area, the area and percentage of drought-resistant plantings and the area and percentage of ornamental nondrought resistant plantings. The plans shall be reviewed by community development director or his designee to check for compliance with this section in regards to plant varieties, planting areas and irrigation design. Commercial, multiple dwellings, country clubs and condominiums shall be required to submit additional landscape plans which include a water budget that incorporates estimated annual water use (in gallons) and the area (in square feet) to be irrigated. Precipitation rates for each valve circuit and a monthly irrigation schedule for the plant establishment period including the year following shall be supplied as well. (Code 1965, § 31-8.)

Chapter 13.24

STORMWATER MANAGEMENT SYSTEM

Sections:

13.24.010 Title.
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13.24.010 Title.

The ordinance codified in this chapter shall be known as the City of Banning stormwater management and discharge control ordinance and may be so cited. (Code 1965, § 34-1.)

13.24.020 Purpose and intent.

The purpose of this chapter is to ensure the future health, safety, and general welfare of the citizens by:

A. Regulating nonstormwater discharges to the municipal separate storm drain; and

B. Controlling the discharge to municipal separate storm drains from spills, dumping or disposal of materials other than stormwater; and

C. Reducing pollutants in stormwater discharges to the maximum extent practicable.

The intent of this chapter is to protect and enhance the water quality of city watercourses, water bodies, groundwater, and wetlands in a manner pursuant to and consistent with the Clean Water Act. (Code 1965, § 34-2.)

13.24.030 Definitions.

The terms as used in this chapter shall have the following meanings:

A. Best Management Practice (BMP). "BMPs" means schedules of activities, prohibitions of practices, general good housekeeping practices, maintenance procedures, educational programs, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to waters of the United States. BMPs shall include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw materials storage. The California Stormwater Best Management Practice Handbooks for Municipal, Industrial/Commercial and Construction Activity provide a detailed discussion of BMPs.

B. "Director" means the director of the public works department, City of Banning.

C. "Enforcement officer" includes the director of public works, building official, code enforcement officer, city manager and their designees.

D. "Illicit connection" means any physical connection to a storm drain system which has not been permitted by the City of Banning, the Riverside County Flood Control and Water Conservation District, or other appropriate public agency.

E. "Illicit discharge" means any discharge to the storm drain system that is not composed entirely of stormwater runoff except discharges made pursuant to a National Pollutant Discharge Elimination System (NPDES) permit or as otherwise authorized by the Santa Ana or Colorado River Basin Regional Water Quality Control Board.

F. "Municipal NPDES permit" means an area-wide NPDES permit issued to a government agency or agencies for the discharge of stormwater from a stormwater system.

G. "National Pollutant Discharge Elimination System (NPDES) permit" means a stormwater discharge permit issued by the Santa Ana or Colorado River Basin Regional Water Quality Control Board in compliance with the federal Clean Water Act.

H. "Nonstormwater discharge" means any discharge to the storm drain system that is not entirely composed of stormwater.

I. "Person" means any natural person, firm, association, club, organization, corporation, partnership, business trust, company or other entity which is recognized by law as the subject of rights or duties.

J. "Pollutant" means anything which causes the deterioration of water quality such that it impairs subsequent and/or competing uses of the water. Pollutants may include but are not limited to paints, oil and other automotive fluids, soil, rubbish, trash, garbage, debris, refuse, waste, fecal coliform, fecal streptococcus, enterococcus, heavy metals, hazardous waste, chemicals, fresh concrete, yard waste from commercial landscaping operations, animal waste, materials that result from the process of constructing a building or structure, nauseous or offensive matter of any kind.

K. "Premises" means any building, lot, parcel of land, or portion of land whether improved or unimproved.

L. "Storm drain system" means any facility by which storm water may be conveyed to waters of the United States. The storm drain system includes but is not limited to any roads with drainage systems, streets, curbs, gutters, catch basins, natural and artificial channels, ditches, aqueducts, storm drains, inlets, conduit or other drainage structures.

M. "Stormwater runoff" means surface runoff and drainage associated with rainstorm events and snow melt. (Code 1965, § 34-3.)

13.24.040 Responsibility for administration.

This chapter shall be administered for the city by the director of public works. (Code 1965, § 34-4.)

13.24.050 Regulatory consistency.

This chapter shall be construed to assure consistency with the requirements of the federal Clean Water Act and acts amendatory thereof or supplementary thereto, applicable implementing regulations, and any existing or future municipal NPDES permits and any amendments, revisions or reissuance thereof. (Code 1965, § 34-5.)

13.24.060 Discharge of pollutants.

A nonstormwater discharge to the storm drain system is a violation of this chapter.

A. The prohibition of discharges shall not apply to any discharge regulated under a NPDES permit or waiver issued to the discharger and administered by the state of California under the authority of the EPA, provided that the discharger is in full compliance with all requirements of the permit or waiver and other applicable laws or regulations.

B. Discharges from the following activities will not be considered a source of pollutants to waters of the United States when properly managed: water line flushing and other discharges from potable water sources, landscape irrigation and lawn watering, irrigation water, diverted stream flows, rising groundwaters, infiltration to separate storm drains, uncontaminated pumped ground water, foundation and footing drains, water from crawl space pumps, air conditioning condensation, springs, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges or flows from fire fighting. (Code 1965, § 34-7.)

13.24.070 Discharge in violation of permit.

A. Any discharge that results in or contributes to a violation of an existing or future municipal NPDES permit(s) and any amendment, revision or reissuance thereof, either separately considered or when combined with other discharges, is a violation of this chapter and is prohibited.

B. Liability for any such discharge shall be the responsibility of the person(s) causing or responsible for the discharge, and such persons shall defend, indemnify and hold harmless the city in any administrative or judicial enforcement action relating to such discharge.

C. A copy of the current municipal NPDES permit will be filed in the city engineer's office. (Code 1965, § 34-8.)

13.24.080 Illicit connections.

It is a violation of this chapter to establish, use, maintain, or continue an illicit connection to the city storm drain system, or to commence or continue any illicit discharge to the city storm drain system. The prohibition against illicit connections is expressly retroactive and applies to connections made in the past, regardless of whether permissible under the law or practices applicable or prevailing at the time of the connection. (Code 1965, § 34-9.)

13.24.090 Reduction of pollutants in stormwater.

A. It is a violation of this chapter to throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, placed, left or maintained, any pollutant, including but not limited to refuse, rubbish, garbage, abandoned vehicles or other discarded or abandoned objects, articles, and accumulation, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin, conduit or other drainage structures, business place, or upon any public or private plot of land in the city.

B. It is an exception to the above that such pollutant is being temporarily placed in an appropriate container with a spill containment system for later collection and removal.

C. It is a violation of this chapter to cause or permit any Dumpster, solid waste bin, or similar container to leak such that any pollutant is discharged into any street, alley, sidewalk, storm drain, inlet, catch basin, conduit or other drainage structures, business place, or upon any public or private plot of land in the city. (Code 1965, § 34-10.)

13.24.100 Outdoor storage areas—Commercial and industrial facilities.

A. It is a violation of this chapter for any person to improperly store grease, oil or other hazardous substances in outdoor areas. In outdoor areas, no person shall improperly store motor vehicles, machine parts, or other objects in a manner that may leak grease, oil, or other hazardous substances.

B. To prevent the discharge of hazardous substances from the property, the city may require the installation of a spill containment system. Spill containment systems may consist of a system of dikes, walls, barriers, berms, or other devices as required.

C. It is a violation of this chapter for any person to operate a spill containment system such that it allows incompatible liquids to mix and thereby create a hazardous condition. (Code 1965, § 34-11.)

13.24.110 Construction sites.

Any person performing construction work in city shall comply with the provisions of this chapter, and the Uniform Building Code, latest edition, for erosion and sediment control. (Code 1965, § 34-12.)

13.24.120 New development and redevelopment.

A. Any new development or redevelopment project shall control the volume and rate of stormwater runoff from the project so as to prevent any deterioration of water quality which would impair the subsequent or competing uses of the water. The director of the public works department shall establish standards and guidelines implementing BMPs designed to control the rate and volume of stormwater runoff from new developments and redevelopments as may be

appropriate to minimize the discharge and transport of pollutants.

B. Acceptable methods and standards for controlling stormwater runoff volumes, rates, and pollutant load may include but are not limited to the following:

1. Increase Permeable Areas. Avoid placing impervious surfaces in highly porous soil areas; incorporate landscaping and open space into the project design; use porous materials for or near driveways and walkways; incorporate detention ponds and infiltration pits into the project's design; avoid placing pavement and other impervious surfaces in low lying areas.

2. Direct Runoff to Permeable Areas. Direct stormwater runoff away from impermeable areas to swales, berms, green strip filters, gravel beds, and french drains. Install raingutters and orient them toward permeable areas. Modify the grade of the property to divert flow to permeable areas and minimize the amount of stormwater runoff leaving the property. When designing curbs, berms or other structures, avoid designs which isolate permeable or landscaped areas.

3. Maximize Stormwater Storage for Reuse. Use retention structures, subsurface areas, cisterns, or other structures to store stormwater runoff for reuse or slow release. (Code 1965, § 34-13.)

13.24.130 Compliance with general permits.

A. Any industrial discharger, discharger associated with construction activity, or other discharger subject to any NPDES permit issued by the United States Environmental Protection Agency, the State Water Resources Control Board, the Santa Ana Regional Water Quality Control Board or the Colorado River Basin Regional Water Quality Control Board, shall comply with all requirements of such permit.

B. Proof of compliance with said NPDES general permits may be required in a form acceptable to the director prior to issuance of any city grading, building, or occupancy permits. (Code 1965, § 34-14.)

13.24.140 Compliance with BMPs.

Where BMP guidelines or requirements have been adopted by any federal, state of California, regional, and/or local agency, for any activity, operation, or facility which may cause or contribute to stormwater pollution or contamination, illicit discharges, and/or discharge of nonstormwater to the stormwater system, every person undertaking such activity or operation, or owning or operating such facility shall comply with guidelines or requirements as may be identified by the director. (Code 1965, § 34-15.)

13.24.150 Authority to inspect.

A. Whenever necessary to make an inspection to enforce any of the provisions of this chapter or whenever an authorized enforcement officer has reasonable cause to believe that there exists in any building or upon any premises any condition which constitutes a violation of the provisions of this chapter, the enforcement officer may enter such building or premises at all reasonable times to inspect the same or perform any duty imposed upon the enforcement officer by this chapter.

B. Entry hereunder shall be subject to the following:

1. If such building or premises be occupied, he or she shall first present proper credentials and request entry; and

2. If such building or premises be unoccupied, he or she shall first make a reasonable effort to locate the owner or other persons having charge or control of the building or obtain a warrant to enter.

C. Any request for entry made hereunder shall state that the property owner or occupant has the right to refuse entry and that in the event such entry is refused, inspection may be made only upon issuance of a search warrant by a duly authorized magistrate. In the event the owner and/or occupant refuses entry after such request has been made, the official is empowered to seek assistance from any court of competent jurisdiction in obtaining such entry.

D. Routine or area inspections shall be based upon such reasonable selection processes as may be deemed necessary to carry out the objectives of this chapter, including but not limited to random sam-

pling and/or sampling in areas with evidence of stormwater contamination, illicit discharges, discharge of non-stormwater to the stormwater system, or similar factors. (Code 1965, § 34-16.)

13.24.160 Authority to sample and establish sampling devices.

With the consent of the owner or occupant or pursuant to a search warrant, any authorized enforcement officer may establish on any property such devices as are necessary to conduct sampling or metering operations. During all inspections as provided herein, the enforcement officer may take any samples deemed necessary to aid in the pursuit of the inquiry or in the recordation of the activities on-site. (Code 1965, § 34-17.)

13.24.170 Notification of spills.

A. All persons in charge of a facility or responsible for emergency response for a facility are personally responsible to train facility personnel and maintain notification procedures to assure that immediate notification is provided to the city of any suspected, confirmed or unconfirmed release of material, pollutants or waste creating a risk of discharge into the city storm drain system.

B. As soon as any person in charge of a facility or responsible for emergency response for a facility has the knowledge described in subsection A of this section, such person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release, and shall notify the city of the occurrence by telephoning and confirming the notification by correspondence to the director of the public works department and fire department. (Code 1965, § 34-18.)

13.24.180 Requirement to test or monitor.

A. Any authorized enforcement officer may request that any person engaged in any activity and/or owning or operating any facility which may cause or contribute to stormwater pollution or contamination, illicit discharges, and/or discharge of nonstormwater to the stormwater system, undertake such monitoring activities and/or analyses and furnish such reports as the enforcement officer may specify. The burden, including costs, of these activities, analyses and reports shall bear a reasonable relationship to the need for the monitoring, analyses and reports and the benefits to be obtained. The recipient of such request shall undertake and provide the monitoring, analyses and/or reports requested.

B. In the event the owner or operator of a facility subject to a monitoring and/or analyses order fails to conduct required monitoring and/or analyses and furnish the required reports in the form required, the authorized enforcement officer may cause such monitoring and/or analyses to be performed.

1. The cost therefor, including the reasonable additional administrative costs incurred by the city, shall be the responsibility of the owner of the property.

2. The cost thereof shall be invoiced to the owner of the property.

3. If the invoice is not paid within sixty days of the issuance thereof, the costs shall be a lien upon and against the property and continue in existence until the same shall be paid.

4. If the lien is not satisfied by the owner of the property within three months after the completion by an authorized enforcement officer of the required monitoring and/or analyses and reports, the property may be sold in satisfaction thereof in a like manner as other real property is sold under execution. (Code 1965, § 34-19.)

13.24.190 Violations constituting misdemeanors.

A. Unless otherwise specified by ordinance, the violation of any provision of this chapter, or failure to comply with any of the mandatory requirements of this chapter shall constitute a misdemeanor.

B. Notwithstanding any other provisions of this chapter, any such violation constituting a misdemeanor under this chapter, at the discretion of the authorized enforcement officer may be charged and prosecuted as an infraction. (Code 1965, § 34-20.)

13.24.200 Penalties.

A. It shall be unlawful for any person to violate any provision of this chapter.

1. Any person violating any provision of this chapter shall be deemed guilty of an infraction or misdemeanor as hereinafter specified.

2. Such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this chapter is committed, continued, or permitted.

B. Any person so convicted shall be:

1. Guilty of an infraction offense and punished by a fine not exceeding one hundred dollars for a first violation;

2. Guilty of an infraction offense and punished by a fine not exceeding two hundred dollars for a second violation;

3. The third and any additional violations shall constitute a misdemeanor offense and shall be punishable by a fine not exceeding one thousand dollars or six months in jail, or both.

C. Notwithstanding the above, a first offense may be charged and prosecuted as a misdemeanor.

D. Payment of any penalty herein shall not relieve a person from the responsibility for correcting the violation. (Code 1965, § 34-21.)

13.24.210 Concealment.

Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of such provision. (Code 1965, § 34-22.)

13.24.220 Violations deemed a public nuisance.

A. In addition to the penalties hereinbefore provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to the public health, safety and welfare, and may be declared and deemed a nuisance, and may be summarily abated and/or restored by any authorized enforcement officer, and/or civil action to abate, enjoin or otherwise compel the cessation of such nuisance may be taken as authorized by this Code.

B. If any violation of this chapter constitutes a seasonal and recurrent nuisance, the director shall so declare. Thereafter such seasonal and recurrent nuisance shall be abated every year without the necessity of any further hearing.

C. In any administrative or civil proceeding under this chapter in which the city prevails, the city shall be awarded all costs of investigation, administrative overhead, out-of-pocket expenses, costs of administrative hearing, costs of suit and reasonable attorney's fees. (Code 1965, § 34-23.)

13.24.230 Judicial review.

The provisions of Section 1094.6 of the California Code of Civil Procedure are applicable to judicial review of city decisions pursuant to this chapter. (Code 1965, § 34-24.)

13.24.240 Civil actions.

In addition to any other remedies provided herein, this chapter may be enforced by civil action brought by the city. In any such action, the city shall grant, as appropriate, any or all of the following remedies:

A. A temporary and/or permanent injunction;

B. Assessment of the violator for the costs of any investigation, inspection, or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this section;

C. Costs incurred in removing, correcting, or terminating the adverse effects resulting from the violation;

D. Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life. Assessments under this section shall be paid to the city to be used exclusively for costs associated with monitoring and establishing stormwater discharge pollution control systems and/or implementing or enforcing the provisions of this chapter. (Code 1965, § 34-25.)

13.24.250 Cease and desist orders.

When an authorized enforcement officer finds that a discharge has taken place or is likely to take place in violation of this chapter, the officer may issue an

order to cease and desist such discharge, or practice, or operation likely to cause such discharge and direct that those persons not complying shall:

A. Comply with the requirement;

B. Comply with a time schedule for compliance; and/or

C. Take appropriate remedial or preventive action to prevent the violation from recurring. (Code 1965, § 34-26.)

13.24.260 Notice to clean.

A. Whenever an authorized enforcement officer finds any oil, earth, dirt, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or any other material of any kind, in or upon the sidewalk abutting or adjoining any parcel of land, or upon any parcel of land or grounds, which may result in an increase in pollutants entering a city storm sewer system or natural watercourse, or a nonstorm sewer system or natural watercourse, or a nonstorm water discharge to a city storm sewer system or natural watercourse, he or she may give notice to remove such oil, earth, dirt, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or other material, in any manner that he or she may reasonably provide. The recipient of such notice shall undertake the activities as described in the notice.

B. In the event the owner or operator of a facility fails to conduct the activities as described in the notice, the authorized enforcement officer may cause such required activities as described in the notice, and the cost thereof shall be invoiced to the owner of the property.

1. If the invoice is not paid within sixty days, a lien shall be placed upon and against the property.

2. If the lien is not satisfied by the owner of the property within three months after the completion of the required activities by the authorized enforcement officer the property may be sold in a satisfaction thereof in a like manner as other real property is sold under execution. (Code 1965, § 34-27.)

13.24.270 Nonexclusivity of remedies.

Remedies under this chapter are in addition to and do not supersede or limit any and all other remedies, civil or criminal. The remedies provided for herein shall be cumulative and not exclusive. (Code 1965, § 34-28.)

13.24.280 Appeal.

Any person, firm, corporation or organization required to perform monitoring, analyses, reporting and/or corrective activities by an authorized enforcement officer who is aggrieved by the decision of the authorized enforcement officer may appeal such decision to the director within ten days following the effective date of the decision by writing to the director. Upon receipt of such request, the director shall request a report and recommendation from the authorized enforcement officer and shall set the matter for hearing at the earliest practical date. At said hearing, the director may hear additional evidence, and may reject, affirm or modify the authorized enforcement officer's decision. Such decision shall be final unless appealed by the city council under the general appeal procedures of the city. (Code 1965, § 34-29.)

ORDINANCE NO. 1415

AN ORDINANCE OF THE CITY OF BANNING AMENDING THE CODE OF THE CITY OF BANNING, CALIFORNIA, 1965, TITLE 13, CHAPTER 13.24 NOW ENTITLED STORMWATER CODE

WHEREAS, the City of Banning (the "City") duly enacted on June 24, 1997 Ordinance 1212 which is entitled "An Ordinance Of The City Of Banning Adding Chapter 34 To The Banning Ordinance Code Establishing Storm Water Management And Discharge Controls"; and

WHEREAS, the City codified Chapter 34 of Ordinance 1212 in the Banning Municipal Code through Chapter 13.24 of Title 13, which shall be known as the "City of Banning Stormwater Management and Discharge Control Code" or, "Stormwater Code" for short; and

WHEREAS, the City seeks through this Ordinance to amend the Stormwater Code to ensure the future health, safety, and general welfare of the citizens, as well as compliance with existing and future National Pollutant Discharge Elimination System ("NPDES") Permits; and

WHEREAS, NPDES Permit Number CAS617002 (R7-2008-0001) is the existing NPDES Permit applicable to the City, a copy of which is attached hereto as Exhibit "A".

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BANNING DOES ORDAIN AS FOLLOWS:

Section 1. Section 13.24.010 (Title) of the Stormwater Code is hereby amended to read in its entirety as follows:

> "The ordinance codified in this chapter shall be known as the 'City of Banning Stormwater Management and Discharge Control Code', or the 'Stormwater Code' for short, and may be so cited."

Section 2. Section 13.24.030 (Definitions) of the Stormwater Code is hereby amended to read in its entirety as follows:

"The terms as used in this Chapter shall have the following meanings:

A. Best Management Practice (BMP). BMP or BMPs mean schedules of activities, prohibitions of practices, general good housekeeping practices, maintenance procedures, educational programs, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to waters of the United States. BMPs shall include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw materials storage. The California Stormwater Best Management Practice Handbooks for Municipal, Industrial/Commercial and Construction Activity provide a detailed discussion of BMPs.

B. Detention Basin refers to a basin type structure which permits large flows of stormwater to enter and remain, but limits and controls the outflow (i.e. discharge) by having a small opening at the lowest point of the structure.

C. Director means the Director of the Public Works Department of the City of Banning.

D. Enforcement Officer includes the City Manager, Public Works Director, City Engineer, Building and Safety Official, Code Enforcement Officer, and their designees.

E. Illicit Connection means any physical connection to a Storm Drain System which has not been permitted by the City of Banning, the Riverside County Flood Control and Water Conservation District, or other appropriate public agency.

F. Illegal Discharge means any discharge to the Storm Drain System that is not composed entirely of Stormwater Runoff except discharges made pursuant to a National Pollutant Discharge Elimination System (NPDES) permit or as otherwise authorized by the Santa Ana or Colorado River Basin Regional Water Quality Control Board.

G. Infiltration Basin refers to designs and/or practices for directing stormwater from a basin type of structure to the groundwater table through permeable soils.

H. Municipal NPDES Permit means an area-wide NPDES permit issued to a government agency or agencies for the discharge of stormwater from a stormwater system, and shall refer to NPDES Permit Number CAS617002 (R7-2008-0001) or its successor.

I. National Pollutant Discharge Elimination System (NPDES) Permit means a stormwater discharge permit issued by the Santa Ana or Colorado River Basin Regional Water Quality Control Board in compliance with the federal Clean Water Act.

J. Non-Stormwater Discharge means any discharge to the Storm Drain System that is not entirely composed of stormwater.

K. Person means any natural person, firm, association, club, organization, corporation, partnership, business trust, company or other entity which is recognized by law as the subject of rights or duties.

L. Pollutant means anything which causes the deterioration of water quality such that it impairs subsequent and/or competing uses of the water. Pollutants may include but are not limited to paints, oil and other automotive fluids, soil, rubbish, trash, garbage, debris, refuse, waste, fecal coliform, fecal streptococcus, enterococcus, heavy metals, hazardous

waste, chemicals, fresh concrete, yard waste from commercial landscaping operations, animal waste, materials that result from the process of constructing a building or structure, nauseous or offensive matter of any kind.

M. Premises means any building, lot, parcel of land, or portion of land whether improved or unimproved.

N. Retention Basin allows for relatively large flows of stormwater to enter in a basin type of structure during large storm events for which discharges are limited by outlet structures to a storm drain, the street, or other parts of the Storm Drain System. This type of basin notably has an outlet or discharge point so that stormwater does not accumulate in the basin for extended periods of time, when feasible, such that the stormwater permeates to a groundwater table.

O. Storm Drain System means any facility by which stormwater may be conveyed to waters of the United States. The Storm Drain System includes, but is not limited to, any roads with drainage systems, streets, curbs, gutters, catch basins, natural and artificial channels, ditches, aqueducts, storm drains, inlets, conduit or other drainage structures.

P. Stormwater Runoff means surface runoff and drainage associated with rainstorm events and snow melt."

Section 3. Section 13.24.070 (Discharge In Violation of Permit), subsection C., of the Stormwater Code is hereby amended to read in its entirety as follows:

"C. A copy of the current Municipal NPDES Permit will be filed in the City Clerk's Office."

Section 4. Section 13.24.080 (Illicit Connections) of the Stormwater Code is hereby amended to be entitled "Illicit Connections and Illegal Discharges" and to read in its entirety as follows:

"A. It is a violation of this Chapter to establish, use, maintain, or continue an Illicit Connection to the City's Storm Drain System, or to commence or continue any Illegal Discharge to the City's Storm Drain System. The prohibition against Illicit Connections is expressly retroactive and applies to past illicit connections when made.

B. Illegal Discharges include, without limitation, the following:
   1. Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
   2. Discharges resulting from the cleaning, repair, or maintenance of any type of equipment or machinery including motor vehicles, cement-related equipment, and port-a-potty service;

3. Discharges of wash water from mobile operations such as oily or greasy discharges from mobile automobile washing or similar mobile services, and/or discharges from steam cleaning, power washing, and carpet cleaning;

4. Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other Hazardous Materials as that term is defined by the federal Department of Transportation; and

5. Discharges of food-related wastes, including without limitation, grease, fish processing, and restaurant kitchen mat and trash bin wash water."

Section 5. Section 13.24.100 (Outdoor storage areas – Commercial and Industrial Facilities) of the Stormwater Code is hereby amended to read in its entirety as follows:

"A. It is a violation of this chapter for any person to improperly store grease, oil or other hazardous substances in outdoor areas such that any of these substances may leak or otherwise discharge from the container in which the substance is stored. In outdoor areas, no person shall improperly store motor vehicles, machine parts, or other objects in a manner that may leak grease, oil, or other hazardous substances.

B. To prevent the discharge of hazardous substances from the property, the City shall require the installation of a spill containment system. Spill containment systems may consist of a system of dikes, walls, barriers, berms, or other devices as required.

C. It is a violation of this Chapter for any person to operate a spill containment system such that it allows incompatible liquids to mix and thereby create a hazardous condition.

D. Any person or entity that owns or operates a commercial and/or industrial facility(s) shall comply with the provisions of this Chapter. All such facilities shall be subject to inspection as required by this Chapter, California Water Code §§ 13000 *et seq.* (Porter-Cologne Water Quality Control Act), Title 33 U.S.C. §§ 1251 *et seq.* (Clean Water Act), any applicable State or federal regulations promulgated thereto, and any related administrative orders or permits issued in connection therewith."

Section 6. Section 13.24.110 (Construction Sites) of the Stormwater Code is hereby amended to be entitled "Construction Sites and Onsite Storage and Infiltration of Stormwater" and to read in its entirety as follows:

"Any person performing construction work in the City shall comply with the provisions of this Chapter and the Uniform Building Code, latest edition, for erosion and sediment control, as well as City of Banning Ordinance 1388 which is incorporated by reference hereto. In addition, except as waived by or agreed to by the Director or the Director's designee consistent with NPDES permit provisions

and requirements, development of all land within the City must include provisions for the management of Stormwater Runoff from the property which is to be developed, including volumetric or flow based treatment control BMP design criteria, and/or exceptions to these requirements, and methodologies used to ensure proper management of Stormwater Runoff post-construction. This management shall consist of constructing storage and/or infiltration facilities, which includes basins. At a minimum, all development will make provisions to store runoff from rainfall events up to and including the one-hundred-year, three-hour duration event. Post-development peak urban runoff discharge rates shall not exceed pre-development peak urban runoff discharge rates.

The City Engineer shall be provided for review, comment and/or approval the drainage study, hydrologic analysis and design of drainage facilities prepared by a licensed professional engineer."

Section 7. Section 13.24.120 (New Development and Redevelopment) of the Stormwater Code is hereby amended to read in its entirety as follows:

"A. Existing development shall control Stormwater Runoff so as to prevent any deterioration of water quality that would impair subsequent or competing uses of the water. The Director shall identify the BMPs that may be implemented to prevent such deterioration and shall indentify the manner of implementation.

B. Any new development or redevelopment project shall control the volume and rate of Stormwater Runoff from the project so as to prevent any deterioration of water quality which would impair the subsequent or competing uses of the water. The Director shall establish written retention standards and guidelines and/or implement BMPs designed to control the rate and volume of Stormwater Runoff from new developments and redevelopments as may be appropriate to minimize the discharge and transport of pollutants. The standards, guidelines and BMPs shall include a provision permitting adjustments for specific projects where the Director finds that due to unique circumstances not generally applicable to other properties, such adjustments are required but in such circumstances the Director shall provide a written finding.

1. All new development and redevelopment projects that fall into one of the following categories are subject to the Water Quality Management Plan Design Standards for Best Management Practices as set forth in the NPDES Permit Number CAS617002 (Section F.1.c.), which is incorporated by reference hereto, a copy of which is available in the City Clerk's Office:

a. Singly-family hillside residences that create 10,000 square feet, or more, of impervious area where the natural slope is twenty-five percent (25%) or greater, including single-

family hillside residences that create 10,000 square feet of impervious area where the natural slope is ten percent (10%) or greater where erosive soil conditions are known;

b. 100,000 square foot commercial and industrial developments;

c. Automotive repair shops (with Standard Industrial Classification ("SIC") codes 5013, 7532, 7533, 7534, 7537, 7438, and 7539);

d. Retail gasoline outlets disturbing greater than 5,000 square feet;

e. Restaurants disturbing greater than 5,000 square feet;

f. Home subdivisions with 10 or more housing units; and

g. Parking lots 5,000 square feet or more or with 25 or more parking spaces and potentially exposed to non-stormwater discharges.

C. Acceptable methods and standards for controlling Stormwater Runoff volumes, rates, and pollutant load may include but are not limited to the following:

1. Increase Permeable Areas. Avoid placing impervious surfaces in highly porous soil areas; incorporate landscaping and open space into the project design; use porous materials for or near driveways and walkways; incorporate detention ponds and infiltration pits into the project's design; avoid placing pavement and other impervious surfaces in low lying areas.

2. Direct Runoff to Permeable Areas. Direct Stormwater Runoff away from impermeable areas to swales, berms, green strip filters, gravel beds, and french drains. Install rain gutters and orient them toward permeable areas. Modify the grade of the property to divert flow to permeable areas and minimize the amount of Stormwater Runoff leaving the property. When designing curbs, berms or other structures, avoid designs which isolate permeable or landscaped areas.

3. Maximize Stormwater Storage for Reuse. Use retention structures, subsurface areas, cisterns, or other structures to store Stormwater Runoff for reuse or slow release.

4. Any new development shall comply with the provisions of this Chapter, City of Banning Ordinance 1388 and the Municipal NPDES Permit, all of which are incorporated by reference hereto.

D. In the event the Municipal NPDES Permit is modified, the Director is authorized to apply the criteria of such successor permit.

E. In addition to the foregoing provisions, all existing and new development and redevelopment plans shall comply with Stormwater Code Section 13.24.110.

F. Any violation of this Section is punishable as provided in the Banning Municipal Code including this Chapter. In addition, fines may be imposed on a schedule agreed to between the City and any person or entity seeking to engage in a development or redevelopment project in the City."

Section 8. Section 13.24.125, "Issuance, Suspension and Revocation of Permits or Licenses," of the Stormwater Code is hereby added to read in its entirety as follows:

"A. No permit or license shall be issued unless it is in accordance with all the provisions of City ordinances as codified in the Banning Municipal Code, including Titles 5, 13 and 15, and any permit or license issued contrary to the provisions of the Banning Municipal Code shall be void and of no effect.

B. An Enforcement Officer, after compliance with the procedures hereunder, may revoke or suspend a permit or license issued by the City upon a finding that:

1. The permittee or licensee has violated any of the conditions or requirements of the permit or license, or provisions of the Banning Municipal Code and any ordinances, rules or regulations pertaining to the permit or license; or
2. The permit or license was issued in error; or
3. The permit or license was issued on the basis of incorrect information supplied by the permittee or licensee.

C. Revocation or suspension of a permit or license issued by the City is proper when written notice of the violation(s) has been sent to the permittee or licensee by first class mail and the permittee or licensee has failed or neglected to correct the violation within twenty (20) days from the date the written notice was mailed."

Section 9. Section 13.24.130 (Compliance with General Permits), subsection B., of the Stormwater Code is hereby amended to read in its entirety as follows:

"B. Proof of compliance with the Municipal NPDES Permit will be required in a form acceptable to the Director prior to issuance of any city grading, building, or occupancy permits. Due to requirements set forth in the NPDES Permit changing from time to time, said compliance with the Municipal NPDES Permit requires compliance with the most recent NPDES Permit on file in the City Clerk's Office."

Section 10. Section 13.24.150 (Authority to Inspect) of the Stormwater Code is hereby amended to read in its entirety as follows:

"A. Whenever necessary to make an inspection to enforce any of the provisions of this chapter or the Municipal NPDES Permit, or whenever an Enforcement Officer has reasonable cause to believe that there exists in any building or upon any premises any condition which constitutes a violation of the provisions of this Chapter, the Enforcement Officer may enter such building or premises at all reasonable times to inspect the same or perform any duty imposed upon the Enforcement Officer by this chapter.

B. Entry hereunder shall be subject to the following:

1. If such building or premises be occupied, an Enforcement Officer shall first present proper credentials and request entry; and
2. If such building or premises be unoccupied, an Enforcement Officer shall first make a reasonable effort to locate the owner or other persons having charge or control of the building or obtain a warrant to enter.

C. Any request for entry made hereunder shall state that the property owner or occupant has the right to refuse entry and that in the event such entry is refused, inspection may be made only upon issuance of a search warrant by a duly authorized magistrate. In the event the owner and/or occupant refuses entry after such request has been made, the official is empowered to seek assistance from any court of competent jurisdiction in obtaining such entry.

D. Routine or area inspections shall be based upon such reasonable selection processes as may be deemed necessary to carry out the objectives of this Chapter and the Municipal NPDES Permit, including but not limited to random sampling and/or sampling in areas with evidence of stormwater contamination, Illicit Connections, Illegal Discharges, Non-Stormwater Discharge to the Stormwater System, follow up inspections as required by the County of Riverside, the Compliance Assistance Program ("CAP") of the NPDES Permit, or the California State Water Quality Regional Control Board, or similar factors.

E. The property owner and/or occupant are liable for Inspection Fees as set forth in the City's adopted Fee Schedule through City Resolution 2006-114 duly adopted on September 12, 2006, which may be amended by the City Council from time to time."

Section 11. Section 13.24.180 (Requirement to Test or Monitor) of the Stormwater Code is hereby amended to read in its entirety as follows:

"A. An Enforcement officer may request that any person engaged in any activity and/or owning or operating any facility which may cause or contribute to Stormwater Runoff, Illicit Connections, Illegal Discharges, and/or discharge of Pollutants or Non-stormwater to the Stormwater System, undertake such monitoring activities and/or analyses and furnish such reports as the Enforcement Officer may specify. The burden, including costs, of these activities, analyses and reports shall bear a reasonable relationship to the need for the monitoring, analyses and reports and the benefits to be obtained. The recipient of such request shall undertake and provide the monitoring, analyses and/or reports requested within a reasonable time frame as set forth by the Enforcement Officer or as agreed to between the Enforcement Officer and the person.

B. In the event the owner or operator of a facility subject to a monitoring and/or analyses order fails to conduct required monitoring and/or analyses and furnish the required reports in the form required, an Enforcement Officer may cause such monitoring and/or analyses to be performed within thirty (30) days.

1. The costs, therefore, including the reasonable additional administrative costs incurred by the City, shall be the responsibility of the owner of the property and/or the person or entity in possession of the property.
2. The costs thereof shall be invoiced to the owner of the property and/or the person or entity in possession of the property.
3. If the invoice is not paid within sixty (60) days of the issuance thereof, the costs may be levied as a lien upon and against the property and continue in existence until the same shall be paid consistent with the Banning Municipal Code including Chapter 8.48.
4. If the lien is not satisfied by the owner of the property within three (3) months after the completion by an Enforcement Officer of the required monitoring and/or analyses and reports, the property may be sold in satisfaction thereof in a like manner as other real property is sold under execution."

Section 12. Section 13.24.220 (Violations Deemed a Public Nuisance), subsection A., of the Stormwater Code is hereby amended to read in its entirety as follows:

"A. In addition to the penalties hereinbefore provided, any condition caused or permitted to exist in violation of any of the provisions of this Chapter is a threat to the public health, safety and welfare, and may be declared and deemed a nuisance, and may be summarily abated and/or restored by an Enforcement Officer, and/or civil action to abate, enjoin or otherwise compel the cessation of such nuisance may be taken as authorized by the Banning Municipal Code including Chapter 8.48 or in any other manner provided by law."

Section 13. Section 13.24.225, "Payment of Abatement Costs, Penalties or Damages," of the Stormwater Code is hereby added to read in its entirety as follows:

> "If payment of an award of abatement costs, penalties or damages is not made within ten (10) days of an administrative or judicial determination of such costs, penalties or damages, the Enforcement Officer may file a Notice of Lien as provided for in the Banning Municipal Code, Chapter 8.48, describing the real property affected and the amount of the costs, penalties or damages claimed by the City with the Office of the County Recorder of Riverside County. The Enforcement Officer may transmit the judgment or award of abatement costs, penalties or damages of the City, which shall place the amount thereof on the Assessment Roll as a special assessment to be paid with County taxes, unless paid earlier. A judgment or award of such costs, penalties or damages may also be enforced in any other manner provided by law, including the property being sold under execution if the recorded lien remains unpaid for at least three (3) months."

Section 14. Section 13.24.240 (Civil Actions), subsection B., of the Stormwater Code is hereby amended to read in its entirety as follows:

> "B. Assessment of the violator for the costs of any investigation, inspection, or monitoring survey which led to the establishment of the violation, and for the reasonable costs and attorney's fees of preparing and bringing legal action under this subsection."

Section 15. Section 13.24.270 (Nonexclusivity of Remedies) of the Stormwater Code is hereby amended to read in its entirety as follows:

> "Remedies under this Chapter are in addition to and do not supersede or limit any and all other remedies, civil or criminal, as provided by federal, State and local law. The remedies provided for herein shall be cumulative and not exclusive."

Section 16. Section 13.24.280 (Appeal) of the Stormwater Code is hereby amended to read in its entirety as follows:

> "In addition to the provisions of Chapter 1.20 of the Banning Municipal Code, any person, firm, corporation or organization required by an Enforcement Officer to perform monitoring, analyses, reporting, or corrective activities, or for revocation or suspension of a permit or license, and who is aggrieved by the decision of an Enforcement Officer, may appeal such decision to the Director within fifteen (15) days following the effective date of the Enforcement Officer's decision by writing to the Director. Upon receipt of such request, the Director shall request a report and recommendation from the Enforcement Officer and shall set the matter for hearing at the earliest practical date not to exceed sixty (60) days from the date the request is filed. At said hearing, the Director may hear additional evidence, and may reject, affirm or modify the Enforcement Officer's decision. Such decision shall be written and final unless appealed to the

City Council, which is required pursuant to California Code of Civil Procedure § 1094.6 prior to commencing any civil action commencing."

Section 17. If any part of this Ordinance are held to be invalid or unconstitutional by decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance, and the City hereby declares that it would have passed the remainder of this Ordinance if such invalid portion thereof had been declared invalid or unconstitutional.

Section 18. The City Clerk shall certify to the adoption of this Ordinance and shall cause a copy of the same to be published in a manner prescribed by law. This Ordinance shall take effect and be in force thirty (30) days after the adoption by the City Council for the City of Banning.

PASSED, APPROVED and ADOPTED this 12th day of January, 2010.

Robert E. Botts, Mayor

ATTEST:

Marie A. Calderon, City Clerk

APPROVED AS TO FORM AND LEGAL CONTENT:

David J. Aleshire, City Attorney
Aleshire & Wynder, LLP

CERTIFICATION:

I, Marie A. Calderon, City Clerk of the City of Banning, do hereby certify that the foregoing Ordinance No. 1415 was duly introduced at a regular meeting of the City Council of the City of Banning, California, held on the 8th day of December, 2009 and was duly adopted at a regular meeting of said City Council held on the 12th day of January 2010 by the following vote, to wit:

AYES: Councilmembers Franklin, Hanna, Machisic, Robinson, Mayor Botts

NOES: None

ABSENT: None

ABSTAIN: None

Marie A. Calderon, City Clerk
City of Banning, California

EXHIBIT "A"

NPDES Permit Number CAS617002 (R7-2008-0001)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

COLORADO RIVER BASIN REGION

73-720 Fred Waring Drive, Suite 100, Palm Desert, CA 92260
Phone: (760) 346-7491 • Fax (760) 341-6820
http://www.waterboards.ca.gov/coloradoriver

ORDER NO. R7-2008-0001
NPDES NO. CAS617002

WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEM (*MS4*)
WITHIN THE WHITEWATER RIVER WATERSHED
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT,
OWNER/OPERATOR
COUNTY OF RIVERSIDE, OWNER/OPERATOR
COACHELLA VALLEY WATER DISTRICT, OWNER/OPERATOR
AND INCORPORATED CITIES OF RIVERSIDE COUNTY WITHIN THE
WHITEWATER RIVER BASIN, OWNERS/OPERATORS

Table 1. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**May 21, 2008**
This Order shall become effective on:	**May 21, 2008**
This Order shall expire on:	**May 21, 2013**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new ***Waste Discharge Requirements***. The date for submitting a complete application for reissuance is **November 23, 2012.**	

IT IS HEREBY ORDERED that this Order shall supercede Order No. 01-077 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the California Water Code (***CWC***) (commencing with section 13000) and regulations adopted hereunder, and the provisions of the federal Clean Water Act (***CWA***) (33 U.S.C. § 1251 et seq.) and regulations and guidelines adopted hereunder, the discharger shall comply with the requirements in this Order.

I, Robert Perdue, ***Executive Officer***, do hereby certify that this Order, with all attachments, is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on May 21, 2008.

Robert E. Perdue

ROBERT PERDUE, Executive Officer

APPENDIX L

SGPWA ORDINANCE NO. 10 AND RESOLUTION NO. 2014-02

SGPWA ORDINANCE NO. 10

SAN GORGONIO PASS WATER AGENCY

ORDINANCE NO. 10

ORDINANCE ESTABLISHING WATER SHORTAGE PLAN

WHEREAS, the San Gorgonio Pass Water Agency ("Agency) is a State Water Project ("SWP") Contractor authorized to acquire waterworks, waters, and/or water rights, including but not limited to, water from the State of California from the SWP, and to provide, sell, and deliver that water under the control of the Agency to cities, agencies, districts, persons, corporations or private entities within the Agency ("Purchasers") for use within the service area of the Agency. The Agency is a wholesale water agency organized and operating under the Chapter 101 of the San Gorgonio Pass Water Agency Law set forth in the Water Code Appendix; and

WHEREAS, the Agency has a contract with the California Department of Water Resources for 17,300 acre-feet of SWP water which is designated as "Table A Water" and which is used to supplement local demands including eliminating groundwater overdraft; and

WHEREAS, the Agency is required to order SWP water from the California Department of Water Resources. The Board desires to adopt a policy regarding how the Agency will allocate deliveries of water to Purchasers during single and multiple dry years where the total amount of annual orders from Purchasers exceeds the amount of SWP water available in that calendar year or years. This policy shall pertain to the allocation of SWP water that is designated as Table A Water, Yuba Water, and other water not designated as "spot water," that is delivered at the request of a Purchaser. It shall not apply to Carryover Water, which shall be delivered to Purchasers at the discretion of the Board of Directors; and

WHEREAS, Water Code Section 375 et seq. provides that the Agency may, by a majority vote of the members of the Board after holding a public hearing upon notice, adopt and enforce a water shortage plan to allocate deliveries of water to Purchasers during single and multiple dry years; and

WHEREAS, the Board of Directors previously adopted Ordinance No. 8 which established the "Rules And Regulations For SGPWA Water Service." The Rules And Regulations may be revised from time to time. The Board desires to adopt this Ordinance No. 10 in order to establish procedures for allocating reduced deliveries of water to Purchasers in the event of single and multiple dry years and a shortage of water available to meet the demands of Purchasers.

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE SAN GORGONIO PASS WATER AGENCY AS FOLLOWS:

Section 1 All of the foregoing Recitals are true and correct and the Board so finds and determines. The Recitals set forth above are incorporated herein and made an operative part of this Ordinance.

Section 2 The Board conducted a public hearing on July 7, 2014 at 1210 Beaumont Avenue, Beaumont, CA in order for members of the public to have the opportunity to be heard to protest against, and to present their respective needs to the Board regarding the proposed adoption of this Ordinance. Notice of the public hearing was published on July 11, 2014 in the Record Gazette, a newspaper of general circulation within the area in which the subject water supply is distributed. Said notice was published at least 7 days prior to the date of the hearing.

Section 3 ARTICLE IV, DELIVERY, **Section 4.11 Water Shortage Plan** is hereby added to the Rules And Regulations For SGPWA Water Service as follows:

1. Definitions

(a) Water Shortage Year(s) – a calendar year or years in which the total amount of SWP Orders from Purchasers, which are necessary to meet actual demands of Purchasers, plus water required by the Agency as defined below, exceeds the amount of SWP Water that is available for purchase by the Agency from the SWP in that applicable calendar year.

(b) First Priority Water Deliveries – Section 101-15.5 of the San Gorgonio Pass Water Agency Law provides that in allocating water received from the SWP under the Law, the highest priority shall be given to eliminating groundwater overdraft conditions within the Agency's boundaries. The Board hereby determines that five percent (5%) of the total amount of SWP Orders from Purchasers shall be allocated to direct delivery Purchasers, in a given Water Shortage Year, who take deliveries to the connection or other facilities of the Purchasers for domestic, industrial, and municipal purposes ("Direct Deliveries"). Said Direct Deliveries shall be for Purchasers who take Direct Deliveries in order to avoid the need for groundwater extractions, thereby helping to eliminate groundwater overdraft.

(c) Second Priority Water Deliveries - SWP Orders from Purchasers for Direct Deliveries in a given Water Shortage Year.

(d) Third Priority Water Deliveries – SWP water to be purchased by the Agency to be used in the Agency's discretion and which will be over and above the water needed to meet water demand projections for Direct Deliveries in the First and Second Priority Water Deliveries. Third Priority Water Deliveries shall not exceed 10% of the total amount of SWP Orders from Purchasers in a given Water Shortage Year. The Board of Directors shall have discretion to change this percentage in any given Water Shortage Year, based on Purchaser needs in that year.

(e) Fourth Priority Water Deliveries – SWP Orders from Purchasers for SWP water which would be utilized for groundwater replenishment by spreading or injecting in order to meet projected demands of Purchasers in a given Water Shortage Year.

(f) Fifth Priority Water Deliveries – If the amount of SWP water available for purchase by the Agency exceeds the total amount of SWP Orders necessary to meet all of the First, Second, Third and Fourth Priority Water Deliveries, then the water year shall not be classified as a Water Shortage Year and no water shortage year allocation shall be implemented by the Agency.

2. Allocations

(a) Water Shortage Year Allocation - If during any particular Water Shortage Year, the total amount of SWP Orders from Purchasers for First Priority Water Deliveries exceeds the amount of SWP water which is available for purchase by the Agency at any time during that Water Shortage Year, then the only deliveries of SWP water by the Agency for that Water Shortage Year shall be for Direct Deliveries under the First Priority Water Deliveries. First Priority Water Deliveries will be made in proportion to the ordered amount of SWP water by each Purchaser. Each Purchaser who orders water for Direct Deliveries under a First Priority Water Delivery shall receive an equal allocation of the available SWP water for said First Priority Water Deliveries in proportion to all other Purchasers who have made such orders. Said determination shall be made on a year-by-year basis for any such year which may be deemed to be a Water Shortage Year.

(b) SWP Water Exceeds First Priority Water Delivery Needs - If the amount of SWP water available for purchase by the Agency exceeds the total amount of SWP Orders necessary to meet all of the First Priority Water Deliveries, then Second Priority Water Deliveries will be made. Second Priority Water Deliveries will be made in proportion to the ordered amount of SWP water by each Purchaser. Each Purchaser who orders water under a Second Priority Water Delivery shall receive an equal allocation of the available SWP water for said Second Priority Water Deliveries in proportion to all other Purchasers who have made such orders. Said determination shall be made on a year-by-year basis for any such year which may be deemed to be a Water Shortage Year.

(c) SWP Water Exceeds First And Second Priority Water Delivery Needs – If the amount of SWP water available for purchase by the Agency exceeds the total amount of SWP Orders necessary to meet all of the First and Second Priority Water Deliveries, then Third Priority Water Deliveries will be made, if the Board determines that the water required by the Agency in that year is greater than zero.

(d) SWP Water Exceeds First, Second And Third Priority Water Delivery Needs - If the amount of SWP water available for purchase by the Agency exceeds the total amount of SWP Orders necessary to meet all of the First, Second and Third Priority Water Deliveries, then Fourth Priority Water Deliveries will be made. Fourth Priority Water Deliveries will be made in proportion to the ordered amount of SWP water by each Purchaser. Each Purchaser who orders replenishment

water under a Fourth Priority Water Delivery shall receive an equal allocation of the available SWP water for said Fourth Priority Water Deliveries in proportion to all other Purchasers who have made such orders. Said determination shall be made on a year-by-year basis for any such year which may be deemed to be a Water Shortage Year.

(e) SWP Water Exceeds First, Second, Third And Fourth Priority Water Delivery Needs - If the amount of SWP water available for purchase by the Agency exceeds the total amount of SWP Orders necessary to meet all of the First, Second, Third and Fourth Priority Water Deliveries, then the water year shall not be classified as a Water Shortage Year and no water shortage year allocation shall be implemented by the Agency.

3. Use Of Agency Purchase The Board of Directors shall have the discretion to determine how the Agency purchase for Third Priority Water Deliveries is utilized, as described below:

(a) Selling said water to a Purchaser for Direct Deliveries or groundwater replenishment based on a demonstrated need in a particular calendar year and pursuant to a written request and procedures as may be determined by the Board or the Agency's General Manager.

(b) Utilizing/storing said water for overdraft mitigation.

(c) Utilizing the water to meet the terms of a previous water exchange agreement with another State Water Contractor or other water agency, or to participate in a water exchange in order to obtain water for a future year.

(d) Designating said water as carry over water for use by the Agency in the next year or a future year.

4. Potential Availability Of Spot Water - In a Water Shortage Year, there may be "Spot Water" available for purchase by a Purchaser at an additional cost. "Spot Water" is commonly referred to as water that may be available for purchase from the SWP or from another source in any given year for that year only. In the event that Spot Water is available and a Purchaser desires to acquire said water, said Purchaser shall submit a written request pursuant to procedures as may be determined by the Board or the Agency's General Manager. All additional costs of purchasing and delivering said Spot Water shall be the sole responsibility of the requesting Purchaser. For example, the Agency would purchase such water specifically for delivery to one or more requesting Purchasers and the Agency would pass through all costs associated with said purchase and delivery to said Purchasers in in proportion to their requests.

Section 4 All ordinances, resolutions, minute orders, or administrative actions by the Board of Directors, or parts thereof, that are inconsistent with any provision of this Ordinance No. 10 are hereby superseded only to the extent of such inconsistency. Except as specifically set

forth in this Ordinance No. 10 in regard to the addition of **Section 4.11 Water Shortage Plan**, all other provisions of the Rules And Regulations For SGPWA Water Service shall remain in full force and effect.

Section 5 The Board finds that the addition of a water shortage plan constitutes general policy and procedure making and also constitutes organizational or administrative activities that will not result in direct or indirect physical changes in the environment. Based on this finding, the Board determines that the implementation of a water shortage plan, by way of adoption of this Ordinance No. 10, is exempt from the requirements of the California Environmental Quality Act pursuant to section 15378(b)(2) and (5) of the State CEQA Guidelines.

Section 6 The President of the Board of Directors shall sign this Ordinance No. 10 and the Secretary of the Board of Directors shall attest thereto, and this Ordinance No. 10 shall be in full force and effect immediately upon adoption. The Board of Directors shall review this Ordinance in each water shortage year, as defined herein. Within 10 days after adoption of this Ordinance No. 10, a copy of this Ordinance shall be published one time in a newspaper of general circulation with the names of the Directors voting for and against this Ordinance.

Section 7 If any section, subsection, clause or phrase in this Ordinance is for any reason held invalid, the validity of the remainder of this Ordinance shall not be affected thereby. The Board hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause, or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses or phrases or the application thereof be held invalid.

ADOPTED this 21st day of July 2014, by the Board of Directors of the San Gorgonio Pass Water Agency.

Said Ordinance was adopted, on roll call, by the following vote:

AYES: Haring, Voigt, Melleby, Duncan, Dickson and Jeter
NOES: None
ABSTAIN: None
ABSENT: Morris

SAN GORGONIO PASS WATER AGENCY

John Jeter
President of the Board of Directors

ATTEST:

Jeffrey Davis
Secretary of the Board of Directors

RESOLUTION NO. 2014-02

RESOLUTION NO. 2014-02

A RESOLUTION OF THE SAN GORGONIO PASS WATER AGENCY ESTABLISHING A POLICY FOR MEETING FUTURE WATER DEMANDS

WHEREAS, the San Gorgonio Pass Water Agency ("Agency") is a state water contractor that was formed with the purpose of importing water from the State Water Project ("SWP") into the San Gorgonio Pass area in 1961. The Agency's service area encompasses approximately 228 square miles and includes the Cities of Beaumont, Calimesa, and Banning, as well as the unincorporated areas of Cherry Valley, Cabazon, Poppet Flat, Banning Bench, and San Timoteo and Live Oak Canyons; and

WHEREAS, the mission of the Agency is to import water and to protect and enhance local water supplies for use by present and future water users and to sell imported water to local water agencies within the Agency's service area. The Agency is able to import water from sources that provide the highest quality and the most cost effective price, including the SWP and other potential sources. The Agency also works with local retail agencies to manage local and regional water resources in a sustainable manner designed to manage overdraft within the Agency's service area; and

WHEREAS, the Agency has a contract with the California Department of Water Resources for 17,300 acre-feet of SWP water which is used to supplement local demands including eliminating groundwater overdraft. Information and reports obtained by the Agency, including but not limited to, the Agency's 2010 Urban Water Management Plan, indicate that said amount of SWP water will likely not be sufficient to meet all future supplemental water demands within the Agency's service area. The Agency has the responsibility to manage the present and future water supply needs for all users within its jurisdiction. Increased demand from new growth and decreasing reliability will continue to present challenges to the Agency's ability to deliver wholesale water on a reliable basis. In addition, the Agency has made substantial investments in facilities and infrastructure to bring said supplies to the region and to store and deliver said supplies. Said facilities include pipelines, pump stations, turnouts, reservoirs and spreading grounds; and

WHEREAS, the Board of Directors of the Agency desires to adopt this Resolution in order to establish a policy which will work toward the goal of meeting future water demands in the region.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SAN GORGONIO PASS WATER AGENCY AS FOLLOWS:

1. Incorporation of Recitals All of the foregoing Recitals are true and correct and the Board so finds and determines. The Recitals set forth above are incorporated herein and made an operative part of this Resolution.

2, Definitions The types of water rights, supplies and resources which are subject to this Resolution and the policy set forth herein include, but are not limited to, the following:

(a) Carryover Water - Water belonging to a State Water Contractor that is not used in a given calendar year and thus is carried over to the next year for use in that year or in a future year.

(b) Dry Year Yield Water - Water made available in a dry year for that year only, typically from a farming interest, irrigation district or other type of agency providing service to farming interests.

(c) Exchange Water - Water obtained from another water agency in exchange for a promise of water at a subsequent time such as in a future month or future year. An exchange may be a one-to-one exchange or an exchange with a different ratio.

(d) Long-Term Water Rights - Water rights owned by another entity which is willing to sell the rights to the water and not just a water supply. Long-Term Water Rights are frequently defined as

lasting as long as the State Water Project.

(e) Short-Term Water - Water available under certain conditions in any given year or for a limited number of years for a defined period only.

(f) Spot Water - Water available in any given year for that year only.

(g) Transfer Water - Water transferred from one area of the state to another through the actions of public agencies.

3. Regional Water Management

(a) Meeting The Water Supply Needs Of The Region - The Agency is prepared to take the necessary actions to provide its service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. As additional water resources are required to meet increasing needs, the Agency will be prepared to take the necessary actions to deliver such supplies.

(b) Funding And Construction Of Facilities - Taxpayers and water users residing within the Agency's service area already have obligated themselves for the construction of a supply and distribution system. This system has been designed and constructed, and future facilities will be designed and constructed, in a manner to deliver the Agency's full share of SWP water, as well as water from other sources as may be required in the years ahead.

(c) Acquiring Supplemental Water Supplies – The Agency is prepared to take the necessary actions to meet the water supply needs of the region. For example, and not by way of limitation, the Agency is authorized to pursue the acquisition of Short-Term Water, Spot Water, Dry Year Yield Water, and Long-Term Water Rights. The Board of Directors of the Agency has the discretion to reasonably determine the timing and other details of acquiring such supplies, and will also manage the Agency's current supplies to maximum effect, as determined in the Board's direction. In order to meet this commitment, the Agency has the discretion to reasonably determine which type of water source to pursue including, but not limited to, Carryover Water, one-year or multi-year Exchange Water, Transfers, or other purchases of water or water rights.

4. Consideration Of A Wheeling Request The Agency will consider "wheeling" water to the region subject to the terms of this Resolution, Agency wheeling policies, applicable law, and upon payment of the applicable charge. In the event of any such wheeling, the Agency's facilities, including its rights to use SWP facilities, may be used to transport water not owned or controlled by the Agency to a retail agency or other public or private entity within the Agency's service area.

5. Potential For Future Policies Regarding Water Supplies Nothing in this Resolution shall limit or otherwise impact the authority of the Board to adopt future policies regarding water supplies including, but not limited to, any potential water shortage plans that the Board may deem to be necessary in order to establish how the Agency will allocate deliveries of water to local retail agencies during single and multiple dry years where the total amount of annual orders from local retail agencies exceeds the amount of SWP water available in that calendar year or years.

6. Controlling Effect All ordinances, resolutions, minute orders, or administrative actions by the Board of Directors, or parts thereof, that are inconsistent with any provision of this Resolution are hereby superseded only to the extent of such inconsistency.

7. CEQA Compliance - The Board finds that the establishment of a policy for meeting future water demands constitutes general policy and procedure making and also constitutes organizational or administrative activities that will not result in direct or indirect physical changes in the environment. Based on this finding, the Board determines that the establishment of a policy for meeting future water demands, by way of adoption of this Resolution, is exempt from the requirements of the California Environmental Quality Act pursuant to section 15378(b)(2) and (5) of the State CEQA Guidelines.

8. Effective Date - The President of the Board shall sign this Resolution and the Secretary of the Board shall attest thereto, and this Resolution shall be in full force and effect immediately upon adoption.

9. Severability - If any section, subsection, clause or phrase in this Resolution is for any reason held invalid, the validity of the remainder of this Resolution shall not be affected thereby. The Board hereby declares that it would have passed this Resolution and each section, subsection, sentence, clause, or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses or phrases or the application thereof be held invalid.

ADOPTED AND APPROVED this 18th day of February, 2014.

President, Board of Directors
San Gorgonio Pass Water Agency

ATTEST:

Secretary, Board of Directors
San Gorgonio Pass Water Agency

APPENDIX M

CHROMIUM-6 COMPLIANCE PLAN



CHROMIUM-6
COMPLIANCE PLAN

December, 2015

Background

The City of Banning ("City") owns and operates its water system and provides water to a population of approximately 30,325 and to businesses through 10,455 water connections.

100% of the City's water is extracted from local groundwater aquifers using 22 wells. A total of 7 wells (C2, C3, C4, C6, M3, M10, and M12), see Table A, are exceeding and in non-compliance with the new Chromium-6 Maximum Contaminant Level ("MCL") of 0.010 mg/L (10ppb).

	UCMR 1	UCMR 2	Date	Date	Date	Date	Annual Quarterly Average
	1/9/2013	7/23/2013	12/4/2014	3/30/2015	6/24/2015	9/29/2015	
Well C2	15.0	14.0	17.0	17.0	17.0	17.0	17.0
Well C3	16.0	15.0	16.0	15.0	16.0	14.0	15.3
Well C4	13.0	14.0	13.0	13.0	17.0	16.0	14.8
Well C6	10.0	Out of Service	14.0	12.0	14.0	13.0	13.3
Well M3	9.2	8.1	9.3	9.7	10.0	10.0	9.8
Well M10	9.9	10.0	10.0	11.0	12.0	12.0	11.3
Well M12	18.0	19.0	22.0	23.0	24.0	-	23.0

Table A: Wells and corresponding Chromium-6 concentrations (ppb).

A map showing the locations and their respective concentrations is attached as Exhibit A.

Historically, the 7 mentioned wells have been used to meet approximately 30% of the City's annual demand (2,710 acre-feet) and make up 6,950 gallons per minute ("gpm") of the City's total 22,500 gpm well capacity. Simply "turning off" the wells is not an option and at this time the City does not have the resources or treatment facilities to meet the new Chromium-6 standard.

Additionally, the City of Banning co-owns two wells with the Beaumont Cherry Valley Water District, which also have exceeded the Chromium-6 MCL. These two wells are currently not in use and will possibly be dedicated to non-potable uses. This makes for a total of 9 wells owned/co-owned by the City that are in non-compliance with the new Chromium-6 MCL.

Status

Since the adoption of the new Chromium-6 MCL, the City of Banning has been proactive in preparing to meet the standard. The following activities have taken place:

1. Well #M12
    a. Well #M12 has an average concentration of 23.0 ppb (highest of all 7 wells).

b. The well will be designated as a non-potable well.
c. The well has been taken off of the City's potable distribution system and connected to a 24 inch ductile iron pipe that makes up the first of three segments (and the only one currently installed) of the non-potable system. This section of the non-potable system extends from a connection point to the Sun Lakes Community ("SLC") at the corner of Highland Home Road and Sun Lakes Boulevard to the intersection of Lincoln Street and 22nd Street via Westward Avenue, Sunset Avenue and Lincoln Street.
d. The well is now solely providing SLC's Champions Golf Course with non-potable water.
e. The City is currently constructing a connection from the non-potable pipeline to SLC's Executive Golf Course. This work is scheduled to be completed by January 29, 2016 at a cost to the City equal to $45,000.00.

2. Treatment and Compliance Study
    a. On October 27, 2015 the City Council awarded a Professional Services Agreement to Hazen Sawyer for the development of a Treatment and Compliance Study.
    b. The scope of work, as listed in the attached RFP (see Exhibit B) includes:
        i. Evaluation of Treatment Alternatives including:
            1. Blending
            2. Well Head Treatments
                a. Ion Exchange (SBA and WBA)
                b. Reduction, Coagulation and Filtration (conventional and microfiltration)
                c. Reverse Osmosis
                d. Biological Reactor (fixed bed, fluidized bed and membrane)
            3. Brine treatment alternatives and hybrid treatment systems.
            4. Well Modification to reduce/eliminate intrusion of Chromium-6 into the well.
        ii. Evaluation infrastructure and site needs (right-of-way, property acquisition, etc.)
        iii. Cost analysis for each alternative.
    c. The Treatment and Compliance Study, which will be funded from Water Fund revenues, will cost the City $89,630.00.
    d. We expect the study will be completed by the end of June, 2016. This document will be used as a strategic planning tool for meeting the new standard. Once this document is completed the City will have a better understanding of the funding needs and timelines for constructing the necessary treatment facilities.

3. Dynamic Profiling
    a. On September 29, 2015 the City received a proposal to perform dynamic mass profiling seven City owned wells as listed in Table A. The cost to complete the project is $207,000.00.

b. At this point the City is looking into grant funding to fund the profiling as well as the construction of the modifications to the wells. The construction phase is anticipated to cost approximately $1,050,000.00.

Milestones

1. Treatment Study, Evaluation and Planning: December, 2015 to June, 2016

2. Financing Plan: April, 2016 to August, 2017

3. Environmental and PS&E: September, 2016 to August, 2017

4. Construction: September, 2017 to January, 2020.

*A Gantt Chart is attached as Exhibit C with more detail on the above milestones and shall be updated and submitted as needed.

Public Notice

Once approved, the City will provide written notice regarding its approved compliance plan to persons it serves, a minimum of two times per year. The notice will include:

1. That the public water system is implementing the compliance plan approved by the Division.
2. A summary of the compliance plan including the task/subtask milestones and scheduled completion dates.
3. A description of the work completed on each task/subtask identified in the compliance plan since the last report, the percentage of completion for each task/subtask, a description of any factors which could prevent the system from achieving compliance by the date specified in the approved compliance plan, and any requests for revision of the approved compliance plan found necessary to achieve compliance with the Chromium-6 MCL by the earliest feasible date.
4. Be printed in English, Spanish, and in the language spoken by any non-English-speaking group that exceeds 10 percent of the persons served by the public water system. It will contain a telephone number or address where residents may contact the public water system for assistance.
5. Information on where the persons served by the water system have access to alternative drinking water.
6. Basic information on Chromium-6, including the level found in drinking water provided by the public water system, the MCL for Chromium-6, and the possible effects of Chromium-6 on human health as specified in Appendix 64465-D of Section 64465 of Title 22 of the California Code of Regulations.

EXHIBIT A
WELL LOCATIONS

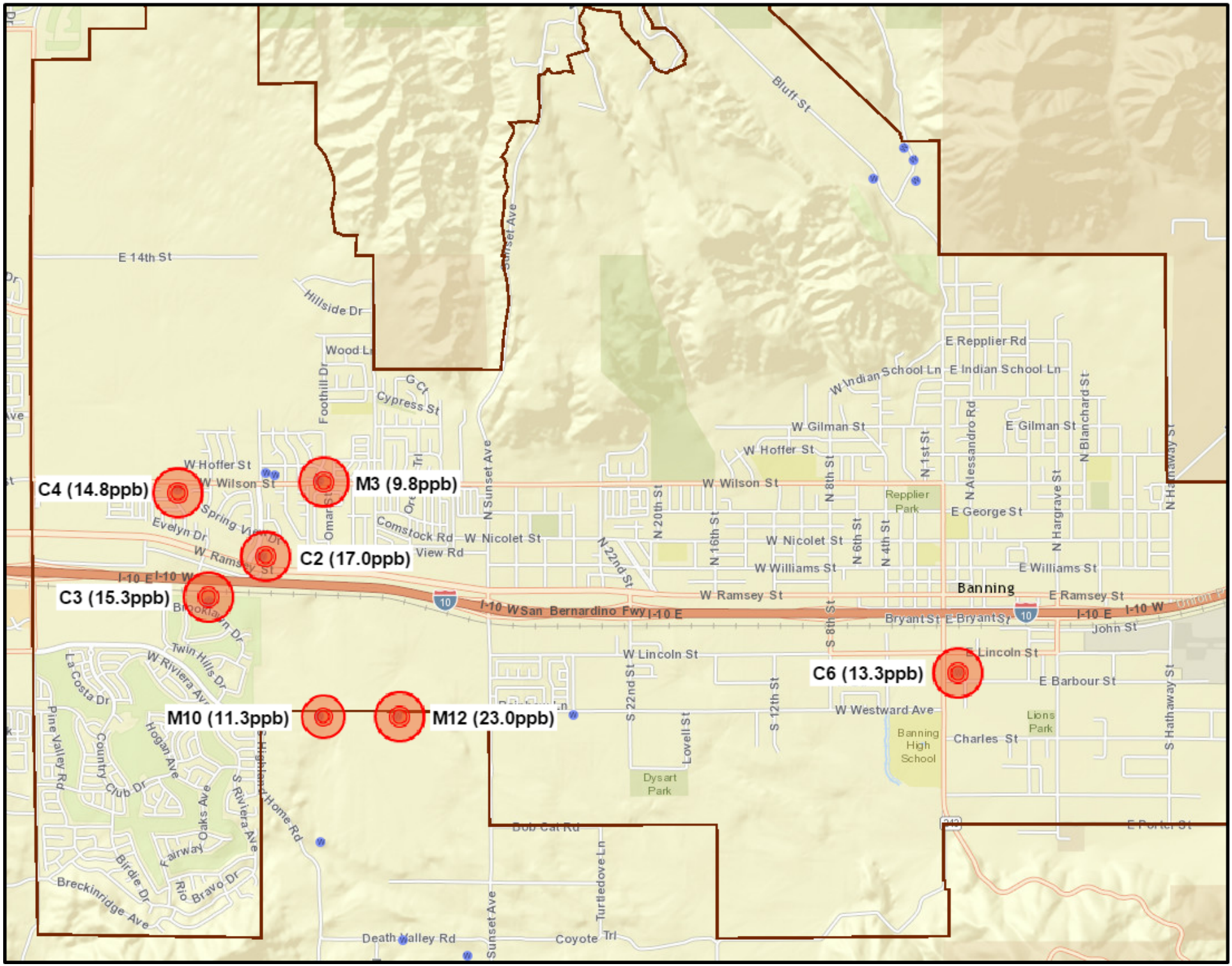
C4 (14.8ppb)
M3 (9.8ppb)
C2 (17.0ppb)
C3 (15.3ppb)
M10 (11.3ppb)
M12 (23.0ppb)
C6 (13.3ppb)
Banning
E 14th St
Hillside Dr
Wood Ln
Foothill Dr
Cypress St
Bluff St
Sunset Ave
W Hoffer St
W Wilson St
Evelyn Dr
Spring View Dr
W Ramsey St
Omar St
Comstock Rd
View Rd
W Nicolet St
N 22nd St
N 20th St
N 16th St
W Williams St
W Ramsey St
I-10 E
I-10 W
San Bernardino Fwy
Brooklawn Dr
Twin Hills Dr
W Riviera Ave
La Costa Dr
Pine Valley Rd
Country Club Dr
Hogan Ave
Fairway Oaks Ave
S Riviera Ave
Birdie Dr
Breckinridge Ave
Rio Bravo Dr
S Highland Home Rd
Death Valley Rd
Bob Cat Rd
Turtledove Ln
Coyote Trl
W Lincoln St
S 22nd St
S 12th St
Lovell St
Dysart Park
W Gilman St
W Indian School Ln
E Repplier Rd
E Indian School Ln
N 1st St
N 8th St
N 6th St
N 4th St
S 8th St
Repplier Park
N Alessandro Rd
E Gilman St
E George St
N Hargrave St
N Blanchard St
N Hathaway St
E Williams St
E Ramsey St
Bryant St
E Bryant St
John St
E Lincoln St
E Barbour St
W Westward Ave
Banning High School
Lions Park
Charles St
S Hathaway St
E Porter St

EXHIBIT B
RFP: TREATMENT AND COMPLIANCE STUDY

Request for Proposals (RFP)
Chromium-6 Treatment and Compliance Study

Responses Due:
City of Banning
Public Works Department
99 E. Ramsey Street
Banning, CA 92220
(951) 922-3130

September, 2015

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION AND OBJECTIVES

The City of Banning is soliciting proposals from qualified consultants to provide professional engineering services for the development of a Chromium-6 Treatment and Compliance Study (Study) including preliminary design and cost estimates.

Effective July 1, 2015, the California Department of Public Health (CDPH) adopted the final drinking water Maximum Contaminant Level (MCL) for Chromium-6 at 10 parts per billion (ppb) as approved by the Office of Administrative Law on May 28, 2014. Up to seven (7) of the City of Banning's operating wells do not meet the final MCL.

The selected consultant shall analyze and report to the City the most efficient and effective method for complying with the final Chromium-6 MCL. The methods analyzed shall include blending, well head treatment (localized and regional treatment facilities), well modifications or a combination of these methods. The study shall also analyze the costs and benefits of removing co-occurring constituents, when found at levels of concern in local groundwater.

Proposals shall demonstrate the qualifications, competence, and capacity of the Consultant to perform the work and provide the engineering services described in this RFP.

The successful Consultant will be expected to execute the Professional Services Agreement included with this RFP.

1.2 BACKGROUND INFORMATION

The City of Banning, incorporated in 1913, covers approximately 23.2 square miles located in the San Gorgonio Pass area of Riverside County, approximately 30 miles east of the cities of San Bernardino and Riverside. The 2014 U.S. Census Bureau Community Survey recorded a population of 30,325 for the City of Banning. It is estimated that the population will increase by approximately 2% per year. The City of Banning owns and operates the water system which collects 100% of the water that it supplies from local groundwater aquifers. It currently operates 21 active ground water production wells and co-owns 3 production wells with the Beaumont Cherry Valley Water District (total of 24 active wells). The 24 wells have a design capacity of 24,300 gallons per minute (GPM). The City facilities also include 11 storage tanks with a total storage capacity of 18.4 million gallons (MG). In 2014 the City produced and provided approximately 8,500 acre-feet. Water service is provided to the entire City as well as unincorporated areas of the county that bound the south and north City limits.

Chromium-6 occurs naturally in the City of Banning groundwater due to erosion of sediments at levels above the final MCL of 10 ppb. Seven of the City's wells currently exceed the final MCL for Chromium-6 (see Exhibit "A" for concentrations and locations).

The study will require the Consultant to develop a strategy to comply with the final Chromium-6 MCL, including a time table and cost estimates for design and construction of the recommended treatment facilities. The study shall also analyze the costs and benefits of removing co-occurring constituents, when found at levels of concern in local groundwater.

2.0 SCOPE OF WORK

The scope of work that follows contains a general outline of the required tasks. Proposals submitted should include a detailed all-inclusive scope of work.

2.1 TASK 1: PROJECT MANAGEMENT, COMMUNICATION AND MEETINGS

A. Project Manager: Consultant shall assign a project manager that will be the point of contact and coordinate all communication with the City.

B. Project Kick-off Meeting and Review: Meet with the City staff to discuss study parameters, site-specific conditions, project goals, and latest developments. Obtain information as necessary to support the document preparation.

C. Project Schedule, Status report and Monthly Progress Meetings: Consultant shall submit an initial schedule with milestones using the latest version of MS Project. The schedule shall be updated monthly and shall be provided at monthly Progress Meetings attended by Consultant's Project manager. An Agenda shall be provided by Consultant a minimum of five (5) working days prior to the meeting date. Monthly Progress Meetings shall occur for the duration of the project unless noted otherwise by the City. Meeting minutes shall be prepared and submitted within five working days after the meeting(s).

2.2 TASK 2: DATA COLLECTION AND PRE-STUDY ANALYSIS

A. Site Survey and Site Visit: Conduct a site visit to identify potential locations for treatment facilities within the City of Banning.

B. Water Demand Analysis: Review and evaluate the City of Banning's latest Water Master Plans and provide recommended design analysis for Chromium-6 treatment under built-out conditions.

C. Water Quality Testing: Coordinate water quality testing with the City staff as required for study. All water quality samples shall be collected by the City; testing shall be performed by a certified laboratory, with lab costs paid separately by the City.

2.3 TASK 3: EVALUATE TREATMENT ALTERNATIVES

A. Treatment Analysis:

- **a.** *Blending Evaluation:*
  - **i.** Provide analysis for blending facilities.
  - **ii.** Identify required infrastructure.
- **b.** *Well Head Treatment Evaluation:*
  - **i.** Ion Exchange (SBA and WBA)
    1. Pre-treatment and post-treatment
    2. Constituent removal effectiveness
    3. Residual management
  - **ii.** Reduction Coagulation Filtration (conventional and microfiltration)
    1. Pre-treatment and post-treatment
    2. Constituent removal effectiveness
    3. Residual management
  - **iii.** Evaluate Reverse Osmosis
    1. Pre-treatment and post-treatment
    2. Constituent removal effectiveness
    3. Residuals management
  - **iv.** Evaluate Biological Reactor (fixed bed, fluidized bed, and membrane)
    1. Pre-treatment and post-treatment
    2. Constituent removal effectiveness
    3. Residual management
  - **v.** Evaluate Brine Treatment Alternative & Hybrid Treatment Systems (includes biological, catalytic and electrochemical brine treatment)
    1. Pre-treatment and post-treatment
    2. Constituent removal effectiveness
    3. Residual management
- ***c.*** *Well Modifications*
    1. Analyze the potential for performing dynamic well profiling to determine the potential for blanking off section of well screen in order to reduce intrusion of Chromium-6.

B. System Operation Evaluation: Provide analysis for headloss through treatment system, system capacity, waste disposal and frequency, chemical use, energy cost, filter run time, and equipment longevity.

C. Infrastructure Site Analysis: Evaluate public right-of-way and easements required to locate waterlines, conveyance facilities, and potential sites for all recommended Chromium-6 treatment facilities.

D. Cost Analysis: Provide a preliminary cost analysis and engineer's estimate to design, construct and operate the treatment facilities.

E. Facilities Schematic: Provide an 11" X 17" (or larger) conceptual layout depicting the location of all potential facilities including, but not limited to, connection location, conveyance facilities and treatment facilities for the recommended treatment option.

2.4 TASK 4: PREPARE CHROMIUM-6 TREATMENT AND COMPLIANCE STUDY

Chromium-6 Treatment and Compliance Study: Prepare the study to summarize the information from Tasks 1 through 3. The study will be used as a basis to consider the design and construction of the Chromium-6 treatment facilities. Meet with the City staff to discuss and review comments. Assume a minimum of one meeting to review the draft submittal, one meeting to review the final submittal, and two additional meetings to provide support at city council meetings.

3.0 CONSULTANT QUALIFICATIONS

3.1 QUALIFICATIONS AND UNDERSTANDING

Each Consultant must provide the following information about their company so the City can evaluate the Consultant's stability and ability to support the commitments set forth in response to the RFP. It is imperative the Consultant's proposal fully address all aspects of the RFP. The proposal must provide the City Staff with clearly expressed information concerning the Proposer's understanding of the City's specific requirements which would result in the conduct of this study in a thorough and efficient manner.

The Consultant shall outline their company's (or team's) background, including:

- How long the company has been in business, plus a brief description of the company history, size and organization.
- Consultant qualifications to complete the scope of services and a statement of understanding of the work involved to complete this assignment.

3.2 PROJECT TEAM

Each Consultant must provide the following information about their project team.

- Primary point of contact, person responsible for overall corporate commitment (must be a company principal or officer) and project manager. Describe the responsibilities of the individuals and extent of involvement with the project.
- Identify and list key individuals proposed for the project team. Describe the responsibilities of the individuals and extent of involvement with the project.
- All key personnel listed should have current names, titles and telephone numbers and be listed on at least one of the supplied client references who are familiar with work performed by the individual in a similar capacity. References will be contacted as part of the selection process.

- Clearly identify project sub consultants, how long the prime and sub have worked together and the reason why they were selected. Consultants are encouraged to support small businesses where ever possible.

3.3 REFERENCES

The Consultant shall supply a <u>minimum of 3 references</u> from agencies with projects of similar nature. Each reference shall contain:

- Client name and contact information
- Project description
- Role of key project team members.

Only references of the prime consultant shall be considered, or references from project teams that have completed at least 3 projects together. The Consultant shall also list projects completed for other agencies.

3.4 SCHEDULE

The consultant shall provide a project schedule indicating key project milestones and project activities. The schedule shall reflect a tentative start date of November 30, 2015.

3.5 WORKSHOPS AND MEETINGS

See Section 2.1, Task 1.

4.0 <u>PROPOSAL SUBMISSION</u>

4.1 RFP TIME SCHEDULE

• Request for Proposal Available	Tues, September 8, 2015
• Inquiry Deadline	Thurs., September 24,2015
• Proposals Due	Tues , September 29, 2015
• Final Selection	Thurs. October 15, 2015
• City Council Recommendation	Tues., October 27, 2015
• Notice to Proceed (Tentative)	Mon., November 30, 2015

4.2 NUMBER OF COPIES AND DELIVERY

Four (4) copies of the proposal shall be submitted to the following address:

City of Banning
City Clerk's Office
99 E. Ramsey Street
P.O. Box 998
Banning, CA 92220

The proposal title, consultants name and deadline information shall be clearly identified on the submission package and cover page. Submission deadline is Tuesday, September 29, 2015 at 5:00 p.m. Proposals submitted after that time shall not be considered. All questions regarding the scope of work shall be submitted to Holly Stuart, Management Analyst at the address above or via e-mail at hstuart@ci.banning.ca.us.

4.3 FORMAT AND CONTENT

Proposals shall be printed on 8 ½" X 11" paper, single sided in a 10 point Arial font and be limited to 25 pages excluding the cover letter, resumes and any appended information.

Proposals should address the following items in order of appearance:

Cover letter

The cover letter shall be provided which explains the firm's interest in the project. The letter shall contain name/address/phone number of the person who will serve as the firm's principal contact person.

Qualifications of Firm/Project Team

Provide names, titles and responsibilities of key personnel who will be responsible for the management of the project. Include qualifications, resumes, experience of each, and length of time with the company.

References

Give at least three (3) references for projects of similar size and scope, including at least three (3) references for projects completed during the past five years. Include the name and organization, a brief summary of the work, the cost of the project and the name and telephone number of a responsible contact person.

Strategy and Implementation Plan

Prepare a list of tasks to address the Scope of Work. Describe the firm's interpretation of the City's objectives with the regard to this RFP. Describe the proposed strategy and/or plan for achieving the objectives of the RFP. The narrative should include a description of the logical progression of tasks and efforts. Also include an explanation of the type of technology that will be used. This section shall also include a time schedule for the completion of the project and an estimate of time commitments from City staff.

Proposed quality assurance program (QA/QC)

Explain the firm's quality assurance program and the proposed approach for implementing the plan with this project.

Fee Proposal: One set in a separate sealed envelope

The Fee Schedule in a separate envelope shall be broken down on separate sheets as follows:

- A "Not to Exceed" fee for all services. Man-hours and billing rates per classification of personnel will be indicated for each task and/or subtask.
- Provide a complete list of costs per task and/or subtask and a total fee for the proposal, including expected reimbursable expenses (non-binding), for completion of the scope of services set forth in the proposal.
- A current hourly Fee Schedule for Fiscal Year 2015/2016 and classification of personnel for the firm, along with the type of work they and any sub consultants will perform, is also required.
- All printing and reproduction costs, research, meetings, mileage, telephone usage, general office supplies and overhead, etc., shall be included in the proposal and its "Not to Exceed" Fee schedule. Proposals should be prepared in a straight forward manner.

4.4 PROPOSAL EVALUATION

Proposals will be evaluated based on the following criteria:

- Responsiveness to the RFP.
- Consultant qualifications, project understanding, and overall experience.
- Technical Competency.
- Results of reference checks.
- Project Schedule.
- Proposed QA/QC plan.
- Proposal Fee.

4.5 NEGOTIATIONS

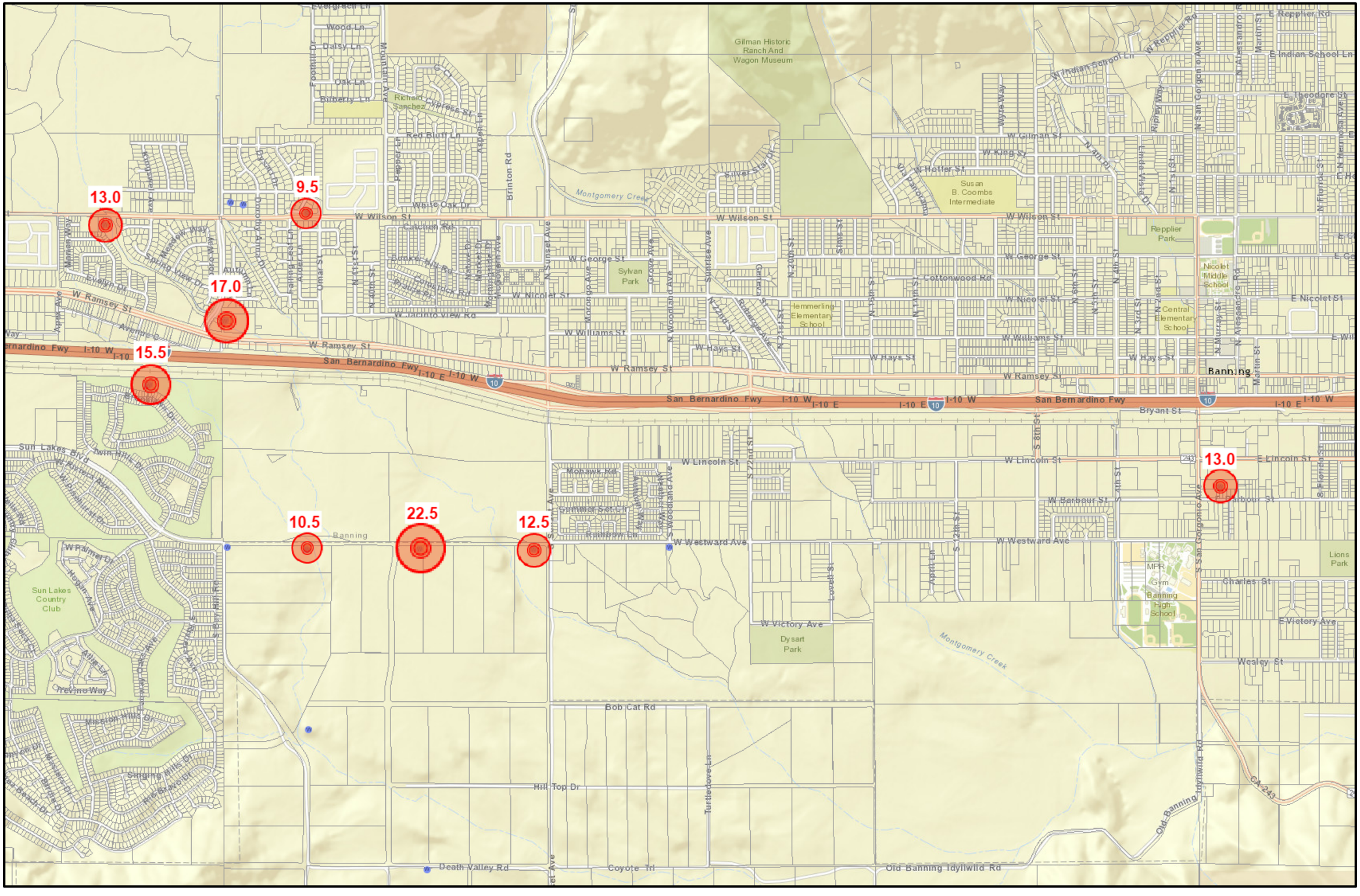
In an effort to manage the resources available for this project, the City may find it necessary to negotiate tasks, include contingencies for additional meetings or workshops, and address other factors identified by the Proposer not contemplated in this document or the City's standard agreement.

5.0 CONTRACT REQUIREMENTS AND SUBMITTALS

5.1 CITY OF BANNING REQUIREMENTS

The Contract will be presented to Council for approval. Please provide a copy of the attached City agreement to your legal team and insurance provider, if you are selected for Final Evaluation. This will expedite the process. A purchase order will not be granted until the contract is signed and all insurance requirements are satisfied.

Exhibit “A”
Concentrations and Locations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13.0
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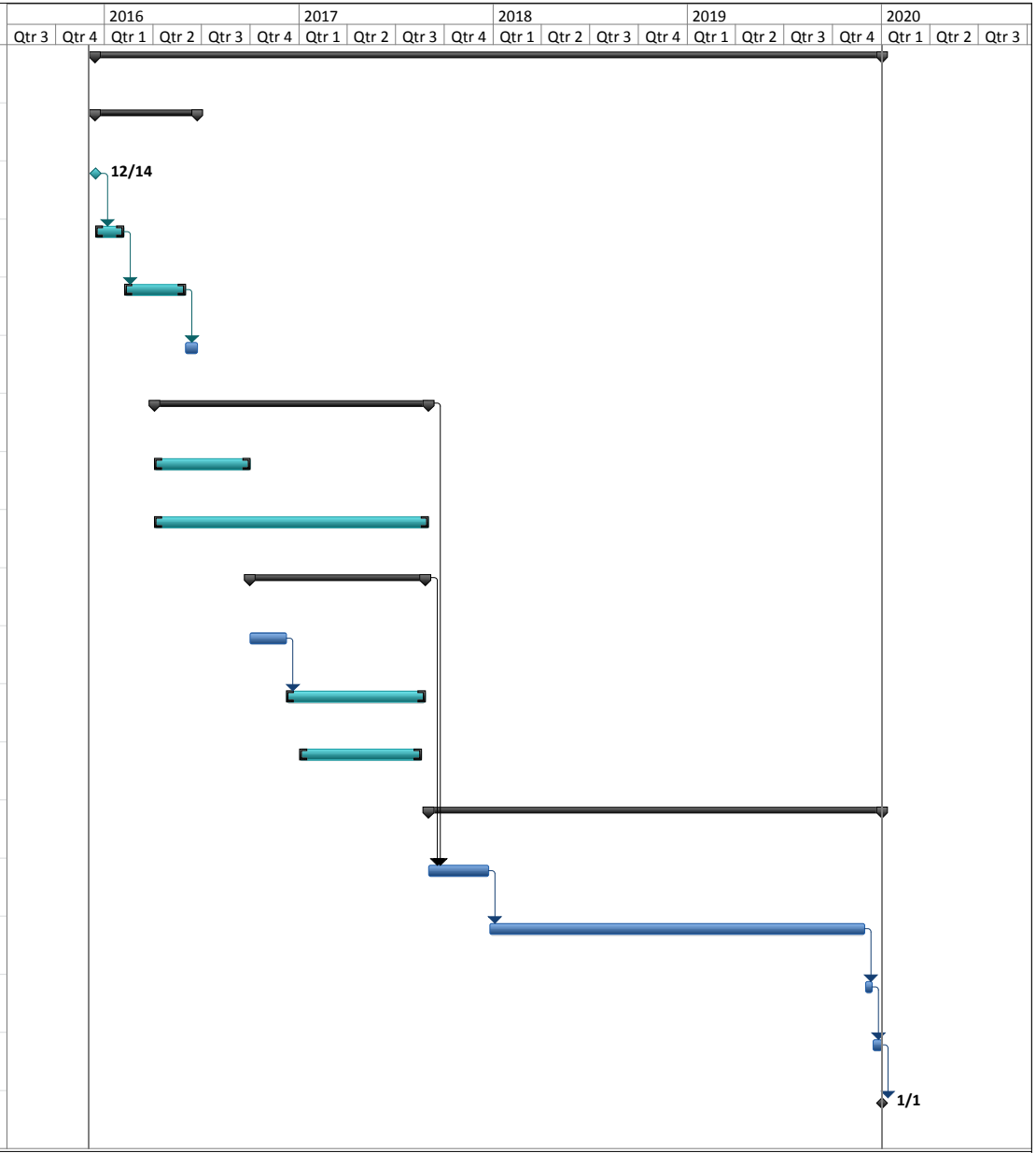
I-10 E
W Williams St
W Hays St
W Lincoln St
E Lincoln St
W Barbour St
W Westward Ave
W Victory Ave
Bryant St
Banning
Gilman Historic Ranch And Wagon Museum
Susan B. Coombs Intermediate
Repplier Park
Nicolet Middle School
Central Elementary School
Hemmerling Elementary School
Sylvan Park
Dysart Park
Banning High School
Lions Park
Sun Lakes Country Club
Montgomery Creek
Bob Cat Rd
Hill Top Dr
Death Valley Rd
Coyote Trl
Old Banning Idyllwild Rd
Sun Lakes Blvd
W George St
W Nicolet St
Cottonwood Rd
E Nicolet St
Charles St
E Victory Ave
Wesley St
Brinton Rd
Mountain Ave
Red Bluff Ln
White Oak Dr
Catchen Rd
Bunker Hill Rd
W Jacinto View Rd
Mobawk Rd
Rainbow Ln
Turtledove Ln
Lovell St
Old Banning Idyllwild Rd
CA-243

EXHIBIT C
GANTT CHART

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Chromium-6 Compliance Plan**	**1058 days**	**Mon 12/14/15**	**Wed 1/1/20**	
2	**Treatment Study, Evaluation and Planning**	**138 days**	**Mon 12/14/15**	**Wed 6/22/16**	
3	Kickoff	1 day	Mon 12/14/15	Mon 12/14/15	
4	Data Collection	39 days	Tue 12/15/15	Fri 2/5/16	3
5	Evaluation of Treatment Alts.	82 days	Mon 2/8/16	Tue 5/31/16	4
6	Preparation of Final Report	16 days	Wed 6/1/16	Wed 6/22/16	5
7	**Financial Planning**	**369 days**	**Mon 4/4/16**	**Thu 8/31/17**	
8	Rate Study	130 days	Mon 4/4/16	Fri 9/30/16	
9	Grant Prep/Submittal	369 days	Mon 4/4/16	Thu 8/31/17	
10	**Environmental and PS&E**	**236 days**	**Fri 9/30/16**	**Fri 8/25/17**	
11	Preliminary Engineering	49 days	Fri 9/30/16	Wed 12/7/16	
12	Environmental Docs/Permits	187 days	Thu 12/8/16	Fri 8/25/17	11
13	Land Acquisition	165 days	Mon 1/2/17	Fri 8/18/17	
14	**Construction**	**609 days**	**Fri 9/1/17**	**Wed 1/1/20**	
15	Bidding Phase	81 days	Fri 9/1/17	Fri 12/22/17	7,10
16	Construction	505 days	Mon 12/25/17	Fri 11/29/19	15
17	Commissioning of Treat. Faciliti	10 days	Mon 12/2/19	Fri 12/13/19	16
18	Testing	12 days	Mon 12/16/19	Tue 12/31/19	17
19	Close out	1 day	Wed 1/1/20	Wed 1/1/20	18



Project: Cr6 Compliance Schedule
Date: Wed 12/2/15

Task	External Tasks	Manual Task	Finish-only		
Split	External Milestone	Duration-only	Deadline		
Milestone	Inactive Task	Manual Summary Rollup	Progress		
Summary	Inactive Milestone	Manual Summary			
Project Summary	Inactive Summary	Start-only			



CHROMIUM-6
COMPLIANCE PLAN
Amendment No. 1

March, 2016

Current Compliance Feasibility

Funding Sources: The City of Banning currently does not have treatment facilities in place that would allow for the treatment of pumped water in order to meet the new standard. Capital costs have been estimated in the range of $12,000,000.00 and $48,000,000.00 depending on the method of treatment. Annual operation and maintenance costs have been estimated in the range of $500,000.00 and $1,000,000.00. Additionally, lifecycle costs have been estimated between $1,100,000.00 and $3,000,000.00 annually.

For Fiscal Year 2015/2016, the City of Banning Water Division had an annual operating revenue budget of $8,017,650,00 and an expenditure budget of $8,017,650.00, a delta of <$813,338.00>. The delta in this case is due to reduced revenue projections related to conservation as mandated by Executive Order B-29-15. The loss in revenue was reduced by heavy budget cuts. The reduction in revenue will continue to become a challenge for the City and more so with future O&M costs related to Chromium-6 treatment facilities.

Additionally, the Water Operations Fund has a projected reserve balance of $7,873,060.00 at July 1, 2016. The City also has approximately $1,700,000.00 in two additional water capital funds.

The City plans to pursue all available funding sources including Prop 1 and State Revolving Funds. The City of Banning has both Severely Disadvantage and Disadvantage Community zones which may assist the city in obtaining funds for the expected capital expenditures.

The City is also in the process of completing a rate study, which will include the expected increase in operations costs due to the new treatment facilities.

It is clear that the City currently does not have the financial capacity to fund capital, O&M and lifecycle costs.

Operation of Wells: As previously mentioned, one obvious option that exists for the City of Banning includes removing the affected wells from the potable distribution system. The option is also not feasible; the City has a total of 16,300 gpm of well capacity. The eight affected wells make up 7,250 gpm of said capacity, 45% of the City's total capacity, see Table A. During dry seasons, these wells are relied upon even more due to the fact that the City's wells located in the Water Canyon have shallow aquifers and tend to "dry up" first.

Please note that the previous compliance plan submitted listed only seven well. This has now been increased to eight wells.

	UCMR 1	UCMR 2	Date	Date	Date	Date	Annual Quarterly Average	Well Capacity (gpm)
	1/9/13	7/23/13	12/4/14	3/30/15	6/24/15	9/29/15		
Well C2	15.0	14.0	17.0	17.0	17.0	17.0	17.0	1200
Well C3	16.0	15.0	16.0	15.0	16.0	14.0	15.3	1000
Well C4	13.0	14.0	13.0	13.0	17.0	16.0	14.8	1300
Well C6	10.0	Out of Service	14.0	12.0	14.0	13.0	13.3	950
Well M3	9.2	8.1	9.3	9.7	10.0	10.0	9.8	750
Well M10	9.9	10.0	10.0	11.0	12.0	12.0	11.3	650
Well M11	9.3	11.0	12.0	13.0	9.5	N/A	-	700
Well M12	18.0	19.0	22.0	23.0	24.0	-	23.0	700

Table A: Wells and corresponding Chromium-6 concentrations (ppb).

Update on Milestones

1. Treatment Study, Evaluation and Planning: December, 2015 to June, 2016

    a. Update (3/17/16): City staff has had several progress meetings with the consultant. During this process the team has reviewed different treatment scenarios including individual well head treatment and cluster treatment facilities; system hydraulics and cost estimates. Staff expects to have a draft memorandum of the results in April, 2016.

2. Financing Plan: April, 2016 to August, 2017

    a. Update (3/17/16): Staff has begun filling has attended various Prop 1 grant program workshop; most recently a Prop 1 groundwater program workshop held in Redlands, CA on March 14, 2016. Staff has begun the preparation of the pre-application for submittal. The City will submit its pre-application in April, 2016.

3. Environmental and PS&E: September, 2016 to August, 2017

4. Construction: September, 2017 to January, 2020.

Best Available Technology and Costs

As part of the Treatment Study, Evaluation and Planning process as described above, the City has analyzed the following options and costs:

Technology	Capital Cost	O&M	Life Cycle Costs
RCF (w/Recycle)	$19M - $37M	$1M	$1.75M - $2.5M
RCMF (w/Recycle)	$25M - $48M	$1M	$2M - $3M
Containerized SBA	$13M - $25M	$.5M	$1.3M - $2M
SBA (w/ CRRF)	$12M - $23M	$.5M	$1.1M - $1.65M
Conventional SBA	$15M - $28M	$.5M	$1.25M - $1.75M
WBA	$17M - $31M	$1M	$1.75M - $2.5M

Public Notice

the City will provide written notice regarding its approved compliance plan to persons it serves, a minimum of two times per year (July 1st and December 1st of each year).

APPENDIX N

DRAFT RESOLUTION DECLARING A WATER SHORTAGE EMERGENCY

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BANNING DECLARING A WATER SHORTAGE EMERGENCY (DRAFT)

The City Council for the City of Banning does hereby resolve as follows:

PURSUANT to California Water code Section 350 *et seq*, the City Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the City Council finds, determines, and declares as follows:

(a) The City is the water purveyor for the property owners and inhabitants of the City of Banning in Riverside County and unincorporated areas of county adjacent to the City boundaries;

(b) The demand for water service is not expected to lessen;

(c) When the total combined quantities of water supply available to the City from all sources falls at or below the Stage 2 triggering levels described in the 2015 Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until precipitation and inflow dramatically increase or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Banning directs the Director of Public Works to find, determine, declare, and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate. After the declaration of a water shortage emergency, the

Director of Public Works is directed to determine the appropriate Rationing Stage and implement the City's Water Shortage Emergency Response.

FURTHERMORE, the City Council shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

PASSED, APPROVED, AND ADOPTED this ___ day of _____, _____.

_____

APPROVED AS TO FORM AND
LEGAL CONTENT

_____

ATTEST:

_____



3602 University Avenue
Riverside, California 92501
951·684·6900
www.kriegerandstewart.com

ORIGINAL

AGREEMENT

THIS AGREEMENT is by and between the City of Banning ("City") and the Beaumont-Cherry Valley Water District ("District"), sometimes jointly referred to as the "Parties."

RECITALS

WHEREAS, the Parties are the agencies serving the largest number of domestic water users in the San Gorgonio Pass area and collectively rely in substantial part on the Beaumont Basin ("Basin") as a source of water; and

WHEREAS, the Parties desire to promote conjunctive use of the Basin and desire to jointly address issues concerning the long-term reliability of the Basin as a source of potable water, including the use of water recycling and the treatment and use of imported water.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

I. PRODUCTION FACILITIES.

The Parties shall share the cost of constructing and operating three new production wells as follows:

A. Description.

The production wells shall be located west of Highland Springs Road at mutually agreed locations; shall be at least 1,500 feet deep' shall have minimum diameters of 18"; and each shall be capable of producing a minimum of 2,000 gallons per minute ("gpm").

B. Construction Costs.

The costs of constructing the production wells shall be shared equally between the Parties. The costs of constructing facilities to connect a Party's distribution system to any or all of said wells shall be borne by that Party.

C. Ownership.

The District and the City shall own and operate the wells jointly, on a 50-50 basis. District shall function as the lead operating agency with primary responsibility for the operation and maintenance of the joint facilities.

D. Operation, Maintenance, Repair and Replacement Costs.

(1). Operating and maintenance costs for each well shall be assessed to each Party on a per well basis. "Operating and maintenance costs" are defined as direct labor costs, electric costs, and costs of routine maintenance of the pumping facilities. "Repair and Replacement Cost: are defined as necessary costs of required repair or replacement of equipment and facilities. The District shall deliver the water to a tie-in point with City's water system at Highland Springs Avenue from the joint facilities at the Operating and maintenance costs of the water and without any wheeling cost.

(2). The cost shall be assessed based on the ratio of water supplied to that Party from a well/wells to the total water produced from that source.

(3). Each Party shall bear as its separate obligation those costs related to operation of facilities that it owns and that are used to deliver water to its distribution system.

(4). The District will submit the actual operation costs to operate the joint well/wells along with the necessary back up information on quarterly basis to the City. City will reimburse the District the said operation costs on quarterly basis subject to verification of such actual costs.

E. Production & Supply Pending Construction of Wells.

With respect to each production well, commencing on the date hereof and pending construction and development of the well to the point where total production from the well reaches 2,000 gpm, the District shall supply up to 1,000 gpm during Southern California Edison ("SCE")off peak hours to the City on an as-needed basis, at the District's cost of production. "Costs of production" are hereby defined as costs of electricity and direct labor costs required to bring the water to the surface and make it available to the City at the tie-in point.

F. Production & Supply Following Construction of Wells

(1). When the combined, total production from the three production wells reaches 6,000 gpm on a continuous basis, City shall be entitled to receive the greater of 3,000 gpm or 50% of the production at the District's Operating and Maintenance costs as defined above.

(2). The quantity of water delivered to City from the wells shall be charged to the City's total entitlement water from the Beaumont Basin set forth on Exhibit "Appropriators and Their Rights and Shares of Safe Yield and Operating Yield" of (Column number 6, "Operating Yield") the Stipulated Judgment in the Riverside County Superior Court case, San Timoteo Watershed Management Authority, etc. v. City of Banning, et al., Riverside County Superior Court case No. RIC 389197.

II. WATER TREATMENT PLANT.

A. Development of Joint Water Treatment Facilities.

The District has plans to build a water treatment facility for the treatment of state water project water on the District property located in Cherry Valley adjacent to District's Taylor reservoir. The Parties hereby express their intent to share the cost for design and construction of proposed treatment facilities. However, such agreement shall not prevent any party from unilaterally commencing the construction of the treatment plant. Should a Party elect to proceed with the design and construction of the treatment plant, it will not preclude the second party from constructing additions to the plant at a later date at the discretion of that Party. If construction on such water treatment plant has not commenced within 10 years of date hereof, Section II of this agreement "Water Treatment Plant" shall become void and of no further effect, unless otherwise mutually agreed by the Parties.

(1) Construction Costs.

Costs shall be shared based on percentage of participation in the total capacity of the plant: the City's percentage participation shall be determined by City, but shall not exceed 50% of rated plant capacity.

(2) Operation and Maintenance, Repair and Replacement Costs.

Operations and Maintenance shall be assessed on each Party according to its percentage of participation in the cost of operating and maintaining said water treatment facilities. "Repair and Replacement Cost" repair and replacement costs shall be assessed on each party according to its percentage of participation in the operation of the plant.

B. Treated Water Allocation.

Each party will be entitled to its prorata share of State Water Project water treated by the water treatment plant, based on its percentage of financial participation in the construction of the plant.

III. INTERCONNECTION OF SYSTEMS.

A. Connections.

City's and District's existing potable water distribution systems and recycled water systems (as the same are developed) shall be interconnected in order that each system will serve as a backup to the other. Connections will be at mutually agreed upon points between compatible pressure zones. Each connection shall be metered. Interconnection shall be established at such times and such places as are mutually agreed by the Parties in writing.

B. Cost Sharing.

(1) Construction Costs.

The costs of constructing/installing connections, meters and related facilities shall be borne equally by the Parties unless otherwise agreed in writing.

(2) Operation, Maintenance, Repair and Replacement

Each Party shall be responsible for operation, maintenance, repair and replacement of connections, meters, and related interconnection facilities assigned to it, as shown on Exhibit "A," attached hereto. Said exhibit may be amended from time to time. Each agency shall annually invoice the other for one-half of the total costs incurred for the operation and maintenance of said connections, etc.

C. Excess Deliveries Charges.

Water delivered to City by District shall be charged to City's entitlement to production from the wells as set forth in Paragraph 1(E) and 1(F) above. Deliveries by District to City in excess of said quantities shall be charged to City at District's lowest domestic water rate. Conversely, deliveries

by City to District shall be charged to District at City's lowest domestic water rate.

IV. RECYCLED WATER AND IN-LIEU WATER.

The District shall give the City first-take on any excess recycled water of the District. The decision to accept the water made available under this section shall be at the sole discretion of the City. The District and the City will work together to develop a system for deliveries to be made to the City under this subsection.

V. 1960, 1966 MEMORANDA OF UNDERSTANDING.

The 1960 and 1966 Memoranda of Understanding between the Parties are hereby modified to the extent necessary to allow for the construction and operation of the wells described in Paragraph 1 above, for the benefit of both parties. Consistent with those Memoranda of Understanding, either Party may, without consulting the other, develop additional water supplies within its boundaries, provided that it observes the one-half mile setback or buffer zone on each side of Highland Springs Road as created by said MOU's.

VI. Effective Date.

This MOU shall become effective when both Parties have executed this MOU and have executed the Stipulation for Judgment in the adjudication action, San Timoteo Watershed Management Authority v. City of Banning, et al., Riverside County Superior Court, Case No. RIC 389197.

VII. TERMINATION.

This Agreement may be terminated by written consent of both parties.

VIII. JOINT FUNDING EFFORT.

The Parties agree to work together to obtain Federal and State funding for projects that will jointly benefit both Parties, including the development of Supplemental Water Master Plans to include importation of State Water Project water, the capture and recharge of urban and storm runoff, recycled water systems, interconnection of domestic water systems, and State Water Project water treatment facilities. In addition, the Parties hereby agree to work with the California Department of Water Resources, the San Gorgonio Pass Water Agency ("Pass") and others, to develop supplemental water and recycled water supplies and will work closely with Pass to obtain access to and storage and distribution of State Water Project water.

IX. AMENDMENT.

This Agreement may be amended only by written amendment signed by the Parties.

X. SEVERABILITY.

In the event a portion of this Agreement is illegal or unenforceable, the remaining provisions will be given effect in order to preserve the original intent of the Parties.

XI. NOTICES.

Notices shall be sent as follows:

City of Banning:

Beaumont-Cherry Valley Water District:

DATED, 12/23/ 2003 CITY OF BANNING

By _____
Arthur L. Welch, Mayor

DATED, 2003 BEAUMONT-CHERRY VALLEY WATER DISTRICT

By _____
Gerald H. Brey, President

2015 URBAN WATER MANAGEMENT PLAN



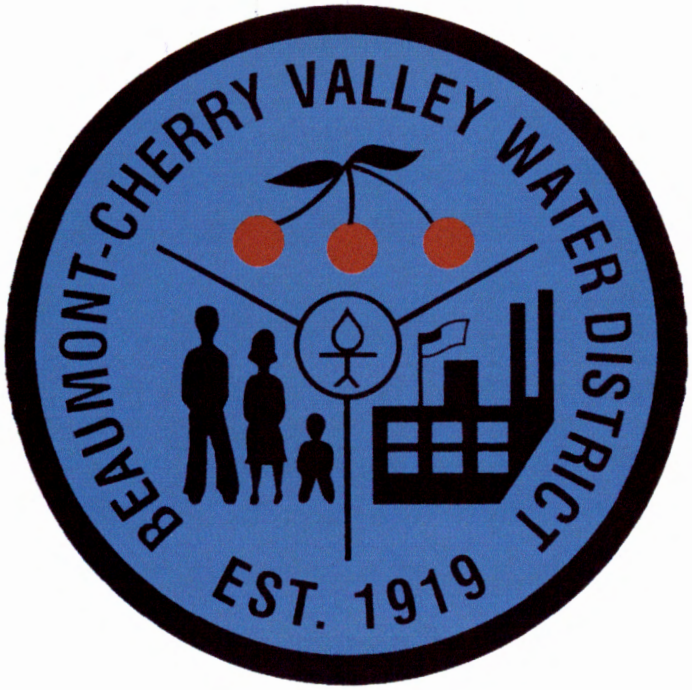


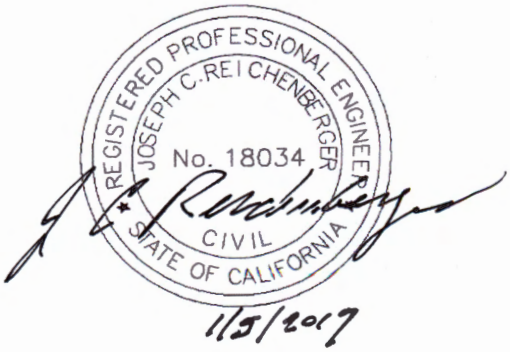
BEAUMONT CHERRY VALLEY WATER DISTRICT
560 Magnolia Avenue
Beaumont, CA 92223

January 2017



2015
URBAN WATER MANAGEMENT PLAN





Prepared by

BEAUMONT CHERRY VALLEY WATER DISTRICT
560 N. MAGNOLIA AVENUE
BEAUMONT, CALIFORNIA 92220

January 2017

ABBREVIATIONS AND ACRONYMS

Acre-ft	acre-feet (1 acre-ft = 325,800 gallons)
Acre-ft/yr	acre-feet per year
AFY	acre-feet per year
AMR	Automatic Meter Reading
BCVWD	Beaumont Cherry Valley Water District
BIA	Building Industry Association
BMP	Best Management Practices
BSU	Beaumont Storage Unit, Beaumont Basin
BMZ	Beaumont Management Zone (essentially the Beaumont Basin)
CaSIL	California Spatial Information Library
CEC	Chemicals of Emerging Concern
CEQA	California Environmental Quality Act
CFD	Community Facilities District
cfs	Cubic feet per second
CII	Commercial, Industrial and Institutional
CIMIS	California Irrigation Management Information System
Company	Beaumont Land and Water Company
Cr+6	Hexavalent Chromium
CUWCC	California Urban Water Conservation Council
CVAN	Cherry Valley Acres and Neighbors
CWC	California Water Code
DDW	State Water Resources Control Board, Division of Drinking Water
DFW	Department of Fish and Wildlife (formerly Fish and Game (DFG)
District	Beaumont Cherry Valley Water District
DMM	Demand Management Measure (water conservation)
DoF	Division of Finance
DWR	Department of Water Resources
EBX	East Branch Extension of the State Water Project
EBX II	East Branch Extension of the State Water Project Phase II
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
ERP	Emergency Response Plan

ft	feet
ft bgs	feet below ground surface
GIS	Geographic Information System
gpcd or GPCD	Gallons per capita per day
gpd	Gallons per day
gpm	gallons per minute
GWMP	Groundwater Management Plan
HCF	hundred cubic feet (748 gallons) = 1 “unit”
HOA	Home Owners Association
HP	Horsepower
IEBL	Inland Empire Brine Line (connects to SARI)
IPR	Indirect Potable Reuse (advance treated recycled water for recharge)
IRWMP	Integrated Regional Water Management Plan or Program
JPA	Joint Powers Agency
LAFCO	Local Agency Formation Commission
LSG	Little San Gorgonio
MAX	Maximum
MCL	Maximum Contaminant Level
MF	Microfiltration
MG	Million gallons
mgd	millions of gallons per day
mg/L	milligram per liter (approx. 1 part per million)
mi^2	square miles
MIH	miner’s inch-hours, a volume of water, 0.020 cfs flowing for 1 hour in Southern California, (72 cubic feet or 538.6 gallons)
MIN	Minutes or Minimum
MOU	Memorandum of Understanding
MSL	Mean Sea Level
N/A	Not Available/Not Applicable
NDMA	*N*-Nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
Pass	San Gorgonio Pass Water Agency
Pass Agency	San Gorgonio Pass Water Agency
PPCP	Pharmaceuticals and Personal Care Products

RCFCD	Riverside County Flood Control and Water Conservation District
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAR	Sodium Adsorption Ratio
SAWPA	Santa Ana Watershed Project Authority
SARI	Santa Ana Regional Interceptor (Brine line)
SBVMWD	San Bernardino Valley Municipal Water District (Valley District)
SCAG	Southern California Association of Governments
SCPGA	Southern California Professional Golf Association
SGPWA	San Gorgonio Pass Water Agency (Pass or Pass Agency)
SGPRWA	San Gorgonio Pass Regional Water Alliance
SOI	Sphere of Influence
SPW	State Project Water (Imported water from Northern California)
sq mi	square mile
STWMA	San Timoteo Watershed Management Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
THM	Trihalomethane (a disinfection by-product)
TIN	Total Inorganic Nitrogen (sum of ammonia-nitrogen + nitrite-nitrogen + nitrate-nitrogen)
TOC	Total Organic Carbon
UF	Ultra-filtration
ULFT	Ultra-Low-Flush Toilet
USGS	U.S. Geological Survey
USWS	U.S. Weather Service
UWMP	Urban Water Management Plan
Valley District	San Bernardino Valley Municipal Water District
WRWRF	Wochholz Regional Water Reclamation Facility
WSCP	Water Shortage Contingency Plan
WUCOLS	Water Use Classification of Landscape Species
WWTF	Wastewater Treatment Facility
YVWD	Yucaipa Valley Water District

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Section 1

Introduction and Overview

Urban Water Management Planning and California Water Code

The California Water Code requires all urban water suppliers within the state to prepare urban water management plans and update them every five years. These plans satisfy the requirements of the Urban Water Management Planning Act of 1983 including amendments that have been made to the Act since then. Sections 10610 through 10656 of the Water Code detail the information that must be included in these plans, as well as who must file them. Appendix A of this Urban Water Management Plan (UWMP) contains the text of the Act. This report constitutes the 2015 update to the Beaumont-Cherry Valley Water District's 2013 Urban Water Management Plan (UWMP).

According to the Act, the Legislature finds and declares all of the following:

- The waters of the state are a limited and renewable resource subject to ever-increasing demands.
- The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
- A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
- As part of its long-range planning activities, every urban water supplier should make every effort to ensure an appropriate level of reliability in its water supply sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
- Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.
- Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies. Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities. Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

- The quality of source supplies can have a significant impact on water management strategies and supply reliability.

The Legislature further finds and declares that it is the policy of the state as follows:

- The management of urban water demands and efficient use of water shall be actively pursued to protect the people of the state and their water resources.
- The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
- Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

The Act requires that each urban water supplier, providing water for municipal purposes, either directly or indirectly, to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, shall prepare, update and adopt its urban water management plan at least once every five years or before December 31, in years ending in five and zero, except as modified by the Legislature. (The Legislature required the 2015 UWMP Update to be submitted to DWR by July 1, 2016.) The Urban Water Supplier should periodically review the UWMP and any changes or amendments required as a result of that review shall be adopted (§10640).

BCVWD submitted its last UWMP Update in July 2013.

Changes in the Act Since 2010

There have been some changes to the Act since 2010. The changes are summarized in Table 1-1.

Water Conservation Act of 2009 (SB X7-7)

The Water Conservation Act of 2009 required retail urban water suppliers to report, in their UWMP's, their Base Daily per Capita Water Use (Baseline GPCD), 2015 Interim Urban Water Use Target, 2020 Urban Water Use Target, and Compliance Daily per Capita Water Use. This was included in BCVWD's 2013 UWMP Update.

Beginning in 2016, retail water suppliers are required to comply with the water conservation requirements in SB X7-7 in order to be eligible for State water grants or loans. Retail water agencies are required to set targets and track progress toward decreasing daily per capita urban water use in their service area, which will assist the State in meeting its 20 percent reduction goal by 2020.

Table 1-1
Changes to the UWMP Act since 2010

Topic	CWC Section	Legislative Bill	Summary
Demand Management Measures	10631 (f)(1) and (2)	AB 2067, 2014	Requires water suppliers to provide narratives describing their water demand management measures, as provided. Requires retail water suppliers to address the nature and extent of each water demand management measure implemented over the past 5 years and describe the water demand management measures that the supplier plans to implement to achieve its water use targets.
Submittal Date	10621 (d)	AB 2067, 2014	Requires each urban water supplier to submit its 2015 plan to the Department of Water Resources by July 1, 2016.
Electronic Submittal	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to be submitted electronically to the department.
Standardized Forms	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by the department.
Water Loss	10631 (e) (1) (J) and (3)	SB 1420, 2014	Requires a plan to quantify and report on distribution system water loss.
Estimating Future Water Savings	10631 (e) (4)	SB 1420, 2014	Provides for water use projections to display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.
Voluntary Reporting of Energy Intensity	10631.2 (a) and (b)	SB 1036, 2014	Provides for an urban water supplier to include certain energy-related information, including, but not limited to, an estimate of the amount of energy used to extract or divert water supplies.
Defining Water Features	10632	AB 2409, 2010	Requires urban water suppliers to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.

Urban Water Management Plans in Relationship to Other Planning Efforts

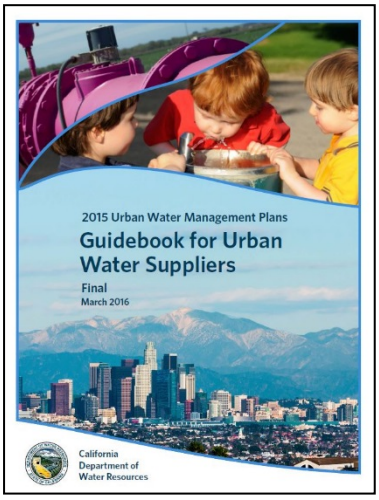
In the preparation of this UWMP Update, BCVWD used the following documents among others:

- 2015 BCVWD Potable Water Master Plan Update, (January, 2016)
- 2016 BCVWD Non-potable Water Master Plan, (in process)

- Recycled Water Facilities Planning Report for Recycled Water Pipeline and Pump Station, (June, 2014)
- City of Beaumont, General Plan, (March, 2007)
- Pass Area Land Use Plan, part of Riverside County General Plan, (October 7, 2003)
- San Gorgonio Pass Water Agency, Update of Demand Section of 2010 Urban Water Management Plan (UWMP) and Amendment of 2010 UWMP, (July 23, 2014)
- San Gorgonio Pass Water Agency, 2010 Urban Water Management Plan (UWMP), (December, 2010)
- San Gorgonio Pass Water Agency, Update Evaluation of Potential Water Transfer Opportunities, (July 23, 2013)
- Resolution 2015-05, Resolution of The Board of Directors of the San Gorgonio Pass Water Agency to Adopt Facility Capacity Fees for Facilities and Water, (July 27, 2015)

The City of Beaumont General Plan and the Pass Area Land Use Plans, listed above, are approaching or older than ten years; however, these are the latest land use and general plans available at this time.

UWMP Report Organization



The organization of the sections of this report follows as closely as possible the "Guidebook for Urban Water Suppliers, Final March 2016" developed by the California Department of Water Resources (DWR) to facilitate review by DWR. Although there is some flexibility in the organization and content, the "Guidelines" have specific required elements and table formats.
Throughout the various sections, the California Water Code (law) is cited and included to help the reader better understand why certain material is presented the way it is. Whenever the Water Code is cited it is presented in a boxed format as shown below:

CWC 10631

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

UWMP and Grant or Loan Eligibility

For an urban water supplier to be eligible for any water management grant or loan administered by DWR, the agency must have a current UWMP on file that has been determined by DWR to address the requirements of the California Water Code (CWC). A current UWMP must also be maintained by the water supplier throughout the term of any grant or loan administered by

DWR. An UWMP may also be required in order to be eligible for other State funding, depending on the conditions that are specified in the funding guidelines.

Changes to California law require that, beginning in 2016, urban retail water suppliers must comply with water conservation requirements established by the Water Conservation Act of 2009 in order to be eligible for State water grants or loans. For 2015 UWMP's this means that a retail water agency must meet its 2015 Interim Urban Water Use Target and report compliance in the 2015 UWMP.

Suppliers may still be eligible for State water grants or loans if either of the following requirements are met.

1. The urban retail water supplier submits a schedule, financing plan, and budget, for achieving the per capita reductions; and/or
2. The urban retail water supplier submitted to DWR, for DWR's approval, documentation demonstrating that its entire service area qualifies as a disadvantaged community.

If an agency met its 2015 Interim Target, or met either of the exceptions above, and is participating in a multiagency water project or an Integrated Regional Water Management Plan, it shall continue to be eligible to receive grants or loans even though one or more of the other participating agencies is not in compliance with the SB X7-7 requirements.

Section 2

Plan Preparation

Basis for Preparing a Plan

CWC 10617

"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems…

CWC 10620

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

CWC 10621

(a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).

(d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

BCVWD is a retail, urban water supplier as the District has over 16,000 connections and delivers just over 9,000 acre-ft per year (AFY) of potable water.

Public Water System

CWC 10644

(a)(2) The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department.

CWC 10608.52

(a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24… The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

> *California Health and Safety Code 116275*
>
> *(h) "Public Water System" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.*

BCVWD is a retail, public water system regulated by the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW).

Agencies Serving Multiple Service Areas/Public Water Systems

BCVWD has a single service area which includes the City of Beaumont and the unincorporated community of Cherry Valley in Riverside County and a portion of San Bernardino County. Table 2-1 presents information on BCVWD.

Table 2-1 Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015, AF
3310002	Beaumont Cherry Valley Water District	16,799	9,293
	TOTAL	16,799	9,293

NOTES:

Regional Planning

BCVWD is one of thirteen regional water providers and local governments that are a part of the San Gorgonio Pass Regional Water Alliance (SGPRWA or Alliance) formed through a memorandum of understanding (MOU) in March 2014. The Alliance is not preparing a separate regional UMWP Update. The goals of the Alliance are:

- To improve coordination, collaboration and communication among local, state and federal governments and water purveyors and other water resource stakeholders in the San Gorgonio Pass region to achieve greater efficiency and effectiveness in delivering water supplies.
- To develop and promote common water strategies that will, when implemented, fulfill the water demands of the regional area for the future

Individual or Regional Planning and Compliance

Table 2-2 shows BCVWD's 2015 UWMP is an individual UWMP.

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance**
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☑	Water Supplier is also a member of a Regional Alliance	Other
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES: BCVWD is a memer of, the San Gorgonio Pass Regional Water Alliance, which was formed in 2015; they did not prepare a 2015 UWMP			

Fiscal or Calendar Year and Units of Measurement

BCVWD is on a calendar year basis. Units of measure are acre-feet (AF) or acre-ft per year (AFY) unless clearly indicated otherwise. Individual customer meters read and customers are billed in terms of hundreds of cubic feet (HCF). Daily volumes are generally reporter in million gallons (MG) or million gallons per day (mgd). Data reported herein includes all of 2015. Units are clearly indicated on all tables.

Table 2-3 shows the Agency Identification information.

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Coordination and Outreach

Wholesale and Retail Agency Coordination

CWC 10631

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The wholesale water provider in the San Gorgonio Pass area of Riverside County is the San Gorgonio Pass Water Agency (SGPWA). The Agency has been informed of BCVWD's projected imported water needs. BCVWD provided SGPWA with responses to their inquiries on the District's water demands, supplies and imported water needs.

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
San Gorgonio Pass Water Agency
NOTES:

Coordination with Other Agencies and the Community

CWC 10620

(d)(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC 10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

Table 2-5 presents a list of adjacent water agencies, communities and organizations that would have an interest in the BCVWD UWMP Update.

Table 2-5
Agencies, Communities, and Organizations Having an Interest BCVWD's UWMP

Agency	Sent Notice		Agency	Sent Notice
City of Beaumont	■		Eastern MWD	■
City of Banning	■		SGPWA	■
City of Yucaipa	■		Beaumont Basin Watermaster	■
City of Calimesa	■		Riverside County LAFCO	■
YVWD	■		San Bernardino County LAFCO	■
South Mesa WC	■		CVAN	■
Santa Ana Watershed Project Authority (SAWPA)	■		Riverside BIA	■
Beaumont Cherry Valley Parks and Recreation District	■		Riverside County Flood Control and Water Conservation District	■
HOAs			Beaumont Unified School District	■
Riverside County Planning Department			San Bernardino County Land Use Services	

The City of Beaumont has a direct interest since the city is served by BCVWD; BCVWD is also in discussions with the City about recycled water. The City of Banning has agreements with BCVWD to recharge imported water on their behalf, has an existing emergency potable water connection with BCVWD and stub outs across Highland Springs Avenue for potable and recycled water connections and has financially participated with BCVWD in the construction of several production wells. BCVWD has pipeline facilities within the City of Calimesa; however the District does not serve the city. The city is served by YVWD.

YVWD has been working with BCVWD to provide recycled (non-potable) water to BCVWD. BCVWD prepared a Facilities Planning Report in June 2014 for a Recycled Water Supply Pipeline and Pump Station; this report has been approved by the SWRCB.

The County of Riverside Planning Department is involved with land use planning and building permit approval in the unincorporated community of Cherry Valley; the County of San Bernardino Land Use Services controls land use planning in the unincorporated portion of the District's service in that county. The Riverside and San Bernardino County LAFCOs have an interest since they have requirements for water supply assessments whenever there is an annexation. Riverside County Flood Control and Water Conservation District are involved with BCVWD on the Beaumont MDP Line 16 project

and control the flood control channels within BCVWD's service area. Some of these channels play a role in basin recharge.

The Beaumont Basin Watermaster manages the groundwater basin which provides over 80% of the District's groundwater production.

The SGPWA is the State Water Contractor that imports water on behalf of the District and its other retail agencies through the East Branch Extension of the State Water Project. BCVWD has been purchasing water from SGPWA and percolating it in BCVWD's groundwater recharge facility since 2006. The SGPWA also has an agreement with BCVWD to use recharge facilities at the mouth of Little San Gorgonio Canyon on BCVWD-owned land for the recharge of State Project Water.

The Cherry Valley Acres and Neighbors (CVAN) is a local organization which is very active on land use and water issues.

The Riverside Building Industry Association is included since they are also very active in the area. There are a number of Home Owner Associations, (HOAs), which have in interest in as much as most of them are overseeing the non-potable water systems in their areas. The Beaumont Cherry Valley Parks and Recreation District and the Beaumont Unified School District are major current users of BCVWD's potable and non-potable water

The Santa Ana Watershed Planning Authority (SAWPA) is the major regional water resource planning organization in the Upper Santa Ana River and provides funding form projects in BCVWD's service area.

It should be pointed out that BCVWD does not serve any customers in San Bernardino County except its own residences.

Notice to Cities and Counties

> *CWC 10621 (b)*
>
> *Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.*

In early May, 2016, the 60-day notification was sent to the organizations indicated in Table 2-5 above. The notice stated that BCVWD was in the process of updating its UWMP. A formal notice of the date and time of the public hearing for adoption of the 2015 UWMP was sent to all of the Agencies in Table 2-5 on November 3 and 7, 2016 for a Public Hearing on December 14, 2016 in the Board Room, Beaumont Cherry Valley Water District, 560 Magnolia Avenue, Beaumont, CA 92223. The meeting was noticed, as required, in the *Record Gazette* newspaper.

The 2015 UWMP was posted on BCVWD's website on November 3, 2016.

Project Team and Acknowledgements

The 2015 Urban Water Management Plan Update was prepared by Joseph. C. Reichenberger P.E., BCEE, Staff Engineer, with assistance and review from Eric Fraser P.E, General Manager and Dan Jaggers P.E., Director of Engineering,

We acknowledge the help from the District's Board of Directors, other District Staff including Tony Lara, Director of Operations, Knute Dahlstrom, Sylvia Molina, Bruce Kincaid, Robert Rasha, and Bill Clayton.

Section 3

System Description

General Description of District

> *10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:*
>
> *10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

The Beaumont Cherry Valley Water District (BCVWD) provides potable and non-potable water service to about 16,799 active accounts, (16,985 connections), as of December 2015[1], in the City of Beaumont and the unincorporated community of Cherry Valley in Riverside and San Bernardino Counties in Southern California. The District's is approximately 75 miles east of Los Angeles along Interstate 10. BCVWD's average day demand in 2015 was 9.2 mgd; maximum day was 15.3 mgd. This was a decrease from 2013 when the average day and maximum day demands were 11.45 mgd and 20.2 mgd respectively -- primarily due to required landscape and outdoor water use conservation measures enacted by the State of California due to the 5-year drought.

The San Gorgonio Pass area started to develop in the late 1880s and in 1912 the community of Beaumont incorporated. BCVWD was formed in 1919 as the Beaumont Irrigation District under California Irrigation District Law, Water Code Section §20500 *et seq*. The name was changed to the Beaumont Cherry Valley Water District in 1973. Beaumont and Cherry Valley remained small until about the mid-1980s.



BCVWD Office since 2008

The populations of Beaumont and Cherry Valley in 1980 were 6,818 and 5,012 respectively. The boom of the early 2000s, saw Beaumont's population to skyrocket to 36,837 by 2010; Cherry Valley showed only limited growth to 6,279 during that same time period. Current (2015)

[1] BCWD (2015). Annual Financial Report for Fiscal Year Ended December 31, 2015.

population served by the District is approximately 48,400. Meeting the water demands for this rapid growth in Beaumont was challenging.

The population served by the District is expected to nearly double by 2040-45. The City of Beaumont's General Plan, adopted in 2007, had a projected build-out population of 87,200. The build out population within the District's Sphere of Influence (SOI) is estimated to be about 112,300 based on BCVWD estimates of land use.

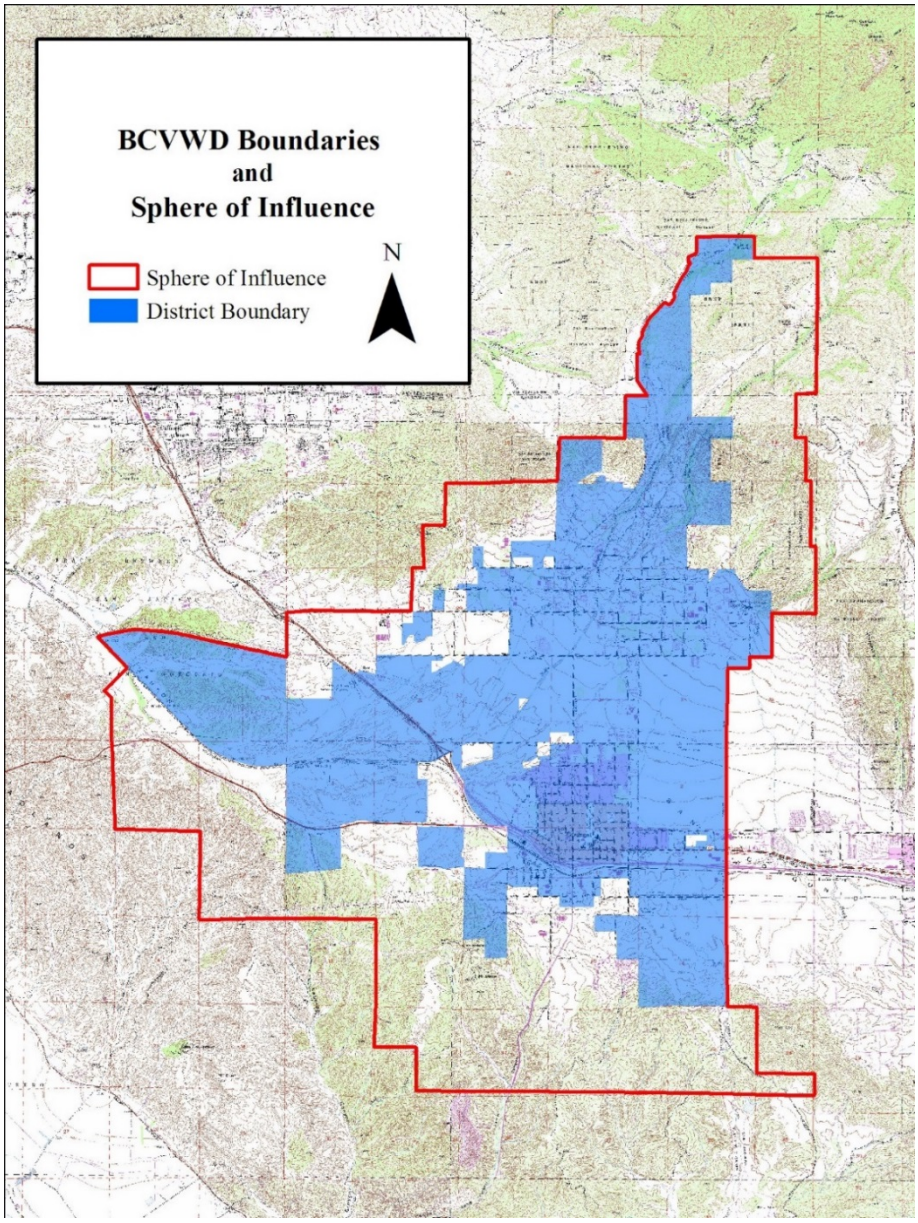
Service Area

The District's present service area covers approximately 28 square miles, virtually all of which is in Riverside County, and includes the City of Beaumont and the community of Cherry Valley. The District owns 1,524 acres of watershed land in Edgar Canyon in San Bernardino County located just north of the Riverside-San Bernardino County line where the District operates a number of wells and several reservoirs.

The District's SOI, or ultimate service planning area, encompasses an area of approximately 37.5 square miles (14.3 sq. mi. are in the City of Beaumont). This SOI, shown in Figure 3-1, was established by the Riverside and San Bernardino County Local Agency Formation Commissions (LAFCOs). SOIs are established as a planning tool and help establish agency boundaries and avoid problems in service, unnecessary duplication of costs, and inefficiencies associated with overlapping service.

The District's SOI is bounded on the west and north by the Yucaipa Valley Water District (YVWD) and on the east by the City of Banning. The northerly boundary of Eastern Municipal Water District (EMWD) is one-mile south of the District's southerly SOI boundary. The area between EMWD and the District's SOI is not within any SOI and could be annexed to either the District or EMWD. The District's SOI in Little San Gorgonio Canyon follows Oak Glen Road. The area west of Oak Glen Road is within YVWD's SOI; east of Oak Glen Road is within the District's SOI.

In 1999, as part of an agreement to transfer the "Midway Area" to the City of Banning, the easterly limit of the District's SOI was set at Highland Springs Road. Areas east of Highland Springs Road are now served by the City of Banning. (Note, the "Midway Area" was along 6th St. east of Highland Springs Rd.)



Source: modified from USGS 1:24 000 topographic maps of Beaumont, Forest Falls, Yucaipa, and El Casco, CA

NORTH

0 8000

Approximate Scale in Feet

Figure 3-1
District Boundary and Sphere of Influence

Beaumont Cherry Valley Water District
Beaumont, California

West of I-10, between Oak Valley Parkway (formerly San Timoteo Canyon Road) and I-10, the District's SOI matches that of the City of Beaumont and extends northerly and westerly to Southern California Edison Power Line Easement (Towers). This corresponds to the northerly boundary of the Fairway Canyon Project. North of the Power Line Easement there is an open space reserve that would limit any development westerly along Oak Valley Parkway (San Timoteo Canyon Rd.) This portion of the District's SOI boundary abuts the City of Calimesa and Yucaipa Valley Water District (YVWD).

About the year 2007, Riverside County LAFCO revised the District's SOI Boundaries east of I-10 in the vicinity of Calimesa. The area north of Cherry Valley Blvd from I-10 eastward to a point about 1,000 ft west of Hannon Rd is now in the City of Calimesa and in YVWD's SOI.

Though not in the District's service area boundary at the present time, a future development (Jack Rabbit Trail Project) southerly of Highway 60 is in the District's service area and ultimately would be served by the District.

The District's service area ranges in elevation from 2300 feet above mean sea level (MSL) in Fairway Canyon area of Beaumont on the western boundary, to 2900 feet in Cherry Valley, and over 4,000 feet in the upper reaches of the SOI. The area serves primarily as a "bedroom" community for the Riverside/San Bernardino Area and the communities east of Los Angeles County along the I-10 corridor.

The District is governed by a 5-member Board of Directors, each representing a division within the existing service area. Members of the Board of Directors are elected at large.

BCVWD's Water Supply System

BCVWD has a potable water supply system and a non-potable water system. The potable water system is supplied exclusively by groundwater wells; the non-potable water system is designed to convey non-potable groundwater, recycled water, untreated imported water and potable water, as make-up, or a blend of all. In addition to these systems the District owns and operates a groundwater recharge facility and imported water pipeline. BCVWD's 2015 average day and maximum day potable water demands were 9.2 mgd and 15.3 mgd, respectively. Average day non-potable water demand for 2015 was 1.15 mgd. These demands are lower than 2013 when the average day total potable and non-potable demand was 11.45 mgd; maximum day was 20.2 mgd. The impact of the Governor's mandated conservation is evident.

Potable Water System



BCVWD's potable water system is supplied by wells in Little San Gorgonio Creek (Edgar Canyon) and the Beaumont Basin (sometimes called the Beaumont Storage Unit or the Beaumont Management Zone). The District has a total of 24 wells (1 well is a standby). One of the wells, Well 26, can pump into either the potable water or the non-potable water system. Currently it is pumping into the non-potable water system. The Beaumont Basin is adjudicated and managed by the Beaumont Basin Watermaster. BCVWD augments its groundwater supply with imported State Project Water from the San Gorgonio Pass Water Agency (SGPWA) which is recharged at BCVWD's recharge facility at the intersection of Brookside Avenue and Beaumont Avenue.



Wells in Edgar Canyon have limited yield, particularly in dry years, and take water from shallow alluvial and bedrock aquifers; wells in the Beaumont Basin are large capacity and pump from deep aquifers – some as deep as 1500 ft below the ground surface. The Edgar Canyon wells are very inexpensive to operate and are the preferred source; however, those wells are not able to meet the current average day demand. The Edgar Canyon wells pump to a gravity transmission main that extends the full length of the District-owned properties in Edgar Canyon. The transmission main connects to the distribution system in Cherry Valley. Water from the Edgar Canyon Wells, which is not used in the developed areas adjacent to Edgar Canyon or Cherry Valley, is transferred to lower pressure zones serving the City of Beaumont. This happens regularly in the winter time. The Edgar Canyon Wells provide about 15 to 20 percent of the total annual supply; the rest is pumped from wells in the Beaumont Basin.

BCVWD has two active stream diversion locations within Little San Gorgonio Creek (Edgar Canyon) that are in the State Water Resources Control Board, Division of Water Rights database (S014351, S014352). The diversions have pre-1914 recorded water rights amounting to 3,000 miner's inch hours (MIH) or approximately 45,000 acre-feet per year (AFY) of right for diversion of water for domestic and irrigation uses. These date back to the early history of the District. However, the District has never had a demand that requires such large quantities of water supply; and the watersheds may not be capable of supplying such quantities during an average year. At the present time the District currently diverts streamflow in Edgar Canyon to a series of percolation ponds which recharge the shallow wells in Edgar Canyon. This water is then extracted for domestic purposes.



BCVWD's total well capacity (Edgar Canyon and Beaumont Basin) is about 27.5 million gallons per day (mgd) with the largest well out of service, which is much greater than the current 15.3 mgd maximum day demand (2015).

The District has 11 pressure zones and 14 reservoirs (tanks) ranging in size from 0.5 million gallons (MG) to 5 MG. Total storage is approximately 22 MG –almost 2.5 average days or 1.4 maximum days. The reservoirs provide gravity supply to their respective pressure zones. The BCVWD's system is constructed such that any higher zone reservoir can supply water on an emergency basis to any lower zone reservoir. There are booster pumps in the system to pump water up from a lower pressure zone to a higher pressure zone also.

The transmission system in the main pressure zones is 24-in diameter. (There are some 30-in diameter pipelines at some reservoirs.) The bulk of the pipe is ductile iron pipe with cement mortar lining and was installed in the last 10 to 15 years. There are a number of small distribution lines (4-in and smaller that are gradually being replaced over time with minimum 8-in diameter ductile iron pipe. All developments since the early 1980s have installed mortar lined, ductile iron pipe. The distribution system is capable of providing over 4,000 gallons per minute (gpm) fire flow in the industrial/commercial areas of the service area.

Imported Water and Recharge Facilities

Around 2001, BCVWD began investigating an 80-acre site on the east side of Beaumont Avenue between Brookside Ave. and Cherry Valley Blvd. as a location for a facility to recharge captured storm flow and imported water. After extensive hydrogeologic investigations including pilot testing, the District eventually purchased the site, (known as the Oda Property), and developed Phase 1 of the recharge facility on the westerly half of the site. The Phase 1 facilities were completed and went on line in late summer 2006. Phase 2 of the recharge facility was completed in 2014. This site has excellent recharge capabilities with long-term percolation rates around 7 to 10 acre-ft/acre/day with proper maintenance.

The District completed construction of a 24-in pipeline from the turnout on East Branch Extension (EBX) of the State Water Project to the groundwater recharge site in 2006. A metering station was installed at the turnout at Noble Creek and Vineland Avenue and BCVWD began taking imported water deliveries from SGPWA for recharge in September 2006. In conjunction with the recharge facility, the District developed a drought-tolerant landscape demonstration garden with walking trails and picnic areas for visitors to the site. Since its operation in 2006 through the end of 2015, nearly 48,500 acre-ft (about 15.8 billion gallons) of imported water have been recharged. As of the end of 2014, BCVWD has 28,930 acre-ft "banked" in the Beaumont Basin; this is more than a three year supply.

Non-potable (Recycled) Water System

Currently BCVWD has over 40 miles of non-potable water transmission and distribution pipelines, (6-in and larger), in place. This construction has occurred since about 2002. A 24-in diameter ductile iron pipeline forms a loop around the City of Beaumont. The system includes a 2 million gallon recycled (non-potable) water reservoir which provides gravity storage and pressurization for the system. The 2 MG non-potable water reservoir is configured to receive potable water or untreated State Project Water (SPW) through air gap connections. The non-potable water system can have a blend of recycled water, imported water, non-potable groundwater, and potable water. The 2 MG reservoir is located at the District's groundwater recharge facility at Beaumont Avenue between Brookside Ave. and Cherry Valley Blvd. There are about 300 existing landscape connections to the recycled water system receiving about 1,300 acre-ft of water based on 2015 meter records. (In 2014, the non-potable water use was 1,900 acre-ft.) The impacts of the Governor's conservation mandate impacted the non-potable system too.



A large part of the non-potable water system is currently supplied from Well 26, supplemented with potable water which is introduced into the 2 MG non-potable water tank through an air gap connection. The non-potable water system in the Tournament Hills and Fairway Canyon area is currently supplied with potable water through several interconnections between the potable and non-potable water system.

BCVWD was awarded a facilities planning grant from the SWRCB to develop a facilities plan for a recycled water connection with YVWD. This facilities plan was approved by the SWRCB in August 2014 and BCVWD could apply for grant/loan funding for the project. BCVWD is also in discussions with the City of Beaumont for recycled water.



BCVWD Authority Under the Irrigation District Law

As stated above, BCVWD was formed as an "irrigation district" under California Water Code §20500 *et seq*. defines the "powers" and authority of irrigation districts which are summarized below:

- Furnish water in the district for any beneficial use, including fire protection (§20500, 22077)

- Control, distribute, store, spread, treat, recapture and salvage any water (including but not limited to sewage waters for the beneficial use of the district or its residents (§22078)
- Provide for any and all drainage made necessary by the irrigation provided for by the District. (§22095)
- Acquire lease and operate plants for the generation, transmission, distribution and sale of electric power (§22115)
- Acquire, construct, maintain, and operate facilities for the collection and disposal of sewage subject to approval by a majority of the voters of the district (§22170, 22176)
- Fix and collect charges for any service provided by the district including the sale of water (with standby charges), connections to new pipelines or extensions of existing pipelines, use of water for groundwater recharge, use of water for power purposes and sale of electric power (§22280)
- Impose a special tax pursuant to Article 3.5 (commencing with Section 50075) of Chapter 1 of Part 1 of Division 1 of Title 5 of the Government Code. The special taxes shall be applied uniformly to all taxpayers or all real property within the district, except that unimproved property may be taxed at a lower rate than improved property (§22078.5)

Although these powers are permitted under statute, approval from LAFCO may be required before certain activities are undertaken.

Service Area Climate

Table 3-1 presents the monthly temperature, precipitation and evapotranspiration for the BCVWD service area.

Temperature

Table 3-1 presents temperature data for the City of Beaumont obtained from the Western Regional Climate Center. The climate in Cherry Valley is similar, but temperatures are cooler in the upper elevations of the District's SOI. Temperatures below freezing are common in winter in the upper elevations of the service area. Temperatures over 100°F are also common in the summer.

Precipitation

As shown in Table 3-1, virtually all the precipitation occurs during the months of November through April; most of the precipitation is in the form of rain, but snow is common in higher elevations of the service area during the winter. Some rainfall occurs in summer from thunderstorms that are associated with monsoonal moisture. Annual precipitation in Beaumont (2680 MSL) averages approximately 17.8 inches, with increasing amounts of precipitation with

increasing elevation. Cherry Valley averaged 20.6 inches for the period 1911-2006; Oak Glen (4600 ft MSL) averaged 25.5 inches for the 61-year period 1946-2006.

Table 3-1
Climate in BCVWD Service Area[1]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	60.5	63.6	66.2	72.5	78.8	88.0	95.6	95.5	90.6	80.7	69.4	62.0	77.0
Average Min. Temperature (F)	38.6	39.1	40.0	42.8	47.7	52.5	58.4	58.6	55.8	49.3	43.1	39.2	47.1
Average Total Precipitation (in.)	3.76	3.44	3.12	1.36	0.63	0.16	0.23	0.22	0.51	0.60	1.65	2.09	17.76
Average Total Snowfall (in.)	1.1	0.4	0.2	0	0	0	0	0	0	0	0.1	0.3	2.0
Standard Monthly Average Evapotranspiration, ETo[2]	2.81	2.76	3.78	5.31	6.10	6.97	7.08	6.83	5.67	4.15	3.31	2.56	57.33

[1] Western Regional Climate Center, Beaumont 1E 7/1/1948 – 12/30/2004
[2] CIMIS website – Winchester, CA

Table 3-2 shows the percentage of occurrence of storms of various total rainfall amounts in Beaumont. Rarely does a total storm rainfall exceed 3 inches. A “storm,” in the Table 1-2 analysis, is defined as a continuous period of measurable daily rainfall interrupted by not more than 3 consecutive days of no measureable rainfall.

Evapotranspiration

Table 3-1, presented above, shows the monthly reference average ETo based on the California Irrigation Management Information System (CIMIS), Winchester, CA station. This station is located about 15 miles south of the BCVWD and is representative of the evapotranspiration in the District’s service area. The reference ETo represents the amount of water used and evaporated by a 4-in to 7-in tall stand of grass in an open field. Water use by other crops and landscape materials can be determined using the appropriate crop coefficient in conjunction with the ETo.

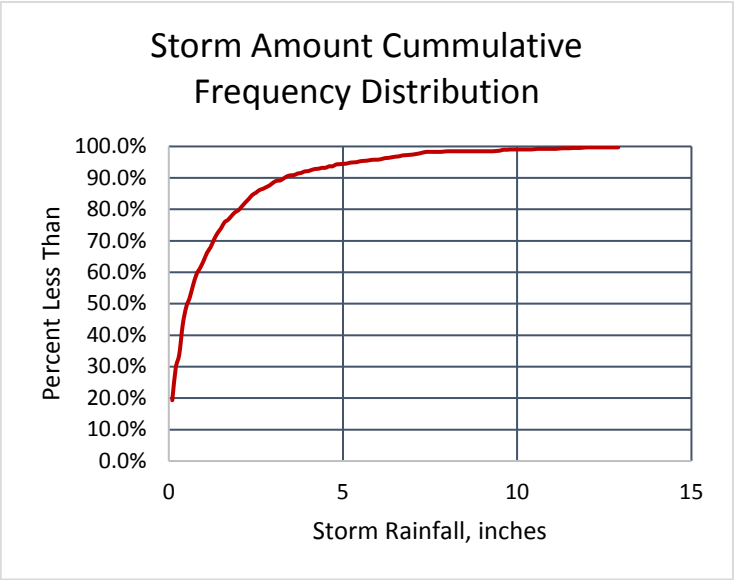
The service area is in Reference ETo Zone 9 – South Coast Marine to Desert Transition.[2] Outdoor water consumption for corrals, orchards and lawns during the hot, dry summer months is high. Data reported to the SWRCB, Conservation Reporting for 2015 showed per capita residential water use ranging from about 100 gpcd in the winter and spring months to about 200 gpcd in September. BCVWD was able to achieve a 23% reduction in water demand from 2013

[2] California Department of Water Resources and University of California Cooperative Extension, A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California, The Landscape Coefficient Method and WUCOLS III, August 2000.

to the same period in 2015-16 in spite of a population growth of nearly 800 people. Attaining water conservation targets is a challenge.

Table 3-2
Total Storm Rainfall Frequency Beaumont (1918 – 2006)

Storm Total, in	Percent of Time
0.50 or less	49%
1.0 or less	63.9%
2.0 or less	79.8%
3.0 or less	88.5%
4.0 or less	92.2%
5.0 or less	94.5%
6.0 or less	95.8%
7.0 or less	97.4%
8.0 or less	98.5%
More than 8.0	1.5%



Climate Change

Climate change will result in reduced snowpack and more precipitation as rain. Although studies have shown that the average amount of precipitation may not change significantly under the different climate change (greenhouse gas scenarios) models, events will be more extreme. Wet periods will be wetter and drought periods drier. The timing of the runoff will be accelerated. For example, the peak runoff period in the Sierra Nevada Mountains will occur earlier in the year and will be at a higher rate due to the warmer temperatures and rainfall, on a limited snowpack. Much of this runoff may not be able to be captured by existing reservoirs designed under historic hydrology and operating under "old" storage/outflow management rules. Existing conveyance systems will not be adequate to move this water to off stream storage reservoirs or to groundwater recharge facilities. This will result in more water lost to the ocean and unavailable to meet demands.

DWR (2008) predicts that the Sierra snowpack water storage will be reduced 25% to 40% by 2050.[3] Chung, et al. (2009) estimated that climate change impacts will reduce Delta Exports

[3] DWR 2008. *Managing an Uncertain Future, Climate Change Adaptation Strategies for California's Water*, State of California, The Resources Agency, Department of Water Resources, October.

through the State Water Project (SWP) and the Central Valley Project (CVP) by 7% to 10% by 2050 and by 21% to 25% by the end of the 21st century. (Note that DWR's 2013 SWP Reliability Report, referenced later in this UWMP, included the effects of climate change.)

BCVWD conducted a climate change vulnerability assessment using the methodology in Appendix I of the UWMP Update Guidelines and the Climate Change Handbook for Regional Water Planning.[4] It should be pointed out that there is considerable speculation and variability between the various greenhouse gas/climate models. The approach in this UWMP is to consider climate change generically rather than specifically. The vulnerability assessment will address:

- Water Demand
- Water Supply
- Water Quality
- Flooding
- Ecosystem and Habitat Vulnerability

Vulnerability due to sea level rise and hydropower impacts do not directly impact BCVWD, but could indirectly impact BCVWD. For example, sea level rise will impact the Delta levee system which could impact SWP deliveries and SWP water quality should a levee failure occur. Although BCVWD does not have any hydropower facilities, reduced hydropower generation will affect the cost BCVWD pays SCE for electric power.

Water Demand

Since water use in BCVWD's service area varies by more than 50% during the year due to outdoor water use, increases in temperature due to climate change would be expected to increase summer time urban and agricultural water. However, this will be more than offset by the installation of water efficient and drought tolerant landscaping in new developments in response to tightening landscape ordinances. The City of Beaumont and Riverside County have been continually updating their landscape ordinances in response to directives from DWR. The most recent DWR Model Water Efficient Landscape Ordinance version was July 2015. Outdoor residential potable water consumption will also be reduced in the future with the implementation of graywater systems using laundry wastewater etc. Water use on orchards in the District will decrease as these areas are converted into urban uses. In summary, BCVWD believes climate change impacts on demand will be more than offset by more efficient outdoor

[4] USEPA Region 9 et al (2011*). Climate Change Handbook for Regional Water Planning,* prepared by CDM for US Environmental Protection Agency, Region 9, California Department of Water Resources, US Army Corps of Engineers South Pacific Division, and Resources Legacy Fund, November.

water use, reduced turf areas, implementation of graywater systems, and land use conversion from orchards to residential.

As an example, when BCVWD was under Stage 2 Water Conservation measures which limited outdoor water use and limited landscape sprinkling to two days per week, BCVWD was able to achieve a 23% reduction in water use from 2015-16 compared to the corresponding period in 2013.

Water Supply

Surface flow is not directly used for water supply. All streams in the area are ephemeral and dry up during the summer. Some only have flow during and shortly after rainfall events.

Other than imported SWP supply from the SGPWA which will make up an increasing fraction of the District's water supply over time, very little of the District's direct supply comes from local snowmelt; so the impact of climate change on the local supply will be minimal. The impact on the SWP and Delta exports was discussed above.

BCVWD is very fortunate in that the Beaumont Groundwater Basin has large storage capacity for banked water. BCVWD has an 80,000 acre-ft storage account in the Basin. During wet years, BCVWD can bank SPW for dry years, as was successfully done from 2006 through 2014 when over 46,000 acre-ft were recharged. The Beaumont Basin Watermaster keeps an accounting of stored water. As of the end of 2014, BCVWD had 28,930 acre-ft of water in storage for use during dry years.

Water Quality

Wildfires are always a threat in the area; fortunately CalFire and the local fire departments are very responsive. BCVWD, YVWD and the City of Banning have water distribution systems available for fire prevention which have been effective in controlling wild fires. Erosion from burned areas is always a problem. The District has been effective at mitigating the effects of wildfire erosion by diverting streamflow to desilting ponds constructed in and at the mouth of Little San Gorgonio Creek and percolating the desilted flow. The California Public Interest Energy Research (PIER) Program predicted a 30% increase in burned area by 2085 due to potential climate change impacts. BCVWD believes that erosion from the increased burned area can be managed with the existing infrastructure.

Flooding

BCVWD's has some well facilities that are probably with the 200-year flood plain in Little San Gorgonio Creek. During these events some damage may occur. But the District can still manage since there is adequate spare capacity in the Beaumont Basin wells. The Beaumont Basin wells are definitely outside of the 100-year flood plain and most likely outside of the 200-year flood plain though there are no 200-year flood plain maps to verify this. Riverside County

Flood Control and Water Conservation District has an improved channel for Noble Creek. It is relatively new and well-maintained.

There was significant flooding in 1969 which washed out pipelines in Little San Gorgonio Creek. Much of this pipeline has been replaced with new ductile iron pipe since 1983 and the remaining portion is master planned to be replaced in the next 5 to 10 years.

Sediment from erosion of burned areas is controlled by desilting basins in and at the mouth of Little San Gorgonio Creek.

Ecosystem and Habitat Vulnerability

Principal habitat areas are Noble Canyon and Little San Gorgonio Canyon and tributaries above Cherry Valley. Black bear, bobcats and mountain lions are frequently seen in Little San Gorgonio Creek canyon areas. These are under the ownership of BCVWD for the most part and will remain open space. San Timoteo Canyon and its tributaries between Beaumont and Redlands provides a corridor for habitat movement. There are some undeveloped lands south of BCVWD's SOI which are designated at open space. There may be some threatened and endangered species in all of these areas. These areas provide natural corridors for wildlife movement.

San Timoteo Creek and Cooper's Creek, a tributary of San Timoteo Creek immediately downstream of the YVWD's and the City of Beaumont's wastewater treatment effluent discharge respectively have some continuous flow at least for some distance downstream of the discharge. A portion of the effluent discharge will be required to be maintained by the Regional Board and US Fish and Wildlife for threated and endangered species habitat.

Service Area Population and Demographics

> ***CWC Section 10631***
>
> *Describe the service area of the supplier, including current and projected population …The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available .*

Historically the principal industry in the Beaumont-Cherry Valley area was agriculture and agriculture related services, particularly those associated with fruit production (cherries) and egg ranching. Over the years the agricultural areas and other vacant lands were converted to housing tracts as new home buyers seek more affordable homes, particularly within the City of Beaumont. A major egg ranch, Sunny Cal, is no longer in business and most of the facilities have been removed in anticipation of development. A Specific Plan has been developed for that project and street and infrastructure plans are nearing completion.

Several major commercial centers were constructed since year 2000, most notably the Wal-Mart and Kohl Center in Southeast Beaumont, the revitalized Stater Brothers-Walgreens center

on 14th and Oak Valley Parkway, and others. A number of major distribution centers have been constructed including Lowes Distribution Center, the Pro-Logis Developments and the Beaumont Business Center on the Dowling Orchard site in Southwest Beaumont.

Several large housing projects were started during the "boom" period around 2005 but many of these stopped due to the downturn in the economy around 2008. These developments have been approved for construction; some, in fact, have the grading completed and underground utilities installed. These projects include Seneca Springs, K-hov Four Seasons, Tournament Hills, Fairway Canyon, Sun Cal, Pardee Sundance, Aspen Creek, and Heartland. Several of these projects have re-started in 2014 and continue to develop. Home building reached a 14-year low of 169 single family homes in 2011; but in 2015 approached 500 single family homes. The average over the last three years was 449 single family homes per year in Beaumont – about 1,350 people per year.

A number of projects were approved by the City of Beaumont, but have not yet started construction due to the economy. These projects include Hidden Canyon, Kirkwood Ranch, Potrero Creek Estates, and Noble Creek Meadows (formerly Noble Creek Vistas). These projects are expected to be into construction in the not-to-distant future.

In addition, there are a number of projects are still in the City of Beaumont review stage e.g. Jack Rabbit Trail, Preserve/Legacy Highlands. Tournament Hills 3, Hidden Canyon II and others.

Growth in Cherry Valley has been much slower. The area is still rural residential.

Historical Population

Historic and current populations for the District's service area were extracted from the District's 2013 UWMP are presented in Table 3-3. There were some minor adjustments to account for the latest census data. The data in Table came from several sources:

- 1980 and 1990 populations and household information – U.S. Census Bureau, 2000 Census of Population and Housing, Population and Housing Unit Counts, PHC-3-6, California, Washington D.C., 2003. This data was used for the City of Beaumont. Data for Cherry Valley for this period was estimated.
- 2000 and 2010 population and household information – U.S. Census Bureau American Fact Finder for Beaumont, CA and Cherry Valley CDP[5], CA.

[5] CDP = Census-designated Place

Table 3-3
Historical Population and Housing

	1980	1990	2000	2010	2015
City of Beaumont					
Population	6,818	9,685	11,384	36,877	41,780
Households	2,852	3,718	3,881	11,801	13,390
People/Household	2.39	2.60	2.93	3.12	3.12
Housing Units			4,258	12,908	14,646
Occupied Housing Units			3,881	11,801	13,390
Cherry Valley					
Population	5,012	5,945	5,891	6,362	6,597
Households	2,023	2,530	2,310	2,612	2,715
People/Household	2.48	2.35	2.55	2.43	2.43
Housing Units			2,627	2,874	2,985
Occupied Housing Units			2,434	2,612	2,715
TOTAL					
Population	11,830	15,630	17,275	43,239	48,377
Households	4,875	6,248	6,191	14,413	16,105
People/Household	2.43	2.50	2.79	3.00	3.00
Housing Units			6,885	15,782	17,631
Occupied Housing Units			6,315	14,413	16,105

- 2015 population – Estimated for Cherry Valley based on historic growth from 2010. Estimated of City of Beaumont based on housing completions from City Planning Department, Major Project Status Reports for period 2010 through 2015.

It should be pointed out that the data in Table 3-3 are all of the people living in the District's service area. Except for a relatively few number of people that are on private wells or local water systems, all are served by the District. The District's Sphere of Influence (SOI) extends beyond its service area; but the existing population between the service area and the sphere of influence boundary is small at this time.

Figure 3-2 shows the population growth in the City of Beaumont and Cherry Valley from 1980 to 2015. The population after 2010 was estimated as described for Table 3-3.

The data in Table 3-3 and Figure 3-2 show very rapid growth for the City of Beaumont from the year 2000 to 2010. About 2/3 of this growth occurred between 2000 and 2007 based on building permits issued by the City of Beaumont. The high rate of growth continued until mid-2008 when development slowed markedly following the economic turndown in the US and California. The population in Cherry Valley remained relatively constant since 1990. During the

period from 2000 to 2008, the community of Cherry Valley did not experience the same growth spurt that occurred in the City of Beaumont and other areas in Western Riverside County.

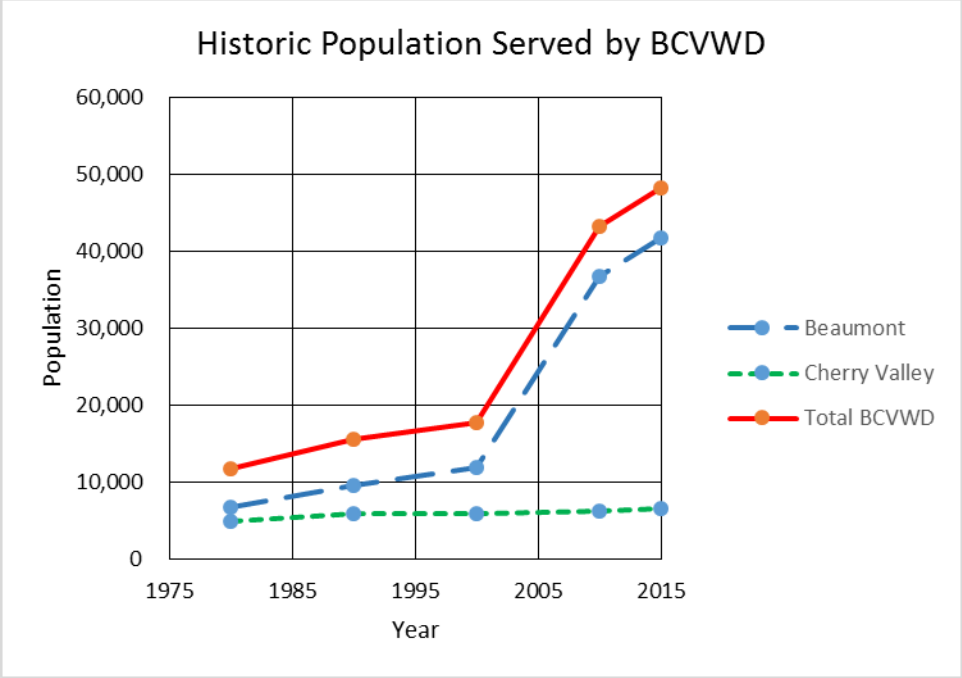


Figure 3-2
Historical Population Growth in District

The U.S. Census Bureau, American Fact Finder provided some information about the housing units in Beaumont and Cherry Valley. This information is presented in Table 3-4. Table 3-4 shows the housing stock in Beaumont is relatively new with over 60% constructed since 2000 and over 68% since 1990. This means most of the housing units have relatively water efficient plumbing systems. Chery Valley, on the other hand, has much older housing stock.

Figure 3-3 shows the number of single family home building permits issued in the City of Beaumont for the years 2002 through 2015. Although not shown in Figure 3-3, the permits started picking up in 1999-2000 and reached their peak in 2005 with 2,300 new home permits issued for that year. The number of permits for new homes declined to a low of 169 in 2011. Over the last 8 years, permits averaged 346 per year; over the last 3 years, permits averaged 449 per year. The 14-year average was 772 per year. **Future growth will likely be in the range of 400 to 600 permits per year, although some developers have projected slightly higher amounts in their build-out forecasts**.

BCVWD Historic Connection Growth

Figure 3-4 shows the growth in total connections (services) within BCVWD's service area. Most of these occurred in the City of Beaumont. Total connections at the end of 2015 was 16,985 as stated in the 2016 BCVWD Operating Budget. Total metered connections at the end of 2014 was 16,577 as stated in the 2015 BCVWD Annual Budget. Prior to the year 2000, the District

had about 5,600 total connections. The number of connections increased steadily until about 2008 when the annual increase began to slow down and level off.

Table 3-4
Housing Characteristics

Housing Type	Percent of Total Housing Units (2013 data)	
	Beaumont	Cherry Valley
Single Family	89.2%	73.1%
Multi-family	7.7%	0.3%
Mobile Home	3.1%	26.6%
Age of Housing	61.5% since 2000 68.4% since 1990	6.8% since 2000 86.4% since 1960

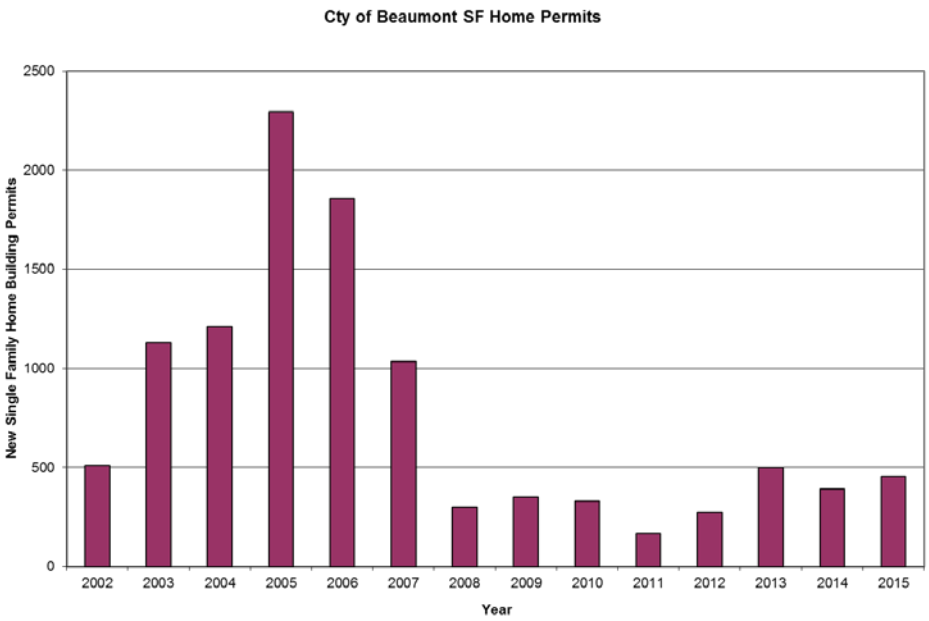


Figure 3-3
Growth in Beaumont as Shown by Single Family Home Building Permits

The peak year was 2005 when 2,433 connections were added. For 2009 and 2015 the increase was just under 350 connections per year. The average for the period 2001 through 2015 was 762 new connections per year. For 2014 and 2015, the District added 440 and 408 connections respectively. The number of connections dropped in 2011. This is more a function of the data collection which is taken from the total active accounts. The drop may be due to the high number of foreclosures in the service area. Many of these accounts were "closed." Based on an analysis of the total number of connections and the population in the service area, there are about 2.85 people per connection.

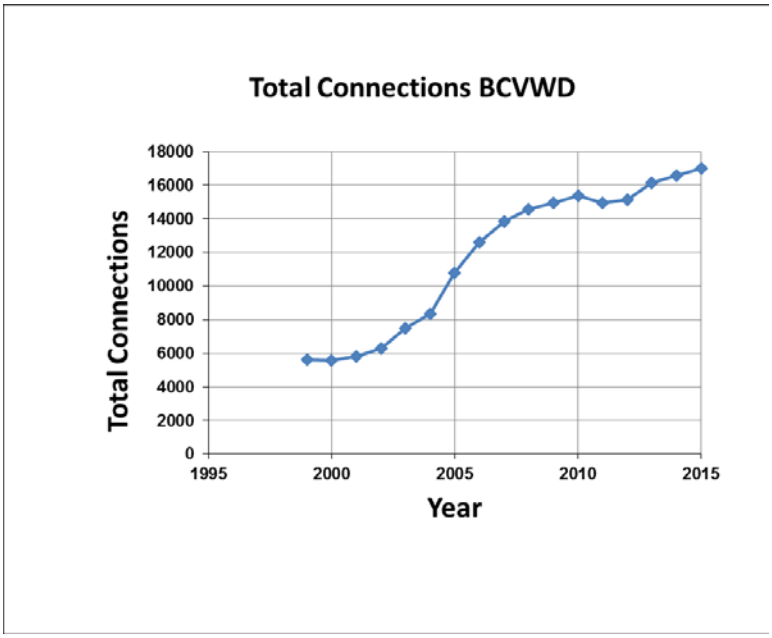


Figure 3-4
Connection Growth in BCVWD Since 1999

Build-out Population

The BCVWD service area build-out or "saturation" population was determined using the City of Beaumont's Zoning Map from the City's General Plan[6] and the District's Geographic Information System (GIS) to determine the total areas of the various zoning categories in the District's SOI. Actual GIS data was obtained from the City and integrated into the District's GIS system to determine the land use within the District's SOI. The zoning designation included a range of dwelling units/acre. An average value was used in the build-out analysis. The District's estimate of the City of Beaumont's build-out population is 90,600. (The City's General Plan, page 25, states the build-out population is 87,200; so the District's estimate is reasonable.)

The same approach was used for Cherry Valley, only this time data from Riverside County General Plan, Pass Area Land Use Plan was used[7]. Again the GIS data set was obtained from the County and integrated into the District's GIS system to determine the land use category areas within the District's SOI. Build-out population for Cherry Valley, within the BCVWD's SOI is 21,700 people.

Total estimated build-out population within the BCVWD's SOI is 112,300 or about 2.3 times the current population. BCVWD believes this population would not be reached until well beyond 2050 or 2060, if ever.

[6] City of Beaumont General Plan, Adopted March 2007.

[7] The Pass Area Land Use Plan, October 7, 2003. (Part of Riverside County General Plan)

The build-out population is a function of the local zoning; this could change at any time resulting in an increase or reduction in the build-out population. Changes in the SOI boundary by LAFCO would also affect the ultimate population served.

Projected Service Area Growth

The build-out population estimate was presented above, which will set the ultimate water demand. The increase in the water demand over time from current to build-out is discussed in the following subsections.

Review of the City of Beaumont's Major Project Status Report[8] listed six projects that were currently under development (on-going construction). These are listed in Table 3-5.

Table 3-5
Projects within BCVWD Service Area Under Construction

Development Name	Total Housing Units Approved	Estimated Housing Units Yet to be Constructed (Feb 2016)	Estimated Build-out Year
Sundance	4,716	1,730	2021[9]
Fairway Canyon SCPGA	3,566	2,085	2025
Heartland	981	981	2035
Four Seasons	2,041	400	2025
Perricone Juices	Industrial	Some Industrial EDUs	Approved 19,182 sf Addition to Existing Facility
Rolling Hills Ranch Industrial/Winco/Prologis	Industrial	Some Industrial EDUs	2020
Totals	11,304	5,196	

BCVWD used the developers' plans for the projects in Table 3-5 in conjunction with Google Earth image dated 2/5/2016 to verify the construction progress and estimate the number of housing units (Equivalent Dwelling Units) remaining. It appears there are about 5,200 EDUs in the current on-going projects yet to be constructed as of February 2016.

Table 3-6 presents a list of other projects in various stages of approval the City of Beaumont. The total number EDUs is estimated to about 9,058.

[8] City of Beaumont, Major Project Status Report, February 16, 2016.

[9] Miyashiro to Jaggers (2014). Sundance Future Phasing., Personal Communication, email July 8.

The housing units yet to be constructed in Table 3-5 plus the EDUs in the other projects in Table 3-6 total 14,254 EDUs in the City of Beaumont. This would result in an increase in population of 40,000 people based on 2.8 people per EDU. This would bring the total Beaumont population to 81,780.

This population estimate approaches the build out population presented previously (90,600), which was based on average densities within the various land use categories. The 81,780 estimate is consistent with the City of Beaumont's General Plan build out population of 87,200.[10]

Cherry Valley Population Growth and BCVWD Served Population

As presented previously, the ultimate build-out population served by BCVWD for Cherry Valley based on the Pass Area Land Use Plan[11] densities is 21,700 people or about 7,750 EDUs. This is based on an increase to 2.8 persons per EDU projected at build-out.

There are 2,874 housing units in Cherry Valley in 2010 per the census data, but 26.6% of those are mobile homes. The 2,874 housing units are equivalent to about 2,485 EDUs. So build-out will result in about another 5,265 new EDUs. The Sunny Cal Egg Ranch Development (560 EDUs), included in the City of Beaumont, is actually within the current Cherry Valley census area and would have been included among the 5,265 EDU increase for Cherry Valley. So to avoid "double counting," the Sunny Cal Egg Ranch EDUs were deducted resulting in a net projected 4,655 EDU increase for Cherry Valley.

Except for the Sunny Cal Egg Ranch project, BCVWD believes the bulk of the 4,655 Cherry Valley EDUs will not be constructed until after 2030.

The City of Beaumont's population from the developments, (81,780 presented previously), combined with the Cherry Valley build-out population, (21,700 presented above), the total population served by BCVWD 103,480. This is consistent with the GIS land use based build-out estimate of 112,300 presented previously. The 112,300 estimate will be used as the District's build-out, served, population for planning purposes.

Existing EDUs and EDU Growth to Build-out

BCVWD uses Equivalent Dwelling Units (EDUs) to calculate and project potable water demand. BCVWD Rules and Regulation, Section 5, defines the water use as 580 gal/EDU/day. This is equivalent to 0.65 AFY/EDU. (An analysis developed for and presented in the 2015 Adopted Potable Water Master Plan supports this demand.)

[10] City of Beaumont General Plan, March 2007, page 25.

[11] Pass Area Land Use Plan, October 7, 2003, Part of Riverside County General Plan.

Table 3-6
Other Projects in BCVWD's Service Area

Development Name	Total Housing Units Approved	Estimated Build-out Year	Status (June 2016)
Kirkwood Ranch	403	2030	Specific Plan (1991), Tent. Tr. Map 27357 Approved
Taurek (Potrero/Viele, TR-31162)	244	Unknown	Tent. Tr. Map Submitted, Annex., Map, EIR Pending Public Hearing
Potrero Creek Estates	700	2040	Specific Plan (1989)
Tract 32850, Manzanita Park Rd. N/First St.	95	2025	Tract 32850 Approved
Nobel Creek Vistas	648	2030	Specific Plan (2006), Entitled
Hidden Canyon Industrial	Industrial (82 EDUs)	2020	Specific Plan/Plot Plan Approved, PM 36426 Awaiting LAFCO Annexation Approval
Sunny Cal Specific Plan	571	2025	Annexation Pending. Specific Plan & Tract Map Approved TM 36583, Entitled
Tournament Hills 3, TM 36307 Phase 4	233	Unknown	Tract 36307, Amendment to Oak Valley Specific Plan Approved
Seasons at Beaumont 38 Units Rental Complex (1)	25.3	Unknown	Plot Plan Approved
Heartland II	Commercial	Unknown	
Pacific Scene II	125 (est)	Unknown	
Jack Rabbit Trail	2,000	Unknown	
The Preserve/Legacy Highlands Specific Plan	3,412	Unknown	
American Villas (693 American Ave)	36	Unknown	
Eighth St. Condos (1343 Eighth St.) (1)	10.7	Unknown	
Pennsylvania Ave Apts (850 Penn Ave) (1)	5.3		
Beaumont Commons Affordable Housing (Xenia, 6th -8th St) (1)	80.0	Unknown	

Table 3-6 (Cont'd)
Other Projects

Development Name	Total Housing Units Approved	Estimated Build-out Year	Status (June 2016)
Tuscany Townhomes (8th Xenia) (1)	125.4	Unknown	
Oak Valley Senior Center (Oak Valley Pkwy/Oak View) (1)	248.1	Unknown	
Beaumont Distribution Center	14 (EDUs)	Unknown	
Mountain Bridge	Commercial	Unknown	
Totals	9,058		

(1) In multi-family buildings, EDUs = 2/3 * Housing Units

BCVWD's 2015 Potable Water Master Plan projected EDU growth based on discussions with the developers having on-going projects. The "base year" for the analysis was 2013. The EDU growth is summarized in Table 3-7.

Table 3-7
Summary of New EDUs in BCVWD Service Area (base year 2013)
(Taken from BCVWD 2015 Potable Water Master Plan)

	Cumulative New EDUs							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**Build-out**
Beaumont	893	5,530	8,301	11,382	14,144	15,852	16,317	17,856
Cherry Valley	13	23	82	251	552	1,661	2,233	4,655
Totals	918	5,553	8,383	11,633	14,696	17,513	18,550	22,511
Average New EDUs/year		927	566	650	612	563	207	

Based on the past history of building permits in the City of Beaumont, presented previously in Figure 3-3, about 600 to 700 or so EDUs per year is believed to be a reasonable market assimilation rate for the area. This is somewhat below the "boom" years around 2005 to 2007, but similar "boom" years are not expected to occur in the future. In Table 3-7 the 927 EDUs per year average from 2015 to 2020 is greater than the 600 to 700 EDUs mentioned above; but this higher construction rate is due to the number of tracts that were approved and started

construction before the economic turndown brought a "halt" to these developments. A number of these tracts were fully graded with utilities already installed at the time the work was stopped. As a result they are "ready to go" and developers want to get these projects finished as soon as possible.

Table 3-8 shows the growth in population for Beaumont, Cherry Valley and BCVWD as a whole based on the EDU growth shown in Table 3-7. This growth rate is greater than that currently experienced by the City of Beaumont's Building Department which averaged 449 single family homes per year for the period 2013 through the end of 2015. The average for 2001 through 2015 was 772 single family homes per year

Table 3-8 also shows the population growth assuming a slower EDU growth of 500 EDUs/year in the City of Beaumont – more nearly matching the growth of the last few years. It shows that there would be a "lag" of about five years by 2040 – not much when considering water demand planning.

Table 3-8
Current and Projected Population in BCVWD Service Area

	Population						
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**Build-out**
Based on EDU Growth in Table 3-7							
Beaumont	41,780	54,764	62,522	71,149	78,883	83,665	92,806
Cherry Valley	6,597	6,622	6,784	7,244	8,066	11,139	19,494
Totals BCVWD	48,377	61,386	69,306	78,393	86,949	94,804	112,300
Based on 500 EDUs/year in Beaumont							
Cherry Valley	6,597	6,622	6,784	7,244	8,066	11,139	19,494
Beaumont	41,780	48,780	55,780	62,780	69,780	76,780	92,806
Totals BCVWD	48,377	55,402	62,564	70,024	77,846	87,919	112,300

The growth in EDUs in Table 3-7 will be the basis for projecting the water demand in this 2015 UWMP. But the reader should recognize that there could be a lag in reaching the 2040 demand.

Figure 3-5 shows the historic and projected population served by BCVWD taken from Tables 3-3 and 3-8 using the EDU growth in Table 3-7. Since the UWMPs are required to be updated every five years, adjustments in the water demands can be made as needed.

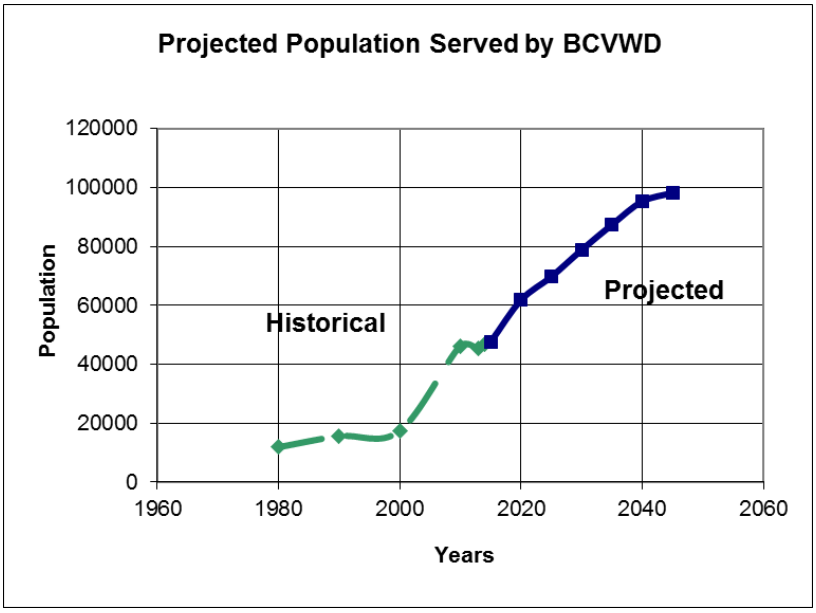


Figure 3-5
Historic and Projected Population Served by BCVWD
(based on EDU growth rate in Table 3-7)

Comparison with Department of Finance Projections

Table 3-9 shows a comparison between State of California Division of Finance (DoF) population growth rate for Riverside County and the population growth rate represented by the EDU growth rate in the BCVWD service area, shown in Table 3-7.

Table 3-9
DoF Riverside County vs. BCVWD 2015 UWMP
Population Growth Rates

	Population								
	2010	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
California DoF Riverside County, 000s	2,194	2,323	2,478	2,662	2,862,	3,053	3,215	3,353	3,481
Annual % Change		1.17%	1.33%	1.49%	1.51%	1.33%	1.06%	0.86%	0.76%
BCVWD	43,239	48,377	61,386	69,306	78,393	86,949	94,804	97,707	--
Annual % Change		2.4%	5.4%	2.6%	2.6%	2.2%	1.8%	0.6%	

The projected growth rate for BCVWD is higher than for Riverside County as a whole through the next 25 years or so. Table 3-10 shows BCVWD's retail population, current and projected to be consistent with the Department of Water Resources format.

Table 3-10
(DWR Table 3-1) BCVWD Population – Current and Projected

DWR Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040
	48,377	61,386	69,306	78,393	86,949	94,804
NOTES: See Table 3-6 and text for description of methodology						

Impact of Potential Growth Limitation Initiative

In late 2015 there was discussion of a resident sponsored managed growth initiative that would limit the number of new housing units in the City of Beaumont to 350 units per year, 300 if in a planned community. There was discussion to try to get this on the November 2016 ballot. The impact this potential initiative would have on the District's EDU projections in this UWMP is best illustrated by Figure 3-6. First, it is not likely the initiative will affect those projects which have some form of entitlement; so the impacts will likely not be manifested for some time. But if implemented, it would likely cause some of the future projects, identified previously in this UWMP (e.g. Table 3-6), to be deferred, perhaps as much as 10 years or so.

Based on Figure 3-5, if the initiative were implemented, BCVWD's year 2045 potable demand would be reduced by about 20 percent.

During the last few years, several large projects in the City of Beaumont, previously planned residential, have been proposed to be commercial and industrial projects. Those areas include projects listed in Tables 3-5 and 3-6, such as the Heartland Development, the Hidden Canyon Development and possibly the Jack Rabbit Trail Development. This would result in a significant reduction in the water demand

Comparison to Previous UWMPs

To provide a perspective on population growth estimates, Figure 3-7 shows the historic population through the 2010 census along with the population projections in the 2002, 2005, 2013, and 2015 UWMP updates. Also included for reference is the Southern California Association of Government's (SCAG's) 2007 Regional Transportation Plan (RTP) Population forecast

The 2015 UWMP shows more aggressive growth than the previous (2013) version, but less than SCAG.

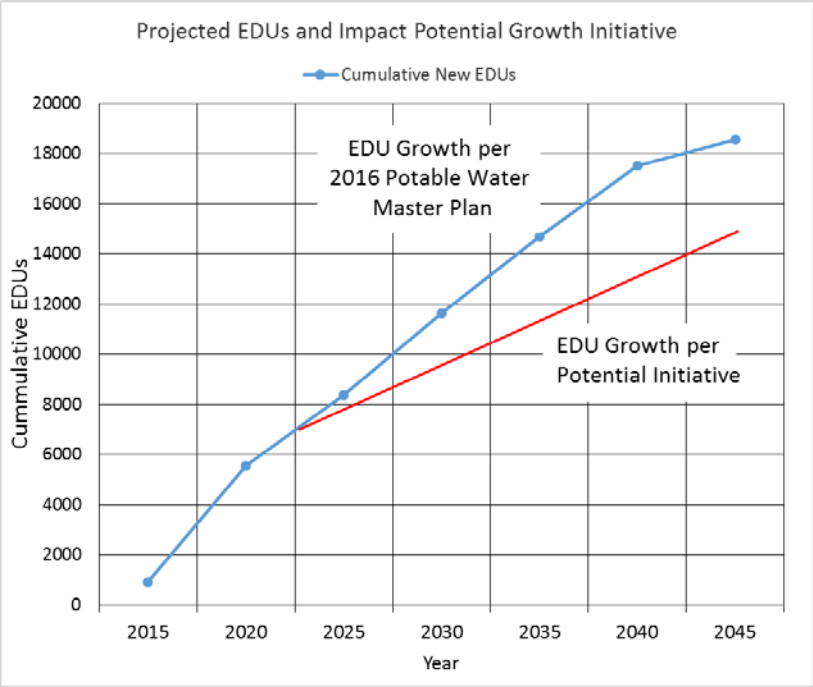


Figure 3-6
Possible Impact of Growth Initiative on BCVWD Planning

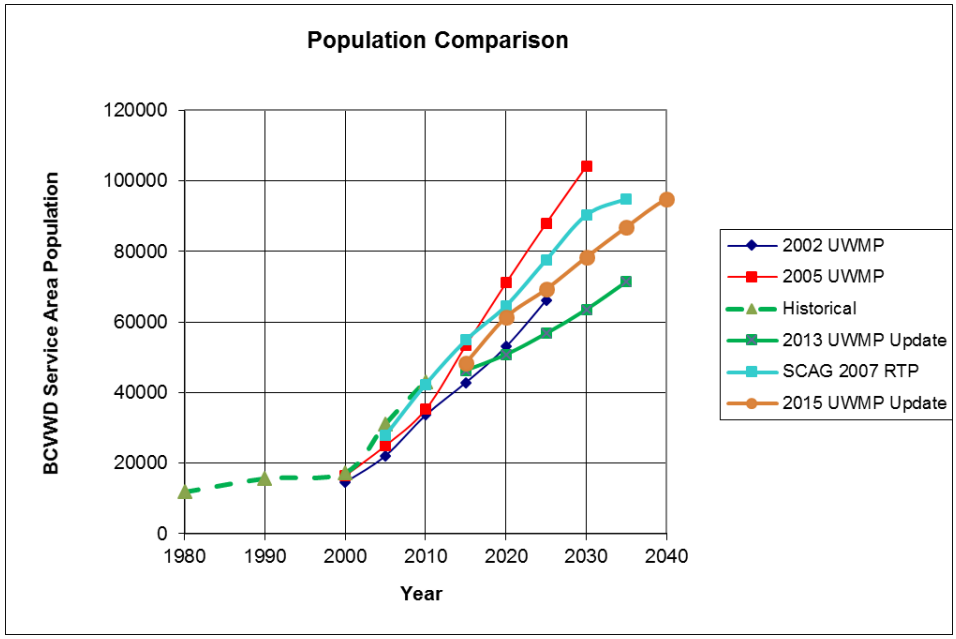


Figure 3-6
Historical Population and Previous UWMP Population Projections

Other Demographic Information

Income and Home Values

Table 3-11 presents data on the household income and median home values in the service area.

Table 3-11
Income and Housing Values for 2014[12]

Parameter	City of Beaumont	Cherry Valley	California
Median Household Income	$66,775	$58,080	$61,489
Per Capita Income	$26,627	$29,789	$29,906
Median Home or Condo Value	$216,300	$167,800	$371,400

Population Age and Diversity

The median age in Beaumont is 32.5 years; Cherry Valley is 52.9 years. The median age in California is 35.6 years, the U.S. as a whole, is 37.4 years. Beaumont is a young community, many first time home buyers; Cherry Valley is an older community.

The service area is ethnically diverse. Beaumont is primarily Caucasian and Hispanic with a small number of Asians; Cherry Valley is primarily Caucasian.

Employment

The latest data on employment in the service area is for the year 2014 from American Fact Finder census. This is summarized in Table 3-12.

Table 3-12
Employment from 2010 Census

Parameter	City of Beaumont	Cherry Valley	Total
Total Population 16 yrs and older	28,915	6,145	35,060
Total Population 16 yrs and older in labor force	18,400 (63.6%)	3,055 (49.7%)	21,455 (61.1%)

Principal industries for males in the City of Beaumont are construction, retail trade and manufacturing; for females, principal industries are retail sales, cashiers and office

[12] Source American Fact Finder

administration. In Cherry Valley the principal industries for males are construction and retail trade; for females, education and healthcare/social services.

Land Use

Figure 3-8 shows the distribution of land use within the District's SOI based on the City of Beaumont and Riverside County Zoning as presented in the latest General Plans. This does not necessarily represent the current land use distribution. Almost 50% of the land use is residential; 39% is open space, conservation or rural mountainous.

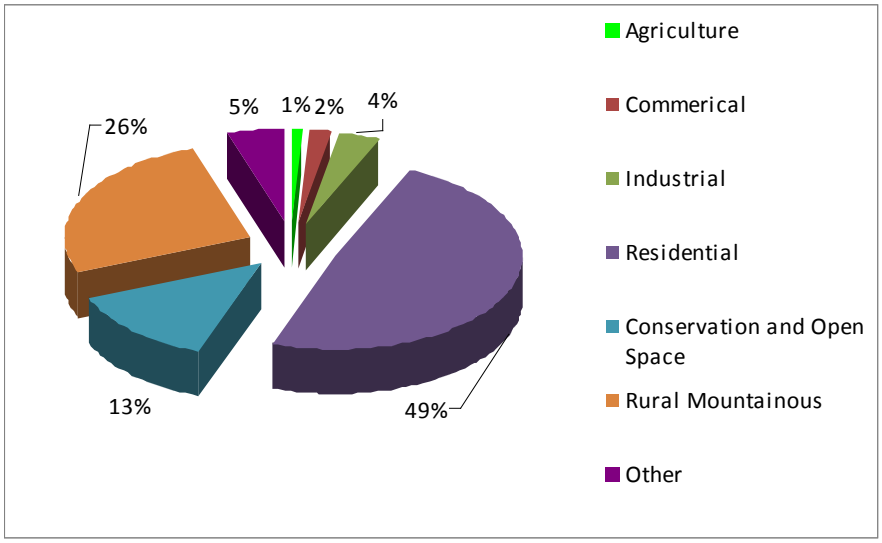


Figure 3-8
Land Use Distribution within BCVWD SOI based on Current Zoning

Section 5

SB X7-7 Baseline and Targets

In February 2008, the Governor introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta. A key component of his plan was a goal to achieve a 20 percent reduction in per capita water use statewide by the year 2020 (called "20x2020").

In November 2009, SB X7-7, The Water Conservation Act of 2009, was signed into law as part of a comprehensive water legislation package. With the adoption of the Water Conservation Act of 2009, the Governor's 2008 water reduction plan was codified and the State is required to set a goal of reducing urban water use by 20 percent by the year 2020. Each retail urban water supplier must determine baseline water use during their baseline period and also establish target water use for the years 2015 and 2020 in order to help the State achieve the 20 percent reduction.

In this 2015 UWMP, water agencies, such as BCVWD, must demonstrate compliance with their pre-established water use target for the year 2015. This will also demonstrate whether or not BCVWD is currently on track to achieve its 2020 target.

Compliance is verified by DWR's review of the SB X7-7 Verification Form submitted with BCVWD's 2015 UWMP. The SB X7-7 Verification Form summarized in Tables 5-1 and 5-2 of this section.

Terminology

When determining water use in this UWMP, two terms are often used interchangeably:

- **Daily per Capita Water Use** - the amount of water used per person per day. In the UWMP calculations, this is total water use within a service area, divided by population and is measured in gallons.
- **Gallons per Capita per Day (GPCD**) – This is the "Daily per Capita Water Use" measured in gallons. Therefore, the term commonly used when referring to "Daily per Capita Water Use" is "Gallons Per Capita per Day" or "GPCD."

It is important to distinguish GPCD (as used in Urban Water Management Plans) from the R-GPCD that is used in drought reporting to the State Water Resources Control Board.

- **GPCD** is the total water use within a service area (residential, commercial, institutional, etc…) minus allowable exclusions, divided by the population. This is used in UWMPs for purposes of the Water Conservation Act of 2009.
- **R-GPCD** is solely the estimated residential water use in a service area divided by population. R-GPCD is used in drought reporting to SWRCB for purposes of

Section 4

System Water Use

This section provides data on the historic and projected water use within the BCVWD service area. For purposes of this UWMP the terms "**water use**" and "**water demand**" are **used interchangeably**.

Recycled versus Potable and Raw Water Demand

BCVWD's water supply mix for 2015 includes imported water (recharged and/or taken from banked storage), groundwater, and non-potable water. In the future, the non-potable water will included recycled water from YVWD and the City of Beaumont. Figure 4-1 shows the mix of water sources for BCVWD in year 2015.

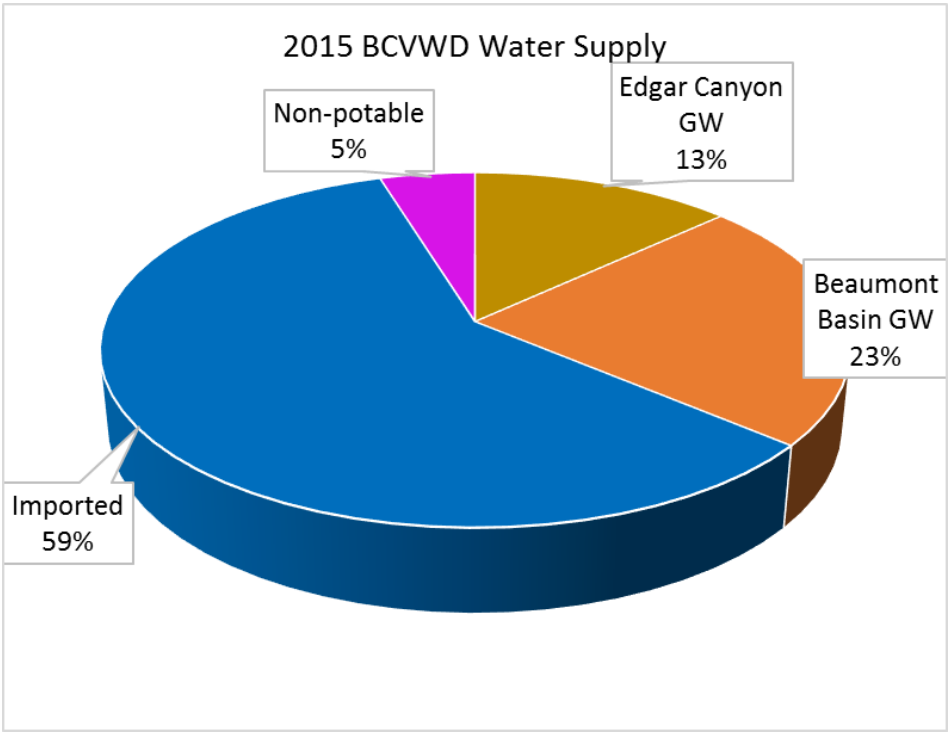


Figure 4-1
BVCWD Water Sources Year 2015

Beaumont Basin groundwater includes only "forbearance" water and "reallocation of overlier pumping rights" based on the Beaumont Basin Adjudication. Forbearance water is potable or non-potable water supplied to an overlier. This typically occurs when the overlier develops.

For 2015, BCVWD only recharged 2090 AF due to the reduced SGPWA SWP Allocation. The rest of the imported water (4270 AF) came from imported water banked in previous years in BCVWD's groundwater storage account.

In the future there will be greater use of non-potable water.

Water Uses by Sector

CWC 10631

(e)(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

A) Single-family residential.

B) Multifamily.

C) Commercial.

D) Industrial.

E) Institutional and governmental.

F) Landscape.

G) Sales to other agencies.

H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

I) Agricultural…

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

Definitions

For purposes of the 2015 UWMPs, the following definitions are used by DWR for each of the water sectors listed in the CWC. The order of the sectors follows the order found in the CWC. Each of these sectors are the only sectors that will be accepted by the WUE data online submittal tool..

Single-family Residential -- A single-family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling.

Multi-family -- Multiple dwelling units contained within one building or several buildings within one complex.

Commercial – A water user that provides or distributes a product or service. CWC 10608.12 (d).

Industrial -- A water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. CWC 10608.12

(h). The following link is to the NAICS website: http://www.census.gov/cgi-bin/sssd/naics/naicsrch.

Institutional (and governmental) -- A water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. CWC 10608.12 (i). Note that BCVWD account codes lump "Institutional" in with "Commercial." In the tables to follow, the instutional and commercial fractions were estimated.

Landscape -- Water connections supplying water solely for landscape irrigation. Such landscapes may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. This is a retail demand.

Sales to Other Agencies – BCVWD has pumped water on behalf of the City of Banning in the past, but none was pumped for the City of Banning in 2015. The City of Banning has participated with BCVWD in funding several wells in the Beaumont Basin. When water is pumped by BCVWD for the City of Banning, it is considered City of Banning pumping and is not included in BCVWD's extractions.

Saline Water Intrusion – BCVWD does not supply any water to saline water intrusion barriers.

Groundwater Recharge -- The managed and intentional replenishment of natural groundwater supplies using man-made conveyances such as infiltration basins or injection wells. Water used for groundwater banking or storage may also be reported using this sector. If all, or a portion of, the groundwater recharge water is subsequently pumped out of the basin in the same year, that water will be reported by the pumping agency as a supply from groundwater (Tables 6-1 and/or 6-8 and 6-9). BCVWD is required to meet replacement water obligations of the Beaumont Basin water master by recharge or by taking water from BCVWD's groundwater storage account. Future years include a groundwater recharge component to build up BCVWD's storage account for dry years.

Conjunctive Use – BCVWD banks imported water in BCVWD's storage account in the Beaumont Basin when available from SGPWA and as funds permit. This water can be extracted in future years when imported water allocations are insufficient to meet demands.

Agricultural -- Water used for commercial agricultural irrigation through BCVWD's agricultural irrigation meters.

Distribution System Losses -- Reporting of system losses is required by the CWC in the 2015 UWMPs. See Section 4.3 and Appendix L for details on the required methodology for calculating system losses. The CWC requires reporting losses for the most recent 12 months for which data is available, which can be taken to mean the calendar year or fiscal year used for

data reporting throughout the rest of the UWMP. Report the losses for the most recent 12 months available in Table 4-1. If the reported water losses are for a 12 month period that is different from the calendar or fiscal year used for data reporting throughout the rest of the UWMP, the water supplier will state this in the UWMP.

Other Water Uses

There are several other water uses mentioned in the UWMP Guidelines:

Exchanges -- Water exchanges are typically water delivered by one water user to another water user, with the receiving water user returning the water at a specified time or when the conditions of the parties' agreement are met. BCVWD does not currently exchange water with any agency.

Surface Water Augmentation -- The planned placement of recycled water into a surface water reservoir that is used as a source of domestic drinking water supply. (Used in Chapter 6, Section 6.5 Recycled Water). BCVWD does not do "surface water augmentation."

Transfers -- The CWC defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights. In the past, South Mesa Water Company has transferred water to BCVWD's groundwater storage account for payment. This was occurred between 2004 and 2014 when South Mesa has more than adequate groundwater supply to meet their needs at that time.

Wetlands or Wildlife Habitat -- Water used for a managed environmental use to improve an environmental condition. The City of Beaumont is required to maintain a flow of 1.8 mgd in Cooper's Creek a tributary of San Timoteo Creek from the City's wastewater treatment plant. Currently BCVWD is not receiving recycled water from the City of Beaumont, but this source is anticipated in the future. The requirement to maintain streamflow affects the amount of recycled water available to BCVWD.

Historical Water Uses

BCVWD's historical water use is summarized below:

Year	1980	1990	2000	2005	2010	2015
Potable Water Demand, AFY	5,074	5,572	6,308	9,306	11,023	9,792

The reduction in water use in 2015 was due to water conservation measures imposed during the drought.

Current (2015) Water Use by Sector

Table 4-1 shows BCVWD's water demand (water use) by sector for the year 2015.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
	Additional Description *(as needed)*	Level of Treatment When Delivered	Volume, AF
Single Family		Drinking Water	6,612
Multi-Family		Drinking Water	287
Commercial	estimated	Drinking Water	118
Industrial		Drinking Water	169
Institutional/Governmental	estimated	Drinking Water	611
Landscape	potable water only	Drinking Water	772
Agricultural irrigation		Drinking Water	49
Other	Metered construction, street sweeping, etc.	Drinking Water	160
Losses	estimated	Drinking Water	500
Groundwater recharge	Imported Water Banked for future extractions during dry periods. During 2015, 2090 AF imported water recharged and extracted in 2015	Raw Water	0
Landscape	non-potable water	Raw Water	514
		TOTAL	9,792
NOTES:			

Future Water Use by Sector

Table 4-2 shows the future water use by sector. Included in Table 4-2 are planned quantities of groundwater recharge of imported water. The May 2016 Emergency Conservation Regulation requires a 3-year supply to avoid state-mandated water restrictions. BCVWD Board adopted Resolution 2014-05 that requires a 5-year supply. The groundwater recharge quantities are planned amounts achieve a minimum 5-year firm water supply to ensure water supply for new EDUs and meet new State Emergency Water Conservation Regulation, "stress test" requirements.

Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Use Type *(Add additional rows as needed)* ***Drop down list*** *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
		2020	2025	2030	2035	2040
Single Family		12,702	14,191	16,084	17,878	19,533
Multi-Family		400	625	710	785	855
Commercial		126	135	145	155	165
Industrial		180	190	200	210	220
Institutional/Governmental		650	685	730	770	820
Landscape	recycled water	0	0	0	0	0
Agricultural irrigation		60	55	50	45	40
Other	Metered construction and street sweeping water etc.	300	315	325	340	350
Losses		335	380	430	473	500
Other	Raw water to supplement non-potable water system	163	280	455	449	398
Groundwater recharge	Imported raw water banked for future extractions during dry periods. Does NOT include imported water to meet Adjudication replacement obligations	1,000	1,500	2,000	2,500	2,500
	TOTAL	15,916	18,356	21,129	23,605	25,381

NOTES: Ground water recharge quantities are planned quantities to build 5-year supply per BCVWD Resolution 2014-05; landscape demand will be met with recycled water and supplemented with other non-potable water as needed.

The potable water demands, (i.e., all of the demands in Table 4-2 except “Landscape” and “Groundwater Recharge), are based on BCVWD’s 2015 Potable Water Master Plan. The potable water demands in the 2015 Master Plan Update were based on discussions with developers and projects in the construction, planning or proposal stage from the City of Beaumont’s Planning Department “Major Project Status Reports.” The projected growth to 2040 was discussed in Section 3. The rate of growth of the potable water demand is based on the growth of EDUs. With the economic turndown around 2007 or so, there were a number of large housing projects under construction, many had pads graded and utilities installed, when development stopped. These projects are ready to and developers have returned.

The growth in EDUs is assumed to be:

5-year Period	EDUs/year
2015 – 2020	927
2020 – 2025	566
2025 – 2030	650
2030 – 2035	612
2035 – 2040	563

This is a very aggressive EDU growth rate; Section 3 discusses the historical growth rate. Current growth rates in EDUs experience by the City of Beaumont is on the order of 450 EDUs/year. For planning purposes, it is better to be aggressive.

The water demand projections do not include any "water conservation" effects. There will likely be some lingering effect of the water restrictions mandated by the Governor's Office for 2015 as the population becomes more aware of the water situation in California. Also developers are constructing much more water efficient homes with limited turf landscaping and more efficient appliances. New landscape ordinances will be limiting turf areas in street medians and common areas which could bring down the demands projected in Table 4-2 by perhaps as much as 10% to 15%.

The water demand to the multi-family, commercial, industrial, institutional/governmental, and "other" categories were projected from the actual 2015 values through 2040 on the basis that the changes in demand would be proportional to the changes in single family demand. As single family residences increase there will be a proportionate increase in commercial, institutional, and industrial to support it. Multi-family units will grow also as land becomes more valuable.

The agricultural irrigation connections are declining as the land use is changing from orchards to residential land. Most of the irrigation customers are in Cherry Valley and would not likely be served by the recycled water system within the foreseeable future. They will continue to be served potable water. The agricultural irrigation accounts will decline throughout the planning period at a gradual rate particularly as the cost of water continues to increase.

The landscape demands are derived from BCVWD's 2015 Potable Water Master Plan Update and are associated with BCVWD's non-potable water system. The non-potable system could include recycled water from YVWD and the City of Beaumont, filter wash water from YVWD, non-potable groundwater, or imported SPW. The landscape demands **do not** include the irrigation demands from the two golf courses: Tukwet Canyon (1,250 AFY) and Oak Valley Greens (750 AFY). These golf courses are on their own wells and have Beaumont Groundwater Basin Overlier Rights. Irrigation of these golf courses from BCVWD's non-potable water system would depend on the amount of recycled water and filter wash water available.

BCVWD's operational plan is to supply the landscape demands first, then if there is recycled and filter wash water available, supply it to the golf courses. Any unused recycled water (typical of winter time operations) could be advance treated and recharged (planned indirect potable water reuse project).

The Groundwater Recharge quantities shown in Table 4-2 are for planned recharge to build-up or maintain BCVWD's Beaumont Basin groundwater storage account. They are not actual demands. The quantities shown are **over and above** that needed by BCVWD to meet their normal Beaumont Basin replacement water obligations. Banking water in the storage account is critical to meeting demands during dry years.

If imported SPW is not available in a given year, no groundwater recharge would occur. But when imported water is available, any deficiencies from previous years would be "carried over" and made up.

Table 4-3 shows the total water demands which summarizes the demands from Table 4-2.

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	9,792	15,916	18,356	21,129	23,605	25,381
Recycled Water Demand* *From DWR Table 6-4*	0	2,196	2,525	2,892	3,238	3,579
TOTAL WATER DEMAND	9,792	18,112	20,881	24,021	26,843	28,960

**Recycled water demand fields will be blank until Table 6-4 is complete.*

NOTES: The recycled water demand includes the forecast amount used on landscaping irrigated by the non-potable water system, plus any recycled water supplied to golf courses when surplus recycled water is available. Sources of recycled water are YVWD and City of Beaumont.

The non-potable water demand in Table 4-3 is the landscape demand and does not include golf course demands. Tukwet Canyon and Oak Valley Golf Courses have their own well supply. BCVWD intends on serving the golf courses only when non-potable water is available.

Distribution System Water Losses

California Senate Bill No. 1420, (SB 1420), requires water utilities that submit Urban Water Management Plans to calculate annual system water losses using the water audit methodology developed by the American Water Works Association (AWWA). SB 1420 requires that utilities submit these audits every five years as part of their respective Urban Water Management Plans.

CWC 10631

(e)(1) Quantify, to the extent records are available, past and current water use over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:…

(J) Distribution system water loss

(3)(A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

To facilitate the process, AWWA has developed an Excel spreadsheet based on the principles in AWWA Manual M36 Water Audit methodology. Version 5.0 of the spreadsheet software was used in the analysis.

Table 4-4 summarizes the water loss volume from the AWWA spreadsheet.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	500
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES: : BCVWD believes the amount calculated in the Water Audit Spreadsheet is not correct due to change in the this method of accounting for the 2 month lag between production (measured daily) and consumption (meter read time -- most bimonthly, but some monthly). TheDstrict believes the Water Loss Volume is really about 500 AF	

Estimating Future Water Savings

CWC 10631

(e)(4)(A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

The water demand projections in Table 4-2 are based on BCVWD's 2015 Potable Water Master Plan and are conservative and do not include the passive savings from residual conservation or savings from new codes and ordinances. It is anticipated that future codes and restrictions will also have an effect at reducing consumption. Codes and ordinances which will reduce consumption, but are not considered in the demand projections include:

- Executive Order B-29-15 and California Code of Regulations Title 23, Division 2, Chapter 2.7. Model Water Efficient Landscape Ordinance – 2015. DWR estimates that a typical California landscape will use 12,000 gallons less water in a year or about 20% less than projected with the 2009 ordinance; commercial landscapes will cut water use by as much as 35%
- City of Beaumont Municipal Code 17.06 Landscaping.
- County of Riverside Ordinance No. 859 – Water Efficient Landscape Requirements
- BCVWD Resolution 2016-05 –Authorizing the Implementation of Water Use Restrictions and Rescinding Resolution 2015--05. This resolution rescinded the twice per week landscape watering restrictions but did maintain the other conservation measures in the May 18, 2016 Drought Emergency Water Conservation Regulations which was designed to prevent waste and unreasonable use of water and promote water conservation. (BCVWD was able to self-certify that it has adequate water supply for 3 years based on hydrologic conditions 2012 - 13, 2013 - 14, and 2014 - 15 water years and imported water from SGPWA identical to calendar years 2013 through 2015.)

Water Use for Lower Income Households

CWC 10631.1

(*a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.*

California Health and Safety Code 50079.5

(*a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families… In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.*

Table 4-4A presents the long term low-income housing needs, per capita water demand and annual water demand per low-income housing unit for the City of Beaumont and Cherry Valley.

The number of low-income housing units for the City Beaumont was based on information in the City of Beaumont's General Plan, Housing Element dated October, 2010. The data in the Beaumont Housing Element originated in the Regional Housing Needs Assessment (RHNA)

prepared by SCAG. The RHNA new housing construction need was 2,732 dwelling units. More recent information was not available for this 2015 UWMP. For the purposes of this UWMP update, the 2,732 dwelling units was assumed to be the ultimate build-out need.

Table 4-4A
Current and Projected Low-income Housing Needs

	2015	2020	2025	2030	2035	2040
	Low Income Housing EDUs					
City of Beaumont						
Single Family	0	0	0	0	0	0
Multi-family	675	1000	1325	1650	1975	2300
Subtotal EDU	675	1000	1325	1650	1975	2300
Cherry Valley						
Single Family	73	77	80	83	87	90
Multi-family	3	7	10	13	17	40
Subtotal EDU	77	83	90	97	103	130
Total						
Single Family	73	77	80	83	87	90
Total Multi Family	678	1007	1335	1663	1992	2340
Total Low Income	752	1083	1415	1747	2078	2430
Water Use						
Typical gpcd	175	175	175	175	175	175
Typical AFY*	0.59	0.59	0.59	0.59	0.59	0.59
Low Income Single Family	0.44	0.44	0.44	0.44	0.44	0.44
Low Income Multi-Family	0.30	0.30	0.30	0.30	0.30	0.30
Water Use AFY						
Low Income Single Family	32	33	35	36	38	39
Low Income Multi-Family	200	298	395	492	589	692
Total Water Use	233	331	430	528	627	731

* Based on 3 people per residence

The number of units in 2010, (350 for Beaumont and 70 for Cherry Valley), was used as a starting point to project growth in low income housing. The came from the City's Housing

Element, Inventory of Government Assisted Housing Developments (rounded up). All of the low-income housing units are in multi-family units and that was assumed to continue through to the year 2035.

For the community of Cherry Valley, WRCOG developed a Low-income housing need for the entire WRCOG area (10,311 units). A separate projection for Cherry Valley was not provided. The low-income housing allocation for Cherry Valley was estimated based on the ratio of the current population of Cherry Valley to the total WRCOG population. The result was an estimated "need" of 175 low-income housing units in Cherry Valley. For Cherry Valley the low-income housing needs were assumed to be single family units with multi-family units only developed in the year 2035 and beyond.

The growth projections of low income housing parallels the population growth.

The single family, low-income unit water demand was estimated to be 75% of a typical Beaumont single family home. Multi-residential low income unit water demand was estimated to be 2/3 of a low-income single family unit.

The 2040 low-income water demand of 731 acre-ft/yr represents about 3.2% of BCVWD's water demand for 2040, i.e., not significant.

Table 4-5 certifies to the following:

- Future Water Savings from codes and ordinances is not included. The water demand projections in Table 4-2 are conservative. BCVWD does expect some reduction in the demand, on a per capita basis, over time.
- The water requirements for low income housing are included in the demand projections in Table 4-2

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook)	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES:	

Climate Change

Climate change will increase the landscape and outdoor water demand over time as evapotranspiration increases. However, new landscape ordinances which limit the amount of turf and encourage drought tolerant plantings will reduce the total water needs. In addition new

developments are reducing the turf areas on each lot and installing more drought-friendly landscaping. The drought-friendly landscaping is also extended to street medians and common areas. BCVWD believes the net impact of climate change on future water demand should be minimal.

complying with the Governor's drought declarations and executive orders in 2014 and 2015.

In the calculation of the "GPCD" above, there are four exclusions:

- Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier
- The net volume of water that the urban retail water supplier places into long term storage
- The volume of water the urban retail water supplier conveys for use by another urban water supplier
- The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24. (In 2015, BCVWD delivered 49.43 AF for agricultural irrigation.)

Updating Calculations from 2013 UWMP

> *(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).*
>
> *Methodologies DWR 2011, Methodology 2 Service Area Population*
>
> *Page 27 - Water suppliers may revise population estimates for baseline years between 2000 and 2010 when 2010 census information becomes available. DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates.*

BCVWD last updated its UWMP in 2013. Since BCVWD used the 2010 Census in the preparation of its 2013 UWMP Update and the baselines and targets, there is no need to update the calculations.

Update of Target Method

BCVWD used Target Method 1 – Eighty percent of BCVWD's baseline per capita daily water use in its 2013 UWMP Update. It was compared to target method 4 – 95% of the applicable state hydrologic region target. Using the state hydrologic region target resulted in a very low, unattainable target; so, target method 1 was adopted and is used in this UWMP Update.

Required Use of 2010 U.S. Census Data

BCVWD submitted its UWMP Update in August 2013, which included the population data from the 2010 census.

SBX-X7 Verification Forms

The SB X7-7 Verification Forms, to demonstrate compliance with the Water Conservation Act of 2009, have been filled out and are included in the 2015 UWMP submittal to DWR. The results are summarized in this section.

Baseline Periods

> ***CWC 10608.20***
>
> *(e) An urban retail water supplier shall include in its urban water management plan due in 2010. . . the baseline daily per capita water use…along with the bases for determining those estimates, including references to supporting data.*
>
> *(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).*

The Water Code specifies two different base periods for compliance with SB X7-7:

1. The first base period is a 10- to 15-year continuous period, and is used to calculate baseline per capita water use per §10608.20. The 15-year continuous period is used if the Agency used recycled water to supply more than 10% of its retail water demands. (BCVWD did not use recycled water during the baseline evaluation period.)
2. The second baseline period is a 5-year continuous period, and is used to calculate baseline per capita water use per §10608.22. Note that if the water agency's per capita demand is 100 GPCD or less, it is not necessary to determine this 5-year base period. Note that BCVWD's per capita demand is much higher than 100 GPCD, so the 5-year baseline period must be calculated and is described below.

Determination of the 10-15 Year Baseline Period (Baseline GPCD)

> ***CWC 10608.12***
>
> *"Base daily per capita water use" means any of the following:*
>
> *The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*
>
> *For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*

In BCVWD's 2013 UWMP Update, the District performed a detailed analysis of 10-year baseline periods from 1995-2004 through 2001-2010. The period 1999-2008 was selected as the 10-year baseline period for calculation of targets. In as much as the 2010 census data was used in the 2013 UWMP Update, there is no need to update or change the 10-year baseline per capita.

Determination of the 5-Year Baseline Period (Target Confirmation)

> ***CWC 10608.12 (b)***
>
> *(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.*

In the 2013 UWMP Update BCVWD determined the 5-year, continuous baseline period was from 2004 through 2008. Again there is no need to revisit or change the 5-year baseline period.

Service Area Population

> ***CWC 10608.20***
>
> *An urban retail water supplier shall include in its urban water management plan due in 2010…the baseline per capita water use,…along with the bases for determining those estimates, including references to supporting data.*
>
> *When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.*
>
> ***CWC10644***
>
> *(a)(2) The plan…shall include any standardized forms, tables or displays specified by the department.*

In the preparation of this 2015 UWMP, BCVWD used the U. S. Census data for the decade years 1990, 2000, and 2010. The City of Beaumont is entirely within BCVWD's service area and the census bureau data was used directly. For the unincorporated community of Cherry Valley the "Cherry Valley CDP" (census-designated place) population was used. To determine the population in the intervening years for calculation of baseline per capita water use, the growth in population between years 1990 and 2000 was estimated to be linear. This is reasonable considering the population growth within BCVWD during the decade was only 1,645 people (165 people per year). Refer to Table 3-1 and Figure 3-1 presented previously in Section 3. From 2000 to 2010, the population increase was estimated to follow the growth in connections; this was a period of high growth within BCVWD.

Gross Water Use

> *CWC 10608.12*
>
> *"Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:*
>
> *Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier*
>
> *The net volume of water that the urban retail water supplier places into long term storage*
>
> *The volume of water the urban retail water supplier conveys for use by another urban water supplier*
>
> *The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.*

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article

Section 596 (a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

Baseline Daily Per Capita Water Use

A detailed analysis of various baseline periods conforming to the Water Code was presented in BCVWD's 2013 UWMP Update as stated above. The analysis resulted in the 10-year baseline period being 1999-2008 and the 5-year baseline period being 2004-2008. Verification form SB 7X-7 Table 5 is presented below which summarizes the baseline period analyses for 1999-2008 and 2004-2008.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)

Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1999	17,131	5,887	307
Year 2	2000	17,298	6,308	326
Year 3	2001	18,014	5,063	251
Year 4	2002	19,223	8,896	413
Year 5	2003	22,390	7,109	283
Year 6	2004	24,612	8,308	301
Year 7	2005	30,994	9,306	268
Year 8	2006	35,745	11,339	283
Year 9	2007	39,013	13,054	299
Year 10	2008	40,894	13,441	293
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**302**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2004	24,612	8,308	301
Year 2	2005	30,994	9,306	268
Year 3	2006	35,745	11,503	287
Year 4	2007	39,013	13,164	301
Year 5	2008	40,894	13,554	296
5 Year Average Baseline GPCD				**291**
2015 Compliance Year GPCD				
2015		48,377	9,743	**180**
NOTES:				

2015 and 2020 Targets

> *CWC 10608.20*
>
> *(e) An urban retail water supplier shall include in its urban water management plan due in 2010. . . urban water use target, interim urban water use target,…along with the bases for determining those estimates, including references to supporting data (10608.20(e)).*
>
> *CWC 10608.20*
>
> *(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan…*

The Water Code identified four methods which could be used to establish the target GPCD; BCVWD chose Target Method 1 – 80% of the 10-year Baseline GPCD.

Year 2020 Target (by Target Method 1) = 0.80 * 302 GPCD = 242 GPCD

5-year Target Confirmation

> *CWC 10608.22*
>
> *Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.*

Year 2020 Target (by Target Confirmation) = 0.95 * 291 GPCD = 276 GPCD

In BCVWD's case, CWC §10608.22 controls, and the District's confirmed **year 2020 target is 242 GPCD.**

Calculate the 2015 Interim Urban Water Use Target

The year 2015 Interim Target GPCD is midway between the 10-year Baseline (302 GPCD) and the year 2020 Confirmed Target (276 GPCD). BCVWD's **year 2015 Interim Target is 272 GPCD.**

Baselines and Targets Summary

Table 5-1 presents a summary of results of the baseline per-capita and target analysis. Table 5-2 shows that BCVWD met the intermediate, year 2015 target and the year 2020 target by a considerable margin. It should be pointed out that Stage 2 Water Restrictions were in effect in the District during this period.

Table 5-1 Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target GPCD *	Confirmed 2020 Target GPCD*
10-15 year	*1999*	*2008*	*302*	*272*	*242*
5 Year	*2004*	*2008*	*291*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

2015 Compliance Daily per Capita Water Use (GPCD)

CWC 10608.12

(e) "Compliance daily per-capita water use" means the gross water use during the final year of the reporting period…

CWC 10608.24

(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

CWC 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

BCVWD's actual per capita for 2015 was 180 GPCD, which is well below the interim Target of 272 GPCD in Table 5-1. See Table 5-2.

Table 5-2: 2015 Compliance *Retail Agency or Regional Alliance Only*								
Actual 2015 GPCD*	2015 Interim Target GPCD*	**Optional Adjustments to 2015 GPCD** Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
180	272	0	0	0	0	180	180	Yes
All values are in Gallons per Capita per Day (GPCD)								
NOTES: The persistent drought and Stage 2 Water Use Restrictions imposed by BCVWD resulted in a 24.3% water savings year 2015-16 vs comparable period in 2013. Without the water savings the year 2015 per capita would have been closer to 223 GPCD								

Table 5-2 provides for some adjustments to the 2015 GPCD for such reasons as defined in the Water Code. For BCVWD there were no adjustments needed. But is should be pointed out that the Stage II water restrictions and water conservation measures resulted in a 24.3% savings in potable water. Without the restrictions the 2015 GPCD would have been about 223 GPCD. Still well below the interim target.

Another factor that affected the District's per capita is the substantial new homes which have been constructed in the District. Since 2001 there have been 10,800 new single family houses constructed in Beaumont. This is almost 74% of all of the housing units in Beaumont having modern plumbing fixtures, high efficiency appliances and California friendly, drought tolerant landscaping with much reduced turf areas.

The drought conservation and the new housing stock were responsible for the reduction in per capita water consumption.

CWC 10608.24

(d)(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Methodology 4 This section discusses adjustments to compliance-year GPCD because of changes in distribution area caused by mergers, annexation, and other scenarios that occur between the baseline and compliance years.

BCVWD was in compliance with the 2015 Interim Target and no adjustment to the year 2015 per capita is required.

Section 6

System Supplies

Overview

In the early years of the District, before the middle of the 20th Century, diverted surface water from Edgar Canyon (Little San Gorgonio Creek) was used for domestic and agricultural supply. Remnants of some of the diversion boxes are still visible in Edgar Canyon. Since the early 1900's, wells in Edgar Canyon supplemented the surface diversions. Eventually the surface diversions were no longer used and the District relied solely on groundwater from both Edgar Canyon and, after 1936 or so, the Beaumont Storage Unit (BSU or the Beaumont Basin).



The Beaumont Groundwater Basin was adjudicated on February 4, 2004 and a Watermaster established for management of the basin (RIC389197). The Adjudication put the basin into a safe yield operation. The principal terms of the Adjudication are described later in this section; the full Adjudication is included in Appendix E.

In September 2006, BCVWD completed the Phase I of its storm water capture and groundwater recharge project located along Beaumont Ave. between Brookside Ave. and Cherry Valley Blvd. and began recharging imported State Project Water (SPW) purchased from the San Gorgonio Pass Water Agency (Pass Agency or SGPWA). The facility sits astride Noble Creek. The imported water percolates into the ground and comingles with the native groundwater in the Beaumont Basin. Groundwater and percolated imported water are BCVWD's only current water source. In 2015 BCVWD completed Phase II of the recharge facility which more than doubled the recharge capacity.

Future water sources will include recycled water and could include captured and recharged storm water from Edgar, Noble, Marshall and other canyons, urban runoff captured and recharged in detention and water quality basins, captured, nitrate-contaminated underflow from the Edgar Canyon, groundwater from the Singleton Groundwater Basin and perhaps the San Timoteo groundwater basins.



BCVWD is considering introducing SPW directly into the non-potable water distribution system. This will reduce the cost of water pumped into the non-potable system by about $100 per acre-ft and will reduce energy and the District's carbon footprint. (The $100 per acre-ft is the cost of energy to pump the water from the Beaumont Basin groundwater table into the non-potable water distribution system.) When recycled water having a TDS concentration greater than 330 mg/L is introduced into the non-potable water system, imported SPW will need to be blended in to meet the 330 mg/L, 10-year average Maximum Benefit TDS in the blended water in order to comply with the Regional Board's permit requirements for the Beaumont Groundwater Basin in Order R8-2015-0026, NPDES CA0105376.

Table 6-1 identifies the water sources which are currently used or planned to be used by the District to meet future demands. Each of these sources will be described in more detail in subsequent subsections.

The District's water supply plan is based on the following set of principles:

- The Plan must be sustainable in terms of water quality and quantity.
- Energy is a major consideration in the evaluation of alternative water supply strategies.
- Local water resources such as poor quality groundwater and recycled water should be maximized in the non-potable water system and used for irrigation.
- Surplus non-potable water should be supplied to golf courses whenever it is not needed to meet other landscape non-potable water demands. This will provide BCVWD with forbearance water, as described in the Adjudication, which can be extracted from the Beaumont Basin to meet potable water demands.
- Recycled Water not needed for landscaping or golf courses should be advance treated and percolated to augment the potable water supply in conformance with applicable rules and regulations.
- Urban runoff and storm runoff from Little San Gorgonio Creek, Marshall Creek, Noble Creek and other local watersheds should be captured and percolated to the extent practical to minimize the amount leaving the "basin."
- The Beaumont Basin Adjudication will be followed with return flow credits given for imported and recycled water.
- The SGPWA has committed to provide the needed imported water supply to meet BCVWD's needs through build-out.

Table 6-1
Current and Future Water Sources Available to BCVWD

Water Source	Current	Future
Groundwater, Edgar Canyon	●	●
Groundwater stored in the Beaumont Basin	●	●
Imported Water purchased through SGPWA	●	●
Recycled water for landscape irrigation		■
Recycled water for groundwater recharge		Potential
Storm Water Capture and Recharge from Edgar Canyon, Noble Creek and other local watershed		■
Urban Storm Runoff captured in detention and water quality basins		■
Captured, nitrate-contaminated shallow groundwater from Edgar Canyon to supplement non-potable water system		Potential
Singleton Basin groundwater		Potential
San Timoteo Basin groundwater to supplement non-potable water system		■
Joint Projects with Other Agencies with Exchanges		Potential

● Firm, existing source ■ Firm, future source

There are constraints on the use of some of these sources, e.g. recycled water to ensure the water quality of the groundwater is maintained over time. These constraints are established by the RWQCB and are described later in this section. The RWQCB and the DDW have constraints on the use recycled water for irrigation and groundwater recharge.

The water supply plan which is developed must be flexible. Conditions will change over time, regulations will change, more information and experience will be gained with the existing facilities, and other things will occur requiring periodic adjustments to the water supply plan.

Purchased or Imported Water

Imported Water is provided to BCVWD through the San Gorgonio Pass Water Agency (SGPWA), one of the 29 State Water Contractors that import water from Northern California through the State Water Project. The Agency has a service area of 225 sq. mi., exclusively in Riverside County. In addition to BCVWD, the major water retailers in the SGPWA service area include the City of Banning, YVWD, Banning Heights Mutual Water Company, High Valley Water District, South Mesa Mutual Water Company, and Cabazon Water District. Currently only

BCVWD, YVWD and the City of Banning have taken imported water. The SGPWA has used a small amount for their own use and recharged the Beaumont Groundwater Basin. Table 6-2 shows the historical deliveries from SGPWA and the amount delivered to BCVWD. As can be seen from the table, the majority of the deliveries were to BCVWD over the time period. This percentage of SGPWA's deliveries is expected to continue into the future at the rates following the end of the temporary surplus in February 2014, i.e., 80 to 85% or so.

The SGPWA or "Pass Agency" has a Table A amount of **17,300 acre-ft/year** based on their contract with the Department of Water Resources (DWR). Table A amounts are used in allocating the total State Water Project (SWP) water supply that is determined by DWR to be available for delivery each year among the State Water Contractors. The Table A amount is the maximum amount a contractor may request in any year from DWR. It is also the maximum amount that DWR agrees to deliver to a contractor, like the Pass Agency, during a year. The sum total of all of the Table A amounts for all of the 29 State Water Contractors under the Monterey Agreement (1994) shall not exceed 4.185 million acre-ft. (The DWR 2011 State Water Project Delivery Reliability Report[1] states 4.172 million acre-ft as the total combined maximum Table A amount – not significantly different.) The Pass Agency's Table A is shared with other agencies in the Pass' service area.

Under certain hydrologic and water supply conditions, DWR is not always able to deliver all of the water requested by the contractors. In these cases a smaller amount ("allocation") is set by DWR by prorating the total amount available in proportion to the contractor's Table A amount. Thus the Pass Agency's Table A amount of 17,300 acre-ft/year is subject to the reliability of State Water Project. See Table 6-2.

The State Water Project has been, and continues to be, subject to delivery reduction caused by the operational restrictions of several biological opinions issued in December 2008 and June 2009 by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). These federal court decisions have been remanded (returned back) to the agencies for further study. In March 2014, the US Circuit Court of Appeals, 9th District, reversed a lower court decision by US District Court Judge Oliver Wanger and upheld the US Fish and Wildlife Service's protection of the Delta Smelt. In December 2014, the protection was extended to salmon and steelhead.

The DWR 2011 delivery reliability report[2] uses the assumptions in the 2008/2009 biological opinions and there is essentially no change to the delivery reliability with the recent (2014) decisions.

[1] State Water Project Final Delivery Reliability Report 2011 (2012). Department of Water Resources, (June)

[2] Ibid

Table 6-2
Historical Delivers of SPW to SGPWA and BCVWD

Calendar Year	Total SGPWA Deliveries, acre-ft (1)	BCVWD Deliveries, acre-ft (2)	BCVWD % of SGPWA Deliveries	DWR Allocation %
2003	116			90
2004	814			65
2005	687			90
2006	4,420	3,501	79.2	100
2007	4,815	4,501	93.5	60
2008	4,905	2,399	48.9	35
2009	6,609	2,741	41.4	40
2010	8,403	5,727	68.1	50
2011	10,730	7,979	74.4	80
2012	10,974	7,783	70.9	65
2013	9,695	7,434	76.7	35
2014	5,131	4,405	85.9	5
2015	3,467	2,773	80.0	20
2016	11,430*	9,870	86.4	60
Total		59,113		

Sources: (1) Report on Water Conditions, Reporting Period 2014, SGPWA, (2) 2014 Watermaster Annual Report, * 2016 SGPWA Total from J. Davis to E. Fraser email; BCVWD totals for Nov and Dec estimated

The delivery reliability was calculated by DWR using the Cal-Sim-II computer model which simulates current and future operations of the SWP. The analyses are based on 82 years (1922-2003) of rainfall and runoff adjusted to reflect current and future levels of development. The impact of climate change is factored into the calculations. Figure 6-1 presents a cumulative probability curve of deliveries as a percent of a Contractor's Table A amount. The results are summarized in Table 6-3. In reading Table 5-3, 90 percent of the time the SWP will be able to deliver 28 percent of a Contractor's Table A; 50 percent of the time, the SWP will be able to deliver 64 percent of Table A.

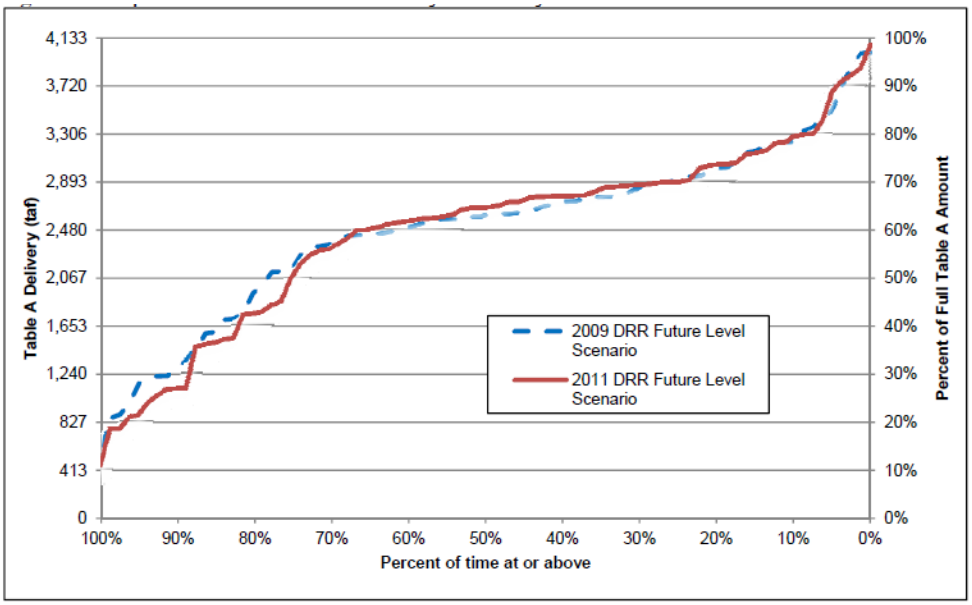


Figure 6-1
SWP Delivery Reliability (Future Conditions)

Source: 2011 Final Delivery Reliability Report, Technical Addendum

Figure 6-2 presents recent historical delivery percentages from 1992 – 2016. The average for the period is 66.0% or slightly above the 64% stated in the 2011 Delivery Reliability Report. This is not surprising since the Reliability Report percentages were based on future conditions. But the figure does lend credibility to the Reliability Report projections. This 64% reliability factor has been considered in the amount of water available on a consistent basis from the SWP.

Table 6-3
Percent Probability of Receiving Full Table A Amount

Probability Expressed as a	Percent of Table A
90	28
80	42
70	56
60	61
50	64
40	66
30	69
20	73
10	78

Source: Extracted from 2011 Final Delivery Reliability Report Technical Addendum

Relating this to the Pass Agency, it means **on the average** (50% of the time), the SWP should be able to **deliver 11,100 acre-ft/yr to the Pass Agency**.

On July 27, 2015 the Pass Agency Board of Directors adopted a Facility Capacity Fee. The Capacity Fee is to be charged to new development on a "per EDU" basis for "new" water and for facility capacity increase to improve reliability and to be able to accommodate the larger volumes of water available during wet years including Article 21 Water. On February 18, 2014, the Board of Directors of the SGPWA adopted Resolution No. 2014-02, A Resolution of the San Gorgonio Pass Water Agency Establishing a Policy for Meeting Future Water Demands. Section 3(a) of this resolution states:

> *"The Agency is prepared to take the necessary actions to provide its service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. As additional water resources are required to meet increasing needs, the Agency will be prepared to take the necessary actions to deliver such supplies."*

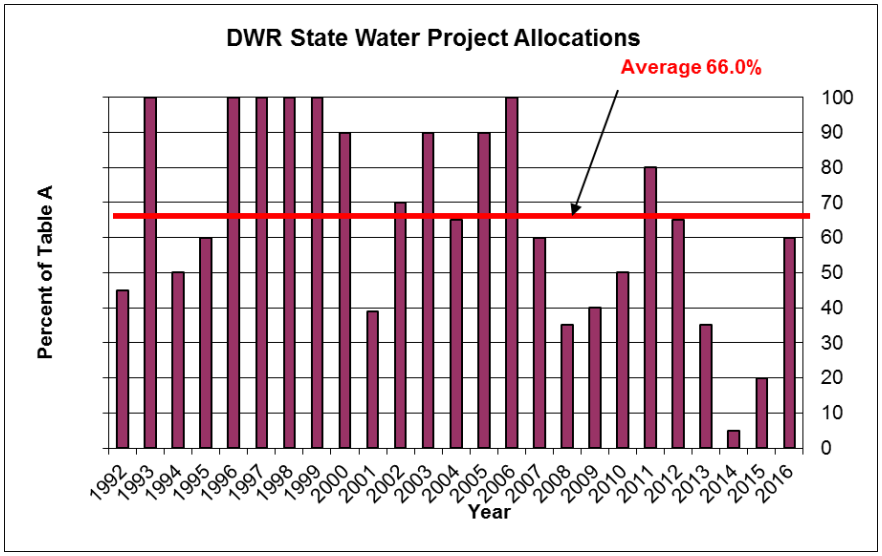


Figure 6-2
Historical SWP Delivery Percentages (1992 – 2016)

On July 27, 2015 the SGPWA adopted Resolution 2015-05, Resolution of the Board of Directors of The San Gorgonio Pass Water Agency to Adopt Facility Capacity Fees for Facilities and Water. The recitals of this resolution state:

> *"WHEREAS, the Board of Directors finds and determines that the present existing water importation, production, transportation, delivery facilities and water supplies are inadequate to meet anticipated demand;"*

Resolution 2015-05 was supported by a "nexus study" which supported the costs and charges along with a staff report. The Facility Capacity Fee as adopted by the SGPWA, has two components:

- A Facility Component
- A Water Supply Component

Both are imposed on new development, i.e., residential, commercial and industrial, effective July 27, 2015 as stated in the adopted resolution.

The Facility Component would fund the purchase of additional capacity in the Foothill Pipeline of the EBX and a storage facility in the Beaumont Basin known as the Brookside Avenue Recharge Facility (BARF). The Water Supply Component is used to "purchase new water and/or water rights and entitlements to meet future water demand" based on the expected water use of the new home or new commercial/industrial facility.

The component related to the construction of the Beaumont Avenue Recharge Facility (BARF) is considered by BCVWD to be a redundant facility for BCVWD customers since BCVWD's Development Community has funded adequate facilities to recharge more water than needed for current and all foreseeable future demands.

The new water supply component and increased capacity in the Foothill Pipeline are necessary to meet current and future demand. The nexus study further states:

"To maintain reliability for the benefit of future development SGPWA will need to purchase additional water rights and entitlements outside of its SWP contract.

The nexus study recognizes the reliability issues with the current Table A amount:

"The task of meeting the demands of new growth with scarce water sources is exacerbated by the significant reduction in reliability of imported water deliveries from the SWP due to periodic drought conditions, regulatory and court case cutbacks in allocations. SGPWA will need to purchase new water rights and entitlements to insure that additional water supplies will be available in the future as the SGPWA experiences new development. It has been estimated that the total water demand at build-out is expected to be in excess of local supplies and existing imported SWP water, with allowances for reduced reliability. This deficit will need to be balanced by the purchase of new water rights and entitlements. The water rights and entitlements, (authorized by SGPWA Act 101-27.1(b), (d), and (g)), that are needed to meet the demands of new development shall be purchased with funds provided by new development in the form of a Water Capacity Fee."

The Staff Report supporting the Resolution states:

"The Agency would ensure that future development within that entity's service area would be covered in the Agency's urban water management plan and that entity would have a right to expect future water supplies to be provided by the Agency for that development."

Resolution 2015-05 of the Board of Directors of the San Gorgonio Pass Water Agency to Adopt Facility Capacity Fees for Facilities and Water states:

> *"WHEREAS, pursuant to Section 101-27.1 of the SGPWA Act, SGPWA has prepared a Capacity Fee Study (Study) to support the need for additional water facilities and new water and/or water rights in that the existing facilities are not adequate to meet future increasing water needs in the SGPWA service area."*

Attachment 1 of Resolution 2015-05, Findings Supporting the Adoption of the Facility Capacity Fees states:

> *"The water capacity fee component will only be required of new development if the retail agency tasked with suppling water to that development determines that additional supplemental supply is needed."*

Based on these statements, the SGPWA has established an obligation to meet the water supply needs of the region and recognizes the current SGPWA Table A is fully subscribed to current users. If an agency, like BCVWD, determines that supplemental water is needed for a new development, the agency shall request SGPWA to obtain the supply, the water capacity fee component shall be paid, and the SGPWA will obtain the supplemental supply.

Based on the foregoing, BCVWD can rely on the SGPWA to secure and deliver the imported water needed to meet BCVWD's current and future demands as set forth in this 2015 UWMP and subsequent UWMP updates.

It is assumed the Pass Agency will consider the SWP reliability factor (64%) in the purchase of any additional Table A water from other State Water Contractors to ensure 100% reliability of Table A water.

In addition to the maximum annual Table A amount, there is a contractual limit of **32 cfs** on the instantaneous rate of delivery through the Aqueduct. (If operated continuously for the entire year, this would be 23,360 acre-ft. Since this exceeds the annual Table A amount, the maximum amount which could be delivered on an annual basis is still 17,300 acre-ft.) So California aqueduct conveyance is not a current limitation.

As stated above, and supported by SGPWA studies and Resolutions, the SGPWA considers the current allocation of the Agency's Table A amount of 17,300 AFY to be fully subscribed by the current users which are BCVWD, YVWD and the City of Banning (See Table 6-2). The respective allocation of the 17,300 AFY based on historical deliveries between 2013 and 2016 is: Banning 2,200 AFY, YVWD 1,218 AFY and BCVWD 13,882 AFY. This is the best representation of post-temporary surplus demands. Drought periods, such as 2013-2015 severely limit the availability of imported water.

BCVWD will need additional imported water to meet its long term needs, even when maximizing local water resources. As stated above, with the adoption of the Capacity Fee, the Pass Agency has committed to provide adequate water supply to meet the region's, (including BCVWD's), projected needs to at least year 2040.

BCVWD can reduce its need for supplemental water from the Pass Agency through:

- Water conservation
- Use of recycled water for landscape irrigation
- Increased storm water capture and recharge
- Use of local groundwater containing high nitrate and TDS in the non-potable water system
- Advanced wastewater treatment of YVWD and/or City of Beaumont recycled water for groundwater recharge

Importation Facilities and Capacity



Pass Agency imports SPW through the East Branch Extension (EBX). EBX Phase I was completed in 2003; the Environmental Impact Report for EBX Phase II (EBX II) was certified in 2008 and Phase II is currently nearing completion of construction and scheduled for completion in early 2016.

The EBX begins downstream of DWR's Devil Canyon Power Plant at the Devil Canyon Afterbay, north of the City of San Bernardino (Water Surface Elevation =1,931 ft MSL). From the Afterbay, the SPW flows through the Foothill Pipeline to the Greenspot Pump Station. From the Greenspot Pump Station, the water is pumped through the Greenspot Pipeline to the Crafton Hills Pump Station. The Crafton Hills Pump Station then pumps the SPW through the Crafton Hills Pipeline to Crafton Hills Reservoir. From the Crafton Hills Reservoir the water flows by gravity to the inlet of the Cherry Valley Pump Station. The Cherry Valley Pump Station then pumps the SPW through the Noble Creek Pipeline to the EBX terminus at Noble Creek in Cherry Valley (HGL Elevation ≈ 3,000 ft MSL). The EBX has a total length of about 33 miles; the water is lifted over 1,000 ft to get it to the Pass Agency. The EBX facilities up to the Garden Air Creek Metering Facilities are shared with San Bernardino Valley MWD (Valley District).



EBX II provides Valley District and the Pass Agency additional capacity to deliver water and at the same time provides some system redundancy. EBX II begins at Greenspot Rd and Cove Camp Rd and goes south in the Mentone Pipeline crossing under the Santa Ana River to the Citrus Reservoir and Pump Station at the intersection of Opal St and San Bernardino Ave. From

the Citrus Pump Station the SPW is pumped through the Mentone Pipeline East to the Crafton Hills Pump Station, constructed as part of the first phase of the EBX.

Table 6-4 presents a summary of the EBX Facilities and capacities; Table 6-5, the EBX II Facilities and their capacities.

Table 6-4
EBX Facilities, incl. EBX II Improvements

Facility	Description	Size	Capacity	SGPWA Capacity	Comment reference to SGPWA
Foothill Pipeline	From Devil Canyon to Santa Ana River Crossing	78”	220 cfs	32 cfs	Can use additional capacity with SBVMWD Board Approval
Santa Ana River Crossing (SARC)	Under Santa Ana River to Greenspot Pump Station	42”	108 cfs	16 cfs	Has 48 cfs capacity in parallel route (EBX II)
Greenspot Pump Station	Greenspot Pump Station		70 cfs total	16 cfs	Has 48 cfs capacity in parallel route (EBX II)
Greenspot Pipeline	Greenspot Pump Station to Crafton Hills Pump Station	48”	70 cfs	16 cfs	Has 48 cfs capacity in parallel route(EBX II)
Crafton Hills Pump Station			135 cfs total;110 cfs firm	64cfs	3 @25 cfs, 2 @ 20cfs, 2 @ 10 cfs
Crafton Hills Pipeline	Crafton Hills Pump Station to Crafton Hills Reservoir	54”		64 cfs	
Crafton Hills Reservoir			220 AF		Enlarged in EBX II from 85 AF
Bryant Street PIpeline	Crafton Hills Reservoir to Riverside San Bernardino County Line	54”	104 cfs	64 cfs	
Singleton Pipeline	Riverside San Bernardino County Line to Cherry Valley Pump Station	54”	64 cfs	64 cfs	
Cherry Valley Pump Station			52 cfs total; 32 cfs firm	52 cfs	Includes 20 cfs pump added in EBX II plus 1@16 cfs, 2@ 8 cfs
Noble Creek Pipeline	Cherry Valley Pump Station to Noble Creek Terminus	36”	32 cfs	32 cfs	Capacity could be as high as 52 cfs if velocity allowed to 7.4 ft/sec

Table 6-5
EBX II Improvements

Facility	Description	Size	Capacity	SGPWA Capacity	Comment reference to SGPWA
Mentone Pipeline South	Foothill Pipeline to Citrus Reservoir	66”	175 cfs	48 cfs	Has 16 cfs capacity in parallel route (EBX I)
Citrus Reservoir			400 AF		
Citrus Pump Station			160 cfs 150 cfs firm	48 cfs	Has 16 cfs capacity in parallel route (EBX I) 4@ 25 cfs, 4 @ 20 cfs, 2@ 10 cfs
Mentone Pipeline East	Citrus Pump Station to Crafton Hills Pump Station	60”	160 cfs	48 cfs	Has 16 cfs capacity in parallel route (EBX I)

BCVWD takes water from a 20-in diameter turnout and metering station at the current end of the EBX at Orchard Ave. and Noble Creek in Cherry Valley.

The EBX II project includes modification of the Crafton Hills and Cherry Valley Pump Stations, enlargement of Crafton Hills Reservoir, and a connector to the Yucaipa Pipeline.

From Tables 6-4 and 6-5, the Pass Agency has **64 cfs capacity in the East Branch Extension** except for:

- ***Foothill Pipeline*** – Pass Agency has 32 cfs in this pipeline but can use additional capacity if SBVMWD is not using the capacity. The 32 cfs is the maximum capacity Pass Agency currently has in the rest of the California Aqueduct.
- ***Cherry Valley Pump Station*** – Pass Agency has 52 cfs of total pumping capacity and 32 cfs of firm capacity (largest pump out of service). There is no space to add additional pumps in the building without major modifications.
- ***Noble Creek Pipeline*** – The velocity in this pipeline based on the total capacity of the Cherry Valley Pump Station of 52 cfs is 7.4 ft/sec. This is marginally acceptable with the headloss of 35 ft in the 10,000 ft length pipeline.

Facilities for Additional EBX Capacity

With completion of EBX II construction in 2016, the Pass Agency is still limited to 32 cfs or 17,300 acre-ft/yr in the EBX assuming a 75% operating time. This is based on the current SGPWA purchased capacity of 32 cfs in the Foothill Pipeline.

Pass Agency recognized the need to get additional capacity up to 64 cfs in the Foothill Pipeline and adopted a Capacity Fee in July 2015 to purchase an additional 32 cfs capacity in the Foothill Pipeline. This would double the current Pass Agency delivery capacity to 35,000 acre-ft/year assuming a 75% utilization factor.

BCVWD's Anticipated Need for Imported Water

BCVWD's 2017 Master Plan (Table 5-29 in the Master Plan) indicated BCVWD will need between 13,800 AFY and 16,300 AFY of imported water by the year 2040 depending on local water resource development, lingering water conservation, more restrictive landscaping ordinances, etc. This is the amount needed just to meet demand. Additional imported water will be needed to be banked to comply with the State's 2016 Emergency Conservation Measures which requires a 3-year supply to avoid imposing severe water use restrictions. BCVWD's Board of Directors, through Resolution 2014-05, established a requirement for a 5-year supply since drought periods have extended for more than 3 years. Table 6-26 herein (presented and discussed later) summarizes the imported water requirements and is consistent with the 2016 Master Plan. Build-out imported water requirement just to meet demand from the 2016 Potable Water Master Plan are in the range of 18,500 AFY to 23,000 AFY, again depending on local water resource development, water conservation, etc.

BCVWD Facilities for Imported Water

BCVWD takes water from a 20-in diameter turnout and metering station at the current end of the EBX I at Orchard Ave. and Noble Creek in Cherry Valley. Water from the turnout is metered by DWR and then enters a 3,500-ft long, 24-in diameter pipeline, constructed by BCVWD, which conveys the water to BCVWD's groundwater recharge site located east of Beaumont Ave. between Brookside Ave and Cherry Valley Blvd.

The 24-in diameter pipeline, designed for 30 cfs, was constructed in 2006. If operated continuously, the pipeline could convey 21,700 acre-ft per year. The capacity is based on maintaining the pipeline velocity below 10 ft/second. Higher velocities could be tolerated for short periods of time which would result in increased short-term delivery capacity. Based on imported water projections, the pipeline capacity should be adequate until well after year 2040 – maybe even build-out.

Phase I of the Recharge Facility, (West of Noble Creek), was completed in September 2006 and BCVWD began to take imported water at that time. Phase I consists of approximately 10.2 wetted acres based on the projected horizontal area at the normal water depth. Phase I has 3 "trains," or sets of percolation ponds (2.7 acres, 4.2 acres, and 3.32 acres (wetted area) respectively for "trains" 1, 2, and 3). Phase II was completed in 2015 and is operational. Phase II has an estimated horizontal wetted area of about 17 acres. It, too, is constructed in "trains" to allow wetting and drying.

Recharge of imported water has occurred almost continuously since September 2006. As of December, 2015, 48,530 acre-ft (15.8 billion gallons) of water have been recharged to BCVWD's account. Refer to Table 5-2 presented previously. Since 2006, annual recharge has averaged 4,853 AFY with a maximum of nearly 8,000 AFY.

Based on operational studies from 2006 through 2010, Geoscience Support Services, Inc., (Geoscience), determined the weighted average recharge rate for the Phase I facility is 10.3 acre-ft/wetted acre/day. This is a very high rate. Since there are a total of 10.2 wetted acres in Phase I, the existing recharge facility would be able to percolate over 100 acre-ft/day. Theoretically this is would be over 36,000 acre-ft per year (about twice the Pass Agency's Table A amount.) The 36,000 acre-ft per year, however should be reduced because of the need to "rest" and "restore" the basins and perform routine maintenance. If 2 of the 3 Phase I trains were operating at any one time, the theoretical capacity would be about 25,000 acre-ft/yr for Phase I.

Taking a conservative approach, using a percolation rate of 6 acre-ft/wetted acre/day and considering both Phase I and Phase II facilities, the percolation capacity would be 150 acre-ft/day. Using a 75% utilization factor, the percolation capacity on an annual basis would be over 40,000 acre-ft. However, achieving a capacity of 40,000 AFY would require frequent rest periods along and frequent pond bottom scouring. At this point, BCVWD does not have sufficient long-term operating experience with the Phase II ponds to justify more than a conservative 25,000 to 30,000 AFY total percolation capacity for Phases I and II combined. This capacity is adequate for BCVWD's long term needs to build-out.

Aquifer Response

BCVWD installed monitoring wells with the initial construction of the recharge facility to track and "trace" the recharged water. According to Geosciences, Inc, Feb 2010 report, BCVWD recharged over 15,000 acre-ft of water from September 2006 to December 20, 2009 in the Phase I facilities and water levels in the three shallow aquifer monitoring wells (perforated from 480 to 550 ft below ground surface) increased 94.4 ft, 86.1 ft, and 89.5 ft respectively. In the deeper aquifer (perforated 600 to 700 ft below ground surface), water levels increased in the fall and winter when BCVWD Well 23 was used less and decreased in summer when the well was used more. The water level in the two very deep monitoring wells (perforated 600 to 1000 ft below ground surface) increased 11.5 and 13.2 ft respectively since start of recharge in September 2006. In summary, it is clear the water is reaching the intended aquifers.

This data contradicts statements made in a USGS Report for the Pass Agency[3]. Specifically their report states that artificial recharge, including that from imported SPW in recharge ponds

[3] USGS (2006). Geology, Ground-Water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside County, California, D. L.

takes between 23 and 71 years to reach the water table depending on location. Spreading data from monitoring wells during Phase I operation of the recharge facility supports a much faster vertical travel time – more like 60 days under saturated conditions.

Imported Water Quality

State Project Water experiences some changes in water quality in response to wet and dry cycles in Northern California. Data from the Metropolitan Water District of Southern California, (Metropolitan), shown in Figure 6-3, shows the TDS in their imported water supplies from 1988 to 2014 – a 26-year period. Of particular interest is the Silverwood Reservoir source. The SGPWA also uses the same Silverwood Reservoir source. During high flow years, the TDS approached 100 mg/L; during the drought period of the early 1990s, TDS approached 400 mg/L. The last few years during the drought, the TDS has been in the 250 to 300 mg/L range. The nitrate concentration (as nitrate) in the imported water for 2014 was 1.9 mg/L, (0.43 mg/L as N).

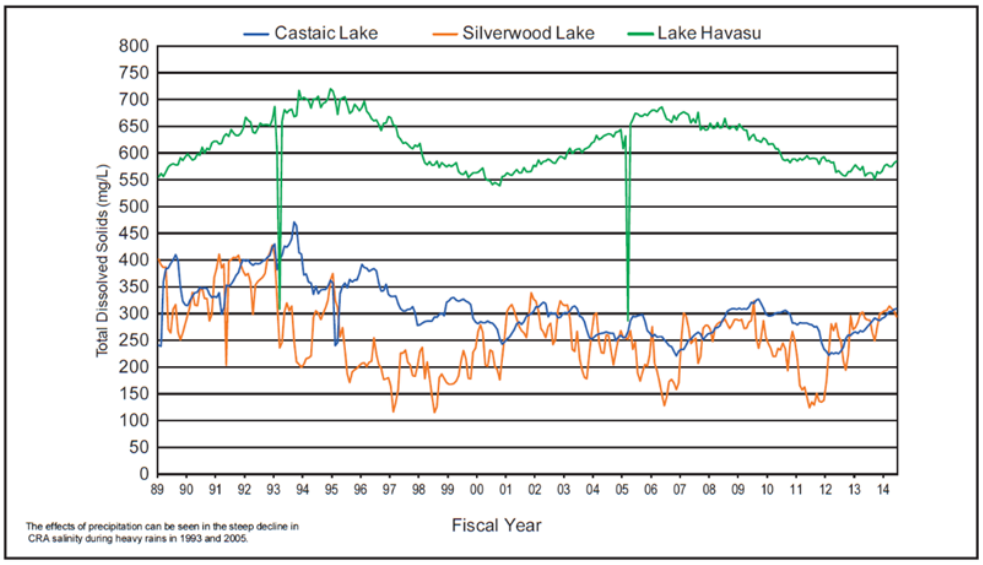


Figure 6-3
Quality of Metropolitan's Imported Water Supplies[4]

Article 19 of the Department of Water Resources' contract with SGPWA states that it is the objective of the State and the State shall take all reasonable measures to make available

Rewis, A. H. Christensen, J. C. Matti, J. A. Hevesi, T. Nishikawa, and P. Martin, Scientific Investigations Report 2006-5026.

[4] Metropolitan Water District of Southern California (Metropolitan 2012) Annual Report for the Fiscal Year July 1, 2011 to June 30, 2012. Chapter 4/

project water of such quality that the TDS concentration does not exceed 440 mg/L on a monthly average or 220 mg/L as an average during any 10-year period.[5]

The average TDS for the period January 2004 through January 2010 was 249 mg/L. This matches the TDS for the 25-year period from 1972-97[6]. For the 10-year period 1988-97 the TDS averaged 300 mg/L. This indicates that there could be some 10-year periods in the future where the SPW could exceed 250 mg/L and careful salinity management will be necessary. In their salinity management plan, Metropolitan used an average of 250 mg/L TDS for the East Branch.[7]

Implementation of the Bay Delta Conservation Plan should help maintain or improve the quality of the State Project Water; so a TDS concentration of 250 mg/L as a 10-year average should be is reasonable at this time.

Groundwater

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(b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater.



The District currently owns and operates a total of 24 groundwater wells of which only 20 are used to any great degree. Three of the wells have their capacity shared with the City of Banning. (BCVWD constructed these wells under a cooperative agreement with Banning for shared capacity rights.) The 20 wells have a total production capability of approximately 27.3 million gallons per day (mgd) not including the capacity shared with Banning. Thirteen of the wells are in Edgar Canyon; eleven are in the Beaumont Basin.

Details on the District's wells and their current capacity can be found in the 2016 Potable Water Master Plan.

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[5] State of California Department of Water Resources (1962), Contract between the State of California, Department of Water Resources and San Gorgonio Pass Water Agency for a Water Supply. November 16.

[6] California Urban Water Agencies (1999). Recommended Salinity Targets and Program Actions for the CalFed Water Quality Program, December.

[7] Metropolitan Water District of Southern California (2012). Salinity in Metropolitan Supplies, Historical Perspective, Handout #2. Presented at Salinity Management Update Study Workshop, Southern California Salinity Coalition, June 1.

The greatest demand experienced by BCVWD occurred in 2009 when 22.1 mgd were used on one day (July 19); for 2015 the maximum day demand was 15.3 mgd. This is the lowest since 2005 and was likely due to the strict water conservation measures in effect for the drought. Historically the maximum day/average day ratio has been 1.87, but BCVWD uses a ratio of 2.0 for planning purposes. BCVWD can meet the maximum day demand with the largest well, (Well 29), out of service based on a 24-hour operation assuming short-term use of the shared Banning capacity (Total capacity is 21.5 mgd).

The District's wells are located in four areas:

- Upper Edgar Canyon (San Bernardino County)
- Middle Edgar Canyon (San Bernardino County)
- Lower Edgar Canyon (Riverside County)
- Beaumont Storage Unit (Beaumont Basin) (Riverside County)

Note that “Edgar Canyon” is synonymous with “Little San Gorgonio Creek”.

Edgar Canyon Wells

BCVWD has a total of 13 wells in Edgar Canyon; Well No. 13 is a standby for Well No. 12; Well No. 9A has limited use and Well RR-1 is in the process of being refurbished. Total capacity of the wells, not including RR-1, 9A and 12 is 1,510 gallons/minute (gpm) or 2.17 mgd. Individual well capacities range from 50 gpm to 300 gpm. Well capacities in Edgar Canyon vary from year to year, and throughout a given year, depending on hydrologic conditions, i.e., wet year vs dry year.

Groundwater in Edgar Canyon primarily occurs in the shallower, younger and older alluvial valleys and within the rock fractures beneath the alluvium. Numerous faults cross the canyon generally in a southeast-northwest direction. These act as barriers to groundwater movement and subdivide the canyon into several sub basins. Over the years BCVWD has drilled numerous wells, pilot holes and test wells in Edgar Canyon; but, because of the faulting, many of these wells have proven to be of limited use or value. Many “dry holes” are noted on some of the old BCVWD system maps.

The groundwater aquifer in Edgar Canyon is limited and storage is small. Groundwater levels vary from just few feet below ground surface to about 200 feet below ground surface. The groundwater levels and groundwater production respond quickly to stream flow. During wet years considerably more water can be pumped than during dry years.

BCVWD prefers to use the wells in Edgar Canyon since they are the least expensive to operate and the water can be conveyed to the District customers by gravity with no additional pumping.

The District has arbitrarily subdivided Edgar Canyon into three production areas:

- **Upper Edgar Canyon** -- in San Bernardino County from the District's northern boundary, where Oak Glen Road crosses over Little San Gorgonio Creek, to a point about the center of Section 2, T1S/R1W approximately 1.5 miles north of the Riverside/San Bernardino County Line. The Upper Canyon wells include all wells except Wells 6, 4A, 5 and RR-1.
- **Middle Edgar Canyon** -- in San Bernardino County from the Riverside/San Bernardino County Line to a point about 0.5 mile north of the County line. Well 6 is in the Middle Canyon
- **Lower Edgar Canyon** in Riverside County from the mouth of the Canyon at Orchard St to about 1 mile north (upstream) where Well No. 5 is located. Well No. 4A is located about 1/4 mile below Well No. 5. Well RR-1 is about ½ mile north of Orchard St., downstream of Well 4A.

The Edgar Canyon wells are very inexpensive to operate and are the preferred source; however, those wells are not able to meet even the average day demand.

Locating water wells in Edgar Canyon has been a challenge due to the faults crossing the canyon. The faults form barriers to groundwater flow and create small, low production, low storage, aquifers. The successful wells are clustered into the 3 areas – Upper, Middle and Lower Edgar Canyon. In between the areas there is no groundwater production.

Beaumont Basin Wells

The Beaumont Basin, or Beaumont Storage Unit (BSU) as it is also known, is one of the largest groundwater units in the San Gorgonio Pass area covering an area of about 27 sq. mi. with at least 1.1 million acre-feet of water in storage and about 200,000 to 400,000 acre-feet of unused groundwater storage capacity. STMWA estimated the amount of water in the Beaumont Basin could be as much as 2.4 million acre-ft based on usable groundwater extending down to 1500 ft below ground surface.[8] This is 500 ft deeper than previously assumed and is based on several recent wells drilled by BCVWD and others.

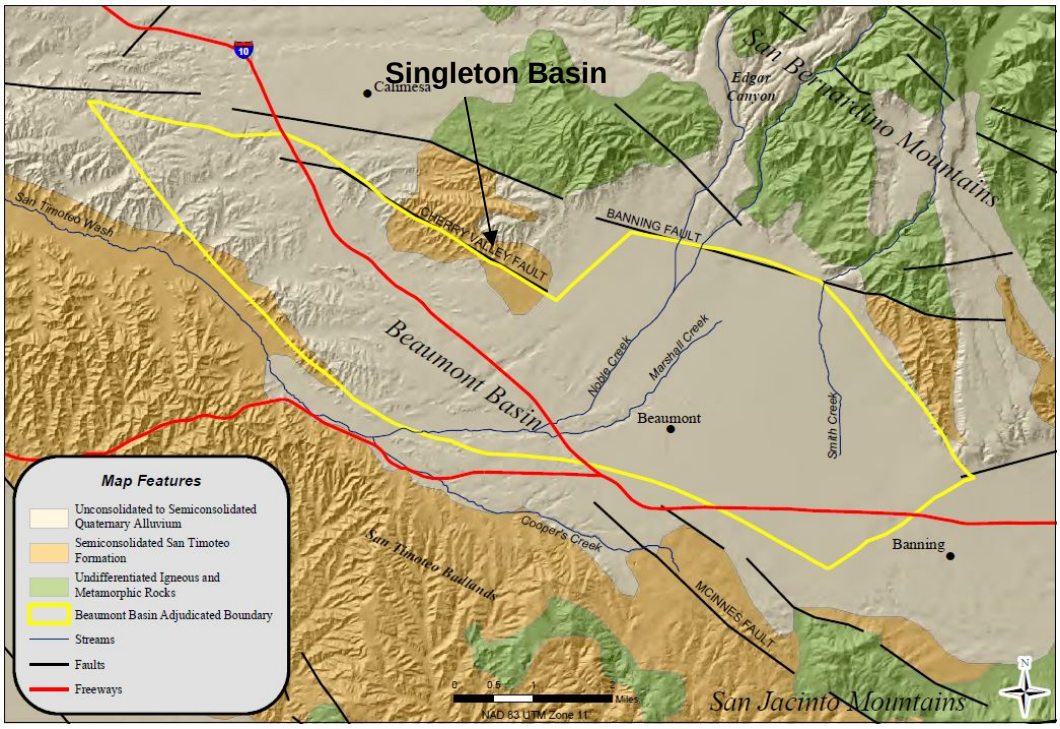
The boundaries of the BSU are defined on all sides by postulated faults including the Banning and Cherry Valley Faults to the north and unnamed faults to the south, east, and west. The Cherry Valley Fault is the dividing line between the BSU and the Singleton storage unit. See Figure 6-4.

Groundwater within the BSU primarily occurs in the older alluvium and the San Timoteo Formation. Groundwater elevations in the BSU range from approximately 160 ft below ground

[8] "*Integrated Regional Water Management Program for the San Timoteo Watershed*," Final Draft, prepared for the San Timoteo Watershed Management Authority, Wildermuth Environmental, Inc., p 2-15, June 2005.

surface (bgs) to 600 ft bgs. Underlying the BSU are nearly impermeable granitic/metamorphic basement rocks.

It should be noted that the BSU has been drawn down from the steady state groundwater elevations computed in the Bloyd (1971) report[9]. The Bloyd report shows that the groundwater elevation is approximately 100 feet below steady-state (pre-development) conditions. According to STWMA, progressive drawdown of water levels in the Beaumont Basin occurred from the 1920s to about 1980. Since then, groundwater levels have stabilized. Current levels in the basin are about 75 to 120 ft below the 1920 levels and about 10 to 40 ft below the 1980 level.[10] Even though water levels have dropped, there has been no known adverse impact, e.g., water quality impacts, subsidence, etc. The only adverse impact is additional pumping cost. With the adjudication, the Basin is now under a long-term safe yield operation. Fluctuations in water levels will occur from wet years to dry years; but there should be no long-term decline.



Source: Alda, Inc/Thomas Harder, 2-1 Watermaster Annual Report

Figure 6-4
Beaumont Groundwater Basin and Major Fault Boundaries

[9] Bloyd, R.M., 1971, Underground storage of imported water in the San Gorgonio Pass area, southern California: U.S. Geological Survey Water-Supply Paper 1999-D.

[10] "*Integrated Regional Water Management Program for the San Timoteo Watershed*," Final Draft, prepared for the San Timoteo Watershed Management Authority, Wildermuth Environmental, Inc., p 2-13, June 2005

Since startup of the BCVWD recharge facility and the recharge of SPW, groundwater in the BSU flows from the recharge site, (at Beaumont and Brookside Avenues), in a southeasterly direction toward Banning and a southwesterly direction to San Timoteo Creek.

During the field investigation work performed by BCVWD in anticipation of developing its recharge facility, multiple aquifers systems were identified by Geoscience Support Services Inc. (Geoscience)[11]. They designated the aquifer systems beneath the recharge site as:

- Perched -- 300 to 400 ft bgs
- Shallow -- 478 to 485 ft bgs
- Intermediate – 600 to 1000 ft bgs
- Deep –below 1000 ft bgs

Prior to drilling Well 23 at the recharge site, the base of useable groundwater water in the Beaumont Basin was thought to be 1,000 ft bgs. This was the primary production zone of most of the older municipal wells in the BSU, including the District's. (There are currently seven production wells in the Beaumont Basin having depths of 1,400 ft or more.) As part of the pilot recharge project, a well was drilled to 1,500 ft bgs and test pumped at 3,000 gpm. The water quality from this well is excellent, with total dissolved solids concentrations in the low 200 mg/L range. The finding of this deep aquifer greatly extends the amount of usable groundwater in the BSU.

Groundwater Quality

Overall, the water quality from BCVWD's wells is excellent. Table 6-6 presents a summary of the quality of water from the District's 2015 Consumer Confidence Report.

Edgar Canyon

In Edgar Canyon the TDS concentration is below 250 mg/L range; hardness is moderate; nitrate levels are low, except at the mouth of Edgar Canyon. At the mouth of Edgar Canyon, USGS has reported[12] that a monitoring well 2S/1W-22G4 had a nitrate-N concentration of 11.3 mg/L. This exceeds the drinking water MCL of 10 mg/L. Well 2S/1W-22G4 is a shallow monitoring well that is perforated from 138 to 158 below ground surface. USGS states that this well is likely affected by "an anthropogenic source of nitrogen that may include agricultural activity or septic

[11] Geoscience Support Services, Inc., (2002). *Geohydrologic Investigation Noble Creek Recharge Study*, July 1, 2002

[12] USGS (2006). *Geology, Ground-Water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside, California*, U.S. Department of the Interior, U.S. Geologic Report, in cooperation with the San Gorgonio Pass Water Agency, Scientific Investigations Report 2006-5026.

tank seepage." This well is not used for potable water supply; BCVWD has no production wells in the high nitrate area.

Table 6-6
Summary of BCVWD Groundwater Quality[13]

Constituent	Concentration, mg/L unless noted otherwise
	Average
Total Dissolved Solids, TDS	247
Specific Conductance, µmhos/cm	432
pH, pH units	7.5
Sodium	19
Calcium	51
Magnesium	17
Potassium	1.5
Bicarbonate	221
Chloride	9
Sulfate	24
Nitrate	7.6
Fluoride	0.4
Total Alkalinity, mg/L as $CaCO_3$	182
Total Hardness, mg/L as $CaCO_3$	200

Data from 1998 and 1999, showed the TDS in BCVWD's RR-1 well, in the floor of Edgar Canyon near the mouth, was 370 mg/L. Nitrate as nitrate was 24-27 mg/L. The TDS near the mouth of the canyon is much higher than farther up the canyon where BCVWD has its production wells.

Bonita Vista Water Company wells, on the ridge to the west of Edgar Canyon, showed high nitrate concentration; the Company has since been annexed into BCVWD and the wells were taken out of active operation. Based on this information, the ridges adjacent to the mouth of Edgar Canyon likely have elevated nitrate concentrations.

[13] BCVWD 2015 Consumer Confidence Report

The groundwater at the mouth of Edgar Canyon and beneath the ridges on the west side and possibly the east side, though there is no data to confirm this, has high nitrates and should not be used for potable water without further treatment. This groundwater could be introduced into the non-potable distribution system and beneficially used on landscaping, however. BCVWD has plans to do this.

Beaumont Basin

In the Beaumont Basin during the period 2002 – 2006, TDS concentrations in the groundwater ranged from 160 to 360 mg/L. Historical ambient TDS based on the period 1954 – 1973 was 230 mg/L; for the period 1984- 2003 the ambient TDS was 260 mg/L. Although there is a slight upward trend, the TDS is still very low.[14]

Average nitrate-N concentrations for the period 2002 – 2006 ranged from 0.26 to 7.9 mg/L with maximum concentrations ranging from 0.26 to 9.03 mg/L. During that same period about 70% of the wells sampled for nitrate-N had an average concentration less than 2.5 mg/L. None of the wells sampled had nitrate-N exceeding the MCL of 10 mg/L[15]. BCVWD's Well No. 16 in Cherry Valley experienced a "spike" in nitrate-N in 2005 reaching 9.0 mg/L; at the same time, Well No. 21 showed a concentration of 6.1 mg/L.[16] These concentrations have since decreased. This was investigated; but no conclusions could be drawn as to the exact cause. It is possible this could occur again.

The University of California Riverside (UCR), under contract with the SWRCB, conducted a water quality assessment of Beaumont Management Zone with the specific objective of looking at nitrate contamination from on-site wastewater disposal systems.[17]

Forty wells and eleven surface water sites were sampled and analyzed in the UCR study. In the central part of the BMZ, i.e., generally in Cherry Valley, several wells "showed clear signs of contamination by septic systems. The groundwater within the central part of Cherry Valley appeared to be more strongly affected by septic systems than groundwater on the periphery of

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[14] Wildermuth Environmental Inc. (2007). First Biennial Engineer's Report, July 2003 through June 2006, Beaumont Basin Watermaster for San Timoteo Watershed Management Authority vs. City of Banning et.al, June.

[15] Ibid

[16] Wildermuth Environmental, Inc. (2007). Water Quality Impacts from On-site Waste Disposal Systems in the Cherry Valley Community of Interest, Final Report, prepared for San Timoteo Watershed Management Authority, Project Committee No. 1, March.

[17] Univ. of California Riverside (2012). Final Report: Water Quality Assessment of the Beaumont Management Zone: Identifying Sources of Groundwater Contamination Using Chemical and Isotope Tracers. SWRCB Agreement No. R*-2010-0022, Department of Environmental Sciences, Riverside, CA 92521, Feb 3.

Cherry Valley. Several wells had measureable concentrations of pharmaceuticals and personal care products (PPCPs) and major anions and cations [associated with wastewater], suggesting septic waste was entering the groundwater system.[18]"

BCVWD has been able to deal with the nitrate concentrations by blending with other lower nitrate source waters when it has become an issue. Riverside County Ordinance 871 requires any new septic tanks within the Cherry Valley Community of Interest be able to remover 50% of the nitrogen. Usually this requires an "add on" process to the conventional septic tank. At some point in time it may be necessary to either install well-head treatment for nitrate removal (ion exchange or reverse osmosis) if blending alone cannot mitigate the problem. If the problem gets worse, sewers may need to be installed in the more densely developed portions of Cherry Valley.

One issue that has emerged is hexavalent chromium (Cr+6). Total chromium is regulated by the state of California, Division of Drinking Water, at an MCL of 50 µg/L (50 parts per billion). There are two forms of chromium that exist in natural waters – trivalent chromium (Cr+3) and hexavalent chromium (Cr+6). Trivalent chromium is a trace metal that the human body needs; hexavalent chromium is considered toxic based on laboratory animal studies. Trace amounts of hexavalent chromium are natural and found in rock and minerals. In some areas, high concentrations of hexavalent chromium are the result of industrial discharges. On July 1, 2014, a separate, State of California, MCL of 10 µg/L (10 parts per billion) for Cr+6 was established.

BCVWD sampled for hexavalent chromium as required by the State. Well 3, in the Beaumont Basin, had a concentration of 11 µg/L; wells 25 and 26, also in the Beaumont Basin, had concentrations of 11-12 µg/L and 14-15 µg/L respectively. This is all from natural causes; the concentrations are at or slightly above the MCL. Since these wells are above the MCL, quarterly monitoring will be required. Although BCVWD is concerned; there is no reason to be alarmed. The MCL was set low enough that health risk is extremely low. Well 26 is no longer pumping into the potable water distribution system; Well Nos. 3 and 25 have been placed on standby status and are not currently being used until Well Nos. 3 and 25 can be modified to reduce the Cr+6.

At the present time nitrates are not an immediate concern and hexavalent chromium concentrations in the wells continues to be monitored. At some point, it may be necessary to provide wellhead treatment.

As part of the preparation of this 2015 UWMP, a review of past industrial/commercial operations, particularly their waste disposal practices, was researched on the SWRCB's GeoTracker[19] to see if there could be any future water quality impact from these discharges.

[18] Ibid, pg. 27

[19] http://geotracker.waterboards.ca.gov/ Accessed 7/11/2016.

Lockheed Martin Corporation[20] used two remote sites near Beaumont, CA, to test solid rocket propellant and motors, weapons, and ballistics. Contamination related to these operations has been identified at both sites—Potrero Canyon and Laborde Canyon. Although the sites are owned or managed by entities other than Lockheed Martin today, Lockheed Martin has assumed responsibility for environmental cleanup at both locations. Both sites are still "open" and assessment and interim remedial action is going on.

The Potrero Canyon site is south of Beaumont and does not overlie any of the Beaumont Basin. BCVWD is not extracting any groundwater from this area. Laborde Canyon is located southwest of the City of Beaumont in the San Timoteo Badlands and also does not overly the Beaumont Groundwater Basin. BCVWD has no wells in this area either.

The SWRCB's GeoTracker list was reviewed for potentially contaminated sites in the BCVWD service area. There about 20 sites in the BCVWD SOI on the list; three are still "open." These include the Beaumont Landfill (inactive) at Fourth St. and Nicholas St., O'Reilly Auto Parts on Sixth and Maple, and SOCO on Fourth and Beaumont Ave. The O'Reilly site is in the assessment phase; SOCO is in the remediation phase, and the landfill is in the monitoring phase. These sites have not affected any BCVWD wells; BCVWD's nearest wells to these facilities are about 0.75 mile away.

Groundwater Management

CWC 10631

...If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

A copy of any groundwater management plan adopted by the urban water supplier…or any other specific authorization for groundwater management.

…For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

The Beaumont Basin was adjudicated in February 2004, in Superior Court, Riverside County, Case RIC 389197, *San Timoteo Watershed Management Authority vs. City of Banning et al*. The Judgment established the Beaumont Basin Watermaster (Watermaster) to administer the judgment. It established the rights of the Overlying Parties and the Appropriator Parties, e.g., BCVWD and others. Some of the essential elements of the Judgment are as follows:

- The "Safe Yield" of the Basin was established at 8,650 AFY. This was to be re-evaluated every 10 years. §I 3.X and §VI 5.Y. It was re-evaluated in 2013 -2015 and on April 2015, through Resolution 2015-01, the safe yield was reduced to 6,700 AFY

[20] http://www.lockheedmartin.com/us/who-we-are/sustainability/remediation/beaumont.html Accessed 09052012

- A controlled overdraft of the basin was allowed for the first ten years to create more usable storage capacity in the Basin for Conjunctive Use. In the Judgment this was termed "Temporary Surplus." This was established at 160,000 acre-ft. After ten years (February, 2014), the controlled overdraft ceased. This provided a ten-year time frame for the appropriators to develop facilities to use or bank imported SPW and develop other water sources. § I3.BB and Exhibit C, Column (5).
- The Overlying Parties can extract, in total, a maximum of 8,650 acre-ft/yr. (All of the initial safe yield was dedicated to the Overlying Parties.) The Overlying Parties and their rights are shown in column (4) of Exhibit B. If an Overlying Party pumps more than five times its share of the operating safe yield (as shown in column (4) of Exhibit B) in any five consecutive year period, the overlying producer shall provide Watermaster with sufficient funds to replace the overproduction (typically with imported water). Exhibit B, Column (4) and §II 1.A
- During the first ten years after adoption of the Judgment (until 2014), the Appropriator Parties can extract, in total, a maximum of 16,000 AFY, i.e., the "temporary surplus" amount divided by ten years. Thereafter the Appropriating Parties can extract, as a maximum, only the amount each has in storage or otherwise credited to the Appropriator Party. If, after the first ten years, an Appropriator Party pumps more than each has in storage or otherwise credited, the Appropriator producer shall provide Watermaster with sufficient funds to replace the overproduction (typically with imported water). Watermaster uses a similar 5-consecutive year period for accounting as described above for the Overlying Parties. BCVWD is an Appropriator Party. BCVWD has a 42.51% share of the temporary surplus for the first ten years (until 2014) and can extract up to 6,802 acre-ft/yr without the need to replenish. Thereafter BCVWD can only extract what it has in storage or otherwise credited to BCVWD by Watermaster**.** §V 4 and Exhibit C, Column (5)
- An Overlying Party can request water service from an Appropriator Party. For example, an Overlying Party can subdivide its property and then request an Appropriator, such as BCVWD, to supply the new subdivision with water. When this happens, the Overlying must forgo extracting that volume of water provided by the Appropriating Party and the Appropriating Party shall have the right to produce the equivalent volume of water which the Overlying Party did not pump. §III 3. (This is sometimes called "forbearance" water.)
- If an Appropriating Party serves recycled water to an Overlying Party, the Overlying Party's water right is not diminished, but the Appropriator Party shall have the right to use that portion of the Overlying Water Right offset by the

recycled water. In other words, serving recycled water to an Overlying Party allows the Appropriator to pump the equivalent amount of groundwater. §III 3 E.

- There is a provision which requires the BCVWD to set aside 2,400 AFY of projected water demand in the 2005 Urban Water Management Plan update specifically for Oak Valley Partners, LP. For the 2010 UWMP update, the Judgment states this figure should be revised to reflect the projected water demands. Oak Valley Partners, LP has an overlying pumping right per column (4) of Exhibit B equal to 1,806 AFY. However it is unclear how this 1,806 AFY is to split between YVWD and BCVWD. BCVWD started to provide potable water service to Oak Valley Partners, LP land in 2005; in 2010, BCVWD provided a total of 1,307 acre-ft to them. BCVWD continues to provide potable water to the land from its potable and non-potable water distribution system §III.3.G.
- If any Overlying Party produces less than five times the share of the safe yield assigned to the Overlying Party during any 5 year period (per Column (4) of Exhibit B), the unused portion shall be apportioned to the Appropriator Parties per Column (2) of Exhibit C: BCVWD 42.51%, Yucaipa Valley Water District 13.58%, South Mesa Water Company 12.48%, and the City of Banning 31.43%. The availability and allocation of any such groundwater not produced by the overlying parties in accordance with their rights under the Judgment shall be first determined in fiscal year 2008/09 and every year thereafter according to a schedule. (Watermaster Rules and Regulations §7.8.)
- Any Appropriator may transfer all or any portion of its Appropriator's Production Right or Operating Yield that is surplus to its needs to another Appropriator. (Watermaster Rules and Regulations §7.3.)
- Watermaster has the authority to enter into Groundwater Storage Agreements with producers for the storage of supplemental water, wellhead protection and recharge, well abandonment, well construction, monitoring, replenishment, mitigation of overdraft, and collection of assessments. §VI.5.
- Supplemental replenishment water can be recycled water, State Project Water, or other imported water. Replenishment can be accomplished by spreading and percolation, injection, or directly using treated surface water or raw or treated imported water. §VI 7.
- A minimum 200,000 acre-ft of groundwater storage capacity shall be reserved for conjunctive use. Any person, party or not a party to the Judgment, can make reasonable beneficial use of the groundwater storage capacity for storage of supplemental water provided that it is in accordance with a storage agreement with Watermaster. §I.3.S and §V.5.B

- Minimal producers (10 or less acre-ft/yr) are exempt from the Adjudication. §III.4.and §I.3.K

Watermaster is responsible for providing the legal and practical means of ensuring the waters of the Beaumont Basin are put to maximum beneficial use and include:

- Administer the Judgement; approve Producer activities,
- Maintain and improve water supply; maintain and improve water quality; monitor and understand the Basin
- Develop and administer a well policy; develop contracts for beneficial programs and services; provide cooperative leadership

To simplify the Judgement, an appropriator, like BCVWD, after February 2014, can only extract water within the appropriator's storage account as determined by Watermaster. Water in the storage account can include:

- Imported water recharged by the Appropriator.
- Water transferred from one Appropriator's storage account to the Appropriator.
- Recycled water recharged to the Beaumont Basin which meets Regional Board and SWRCB Division of Drinking Water (DDW) groundwater water recharge regulations.
- "New" captured storm water or urban runoff recharged by the Appropriator.
- Unused Overlying Party pumping rights allocated back to the Appropriator.
- Return flows from imported water or recycled water applied to land overlying the Beaumont Basin by the Appropriator
- Forbearance water allocated to the Appropriator for providing potable or recycled water to the Overlying Party's land.

Watermaster performs an annual accounting of these sources and produces an annual report identifying the water in storage for each appropriator.

According to Watermaster, BCVWD had 28,930 acre-ft in storage in the Beaumont Basin at the end of 2014. Data from Watermaster's 2015 Annual Report, indicates that BCVWD's storage account balance at the end of 2015 is 25,568 AF.[21] BCVWD's storage account has a maximum capacity of 80,000 acre-ft.

The entire Judgment is contained in Appendix E.

[21] Beaumont Basin Watermaster (2016). 2015 Annual Report, Alda, Inc., Thomas Harder and Company, December

Overdraft Conditions

CWC 10631

(b)(2) For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

BCVWD has been extracting groundwater from Edgar Canyon for nearly 100 years. Data presented later in this section, (see Table 6-8), shows BCVWD's average Edgar Canyon groundwater pumped over the period 1983-2015 was 2,181 AFY. A study by STWMA indicated a safe yield of about 2,600 AFY; a SGPWA water balance study put the safe yield between 2,000 and 2,800 AFY. Based on these studies and BCVWD's long term records of pumping, Edgar Canyon is not in overdraft.

Prior to 2004, the year the Adjudication came into effect, the Beaumont Basin was in overdraft. Groundwater levels had declined from historical levels. It should be noted that the BSU has been drawn down from the steady state groundwater elevations computed in the Bloyd (1971) report[22]. The Bloyd report shows that the groundwater elevation is approximately 100 feet below steady-state (pre-development) conditions. According to STWMA, progressive drawdown of water levels in the Beaumont Basin occurred from the 1920s to about 1980. Since then, groundwater levels have stabilized. Current levels in the basin are about 75 to 120 ft below the 1920 levels and about 10 to 40 ft below the 1980 level.[23] However, in spite of the drop in water levels, there were no water quality impacts or known subsidence. At the present time, with the Adjudication, the Beaumont Basin is operated on a long-term safe yield basis.

The SGPWA monitors the overdraft in the Beaumont Basin and Figure 6-5 shows the accumulated overdraft, (AF), since 1997. As can be seen once imported water began to be imported the accumulated overdraft leveled off. The "overdraft" increased slightly after 2013 due to the drought when imported water supplies were reduced. Basins managed on a long-term safe yield basis are expected to have fluctuations in groundwater levels from year to year depending on hydrologic conditions and the availability of imported water. During dry years the water levels drop; during wet years the levels recover.

[22] Bloyd, R.M., 1971, Underground storage of imported water in the San Gorgonio Pass area, Southern California: U.S. Geological Survey Water-Supply Paper 1999-D.

[23] "*Integrated Regional Water Management Program for the San Timoteo Watershed*," Final Draft, prepared for the San Timoteo Watershed Management Authority, Wildermuth Environmental, Inc., p 2-13, June 2005

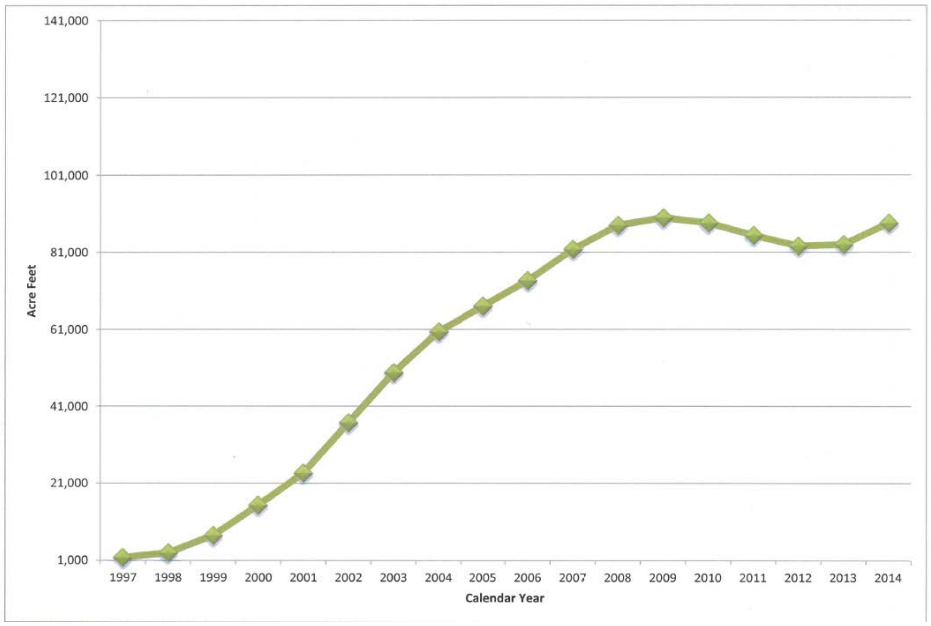


Figure 6-5
Accumulated Overdraft in Beaumont Basin since 1997 (by SGPWA)
(includes the impact of imported replenishment water)[24]

The accumulated overdraft is expected to remain nearly constant with the Adjudication; although there could be some fluctuations due to wet and dry periods causing variable amounts of recharge water to be available. To minimize outflow and loss of recharged imported water, Beaumont Basin water levels should be maintained at or near current conditions. During "wet" years when more imported water is available, the accumulated overdraft will be reduced. This is normal operation for a groundwater basin

The Beaumont Basin Watermaster has a calibrated groundwater model which is used to manage the basin. The model was used in the recent review of the safe yield value and resulted in a reduction to 6,700 AFY -- a value closer to some of the earlier hydrogeologic reports. In summary, although water levels are below historic levels, the Beaumont Basin, as a result of the Adjudication, is operating on a safe yield basis.

When the Adjudication was implemented, an extraction of 160,000 AF "temporary surplus" was planned to provide storage for conjunctive use and water banking. Watermaster was concerned about possible subsidence and implemented a basin-wide subsidence monitoring program. In 2006 Watermaster established a network of 72 benchmarks throughout the Basin and nearby basins and an initial level survey was conducted to establish a baseline. A second survey was conducted in 2007 which showed little vertical change. Whatever minimal change occurred was evenly distributed throughout the Basin. The program envisioned performing the survey every 3

[24] SGPWA, 2015, Annual Report of Water Conditions, Reporting Period 2014, November

years with the next round scheduled for spring 2009. The 2009 survey was not conducted since it was determined the level of subsidence was minimal. No additional surveys are scheduled at this time.[25] It can be concluded, the overdraft and the temporary surplus have not had any adverse effects.

Historical Groundwater Pumping

> *CWC 10631*
>
> *(b) ...If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:*
>
> *(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

Table 6-7, (DWR Table 6-1) shows BCVWD's historical pumping from Edgar Canyon and the Beaumont Basin for the last five years (2011-2015). Figure 6-6 shows BCVWD's pumping from the 1970s.

Edgar Canyon

BCVWD has long-term records on pumping. From 1957 to 2015, a period of 58 years, the average production from the Edgar Canyon Wells was 1,926 AFY. However, prior to 1983, the ability to utilize the water pumped from Edgar Canyon was limited due to a lack of sufficient conveyance capacity to deliver water from Edgar Canyon to Cherry Valley and Beaumont. In 1983, the District installed the 14-in Edgar Canyon Transmission Main which enabled larger quantities of water to be conveyed from Edgar Canyon to Cherry Valley and Beaumont. Since 1983 to 2015, a period of 32 years, the average amount pumped was 2,181 AFY. This is far more indicative of Edgar Canyon's ability to produce water.

Statistical information on the Edgar Canyon production for the period 1983 to 2015 is presented in Table 6-8. As can be seen in Table 6-8, Edgar Canyon Wells produce about 15% of the District's annual need.

[25] Beaumont Basin Watermaster, 2014 Annual Report (Draft), June 2015.

Table 6-7
(DWR Table 6-1) BCVWD Groundwater Pumping (2011 – 2015)

DWR Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type *Drop Down List* *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014 (1)	2015 (1)
Add additional rows as needed						
Alluvial Basin	Little San Gorgonio Creek	2158	1990	1732	1325	1418
Alluvial Basin	Beaumont Basin	9431	10162	11097	10806	8833
	TOTAL	11,589	12,152	12,829	12,131	10,251
NOTES: Little San Gorgonio Creek, also known as Edgar Canyon, is mix of shallow aluvial deposits and fractured rock aquifer. (1) 2014 and 2015 extractions were low, partially due to larger canyon wells (Well No. 6 and Well No. 14) being out of service.						

In Table 6-8, the term "10th Percentile" means that 90 percent of the time the production was greater than the value shown. In other words, there would be only one year in ten that the production would be less than 1,295 AFY. It is important to point out in Table 6-9 that annual production (far right column) will not be the total of the Upper, Middle and Lower Canyon values (second and third columns) because the maximums and minimums, etc. may not have occurred simultaneously, i.e., in the same year.

The San Timoteo Watershed Management Authority (STWMA)[26], estimated the safe yield from Edgar Canyon to be 2,600 AFY.[27] Is consistent with the average amount of extractions shown in Table 6-8 from Edgar Canyon for the period 1983 –2015.

A water budget analysis in a report prepared for the SGPWA indicated the yield from Edgar Canyon was between 2,000 and 2,800 AFY. The SGPWA report stated that based on the 20-year period 1988-2008, when water levels were reported rising in Edgar Canyon, pumping averaged 2,900 AFY and suggests that the yield of Edgar Canyon may be in the range of 2,300 to 2,800 AFY. This also is consistent with both the District's data and that of STWMA.[28]

[26] The San Timoteo Watershed Management Authority (STWMA), was dissolved around the year 2011.

[27] Wildermuth Environmental, Inc. (2005). Integrated Regional Water Management Program for the San Timoteo Watershed, Final Draft, prepared for the San Timoteo Watershed Management Authority, , June 2005.

[28] SGPWA (2010). *Report on the Sustainability of the Beaumont Basin and Beaumont Management Zone*, prepared for the SGPWA by Hahn Water Resources, LLC, Evergreen, CO, November.

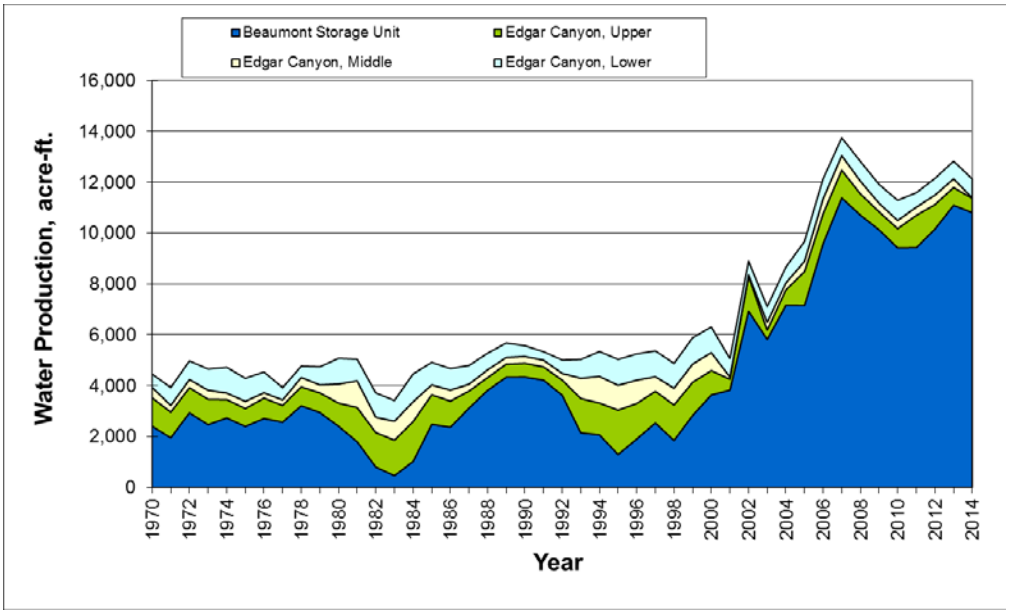


Figure 6-6
BCVWD Water Production History Since 1970

Based on production records for the 31-year period, 1983 – 2015, average and minimum production from Edgar Canyon was 2,181 AFY and 1,117 AFY respectively. Minimum yield is about 50% of the average. Refer to Table 6-8. **For planning purposes 2,200 and 1,110 AFY will be used for the average and minimum year respectively**.

Beaumont Basin Groundwater

Table 6-7, presented previously, showed BCVWD's pumping from the Beaumont Basin for 2011-2015. The water pumped includes imported water recharged and extracted the same year. (Some of imported water recharged was not extracted the same year and went into BCVWD's 80,000 acre-ft storage account monitored by Watermaster.)

In the Judgement, BCVWD and the other appropriators were not given any share of the safe yield; all of the safe yield was assigned to the Overlying Parties. However, during the 10 year period 2004 -2014, BCVWD and the appropriators were granted a portion of the "temporary surplus." The "temporary surplus" was designed to create a 160,000 acre-ft volume in the Beaumont Basin that could be used by the parties for conjunctive use and banking of imported water. This also gave time for the appropriators to construct facilities to use or recharge imported water to meet their needs after 2014.

Table 6-8
Groundwater Extraction Statistics from Edgar Canyon Wells
(1983 -2015)

Parameter	Annual Production Upper and Middle Canyon, acre-ft	Annual Production Lower Canyon, Acre-ft	Annual Production Acre-ft
Average	1,420	761	2,181
Maximum	2,720	1,095	3,738
Minimum	516	334	1,117
90th Percentile	2,268	1,017	3,230
10th percentile	704	541	1,295

Although the Basin safe yield was reserved for the overliers, if any overlier receives potable water or recycled water from any of the appropriators, according to the adjudication, the appropriator may pump the amount of water delivered to the overlier. Annually Watermaster makes an accounting of the unused overlier rights and distributes that amount to the appropriators in accordance with a predetermined share. (BCVWD's share is 42.51%.) In addition the Watermaster makes an accounting of the potable and recycled water supplied by an appropriator to an overlier. These two sources along with any imported water recharged go into the appropriator's storage account. Only stored water can be pumped. If an appropriator has insufficient stored water, Watermaster will assess the producer to pay for the purchase of imported water.

The safe yield of the Basin is subject to review every 10 years. It was reviewed in 2014 and a new safe yield of 6,700 AF was established by Watermaster in 2015.

BCVWD has 11 wells in the Beaumont Basin. The total pumping capacity is 17,425 gpm or 25.1 mgd, assuming the pumps operate 24 hours per day. Because of the large motors, these wells do not typically operate during the peak power periods. At 18-hr/day pumping, with all wells operating, the total pumping rate is 18.8 mgd. With the largest well out of service and 24 hr/day pumping the capacity is 13,425 gpm or 19.3 mgd; with 18 hours of pumping, the total pumping rate is 14.5 mgd.

The District's total well pumping capacity, Edgar Canyon plus Beaumont Basin Wells, with all wells operating 24 hr/day, is 27.3 mgd. With the largest well out of services (Well 29), the pumping capacity for 24-hr operation is 21.5 mgd

To put it in perspective, the year 2015 average and maximum day demands were 11.4 mgd and 15.3 mgd respectively. With all wells with standby power operating and assuming 24 hour/day pumping, (22.4 mgd capacity), the District can meet the maximum demand under extended

multi-day power outages even under maximum day demand. In fact, the District could withstand an extended multi-day power outage, with the largest well on standby power out of service under all but the highest demand conditions (16.6 mgd capacity) However as growth occurs in the service area, this ability will be impacted unless provisions are made to increase well capacity and standby power capacity.

With the Adjudication as described previously in this section, the amount of extractable groundwater, not including stored water, recharged imported SPW or captured stormwater, consists of:

- Reallocation of unused overlier pumping rights
- Credit for providing potable water or non-potable water delivered to an overlying party or an overlying party's land (termed "Forbearance Water")
- Return flow credits

A detailed analysis of the projected amounts available is presented in BCVWD's 2016 Potable Water Master Plan. The results of this analysis is summarized in Table 6-9.

Although the Adjudication is silent on this issue, Table 6-9 includes a proportionate reduction in the reallocation of unused Overlying Party pumping rights to account for the reduction in safe yield from 8,650 AFY to 6,700 AFY. This is a conservative approach.

The non-potable forbearance water in Table 6-9 does not include any non-potable (recycled) water supplied to Tukwet Canyon and Oak Valley Golf Courses. Based on month to month analysis, this would add 330 to 515 AFY forbearance water over time (year 2020 to year 2040).

Table 6-9
Summary of BCVWD Extractable Groundwater from Beaumont Basin
(without replacement and not including stored water)
(not including forbearance for non-potable water to Golf Course)

Item	2015	2020	2025	2030	2035	2040
Reallocated Unused Overlier Pumping Rights, AFY	1,490	1,040	920	800	750	750
Potable Forbearance Water, AFY	272	472	710	930	1,044	1,044
Non-Potable Forbearance Water, AFY	0	30	60	90	120	120
Return Flow Credits above Baseline, AFY	165	223	280	514	868	922
Total, AFY	1,927	1,765	1,970	2,334	2,782	2,836

Source: 2016 BCVWD Potable Water Master Plan Tables 5-4, 5-5, and 5-24

Surface Water

BCVWD does not use local surface water directly but does have two active surface water diversions in Edgar Canyon. These are on file with the State of California Division of Water Rights.

- Diversion Number S014351 located in the SE1/4 of NE1/4 of Section 2, T2S, R1W, SB&M and first used in 1907. This location is about 1,200 ft downstream of the USGS gauging station in Little San Gorgonio Creek, near the upper end of the District's property.
- Diversion Number S014352 located in the NW1/4 of SE1/4 or Section 22, T2S, R1W, SB&M and first used in 1894. This location is just upstream of the existing percolation ponds at the mouth of Edgar Canyon.

In the early years of the District, the upper diversion was used to provide domestic and irrigation supply. Water was diverted from Little San Gorgonio Creek and conveyed to sand and sediment removal structures and filter boxes in the Canyon and then piped down to consumers and orchards in Cherry Valley and Beaumont.

These diversions are used today to direct surface flows in Little San Gorgonio Creek into a series of percolation ponds in Edgar Canyon which then recharge the shallow aquifers to help supply the existing wells in Upper and Middle Edgar Canyon. BCVWD has been doing this since the late 1800s and has a pre-1914 water right to divert up to 3,000 miner's inch-hours (MIH) or approximately 43,440 AFY for domestic and irrigation uses[29]. However, BCVWD has never had a demand that requires such large quantities of water supply; and the watersheds may not be capable of supplying such quantities during an average year. The diversion right is not included in BCVWD's water supply calculations, but is needed to ensure adequate supply from the Edgar Canyon wells.

Storm Water

Storm water capture plays a significant role in BCVWD's local water resource supply development. Several projects are currently in operation:

- Diversions and percolation ponds in Upper and Middle Edgar Canyon described above. See Figure 6-7.
- Construction of desilting basins and percolation basins immediately upstream of the Lower San Gorgonio percolation ponds at the outlet of Edgar Canyon. See Figure 6-8.

[29] A miner's inch in Southern California is reported to be 0.02 cubic ft/second (cfs)



Figure 6-7
Percolation Ponds in Upper Edgar Canyon

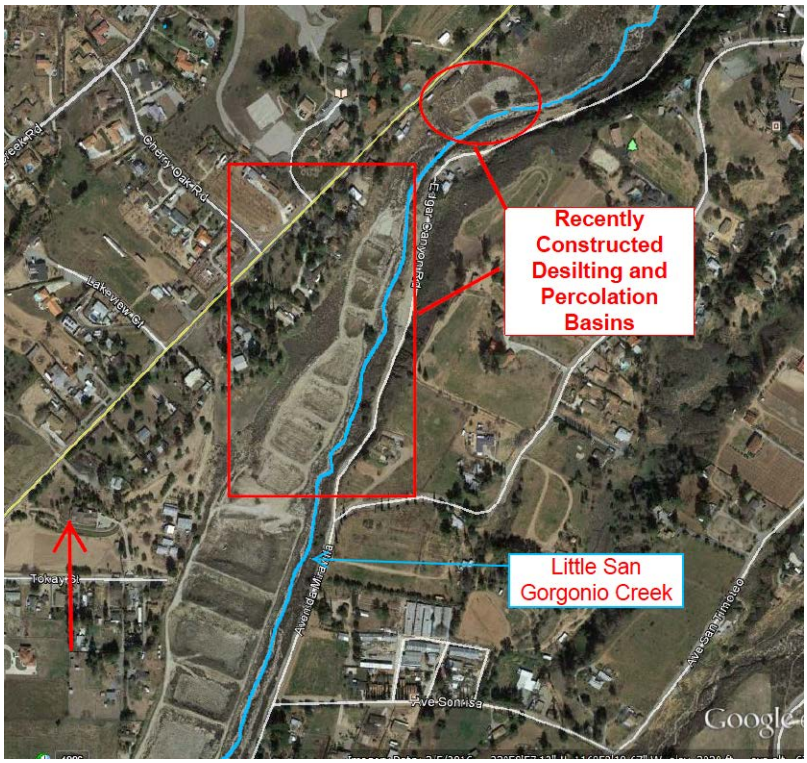


Figure 6-8
Recently Constructed Desilting and Recharge Basins
at the Mouth of Little San Gorgonio Creek (Edgar Canyon)

The diversions in Upper and Middle Edgar Canyon capture most of the storm flows and runoff that flows in the creek and diverts the flow to a series of percolation basins. The water is subsequently extracted by the adjacent wells.

On occasion there are very high flows which flow the entire length of Edgar Canyon. A portion of these flows can be captured in the new basins at the mouth of Edgar Canyon shown in Figure 6-10. In addition, BCVWD retains the right to use the older ponds, downstream of the new basins to capture flood water when they occur. During those times, the SGPWA would be precluded from percolating SPW.

Potential Storm Water Capture Projects

There were a number of projects which were explored in more detail in BCVWD's 2016 Potable Water Master Plan. These projects are listed in Table 6-11.

Edgar Canyon, Noble Creek and Marshall Creek

In BCVWD's 2013 UWMP Update, an estimate of the yield from the Edgar Canyon, Noble Creek and Marshall Creek Capture Projects was presented. No further work has been performed on these conceptual projects, so at this time the preliminary yield from the projects remains at 1,050 AFY.

Table 6-10
Potential Storm Water Capture Projects

Project	Brief Description
Soft plug in Noble Creek at BCVWD Groundwater Recharge Facility	Large flows which would bypass the spreading basins at the mouth of Edgar Canyon (Figure 6-10 above) could still be captured. Provide "soft plug" in lined portion of Noble Creek channel and divert flows into BCVWD's recharge facility. (Note that only extreme flows actually make it out of the canyon). Estimated Yield – 500 AFY.
Stormwater Capture Noble Creek	Noble Creek flows could be desilted on property owned by BCVWD (15.7 acres) along Noble Creek upstream of Noble St and west of Cherry Ave. Unfortunately this area is not over the Beaumont Basin, but the property could be used for desilting basins with the desilted water released back into Noble Cr. and recaptured at a soft plug in the lined channel and diverted into the District's recharge site. Estimated Yield = 400 AFY.
Marshall Creek s/o Elm to I-10	There is a significant amount of urban runoff from the developed area east of Beaumont Ave, between Oak Valley Parkway and Brookside Ave. which could be captured in the soft bottom of Marshall Creek using training dikes to prevent the water from going under the I-10 bridge. There is about 300 ac of urban drainage. Estimated Yield = 150 AFY.
Beaumont MDP Line 16	Approximately 517 acres of area could be intercepted by a storm drain along Grand Ave. and conveyed to the District's Recharge facility. This water is relatively free of sediments and runoff is generated with even the slightest amount of rainfall
Sundance Urban Runoff	Eighth St., Cherry Ave., and Starlight Ave. Basins capture runoff from the Sundance development. These basins capture runoff effectively, but percolation needs to be improved.

Grand Avenue and Sundance Urban Runoff Capture

The Sundance Development, a project with over 4,700 housing units, between Cherry Ave. and Highland Springs Rd and Brookside Ave. and Eighth Street has 3 detention/water quality basins to store and percolate runoff from the development. These include the Starlight, Eighth St., and Cherry Basins and are shown in Figure 6-9. Photos of captured runoff in the Sundance Basins are shown in Figure 6-10.

The location, drainage area and conceptual plan for the Beaumont MDP Line 16 Project is shown in Figure 6-11. This project will intercept runoff from this rural residential watershed in Cherry Valley and convey it to BCVWD's Groundwater Recharge facility. The Grand Avenue Storm Drain is a joint project with Riverside County Flood Control and Water Conservation District, the agency that is designing the project. The project is partially funded under 2015 Integrated Watershed Protection Program through the Santa Ana Watershed Project Authority. It should be operational before year 2018.



Figure 6-9
General Location of the Sundance Water Quality and Urban Runoff Capture Basins



Figure 6-10
Runoff Collected in Sundance Detention Basin

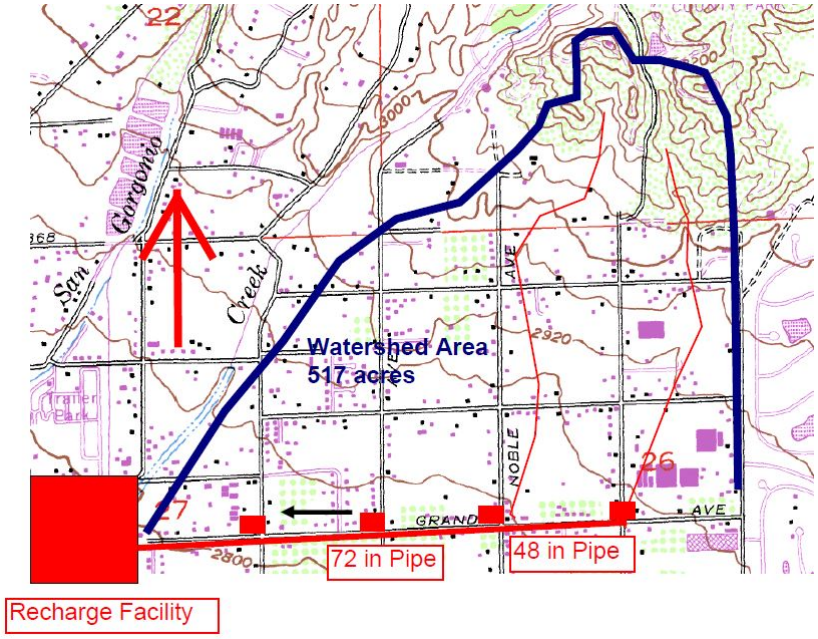


Figure 6-11
Beaumont MDP Line 16Watershed Area

Table 6-11 shows some information about the watershed and the detention basin volume.

A detailed analysis of the runoff potential from these projects was performed as part of the 2016 BCVWD Potable Water Master Plan. Daily Beaumont rainfall totals for the 77-year period January 1, 1929 through December 31, 2006 were used in the runoff analysis. Individual rainfall periods were identified and the runoff from each storm was determined using the Natural Resources Conservation Service (NRCS) Curve Number approach. Table 6-12 shows the amount of storm runoff that can actually be captured – close to 800 acre-ft annual average.

Table 6-11
Summary of the Urban Runoff Drainage Areas and Retention Basin Volumes

Facility	Drainage Area, acres	Basin Volume, acre-ft
Beaumont MDP Line 16	517	90[1]
Cherry Ave Basin	426	240
Eighth St. Basin	475	128
Starlight Basin	250	32

[1] Recharge during a multi-day storm even would add another 100 to 125 acre-ft

"Before and after" development calculations were made to determine "new water." From a water resources perspective, the Beaumont Basin Watermaster would likely not consider all of the captured storm water as "new water." "New water" is water which is developed over and above what would have occurred naturally, in an undeveloped condition.

Table 6-12
Urban Runoff Capture Summary

Facility	Estimated Captured Runoff, AFY	Percent of Storms Totally Captured	Total Average Annual Runoff, AFY, Based on 77 years of Record	Percent of All Possible Storm Water Captured
Beaumont MDP Line 16	200	98.5%	232	90.0%
Cherry Ave Basin	258	95.8%	276	93.4%
Eighth St Basin	237	94.6%	308	76.9%
Starlight Basin	89	89.2%	171	52%
Total	784			

Table 6-13 shows an estimate of "new water" from the projects – about 730 AFY.

Table 6-13
Estimate of "New Water" from Storm Water Capture

Facility	Estimated Captured Runoff, AFY	Runoff from Undeveloped Land		Estimated Amount of New Water, AFY
		3-in Total Storm Rainfall, AFY	4-in Total Storm Rainfall, AFY	
Beaumont MDP Line 16	200	41	75	172 to 192 (Use185)
Cherry Ave Basin	258	9	19	249 to 239 (Use 245
Eighth St Basin	237	10	21	226 to 216 (Use 220)
Starlight Basin	89	5	11	84 to 78 (use 80)
Total				730

Wastewater and Recycled Water

Recycled water use for non-potable purposes has a major role in BCVWD's water portfolio. BCVWD began planning the use of recycled water for landscape and golf course irrigation since the early 1990s with the development of a cooperative financing agreement to fund water supply infrastructure including recycled water. In November 1997, the City of Beaumont City Council adopted Ordinance 773 mandating the use of potable water for non-potable uses including cemeteries, golf courses, parks, street and highway landscaping, athletic fields, and other irrigation uses is a waste or an unreasonable use of water if recycled water is available. BCVWD's UWMPs dating to the 90s included plans and projections for the use of recycled water from the City of Beaumont. BCVWD continues in discussions with the City of Beaumont.

Recognizing that additional water may be needed than can be supplied by the City of Beaumont, BCVWD began discussions with YVWD around 2013. In June 2014, BCVWD prepared a Recycled Water Facilities Planning Report for a Recycled Water Supply Pipeline and Pump Station for a connection to YVWD's non-potable water system. The Facilities Planning report was approved by the SWRCB in August 2014. Since then discussions have move forward with YVWD

BCVWD's Existing Non-potable Water System

BCVWD has an extensive network of about 30 miles of non-potable transmission pipelines already constructed that can convey untreated SPW, groundwater, and recycled water. An extensive network of smaller distribution mains have been constructed by Tract developers to serve parks, medians, schools and common areas in their respective developments. The system includes a 2 million gallon non-potable water reservoir (2800 Zone Non-potable

Reservoir). There are about 300 existing landscape connections to the recycled water system receiving 1,650 acre-ft of water (year 2013 total). The existing recycled water system is currently pressurized with groundwater from Well 26 which has chromium levels above the CDPH levels. This is supplemented with potable water introduced into the non-potable water system through an air gap connection at the non-potable water storage tank (2800 Zone Non-potable Water Tank).

BCVWD's Non-potable Master Plan (under preparation) shows the system to have up to 5 pressures zones; 2370, 2520, 2600, 2800, and 3040. The 3040 Pressure Zone is not operational at the present time.

The Tournament Hills and Sun-Cal Fairway Canyon projects, south of I-10, have non-potable water distribution systems installed. This portion of the non-potable water system is isolated from and operates at a lower hydraulic grade line from the 2800 Non-potable Water Zone. This portion of non-potable water distribution system is currently supplied from the District's potable water system through interconnections having backflow prevention devices between the potable and non-potable water system. The non-potable water system was constructed from 2002 to the present using City of Beaumont Community Facilities District (CFD) bond funds, BCVWD funds derived from facilities (impact) fees collected from developers, BCVWD funding, and developer funding for the smaller distribution lines.

Recycled Water Coordination

> *CWC 10633*
>
> *The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.*

Within BCVWD's service area, only the City of Beaumont provides wastewater collection, treatment and disposal. Except for the Highland Springs Village area of Cherry Valley, which is served by the City of Beaumont, the unincorporated community of Cherry Valley relies on on-site disposal systems.

YVWD to the west and the City of Banning to the east, provide wastewater collection, treatment and disposal of wastewater generated in their respective service areas. YVWD has a recently expanded and upgraded advanced wastewater treatment facility using UV disinfection and reverse osmosis. The City of Banning has plans prepared to upgrade their existing treatment plant using a membrane bioreactor. BCVWD has been in discussions with YVWD about obtaining supplemental non-potable water.

Wastewater Collection, Treatment, and Disposal

CWC 10633

(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

CWC 10633

(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

There are three existing wastewater reclamation plants in the San Gorgonio Pass Area. Only the City of Beaumont Treatment Plant No. 1 is within BCVWD's service area.

- City of Beaumont Treatment Plant No. 1
- YVWD Henry Wochholz Water Reclamation Plant
- City of Banning Wastewater Treatment Facility.

City of Beaumont

The City of Beaumont provides wastewater collection, treatment and disposal for wastewater generated within the City plus the Highland Springs area of Cherry Valley. Wastewater generally flows by gravity to the City's wastewater treatment plant; however, there are 9 wastewater lift and pumping stations in the southeastern and western portions of the City that pump wastewater collected in these areas and to the treatment plant or collection system leading to the treatment plant.

The City of Beaumont's Treatment Plant No. 1 (below) has a current permitted capacity of 4 million gallons/day (mgd). The treatment facility is located on Fourth St., ease of Viele Ave.



The treatment facility provides secondary treatment using the Biolac® activated sludge process, tertiary filtration and ultraviolet disinfection and operates under permit R8-2015-0026 NPDES CA 0105376. Waste biosolids from the secondary process is centrifuged and hauled offsite for disposal.

From January 2014 through March 2016, the plant flow monthly averages ranged from 2.98 to 3.22 mgd. A portion of the effluent is currently discharged to Cooper's Creek, (DP-001), a tributary of San Timoteo Creek which is a tributary of the Santa Ana River; a portion of the effluent is discharged into an unnamed creek at DP-007 located approximately 1,300 ft northwesterly along the railroad tracks from Veile Ave. As part of

the environmental permitting[30] for the recycled water system, the US Fish and Wildlife Service required that 1.8 mgd of effluent continue to be discharged to Cooper's Creek for maintenance of habitat[31]. The current operating permit allows for use of the effluent on the Tukwet Canyon and Oak Valley Golf Courses and landscape irrigation within the BCVWD service area.

In a 2007 letter from CDPH (now DDW) to the City of Beaumont, the City was directed to upgrade the facility to meet Title 22 requirements for unrestricted use and perform validation testing on the UV disinfection system. In July 2016, the City completed a Title 22 Engineering Report[32] which included the UV Validation Testing which was accepted by the State with conditions. Some upgrades to the tertiary system were identified.

BCVWD continues to work with the City relative to recycled water. The City of Beaumont's effluent has a TDS concentration of about 400 mg/L which is in excess of the Regional Board's Maximum Benefit Water Quality Objectives for the Beaumont Basin. The recycled water from the City will have to be treated and/or "blended" with imported water or other waters to achieve the Maximum Benefit Water Quality Objectives.

The discharge limits in the current operating permit in terms of Total Dissolved Solids (TDS) and Total Inorganic Nitrogen (TIN) are shown in Table 6-14.

Table 6-14
City of Beaumont Wastewater Discharge Requirement for TDS and TIN

Parameter	DP-001 Cooper's Creek		DP-007 Unnamed Creek	Recycled Water
	Discharge up to 1.8 mgd	Discharge over 1.8 mgd	All Discharges	All Discharges
TDS	400 mg/L	300 mg/L	230 mg/L	330 mg/L
TIN	6 mg/L	3.6 mg/L	2 mg/L	No Limit

As stated above the TDS of the City's effluent discharge is 400 mg/L. This is good quality recycled water; however, it does not meet the water quality requirements in the permit for

[30] Initial Study/Mitigated Negative Declaration Beaumont Cherry Valley Water District Recycled Water System Project, SCH 2007081127, June 2007.

[31] Letter dated February 29, 2008, Karen Goebel USFWS to Michelle Jones SWRCB, Informal Consultation for Beaumont Cherry Valley Water District Recycled Water System, SRF Loan C-06-5157-110.

[32] City of Beaumont Wastewater Treatment Plant (2016). Title 22 Engineering Report and Validation Testing, Aqua Engineering and Albert A. Webb and Associates, July.

specific discharge locations. As a result the City will need to provide desalination to at least a portion of the flow, (reverse osmosis treatment), to meet these requirements.

According to the current permit, the City must start construction of the desalination facilities by September 1, 2018 and be in compliance with the TDS and TIN limits by March 1, 2020; any discharges of TDS or TIN in excess of the limits above shall be completely offset by January 1, 2025. This is a very aggressive schedule.

Table 6-15 shows the amount of recycled water which is available from the City of Beaumont's wastewater treatment facility over time. The table shows the deduction of 1.8 mgd for environmental habitat mitigation, and roughly 10% reduction for water used on the plant site for washdown and irrigation and water contained in the dewatered biosolids hauled offsite.

The population for the City of Beaumont is based on a less aggressive population growth than that shown in Table 3-6 and Table 3-8 presented previously. Using a slower population growth will avoid over estimating the amount of recycled water available and will be conservative from a water supply standpoint.

Table 6-15
Recycled Water Available from City of Beaumont's WWTP

Year	2015	2020	2025	2030	2035	2040
City of Beaumont Population[1]	41,780	43,762	49,014	54,895	61,483	68,000
Wastewater Generation Flow Rate, gpcd	75	75	75	75	75	75
Wastewater Flow, mgd	3.0	3.28	3.68	4.12	4.61	5.10
Environmental Mitigation Flow, mgd	1.8	1.8	1.8	1.8	1.8	1.8
Wastewater Available for Recycling, mgd	1.2	1.48	1.88	2.32	2.81	3.3
Estimated amount which can be recycled, mgd	1.07	1.33	1.69	2.09	2.53	3.0
Estimated amount which can be recycled, AFY	1,194	1,494	1,892	2,336	2,835	3,360
Estimated amount which can be recycled, AF/month	100	125	158	195	235	280

[1] The City of Beaumont population growth is less aggressive than shown in Tables in Section 3 to be conservative in the amount of recycled water available.

YVWD

The YVWD provides wastewater collection, treatment, disposal and recycled water to the City of Yucaipa and City of Calimesa and surrounding areas. The YVWD also provides potable water service.

The YVWD Wochholz Regional Water Recycling Facility (WRWRF) (to the right) is a tertiary facility with a current flow of 4.5 mgd and a design and permitted capacity of 8 mgd. The facility provides screening, grit removal, primary sedimentation, flow equalization, nitrogen removal using the Modified Ludzack Ettinger (MLE) activated sludge process. The activated sludge process uses an integrated fixed film system (IFAS). Following activated sludge, the effluent passes through microfiltration membranes. A portion of the effluent from the microfiltration process passes through reverse osmosis. All of the effluent is disinfected with UV irradiation and flows to a reclaimed water storage reservoir on site. For there the recycled water is pumped to YVWD non-potable water system. Primary sludge and waste secondary sludge is anaerobically digested and dewatered using belt presses. The dewatered biosolids are taken by a local landscaper, composted, and recycled.

The plant is relatively new; a 2.5 mgd reverse osmosis treatment process started operation in 2014. YVWD constructed a 15-mile long brine line from the WRWRF to the terminus of the Inland Empire Brine Line (IEBL) near the I-215/I-10 Interchange in San Bernardino. The IEBL joins the Santa Ana River Interceptor (SARI) at the Orange County line below Prado Dam. YVWD will be discharging effluent with a TDS of 330 mg/L or less, which meets the Regional Board's Maximum Benefit Water Quality Objectives for the Beaumont Basin.



The WRWRF operates under permit R8-2015-0027 NPDES CA010569 and discharges into Reach 3 of San Timoteo Creek. The WRWRF is located west of I-10, between County Line Road and Live Oak Canyon Road in San Bernardino County.

BCVWD is in discussions with YVWD to acquire a recycled (non-potable) water supply. YVWD will be extending a recycled water pipeline about 5 miles to serve a new residential community in Calimesa called Summerwind. This is near the intersection of I-10 and Cherry Valley Blvd where it would connect into BCVWD's master planned 2600 Zone non-potable water pressure system. YVWD could serve BCVWD's 2600, 2520, and 2370 pressure zones directly. A new booster pump station would be constructed to boost the water from the 2600 Zone into BCVWD's 2800 Zone non-potable water system. A facilities plan has been prepared by BCVWD for the connection. The plan has been approved by the State Water Resources Control Board and the District could apply for funding under the Water Reclamation Bond Program/State Revolving Fund program.

In addition to providing recycled water from the WRWRF, YVWD has spent microfiltration/nanofiltration washwater from YVWD's surface water treatment facility available during the summer to supplement the recycled water. Table 6-16 shows the amount of recycled water and filter washwater available each month.

Table 6-16
Recycled Water Available from YVWD 2015

Month	Jan	Feb	Mar	Apr	May	June
Recycled Water, AF	126	83	15	9	77	0
Spent Filter Washwater, AF	0	0	0	0	0	93
Total, AF	126	83	15	9	77	93

Month	July	Aug	Sep	Oct	Nov	Dec	Totals
Recycled Water, AF	0	0	0	49	74	144	577
Spent Filter Washwater, AF	93	93	93	93	0	0	467
Total, AF	93	93	93	142	74	144	1044

Table 6-16 is based on information provided by YVWD.[33] For purposes of this UWMP Update, it is assumed this quantity will be available throughout the planning period to year 2040. This is believed to be very conservative since YWVD will likely be experiences increases in wastewater flow over time. YVWD will be providing recycled water at a TDS concentration of 330 mg/L or less to meet the Beaumont Management Zone's Maximum Benefit Objective.

City of Banning

The City of Banning provides wastewater collection, treatment and disposal of wastewater collected in the City of Banning. The City also provides potable water service and is in the process of constructing a non-potable water supply system.

The City of Banning has a secondary treatment facility that percolates effluent into the alluvium along Smith Creek southeast of the City under a permit from the Colorado River Regional Water Quality Control Board. The City has begun construction of a recycled (non-potable) water line from Sun Lakes Golf Course east to the wastewater treatment plant. The City may pump percolated wastewater, (groundwater), using a retrofitted well at the wastewater treatment plant, into the pipeline to serve the golf course in the future. The City has plans to upgrade the wastewater treatment plant to a modern membrane bioreactor facility to provide recycled water for the future. It is possible that some surplus recycled water from the City of Banning could be

[33] Email YVWD J. Ares to BCVWD D. Jaggers, 3/18/2016. Deemed conservative; constrained by need to maintain habitat in San Timoteo Creek.

introduced into the BCVWD recycled water system at some point in the distant future. It is not under consideration at this time however.

Community of Cherry Valley

The community of Cherry Valley relies exclusively on on-site systems for wastewater treatment except for the Highland Springs Village which connected to the City of Beaumont's sewerage system. Currently there is about 0.5 mgd of wastewater generated in Cherry Valley; this volume of wastewater will grow to about 0.8 mgd by 2040.

In July 2007 BCVWD prepared a Facilities Planning Study to provide wastewater collection and treatment to a portion of Cherry Valley known as the Cherry Valley Community of Interest CVCOI. The CVCOI was the area generally north of Brookside Avenue, between Bellflower St. and Nancy St. It included the Cherry Oaks and Bonita Vista Areas. Providing sewers would minimize the nitrate contribution to the Beaumont Groundwater Basin and provide a source of recycled water which could be beneficially used. BCVWD would be the agency operating the collection system and treating the wastewater in either a separate treatment plant or through a contract with the City of Beaumont or other agency for treatment.

Although BCVWD had the power to provide wastewater collection and treatment under the Irrigation District Act under which it was formed, this power was never exercised and LAFCO required a vote of the District residents to exercise the power. The ballot measure was defeated in September 2007 and as a result BCVWD does not currently have sewering authority.

It is unlikely that Cherry Valley will have a sewer collection system within the next 20 years and so should not be considered as being a source of recycled water.

Summary

Table 6-17 (DWR Table 6-2) shows a summary of the wastewater collected within BCVWD's service area in 2015. Table 6-18 (DWR Table 6-3) shows the wastewater treatment and discharge within BCVWD's service area in 2015.

Table 6-17
(DWR Table 6-2) Wastewater Collected within Service Area in 2015

DWR Table 6-2 Retail: Wastewater Collected Within Service Area in 2015. Cherry Valley is unsewered.						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
39	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
86	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2015, mgd	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party? *(optional)*
Add additional rows as needed						
City of Beaumont	Metered	3	City of Beaumont	Plant No. 1	Yes	Yes
Total Wastewater Collected from Service Area in 2015, mgd:		3				
NOTES: Wastewater volume based on monthly reports to RWQCB. Except for Highland Springs Village, which is sewered by the City of Beaumont, the remainder of Cherry Valley is unsewered						

Recycled Water System

CWC 10633

(c) (Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

BCVWD has an extensive network of about 40 miles of transmission and main line, non-potable (recycled water) pipelines already constructed. These are shown in solid "purple" in Figure 6-14, which also shows BCVWD's non-potable water service area. The system includes a 2 million gallon non-potable water reservoir. There are about 300 existing landscape connections to the recycled water system receiving 1,650 acre-ft of water (year 2013 total) It is believed that the current usage is slightly less due to the drought restriction in effect the last few years. The non-potable water system was constructed from 2002 to the present.

Table 6-18
(DWR Table 6-3) Wastewater Treatment and Discharge within Service Area in 2015

DWR Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2015 volumes, mgd			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
City of Beaumont	DP-001	Cooper's Creek	8 330101001	River or creek outfall	No	Tertiary	3	3	0	0
City of Beaumont	DP-007	Trib of Marshal Creek	8 330101001	Bay or estuary outfall	No	Tertiary	0	0	0	0
City of Beaumont	R-001	Tukwet GC	8 330101001	Other	No	Tertiary	0	0	0	0
City of Beaumont	R-002	Oak Valley GC	8 330101001	Other	No	Tertiary	0	0	0	0
City of Beaumont	R-003	BCVWD RW	8 330101001	Other	No	Tertiary	0	0	0	0
						Total, mgd	3	3	0	0
NOTES: City of Beaumont claims that a portion of the effluent discharged at DP-001 and DP-007 incidently recharge the Beaumont Groundwater Basin. Watermaster is still awaiting proof. The effluent does not comply with planned groundwater recharge regulations.										

The non-potable water system consists of 5 pressure zones: 2370, 2520, 2600, 2800, and 3040. The 3040 Non-potable Zone will likely not be operational for a number of years yet as most of the current demand is in the other zones. The 2370, 2520 and 2600 Non-potable Zones are south of I-10. These pressure zones are supplied with potable water from the 2600 Potable Water Zone through a series of interconnections. These zones have a current non-potable water demand of about 286 AFY.

The 2800 Non-potable Zone is supplied from the 2 MG 2800 Zone Non-potable Water Tank located at BCVWD's groundwater recharge site. The 2800 Non-potable Zone has a current average demand of about 1,365 AFY. This is by far the highest demand zone. Since September 2015 the 2800 Non-potable Zone has been supplied with water (non-potable) from Well 26 supplemented with potable water through an air gap at the 2800 Zone Tank. The use of Well 26 is temporary until recycled water becomes available.

The non-potable water system is designed so that any surplus recycled/non-potable water could overflow into the percolation basins at BCVWD's groundwater recharge facility and recharge the BSU. However, additional treatment and monitoring would likely be required and recharge with recycled water is not planned for a number of years yet. The existing pipeline from the EBX brings State Project Water to the site to blend with and supplement the recycled water to meet the Regional Board's Maximum Benefit, 10-year average TDS requirement of 330 mg/L in the non-potable water system. Figure 6-14 shows the location of an anticipated connection to the YVWD non-potable system, described below, as well as the City of Beaumont Wastewater Treatment Plant. A pump station and reservoir would need to be constructed at the City of

Beaumont Wastewater Treatment Plant site to boost water into the 2800 Zone non-potable system.

Recycled Water Beneficial Uses

CWC 10633

(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

CWC 10633

. (Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision

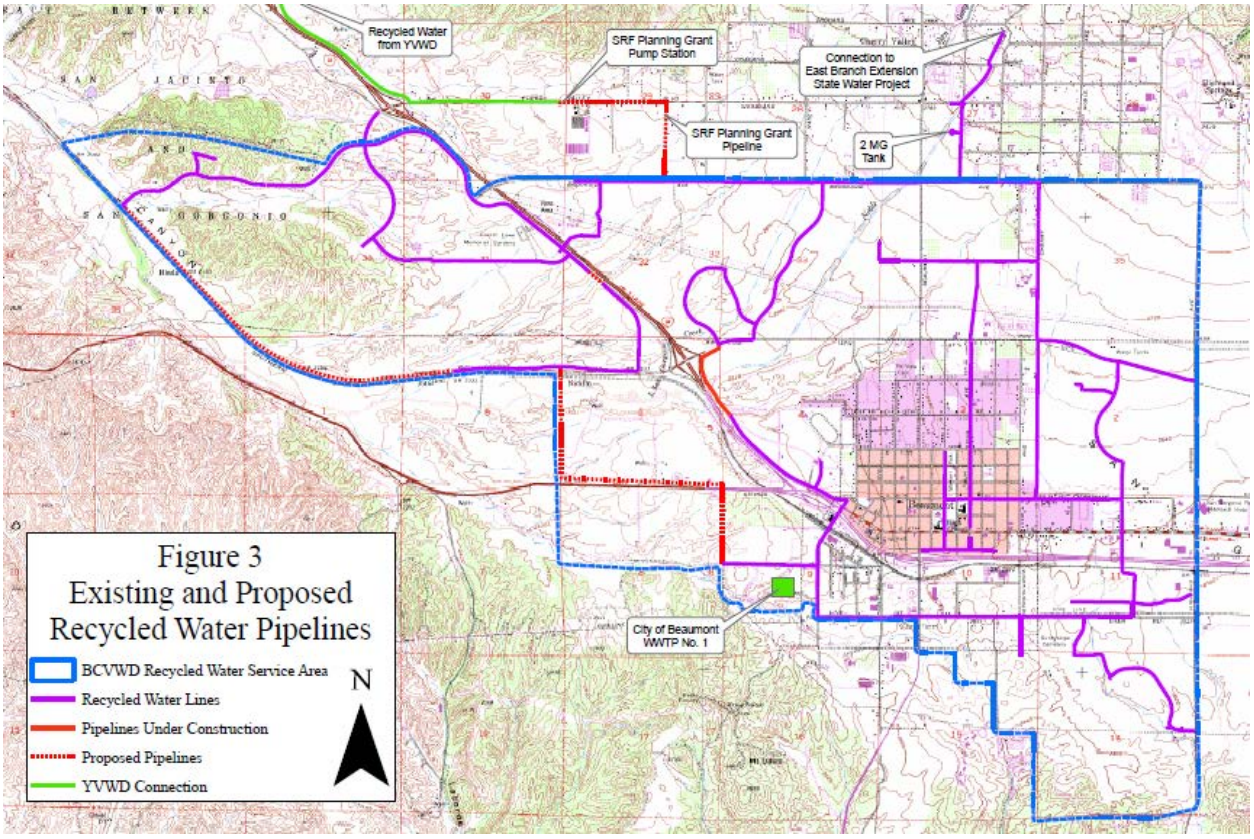


Figure 6-12
BCVWD Non-potable Water Transmission System

Source: Plan of Study, Pump Station and Recycled Water Pipeline to Use Recycled Water from YVWD within the BCVWD Service Area, May, 2010

BCVWD's non-potable (recycled) water system principal beneficial use is landscape irrigation of parks, playgrounds, common areas, street and highway medians and athletic complexes in residential, commercial and industrial areas. As new developments occurred, their landscape facilities were connected (separate metered connections) to the non-potable water system.

Once recycled water is available additional existing facilities (schools, parks, cemeteries, etc.) will be added to the system. There is one concrete ready mix supplier that is close to the non-potable water system. BCVWD has an agreement with the company to connect to the non-potable water system when recycled water is available.

Table 6-19 and Table 6-20 (DWR Tables 6-4A) for YVWD Recycled Water and City of Beaumont Recycled Water respectively show the projected quantities of recycled water for various beneficial uses from year 2015 to 2040. The quantities were determined from month-to-month analysis of recycled water supply and demand for each of the 5-year periods.

Table 6-19
(DWR Table 6-4A) Current and Projected Recycled Water Direct Beneficial Uses within Service Area – YVWD Recycled Water

DWR Table 6-4A Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
Name of Agency Producing (Treating) the Recycled Water:		Yucaipa Valley Water District						
Name of Agency Operating the Recycled Water Distribution System:		Beaumont Cherry Valley Water District						
Supplemental Water Added in 2015		none						
Source of 2015 Supplemental Water		NA						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015 AFY	2020 AFY	2025 AFY	2030 AFY	2035 AFY	2040 AFY
Agricultural irrigation	none		0	0	0	0	0	0
Landscape irrigation (excludes golf courses)	none	Advanced	0	921	977	1,018	1,028	1,032
Golf course irrigation	none	Advanced	0	121	66	25	16	11
Commercial use	none		0	0	0	0	0	0
Industrial use	none		0	0	0	0	0	0
Geothermal and other energy production	none		0	0	0	0	0	0
Seawater intrusion barrier	none		0	0	0	0	0	0
Recreational impoundment	none		0	0	0	0	0	0
Wetlands or wildlife habitat	none		0	0	0	0	0	0
Groundwater recharge (IPR)*	none		0	0	0	0	0	0
Surface water augmentation (IPR)*	none			0	0	0	0	0
Direct potable reuse	none			0	0	0	0	0
Other *(Provide General Description)*	none		0	0	0	0	0	0
		Total AFY:	0	1,042	1,043	1,043	1,044	1,043
**IPR - Indirect Potable Reuse*								
NOTES: YVWD must provide some amount of effluent discharge to maintain habitat. Per DWR instructions this is not considered recycled water beneficial use. YVWD provides membrane treatment using reverse osmosis. Supply is based on correspondence from YVWD and is assume to not change over time to be conservative. Supply includes some filter washwater during summer months.								

Surplus recycled water is available during the winter and early spring months. Tukwet Canyon Golf Course is in the 2600 Zone and could be served recycled water as soon as the connection with YVWD is completed. The Tukwet Canyon golf course can be served directly from the YVWD connection through BCVWD's system. Oak Valley Golf Course is in the 2800 Non-potable Water Zone and recycled water from either YVWD or City of Beaumont would have to be boosted into the 2800 Zone to serve this golf course. Alternatively untreated SPW could be introduced into the 2800 Zone without boosting. Both Tukwet Canyon and Oak Valley Golf Courses are overlying parties in the Beaumont Basin Adjudication and have their own wells. BCVWD has existing piping and turnouts on the non-potable water system to supply both of the golf courses.

The golf courses could take recycled water during the winter and early spring and "rest" their wells. As their water demand increases during the late spring, summer and early fall, they would use their own wells for supply. The recycled water would then be used to supply

BCVWD's routine landscape demands. The benefit to BCVWD is Watermaster considers the recycled water provided to an overlying party as forbearance water and credit it to BCVWD's storage account.

Table 6-20
(DWR Table 6-4B) Current and Projected Recycled Water Direct Beneficial Uses within Service Area – City of Beaumont Recycled Water

Table 6-4 B Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.							
Name of Agency Producing (Treating) the Recycled Water:		City of Beaumont						
Name of Agency Operating the Recycled Water Distribution System:		Beaumont Cherry Valley Water District						
Supplemental Water Added in 2015		No recycled water used in 2015						
Source of 2015 Supplemental Water		No recycled water used in 2015						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation	none							
Landscape irrigation (excludes golf courses)	none	Secondary, Disinfected - 2.2	0	822	1,117	1,462	1,753	2,019
Golf course irrigation	none	Secondary, Disinfected - 2.2	0	332	365	387	441	517
Commercial use	none							
Industrial use	none							
Geothermal and other energy production	none							
Seawater intrusion barrier	none							
Recreational impoundment	none							
Wetlands or wildlife habitat	none							
Groundwater recharge (IPR)*	none							
Surface water augmentation (IPR)*	none							
Direct potable reuse	none							
Other *(Provide General Description)*	none							
		Total:	0	1,154	1,482	1,849	2,194	2,536
*IPR - Indirect Potable Reuse								
NOTES: City of Beaumont is required to discharge 1.8 mgd (2,016 AFY) to maintain habitat in Cooper's Creek. Per DWR this is not considered a beneficial use. Recycled water for GW recharge (IPR) assumes 80% recovery. Total does not reflect advance treated recycled water recharged to Beaumont Basin since this is not a demand, but rather a water supply. (Year 2025 -- 418 AF, Year 2030 -- 491 AFY, Year 2035 -- 646 AF, Year 2040 -- 827 AF)								

BCVWD has determined there will be surplus non-potable water available even after supplying Tukwet Canyon and Oak Valley Golf Courses. This amounts to about 400 AFY initially and grows to about 800 AFY over time. This water could be advance treated and recharged in BCVWD's groundwater recharge facility as indirect potable water reuse. See Table 6-20. Watermaster would credit this recharged, advance treated water, to BCVWD.

Planned vs. Actual Use of Recycled Water

> *CWC 10633*
>
> *(e) (Provide) a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*

BCVWD last updated their UWMP in 2013. In 2013 it was envisioned the recycled water connection to the City of Yucaipa would be completed by sometime in 2015. See Table 6-21. This did not occur and so no recycled water could be delivered. However, in late 2015, BCVWD connected Well 26 to the non-potable water system and introduced 514 AF of non-potable well water into the non-potable system. This is continuing at least temporarily until recycled water can be secured from either YVWD or City of Beaumont or both.

Table 6-21
(DWR Table 6-5) 2013 UWMP Recycled Water Use Projection Compared to 2015 Actual

DWR Table 6-5 Retail: 2013 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☐	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		**2013 Projection for 2015, AFY**	**2015 Actual Use, AFY**
Agricultural irrigation			
Landscape irrigation (excludes golf courses)		1,500	0
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	*Type of Use*		
Total AFY		1,500	0
NOTES: City of Beaumont is rquired to discharge 1.8 mgd (2,000 AFY) to maintain habitat in Cooper's Creek. Per DWR instructions, this is not considered a beneficial use.			

Actions to Encourage and Optimize Future Recycled Water Use

CWC 10633

(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

CWC 10633

(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Existing Requirements

BCVWD's Rules and Regulations §4-1.1 require each applicant for water service to prepare a written application including the legal description of the parcel, water use, e.g., domestic, irrigation, commercial, etc., and the meter size desired. Commercial and industrial applicants will need to submit the volumes of water needed. For commercial and industrial applicants, the District then determines the feasibility for recycled water. The District applies this to schools also.

BCVWD would prepare a “Plan of Service” to document the facilities that are needed to be constructed. The Plan of Service will state if connection to the recycled water system is required and what recycled water facilities are needed to be installed with the development. Generally recycled water facilities would be required if there were significant landscaped areas such as parks, schools or common areas and the project was in the recycled water service area. If annexation to the District is required, the Plan of Service is also submitted to LAFCO.

If the water service is approved by the Board of Directors, prior to construction, the developer and the District enter into a “Water Main Extension and Facilities Construction Agreement.” This is a very detailed description of the infrastructure needed and the costs, reimbursements and other conditions. If connection to the recycled water system is required, it is formalized in the Main Extension Agreement. It is through this process that the current system has been constructed and landscaped areas connected. This will continue for future development in the District.

The City of Beaumont has Ordinances requiring the use of recycled water when available:

- 772 -- Requiring Conservation of Water in Accordance with the Adopted Beaumont Cherry Valley Water District Urban Water Plan and Recycled Water Master Plan
- 773 -- Requiring use of Recycled or Reclaimed Water in Accordance with State Law
- 775 -- Establishing Service Charges and Fees for Recycled or Reclaimed Water in the City of Beaumont and the City Sphere of Influence

The City of Beaumont Municipal Code, Title 17, §17.06.030 D. b. 11 and §17.06.030 D. c. 5 , have specific requirements to use non-potable and recycled water for landscaping when available. Riverside County Ordinance 859.2 has similar requirements.

Methods to Expand Use of Recycled Water

BCVWD is fortunate to have a non-potable water system already installed with about 300 landscape connections, operating with non-potable well water supplemented with potable water. This system is ready to convert to recycled water when available. There is no need to “market” the use of recycled water. Future developments within the City of Beaumont will be connecting to the existing system based on the Plan of Study for the specific project. These will be new connections for new landscaped areas. Existing ordinances and Rules and Regulations already require this.

Table 6-22 contains a list of existing facilities which could potentially be connected to the BCVWD non-potable water system. Many of these are in close proximity to the existing non-potable water pipelines but BCVWD does not want to connect them until more non-potable (recycled) water is available. Currently the demand for non-potable water exceeds the supply and requires potable water make-up to the system.

Table 6-22
Potential Future Service Connections to Non-potable Water System

Facility	Estimated Amount of Recycled Water, AFY	Estimated Year of Connection
Beaumont High School (new)	99	2020
Beaumont Adult School & San Gorgonio Middle School	50	2025
Noble Creek Park	100	2025
Glenview High School	8	2025
Wellwood Elementary School	4	2025
Rangel Park	5	2025
Mountain View Cemetery	37	2025
Sunnyslope Cemetery	On private well	--
Eighth St & Elm Ave Triangle Park	2	2025
Rancho Ready Mix	20	2020
Total	325	

Tukwet Canyon and Oak Valley Golf Courses have not been included in Table 6-22. They are already included in the non-potable water demand forecast tables (Tables 6-19 and 6-20).

Table 6-23 (DWR Table 6-6) lists several projects to expand future recycled water use. Although the current non-potable water demand is about 1,600 AFY and will increase when the facilities in Table 6-22 are connected, additional non-potable water supply is needed to meet peak demands. Furthermore, non-potable water demand will increase as major developments continue to be constructed within BCVWD's service area. These developments are residential, for the most part, and will include park and school facilities, common areas, club houses, etc. which will be connected to the non-potable water system. These will occur and BCVWD will need to increase the supply of non-potable water.

The projects listed in Table 6-23 and will increase the supply by about 3,300 AFY initially. The amount from the City of Beaumont and YVWD connections will likely increase over time as more homes are connected to the wastewater system.

Desalinated Water Opportunities

CWC 10631

(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

As stated above there are opportunities to participate in desalting projects particularly for groundwater in other regions and exchange the water for State Project Water. However,

installing desalting facilities within the Beaumont Basin would not be very practical since the existing groundwater water quality is excellent. The TDS is only about 250-275 mg/L. Generally to make desalting practical, the TDS should be in the range of 1500 mg/L or greater. It is probable that desalting will be required on the recycled water available from the City of Beaumont to conform to the maximum benefit commitments. But this would only be partial demineralization to reduce the TDS to the maximum benefit objective of 330 mg/L.

Table 6-23
(DWR Table 6-6) Methods to Expand Future Recycled Water Use

DWR Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use, AFY
Add additional rows as needed			
Const. YVWD Connection	Construct connection to YVWD non-potable water system including pumping station	2018	1,043
Const. City of Beaumont Connection	Construct storage and pumping station at City Treatment Plant	2020	1,154
Edgar Canyon Nitrate Wells	Install extraction wells at mouth of Edgar Canyon to extract high nitrate groundwater for non-potable water system	2030	300
San Timoteo Groundwater Capture	Install extraction wells in San Timoteo Canyon to extract wastewater which percolates from 1.8 mgd habitat mitigation flow.	2030	800
		Total AFY	3,297
NOTES: These projects will increase the non-potable water supply which allows BCVWD to serve more non-potable water.			

Exchanges or Transfers

CWC10631

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

Transfers from South Mesa Water Company

BCVWD had an agreement with South Mesa Water Company (SMWC) to transfer unused rights from SMWC to BCVWD's groundwater storage account in the Beaumont Basin. The transfers

first began in 2007 and totaled 13,000 AF. During the period 1994 through 2014, the Beaumont Basin appropriators had access to a temporary surplus, established through the Adjudication to create storage space in the basin for conjunctive use and water banking. During this time, SMWC had excess water in storage and did not need that water to meet its normal demands. They transferred this water to BCVWD to allow BCVWD to build up its own storage account. After 2014, the temporary surplus is not available. As a result, SMWC will likely retain their stored water to meet future demands and will likely not make any further transfers.

Participation in Other Agency Water Supply Projects

BCVWD could participate in a joint project with another Southern California water agency. These projects could include groundwater treatment and desalination.

Many of the groundwater basins in Southern California are impacted by excessive nitrates, high total dissolved solids, and, in some cases volatile organic chemicals (VOCs) and perchlorate. There are a number of agencies constructing or planning to construct desalters and VOC, nitrate and perchlorate removal facilities in the area including the Santa Ana Watershed Project Authority, the Chino Basin Desalting Authority, Eastern Municipal Water District and others. BCVWD could participate in one or more of these projects in exchange for State Project Water. BCVWD understands that they will need to work with the Pass Agency and others to work out the arrangements to bring this exchange about. BCVWD understands there could be transportation (wheeling) charges imposed.

BCVWD sees transfers and exchanges as very viable solution to providing long term water supplies.

Emergency Interties

BCVWD already has a 12-in diameter emergency intertie with the City of Banning at Highland Springs Ave. and Sun Lakes Blvd. (First St.) since the 1990s. The City of Banning's water system pressure zones closely match BCVWD's and mutual exchanges are possible.

The City of Banning also has joint ownership, with BCVWD, in 3 large capacity wells in BCVWD's service area. There are also several large pipeline "stub outs" from BCVWD's potable water system across Highland Springs Ave, to the City of Banning. These "stub outs" will be extended through the Butterfield Ranch development to interconnect with Banning's potable water system. This will occur when Butterfield Ranch develops. These interconnections allow Banning to recharge imported SPW at BCVWD's ground water recharge facility and, using the joint wells and the interconnections, extract that water when needed, and convey it to Banning's water system for use.

Future Water Projects

> *CWC 10631*
>
> *(g) …The urban water supplier shall include a detailed description of expected future projects and programs…that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.*

Table 6-24 (DWR Table 6-7) presents a list of potential future projects which BCVWD could construct to increase the available water supply.

The Beaumont MDP Line 16 Project is already in the preliminary design phase with work being done by the Riverside County Flood Control and Water Conservation District. This is funded under a DWR grant through SAWPA. BCVWD and YVWD are in discussions on the non-potable water connection with YVWD. BCVWD completed a Facilities Planning report in 2014 for the project which was approved by the SWRCB for potential funding.

These projects, when all are implemented, will yield about 3,900 AFY initially and about 6,100 AFY by year 2040. The large growth is due to increases in recycled water from the City of Beaumont as a result of development and population growth in the City of Beaumont.

Table 6-25, (DWR Table 6-8), summarizes BCVWD's water supply for the year 2015.

Summary of Existing and Planned Sources of Water

> *CWC 10631*
>
> *(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision 10631(a).*
>
> *(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

Table 6-26, (DWR Table 6-6), summarizes BCVWD's projected water supply for the years 2020, 2025, 2030, 2035 and 2040.

Table 6-24
(DWR Table 6-7) Expected Future Water Supply Projects or Programs

DWR Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency, AFY
Beaumont MDP Line 16 (Line 16)	Yes	RCF&WCD	Const of SD to divert water into BCVWD Rehcharge Facility	2021	All Year Types	185
Misc Urban Runoff Capture	Yes	Beaumont	Various recharge basin enhancements	2025	All Year Types	200-545
Lower Edgar Canyon Non-potable Groundwater	No		Install extraction wells for high nitrate GW for non potable water system	2025	All Year Types	300
San Timoteo Canyon GW Extraction	Yes	Beaumont	Install series of wells to recapture percolated ww used for habitat mitigation	2030	All Year Types	400-800
Non-potable Water interconnection with YVWD	Yes	YVWD	Install interconnecting pipeline, and booster pumping station and pressure regulating stations	2018	All Year Types	1,043
Connection to City of Beaumont for recycled water	Yes	Beaumont	Install storage tank, booster pumping station and interconnecting piping	2020	All Year Types	1,154
Advance Treated Recycled Water	Yes	Beaumont	Construct Advanced Treatment Facility and Brine Line	2025	All Year Types	300-660
NOTES: Yield from City of Beaumont Recycled Water Connection will increae to 3,363 AFY by 2040 due to increases in wastewater flows over time. Expected increase in water supply for Advance Treated Wastewater is based on 80% recovery in the membrane treatment process						

Table 6-25
(DWR Table 6-8) BCVWD Water Supplies – Actual Year 2015

DWR Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume, AFY	Water Quality	Total Right or Safe Yield, *AFY*
Groundwater	Little San Gorgonio (Edgar Canyon)	1,418	Drinking Water	2,200
Groundwater	Beaumont Basin	2,300	Drinking Water	
Purchased or Imported Water	SGPWA	2,090	Raw Water	
Transfers	From Banked GW storage	3,984	Drinking Water	
	Total AFY	9,792		2,200
NOTES: BCVWD typically receives reallocated unused Overlying Party Rights, forbearance water for supplying potable or non-potable water to Overlying Parties, and return flow credits for importing SPW, groundwater, or recycled water per the Beumont Basin Watermaster. Thsi varies from year to year.				

Climate Change Impacts to Supply

Climate change, according the USEPA[34], refers to any significant changes in temperature, precipitation or other climate patterns lasting for extended periods of time. Throughout history, locations on the earth have experienced climate change – a notable example is the ice age which blanketed much of the Midwestern US with glaciers. These changes are continuing to occur whether impacted by mans' activities or purely a natural phenomenon. There is some evidence the earth's average temperature is rising ever so slowly and this is theorized by some experts to continue for several centuries. Places have experienced changes in rainfall, reduced snowfall, changes from snow to rain, warming of the oceans, melting of icecaps and resulting sea level rises. Even small changes in temperature can result in measureable changes in climate and weather. The cause is theorized to be due to increases in concentration of "greenhouse gases[35]" in the atmosphere.

[34] http://www.epa.gov/climatechange/basics/ accessed 4/2/2013

[35] Water vapor, carbon dioxide, methane, nitrous oxide and other gases which reflect light and infrared radiation back to the earth's surface.

Table 6-26
(DWR Table 6-9) BCVWD Water Supplies – Projected

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*									
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		**2020**		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Groundwater	Little San Gorgonio Canyon	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200
Groundwater	Beaumont Basin	1,765		1,970		2,334		2,782		2,836	
Groundwater	Beaumont Basin GC forbearance	453		431		416		457		528	
Stormwater Use	Beaumont MDP Line 16	185		185		185		185		185	
Stormwater Use	Various Urban Runoff Basins	0		245		545		545		545	
Purchased or Imported Water	From SGPWA for Recharge	10,150		11,127		12,503		13,843		15,362	
Recycled Water	From YVWD for Landscaping	921		977		1,018		1,026		1,032	
Recycled Water	From City of Beaumont for Landscaping	822		1,117		1,462		1,753		2,019	
Recycled Water	Recycled Water to Golf Courses	453		431		416		457		528	
Recycled Water	Advance Treated and Recharged	0		418		491		646		827	
Purchased or Imported Water	From SGPWA to supplement Non-potable Water Supply	163		280		0		0		0	
Groundwater	Non-potable Groundwater at Mouth of Edgar Canyon	0		0		200		200		200	
Groundwater	Non-potable Groundwater along San Timoteo Creek	0		0		251		249		198	
Purchased or Imported Water	From SGPWA for Banking	1,000		1,500		2,000		2,500		2,500	
	Total	18,112	2,200	20,881	2,200	24,021	2,200	26,843	2,200	28,960	2,200
NOTES: Beaumont Basin Groundwater includes forbearance water (except for golf courses), unused overlier rights and return flow credits.											

A DWR White Paper published in 2008[36] on the climate change strategies for California water stated the following:

> *Climate change is already affecting California's water resources. Bold steps must be taken to reduce greenhouse gas emissions. However, even if emissions ended today, the accumulation of existing greenhouse gases will continue to impact climate for years to come. Warmer temperatures, altered patterns of precipitation and runoff, and rising sea levels are increasingly compromising the ability to effectively manage water supplies, floods and other natural resources. Adapting California's water management*

[36] State of California Department of Water Resources, (2008). Managing an Uncertain Future, Climate Change Adaptation Strategies for California Water, October.

systems in response to climate change presents one of the most significant challenges of this century.

While the exact conditions of future climate change remain uncertain, there is no doubt about the changes that have already happened. Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. The average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage (one acre-foot of water is enough for one to two families for one year). During the same period, sea level rose seven inches along California's coast. California's temperature has risen 10F, mostly at night and during the winter, with higher elevations experiencing the highest increase. A disturbing pattern has also emerged in flood patterns; peak natural flows have increased on many of the state's rivers during the last 50 years. At the other extreme, many Southern California cities have experienced their lowest recorded annual precipitation twice within the past decade. In a span of only two years, Los Angeles experienced both its driest and wettest years on record.

The Report further goes on to state:

What we know:

- *Historic hydrologic patterns can no longer be solely relied upon to forecast the water future;*
- *Precipitation and runoff patterns are changing, increasing the uncertainty for water supply and quality, flood management, and ecosystem functions;*
- *Significant and ongoing investments must be made in monitoring, researching, and understanding the connection between a changing climate, water resources and the environment;*
- *Extreme climatic events will become more frequent, necessitating improvements in flood protection, drought preparedness and emergency response;*

These changes will bring challenges to water supply agencies like BCVWD and impact BCVWD in both its imported water supply and it local supply – snow fall and rainfall runoff.

Climate Change Impacts on BCVWD Imported Water Supply

The DWR 2011 Reliability Report took climate change into consideration, but there are some specific issues that should be mentioned.

- Reduction in Sierra snow pack
- Rising sea levels on levee integrity

Reduction in Sierra Snowpack

The Sierra snowpack is California's best and least expensive reservoir. The precipitation falls as snow in the winter in the mountains through the winter, building up a large, "on the surface" water reservoir. During the spring and early summer this begins to melt gradually, trickling water into surface reservoirs. These reservoirs are able to capture the water and move it downstream to users maintaining flow releases that do not threaten levees or cause flooding. The peak of the runoff period is late spring or early summer.

In 1989 the USEPA issued a report on what would happen to global temperatures with a two-fold increase in the carbon dioxide concentration in the atmosphere. The report indicated a 1.5 to 4.5°C (2.7 to 8.1°F) increase over the next 100 years if fossil fuel usage continued at the rate at the time. DWR made some very approximate estimates of what that would do to the snowpack based on a rise of 1500 ft elevation in the historical winter snowline. Assuming no change in the amount of precipitation, DWR estimated that spring snowmelt runoff would decrease by 1/3, with more occurring in the northern Sierra versus the southern Sierra where the mountains are higher in elevation and capture more high elevation snow.[37] These are certainly dire predictions; whether this will actually occur is uncertain.

DWR did plot the April to July runoff in both the Sacramento River and San Joaquin River, reflecting the northern and southern Sierras respectively as a percent of the water year runoff. The April to July runoff would represent the snowmelt runoff. These are shown in Figure 6-13 and Figure 6-14.

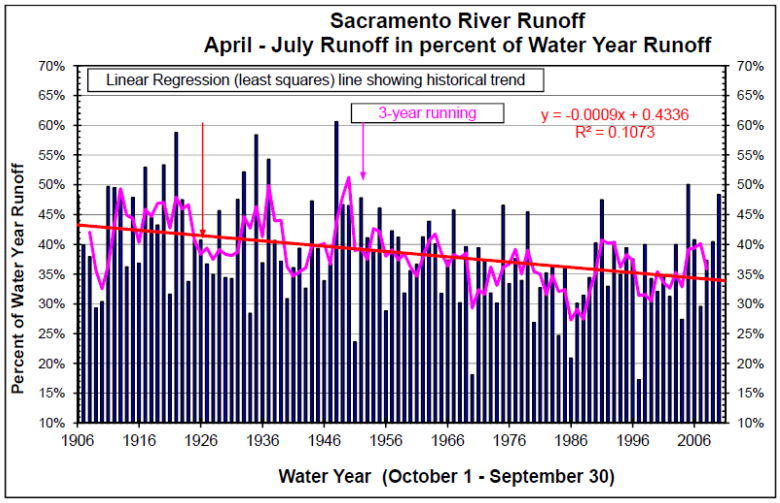


Figure 6-13
Sacramento River Runoff (1906-2010), April-July

[37] Department of Water Resources, State of California, Roos, Maury, Chief Hydrologist. (2012). Snowpack and Snowmelt Changes, January 3.

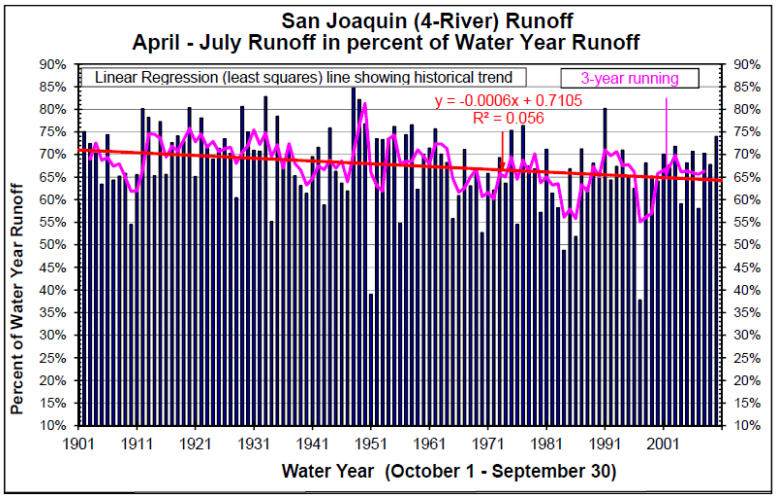


Figure 6-14
San Joaquin River Runoff (1901-2010), April-July

There is a downward trend evident with a steeper slope in the Sacramento River validating at least the general hypothesis determined in 1989.[38] From DWR's data, there appears to be solid evidence that at least some changes are occurring. Maybe these are cyclical; maybe more long term; maybe very long term.

With global warming things will be different. Precipitation will be principally in the form of rain. This will runoff rapidly, quickly filling the surface reservoirs the Department of Water Resources counts on to store water to supply users over the summer and fall till the next "season." The rainfall runoff occurs rapidly and in large quantities bringing with it significant sediment which will eventually silt up the storage reservoirs. The reservoirs will fill up and spill, releasing the high flows into the rivers leading to the Delta, straining levees which are already unstable. This water, which previously was captured as snowfall, will be lost to the ocean. The SWP does not have the storage or conveyance facility capacity to manage all of these high flows and put them to beneficial use or convey the flows to groundwater recharge facilities for storage.

There are many legislators and members of the public opposed to surface storage. This is unfortunate because without additional surface storage, the impacts of climate change will be felt by all of the water users in the State and the Delta ecosystem.

It is likely there will be less Table A water and more Article 21 water available as the reservoirs are quickly filled with rainfall runoff. If this Article 21 can be conveyed to the Pass Area, BCVWD is in a good position to recharge this water with the expanded recharge facility. Perhaps this is sufficient to overcome the reduction in Table A water.

[38] Ibid

Sea Level Impact on Levees

Climate change reportedly will result in sea level rise. The higher sea level will result in greater forces on the existing levees in the Delta. The islands that comprise the Delta are now well below sea level. Levees have broken in the past due to a wide variety of reasons. They are threatened by spring floods and seismic activity. Failure of a levee is akin to a dam break. Water from the Delta rivers will rush in to flood the island. This brings about a corresponding inflow of saline water from San Francisco Bay into the Delta contaminating the imported water flowing through the Delta with salt degrading its quality and making it potentially unusable for extended periods of time.

The levees in the Delta are weak. They were constructed over a century ago with the construction and compaction techniques of the time. They are certainly not up to today's standards and are vulnerable. Higher sea levels and higher spring flows due to the lack of snowpack will exacerbate the problems with the levees. Seismic activity during saturated condition could be devastating.

Because BCVWD can rely on the Beaumont Basin for groundwater, the District should be able to weather any short to medium term interruptions of imported water supply. But it will be important to make sure the storage account has adequate water.

Climate Change Impacts on BCVWD's Local Supply

Locally climate change will have similar effects.

- Reduced snow pack and higher runoff
- Increased wildfire risk
- Water demand increase

Warmer temperatures from climate change will reduce the local snow pack, but not to the degree described above for the Sierra Nevada mountains. The local snow pack is not a major supply source for BCVWD, though it does provide some gradual recharge, particularly the wells in Edgar Canyon. Higher rates of runoff can be expected with more intense storms. This will bring down substantial amounts of sediment. At this point BCVWD is in a good position to deal with the sediment having recently constructed additional desilting basins at the mouth of Edgar Canyon to supplement the numerous percolation ponds and basins along the length of Edgar Canyon. Construction of Phase 2 of the recharge facility is underway, which allows the District to capture any large storm flows which make it "out of the canyon." It is believed the number of larger storm flows will increase over time due to climate change.

Warmer temperatures will bring an increased risk of wildfires in the watershed. Although some may consider wildfires an ecological benefit, there are some devastating consequences to water suppliers such as BCVWD. A burned watershed will result in enormous amounts of sediment

moved down into the canyon streams, which could cause flooding in the canyon and flood out some of the District's well pumps. Wildfires have burned portions of the watershed in the recent past and BCWWD has been able to minimize the impacts. The District has installed a water tank at the 3900 foot elevation between Edgar and Wallace Canyons and a fire protection piping loop in the vicinity of the "middle houses" to respond to brush fires in the canyon.

Water demand is expected to increase due to hotter days and nights. Irrigation water needs will increase due to potential reduction in precipitation and warmer days.

Mitigation

One of the best ways of mitigating climate change is by reducing energy consumption, particularly energy produced by fossil fuels and becoming more energy efficient. Although consumers have no control over the use of energy and fossil fuels by BCVWD directly, consumers can assist BCVWD by reducing water consumption. Supplying water to customers in the District's service area takes energy to pump the water out of the ground and pressurize it for use. The bulk of the District's supply is from the Beaumont Basin where the groundwater table is 500 or more feet below the ground surface. To boost the pressure for consumers' use requires another 200 ft or so of pumping. A substantial amount of energy is expended pumping this water. Saving water at home means saving energy; saving energy reduces greenhouse gas emissions.

Section 7

Water Supply Reliability Assessment

Constraints on Water Sources

> *CWC 10631*
>
> *(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.*
>
> *CWC 10634*
>
> *The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.*
>
> *10631(c)(2)*
>
> *For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.*

Table 7-1 shows a summary of BCVWD's current and future water sources and identifies the factor(s) that affect the specific source's consistency of supply. Climate affects the amount of water available from most of the sources; there are some legal constraints on the Beaumont Groundwater Basin Source due to the Adjudication and contractual and environmental constraints on the imported SPW. BCVWD's sources are not affected by water quality per se, although a case could be made for the imported SPW supply and Delta water quality impacts on pumping.

The following subsections quantify the variability in BCVWD's water sources.

Reliability by Type of Year

> *CWC 10631*
>
> *(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*
>
> *A. an average water year,*
>
> *B. a single dry water year,*
>
> *C. multiple dry water years.*

The water supply quantities from BCVWD's sources for the average year were presented in Section 6. This Section 7 will quantify the availability during various drought scenarios over the planning period:

- Single dry year -- the lowest water supply available to BCVWD, a worst case condition

- Two consecutive dry years -- the lowest average available water supply over a 2-year period
- Three consecutive dry years -- the lowest average available water supply over a 3-year period
- Six Consecutive dry years -- the lowest average available water supply over a 3-year period

Table 7-1
Factors Resulting in Inconsistency of Supply

Water Supply Source	Cause of Inconsistent Supply				Additional Information
	Legal	Environmental	Water Quality	Climate	
Edgar Canyon Groundwater				X	
Beaumont Basin Groundwater Appropriator Rights	X				Note 1
Beaumont Basin Groundwater Unused Overlier Rights	X			X	Note 2
Imported State Project Water	X	X		X	Note 3
Recycled Water				X	Note 4
Stormwater Capture and Percolation				X	
Urban Runoff Capture and Percolation				X	
Nitrate-contaminated Groundwater from mouth of Edgar Canyon				X	

Notes to Table 7-1:

1 After 2014 the Appropriator production rights are zero per Adjudication

2 Reallocation of Overlier pumping rights are variable. Estimated to drop to 1000 AFY by 2035

3 SWP reliability discussed in text. 10% of Table A is available 100% of the time; adjusted per draft allocation agreement.

4 Recycled water is not subject to any significant variations; but some drought period reductions in flow are experienced – maybe 10%. Domestic water restrictions typically have the greatest impact on outdoor water use.

In DWR's Guidebook for Urban Water Suppliers Preparing 2015 UWMP Updates, there are a number of standard tables that are to be completed. BCVWD believes these standard tables, if presented in the text of this Section, will be very confusing to the readers. It would be difficult for the reader to follow how the information on water supplies for various durations of dry years was developed. In lieu of the standard tables, BCVWD presents its methodology using similar tables, but not identical tables, which better explain the water source reliability and demonstrate the assessment of impacts of single dry year and multiple dry year on BCVWD's water supply. DWR's standard tables were completed using the information from BCVWD's tables in this section and are presented along with the other DWR standard tables in Appendix C.

As background for the discussion on water supply reliability, BCVWD enjoys the benefits of a groundwater basin, (Beaumont Basin), with very large storage capacity. BCVWD and its neighboring agencies in the San Gorgonio Pass Area can take advantage of this by banking imported water during wet years for use during extended droughts. Complementing the large storage capacity is the fact that percolation and recharge occur at relatively high rates. It is very easy to "bank" water in the Beaumont Basin. It is retained in the Basin due to well-managed groundwater levels, and the ample storage capacity. Figure 7-1 shows the amount of water BCVWD has accumulated in its storage account since 2003. Imported water began to be spread in 2006.

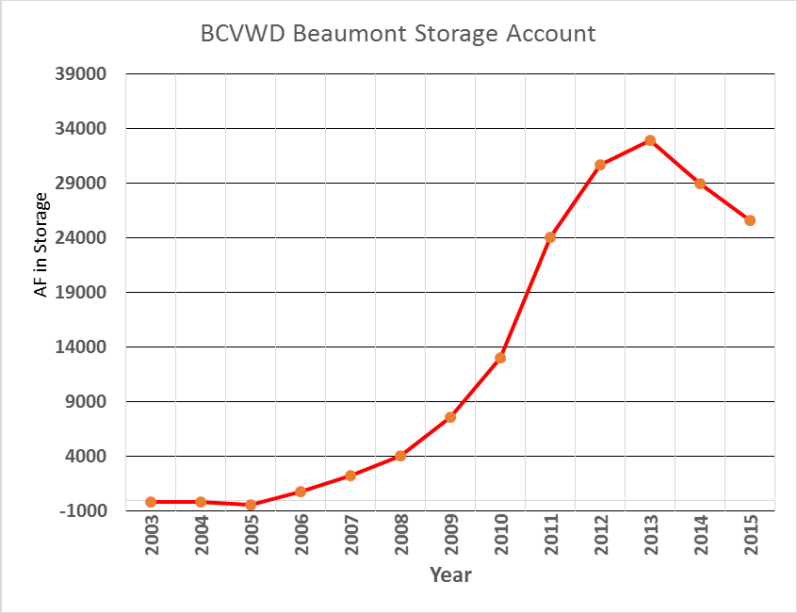


Figure 7-1
BCVWD's Beaumont Basin Storage Account

With the ability to bank water and the large "underground" reservoir, BCVWD and its neighboring agencies can withstand extended periods of drought without severe restrictions.

At the end of 2015, for example, BCVWD had 25,568 AF in storage. This dropped from a maximum in 2013 of nearly 34,000 AF due to the drought and the reduced SWP. BCVWD can store up to 80,000 AF in the Beaumont Basin managed by the Watermaster.

In Section 6, Table 6-25 (DWR Table 6-9), a quantity of BCVWD-purchased imported water was identified as "SGPWA for Banking." This varied from 1,000 AFY to 2,500 AFY and is over and above the amount of imported water needed to meet demands. The purpose of this "banking water" is to build up BCVWD's Beaumont Basin Groundwater Storage Account to be used as reserve for drought periods when adequate, (as projected in Table 6-25), SPW is not available.

SGPWA is to supply the imported water requested in Table 6-25 (DWR Table 6-9) to meet BCVWD's needs plus the anticipated SPW for banking. If in any year(s), either of these quantities cannot be supplied, for any reason, the accumulated shortfall is expected to be delivered to BCVWD by SGPWA as soon as possible once imported water is available. In this way, BCVWD will be able to keep adequate water in storage for current (2015) needs and accommodate growth in BCVWD's service area. Looking at the quantities in Table 6-26, BCVWD anticipates banking 35,000 AF of water over the next 20 years, which would bring BCVWD's storage account to about 60,560 AF. This is over 3 years of SPW requirements to meet demand. In other words, BCVWD would be able to meet year 2040 demands with no SPW for over 3 years.

Groundwater

Beaumont Basin

The Beaumont Basin is managed by the Beaumont Basin Watermaster. A discussion of the principles of the Adjudication was presented previously in Section 6.

In any given year, BCVWD can pump out its stored (banked) water. The storage is replenished, at least partially, every year by forbearance water, reallocated unused Overlying Party pumping rights, return flows, and imported water when available. The amount of imported water that can be recharged in any year depends on DWR's SWP allocation. This varies from year to year. See Figure 6-2 presented previously.

Table 6-9, presented previously, showed the amount the Watermaster credits to BCVWD's Beaumont Basin Storage Account annually. The amount of unused Overlying Party rights is based on a 5-year moving average and could decrease slightly during drought periods as the Overlying Parties use more well water to compensate for the lack of rainfall. The forbearance water and return flows will decrease during dry periods as users reduce water consumption.

Table 7-2 shows the estimated amount of water credited to BCVWD by Watermaster for a single or multiple dry year analysis. For the dry year analysis, it was estimated that there would be a 15% conservation effect; in other words, for dry year analysis, only 85% of average annual forbearance, reallocated Overlying Party rights, etc. would be available. In Table 7-2, the 15% reduction factor is also applied to the recycled forbearance water to account for a potential

reduction in treated wastewater due to water conservation effects. No irrigation of golf courses is assumed to occur during these drought periods since there may not be enough recycled water available with conservation to permit this to occur. This is believed to be conservative.

Table 7-2
Summary of BCVWD's Beaumont Basin Storage Credits

Item	2015	2020	2025	2030	2035	2040
Total Return Flow Credits, Allocated Overlying Party Rights, and Forbearance Water (No Golf Courses), from Table 6-9, AFY	1,927	1,765	1,970	2,334	2,782	2,836
Expected to be Available for Single and Multiple Dry Year Analysis, AFY	1,640	1,500	1,675	1,985	2,330	2,410

Edgar Canyon

Groundwater from Edgar Canyon is affected to some degree by climate as can be seen from the statistics in Table 6-8 presented previously. The average annual extraction from Edgar Canyon is 2,181 AFY based on records from 1983-2015. During that period of time the minimum extracted was 1,117 AFY, which occurred in 1991. This can be considered the "Single Dry Year Water Available." The 2-year, 3-year, and 6-year moving averages for the extractions from 1983 -2015 were determined and are presented in Table 7-3 along with the Base Period for moving averages.

Table 7-3
Groundwater Available from Edgar Canyon for
Single and Multiple Dry Year Analysis

Drought Condition (Base Years)	Average Available over the Drought Period, AFY
Single Dry Year (1991)	1,117
2 Consecutive Dry Years (1990 – 91)	1,173
3 Consecutive Dry Years (1989 – 91)	1,230
6 Consecutive Dry Years (1987 – 92)	1,367

Imported Water

The amount of imported water available from the SGPWA via the State Water Project is very climate dependent. A spreadsheet was developed using the 2015 DWR Delivery Capability Report simulation data (1922 to 2003) for SGPWA to develop an estimate of the delivery capability for the single dry year and multiple dry year reliability analysis. The 2-, 3-, and 6-year moving averages of annual estimated delivery allocations were determined for the period 1922-2003. A summary of the Table A delivery percentages is shown in Table 7-4.

Table 7-4
SGPWA SWP Delivery Capability as Percent of Table A
(Based on 2015 DWR SWP Delivery Capability Report)

Dry Year(s)	Single	2-year	3-year	6-year
Table A Annual Delivery Average Over the Drought Period, %	8	19	22	28

The percentages in Table 7-4 were compared to actual SWP delivery allocations for the period 1992 to 2016, a 24-year period:

Minimum year	5% (2015)
Minimum 2 consecutive years	12.5% (2014-15)
Minimum 3 consecutive years	20% (2013 – 15)
Minimum 6 consecutive years	42.5% (2010 – 15)

As can be seen, the actual minimum year and minimum 2 and 3 consecutive years are less than those from the 2015 DWR SWP Delivery Capability Report. So, for the reliability analysis in this 2015 UWMP, the allocation percentages in Table 7-5 will be used.

Table 7-5
SGPWA SWP Delivery Capability as Percent of Table A
(Used for Reliability Analysis)

Dry Year(s)	Single	2-year	3-year	6-year
Table A Annual Delivery Average Over the Drought Period, %	5	12.5	20	28

For the reliability analysis, the percentages in Table 7-5 will be applied to BCVWD's imported water demand for the particular year. The results are shown in Table 7-6. The additional SPW to provide a 5-year emergency supply for droughts per BCVWD Board of Directors Resolution

2014-05 is not included in the SPW Needed in Table 7-6. See Table 6-25, presented previously. (Note that the State's 2016 Emergency Conservation Regulation requires a 3-year supply in order to avoid restrictive water conservation mandates.)

Section 6 described the role of the SGPWA in supplying SWP to BCVWD. The SGPWA has initiated a capacity fee for all new connections. By Resolution 2015-05, the SGPWA Board of Directors established an obligation to meet the future water supply needs of the region, including BCVWD, and recognizes the current allotment of Table A capacity is fully subscribed to current users. BCVWD can rely on the SGPWA to secure and deliver the imported water needed to meet BCVWD's current and future demands as set forth in this 2015 UWMP and subsequent UWMP updates in concert with DWR's Delivery Capability Reports.

Table 7-6
Estimated SWP Deliveries to BCVWD from SGPWA During Extended Dry Periods

	% Table A	Year				
		2020	2025	2030	2035	2040
SPW Needed, AFY		10,313	11,407	12,503	13,893	15,367
Single Dry Year	5%	520	570	630	690	770
2-years	12.5%	1,290	1,430	1,560	1,740	1,920
3-years	20%	2,060	2,280	2,500	2,780	3,070
6-years	28%	2,890	3,190	3,500	3,890	4,300

Recycled Water

Recycled water is consistently available; although during droughts, consumers are more aware of water conservation and reduce their indoor water consumption somewhat. They are more aware of the need to do only full loads of laundry, full loads for the dishwasher etc. Agencies, including the City of Beaumont, have observed a reduction in wastewater flows during the current drought.

BCVWD is counting on two separate sources of recycled water: YVWD and the City of Beaumont. For a single dry year, an estimate of 90% of the normal, average recycled water will be available. As the drought becomes more pervasive, the amount of recycled water is estimated to reduce further to 85% of normal. Table 7-7 provides an estimate of the available recycled water during extended dry periods. The amount of recycled water under normal conditions is derived from Tables 6-18 and 6-19, presented previously.

Storm Water and Urban Runoff Reliability (Potential Projects)

Storm water and Urban Runoff quantities are very dependent on rainfall. Review of the rainfall record at Beaumont for the period 1888 – 2006 resulted in the data shown in Table 7-8. To determine the multiple dry year rainfall as a percent of the average rainfall, the 2-, 3-, and 6-year moving averages of the annual rainfall was determined. Table 7-8 also lists the storm water

capture projects and their estimated annual "new water" captured from Table 6-13 presented previously.

Table 7-7
Estimated Recycled Water Available During Extended Dry Periods

		Year				
		2020	2025	2030	2035	2040
YVWD Recycled Water Used on Landscaping, AFY	% Available	921	977	1,018	1,028	1,032
City of Beaumont Recycled Water Used on Landscaping, AFY		822	1,117	1,462	1,753	2,019
Recycled Water Advance Treated and Recharged, AFY		-	418	491	646	824
Total Recycled Water Used, AFY		1,743	2,513	2,971	3,427	3,875
Single Dry Year	90%	1,570	2,260	2,670	3,080	3,490
2-years	85%	1,480	2,140	2,530	2,910	3,290
3-years	85%	1,480	2,140	2,530	2,910	3,290
6-years	85%	1,480	2,140	2,530	2,910	3,290

Table 7-8
Ratio of Dry Period Precipitation to Average Precipitation at Beaumont and Estimated New Water from Storm Water Capture Projects

Dry Year(s)	Single	2-year	3-year	6-year
% of Annual Average	36%	45%	45%	65%
Facility and Average Annual Water Capture				
Grand Ave Interceptor, 185 AFY	65	80	80	120
Cherry Ave Basin, 245 AFY	85	110	110	160
Eighth St Basin, 220 AFY	80	100	100	140
Starlight Basin, 80 AFY	25	35	35	50
Total Storm Water, AFY	255	325	325	470

The data from Tables 7-2 through 7-8 will be used in the water supply reliability assessment to follow.

Water Supply Reliability Assessment

CWC 10635

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of the urban water supplier.

Section 6 presented the Water Supply Assessment for an average or "normal" year (Table 6-25). For the normal year, there is more than enough supply to meet the demand and BCVWD can bank water in the Beaumont Basin which will be needed during dry periods.

Tables 7-9 through 7-12 present the water supply reliability assessment for:

- Single Dry Year (Table 7-9)
- 2 Consecutive Dry Years (Table 7-10)
- 3 Consecutive Dry Years (Table 7-11)
- 6 Consecutive Dry Years (Table 7-12)

Table 7-9
Water Supply Assessment for Single Dry Year

	YEAR				
	2020	**2025**	**2030**	**2035**	**2040**
DEMAND					
Potable Water Demand, AFY	14,916	16,856	19,129	21,105	22,881
Non-Potable Water Demand, AFY	2,196	2,525	2,892	3,238	3,579
Total Water Demand	17,112	19,381	22,021	24,343	26,460
SUPPLY					
Groundwater					
Edgar Canyon, AFY	1,117	1,117	1,117	1,117	1,117
Beaumont Basin, AFY	1,500	1,675	1,985	2,330	2,410
Storm Water, AFY	255	255	255	255	255
Recycled Water, AFY	1,570	2,260	2,670	3,080	3,490
Imported SPW,AFY	520	570	630	690	770
Subtotal Supply, AFY	4,962	5,877	6,657	7,472	8,042
From Banked Beaumont Basin Storage, AF	12,150	13,504	15,364	16,871	18,418

Table 7-10
Water Supply Assessment for Two Consecutive Dry Years

	YEAR				
	2020	**2025**	**2030**	**2035**	**2040**
DEMAND					
Potable Water Demand, AFY	14,916	16,856	19,129	21,105	22,881
Non-Potable Water Demand, AFY	2,196	2,525	2,892	3,238	3,579
Total Water Demand	17,112	19,381	22,021	24,343	26,460
SUPPLY					
Groundwater					
Edgar Canyon, AFY	1,173	1,173	1,173	1,173	1,173
Beaumont Basin, AFY	1,500	1,675	1,985	2,330	2,410
Storm Water, AFY	325	325	325	325	325
Recycled Water, AFY	1,480	2,140	2,530	2,910	3,290
Imported SPW,AFY	1,290	1,430	1,560	1,740	1,920
Subtotal Supply, AFY	5,768	6,743	7,573	8,478	9,118
From Banked Beaumont Basin Storage, AF	11,344	12,638	14,448	15,865	17,342
Total Withdrawn from Storage Over Dry Period, AF	22,688	25,276	28,896	31,730	34,684

Table 7-11
Water Supply Assessment for Three Consecutive Dry Years

	YEAR				
	2020	**2025**	**2030**	**2035**	**2040**
DEMAND					
Potable Water Demand, AFY	14,916	16,856	19,129	21,105	22,881
Non-Potable Water Demand, AFY	2,196	2,525	2,892	3,238	3,579
Total Water Demand	17,112	19,381	22,021	24,343	26,460
SUPPLY					
Groundwater					
Edgar Canyon, AFY	1,230	1,230	1,230	1,230	1,230
Beaumont Basin, AFY	1,500	1,675	1,985	2,330	2,410
Storm Water, AFY	325	325	325	325	325
Recycled Water, AFY	1,480	2,140	2,530	2,910	3,290
Imported SPW,AFY	2,060	2,280	2,500	2,780	3,070
Subtotal Supply, AFY	6,595	7,650	8,570	9,575	10,325
From Banked Beaumont Basin Storage, AF	10,517	11,731	13,451	14,768	16,135
Total Withdrawn from Storage Over Dry Period, AF	31,551	35,193	40,353	44,304	48,405

Table 7-12
Water Supply Assessment for Six Consecutive Dry Years

	YEAR				
	2020	**2025**	**2030**	**2035**	**2040**
DEMAND					
Potable Water Demand, AFY	12,679	14,328	16,260	17,939	19,449
Non-Potable Water Demand, AFY	1,867	2,146	2,458	2,752	3,042
Total Water Demand	14,545	16,474	18,718	20,692	22,491
SUPPLY					
Groundwater					
Edgar Canyon, AFY	1,367	1,367	1,367	1,367	1,367
Beaumont Basin, AFY	1,500	1,675	1,985	2,330	2,410
Storm Water, AFY	470	470	470	470	470
Recycled Water, AFY	1,480	2,140	2,530	2,910	3,290
Imported SPW,AFY	2,890	3,190	3,500	3,890	4,300
Subtotal Supply, AFY	7,707	8,842	9,852	10,967	11,837
From Banked Beaumont Basin Storage, AF	6,838	7,632	8,866	9,725	10,654
Total Withdrawn from Storage Over Dry Period, AF	41,029	45,791	53,195	58,347	63,924

For the Single Dry Year and the 2 and 3 Consecutive Years Dry Periods, the potable and non-potable water demands did not reflect any conservation. The 6 Consecutive Years Dry Period assumes that water restrictions will be in place that will result in a 15% reduction in normal water demands. This is a reasonable assumption since there is adequate time to implement water use restrictions. In all of the assessments, water must be extracted from BCVWD's Beaumont Basin Storage Account. BCVWD has an 80,000 AF storage account managed by Watermaster. This volume is adequate to meet the needs of this reliability analysis but should be increased to allow the District to bank 5 years of water to meet future needs as desired by the District's Board of Directors. Tables 7-9 through 7-12 clearly indicate the importance of maintaining substantial amounts of water in the storage account. Based on the assessment, BCVWD should keep 65,000 AF in the account. This will require building up from the year-end 2015 Balance of 25,568 AF.

Regional Supply Reliability

CWC 10620

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

BCVWD has a very diverse water portfolio that allows it to maintain a reliable water supply to its current and future customers. The existing sources include:

- Unadjudicated groundwater from Little San Gorgonio Creek (Edgar Canyon)

- Adjudicated groundwater from the Beaumont Basin
- Stormwater capture in Edgar Canyon (Little San Gorgonio Creek) and recharge in percolation ponds in Upper and Middle Canyon and at the Canyon mouth in recently added desilting and recharge basins
- Non-potable groundwater supplying the existing non-potable water system
- Imported State Project Water from SGPWA

Potential Future Sources described in this 2015 UWMP include:

- Recycled water from the City of Beaumont and YVWD for landscape irrigation and with advanced treatment for indirect potable reuse (groundwater recharge)
- Improved recharge of captured urban runoff from Sundance development
- Non-potable groundwater from the mouth of Edgar Canyon
- Non-potable groundwater from San Timoteo Creek
- Storwater capture and recharge via the Grand Avenue Storm Drain (funded by RCFCWCD, SAWPA grant and currently under design)
- Stormwater capture from Noble and Marshall Creek
- Additional urban runoff capture and recharge from developing areas

These potential sources have been described in Section 6 of this 2015 UWMP.

BCVWD's water management strategy since its formation has always been to maximize local water resources including local groundwater and capture and percolate surface flows in Little San Gorgonio Creek for subsequent extraction in the District's Edgar Canyon wells. With the development that occurred starting about year 2000, BCVWD began installation of a non-potable water system with the intent of using recycled water from the City of Beaumont and YVWD. Currently (2015) the water demand in the non-potable system is about 12% of the total water demand. This demand is being partially met by non-potable groundwater. Recycled water could meet the remainder of the demand.

As discussed above BCVWD has an 80,000 AF storage account in the Beaumont Basin to purchase and store imported water when available in ample supply during wet years. In addition to SGPWA's Table A amount, there are two other sources of imported water over and that are available:

- Article 21 Water
- Turn-back Pool Water

SWP Article 21 Water

Article 21 Water refers to a provision in each State Water Contractor's Contract with DWR that allows each Contractor, like SGPWA, to take advantage of excess water flowing through the Delta. The individual Contractor must take the water on short notice and store it within the Contractor's facilities and the delivery of the water cannot interfere with the delivery of Table A

allocations, SWP deliveries or operations. DWR has estimated that 82% of the time, the maximum amount of Article 21 Water available will be 20,000 AF. For the period 2001 through 2014, average amount of Article 21 Water available was 176,456 AF with a median amount of 45,630 AF.

There is significant "competition" for Article 21 Water. Generally there are greater demands from the Contractors than there is Article 21 Water available. When this happens, the available Article 21 Water is proportioned according to the Table A allocations of the interested Contractors. Based on the Contractors who typically took delivery of Article 21 Water from 2001 through 2014, the SGPWA would only get about 0.5% of the available Article 21 Water, i.e., about 230 AF of the median amount. During very wet years, it could be over 3,000 AF; 75% of the time the SGPWA would receive less than 1,900 AFY of Article 21 Water based on a statistical analysis performed by BCVWD. Nevertheless, whenever Article 21 Water is available, SGPWA should request as much as can be accommodated in the EBX conveyance system (64 cfs or 3,800 AF/month).

Turn-back Pool Water

Turn-back Pool Water is Table A water that other Contractors requested that they are unable to take delivery of. This is offered for sale at a set price.

For the period 2001 through 2014, the median and average Turn-back Pool amounts were 17,740 and 25,280 AF respectively. This source could yield 500 AF assuming the same competition as for Article 21 Water. SGPWA should be looking at purchasing Turn-back Pool water whenever it is available.

Other Sources

SGPWA should be purchasing water from San Bernardino Valley Municipal Water District (Valley District) on a year-by-year or longer basis. Valley District does not currently need all of their Table A and it is believed that some of this is available for purchase. BCVWD is interested in purchasing some of this for BCVWD's storage account; SGPWA should purchase any that is available. This water would be purchased by BCVWD, YVWD or the City of Banning for storage in their respective Beaumont Basin storage accounts.

Financing of Water Resource Needs

BCVWD has the financing in place and is collecting fees from each new residential unit or "equivalent dwelling unit" for commercial/industrial/institutional facility for new infrastructure, (transmission mains, wells, storage, treatment, local water resource development, and non-potable water facilities). BCVWD's commodity rate structure includes funding for purchase of imported SPW.

BCVWD's 2015 Potable Water Master Plan Update identified the infrastructure needs and funding requirements to replace existing facilities which have reached the end of their useful life and construct new facilities to meet anticipated growth in the service area.

Section 8

Water Shortage Contingency Planning

CWC 10632

The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier.

- *Stages of Action*
- *Prohibitions on End Uses*
- *Penalties, Charges, Other Enforcement of Prohibitions*
- *Consumption Reduction Methods*
- *Determining Water Shortage Reductions*
- *Revenue and Expenditure Impacts*
- *Resolution or Ordinance*
- *Catastrophic Supply Interruption*
- *Minimum Supply Next Three Years*

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation can help maintain reliable supplies and reduce the impacts of supply interruptions.

This section describes BCVWD's water shortage contingency planning. The planning includes staged responses to a water shortage, such as a drought, that occurs over a period of time, as well catastrophic supply interruptions which occur suddenly.

The water shortage contingency plan (WSCP) can be created separately from the UWMP and amended as needed without amending the corresponding UWMP. However, the most current version of the WSCP must be included as part of the UWMP when the UWMP is submitted to DWR.

Stages of Action

10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

The District proposes a five-stage plan of action in the event of an extended drought condition or loss of supply. The action levels for each stage are presented in the subsections that follow, and the water supply reduction stages are provided in Table 8-1. These stages could be implemented as a result of BCVWD water shortages, including reduction in imported water allocation, or mandatory water conservation targets by the Governor's office.

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description*)
Add additional rows as needed		
1	10%	Up to a 10% reduction in normal, "long term" water supply; imported water supply allocation averages approximately 50% over a 2-year (or longer) period
2	20%	Up to 20% reduction in normal, "long term" water supply; imported water supply allocation between 49.9% and 25% over a 3-year (or longer) period
3	25%	Up to 25% reduction in normal, "long term" water supply; imported water supply allocation between 24.9% and 10% over a 3-year (or longer) period
4	30%	Up to 30% reduction in normal, "long term" water supply; imported water supply allocation between 9.9% and 5% over a 3-year (or longer) period
5	50%	Up to 50% reduction in normal, "long term" water supply; imported water supply allocation averages less than 5% over a 4-year (or longer)period
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

These stages and the percent reductions in demand are based on BCVWD's experience during the state mandated water conservation program targets comparing 2015 with a similar period in 2013. BCVWD was able to reduce consumption by 24.3% for the period May 2015 through April 2016. This was done through the restrictions in Board of Directors Resolution 2015-05 which limited watering to two days per week.

In establishing the "Stages," BCVWD has the advantage of the Beaumont Basin, its large storage capacity for banked water, and BCVWD's 80,000 AF storage account. BCVWD currently has 25,568 AF in storage, despite an average SWP allocation of only 43% for the period 2012 through 2015. BCVWD's plan is to purchase additional imported water over that needed to meet demands to add to the storage account balance each year including making up for any shortfall that may occur during dry years. The District's goal is to fill the storage account by 2040 or before.

Stage 1

Stage 1 occurs when:

- A 10% water use reduction from the established base year is required, or

- Imported water supply allocation averages approximately 50% over a two year(or longer) period

The District declares a water shortage and imposes voluntary water conservation. In this stage the District shall notify all its customers that water deliveries may be reduced. The District will recommend a voluntary 10% water use reduction based on an established base year to be determined by the District at the time Stage 1 is implemented. At the same time the District shall implement its own public awareness program to encourage the efficient use of water. This will be accomplished by bill stuffers, web site information, and articles in the local newspaper.

Stage 2

Stage 2 occurs when:

- A 20% water use reduction from the established base year is required, or
- The SWP allocation averages between 49.9% and 25% over a three year (or longer) period, or
- Stage 1 voluntary conservation efforts do not yield the 10% reduction in demand.

At this point the District will initiate water restrictions similar to Resolution 2015-05 and require a 20% reduction in demand from an established base year.

Stage 3

Stage 3 occurs when:

- A 25% water use reduction from the established base year is required, or
- The SWP allocation averages between 24.9% and 10% over a three year (or longer) period, or
- The Stage 2 conservation efforts do not result in the required 20 percent reduction

In this stage the District will impose restrictions similar to Resolution 2015-05, but limit lawn watering to one day per week and no filling of swimming pools. Topping off of swimming pools is permitted. No new construction meters will be approved. Use of recycled or non-potable water for construction activities will be encouraged. The District will adopt financial incentives to encourage efficient water use. Public awareness programs will expand to schools.

Stage 4

Stage 4 occurs when:

- A 30 % water use reduction from the established base year is required, or
- The SPW allocation averages between 9.9% and 5%, over a three year (or longer) period, or
- The Stage 3 conservation efforts do not result in the required 25 percent reduction

In this stage the District will impose restrictions similar to Resolution 2015-05, but make more stringent including prohibit lawn watering except for lawns and turf irrigated with recycled or non-potable water. No filling of swimming pools; topping off of swimming pools may be permitted. Hand watering of plantings is permitted two days per week if using a hose with a shut-off nozzle. Use of potable water for construction activities will be prohibited; only recycled or non-potable water, if available, can be used for construction activities. Trucking recycled water may be necessary. The District will adopt financial incentives to encourage efficient water use. Stricter enforcement penalties will be developed. At this Stage, the District will appoint a water conservation advisory committee. This committee will comprise of officials from the District, the City of Beaumont, and the Cherry Valley community. Public awareness in schools will continue. District staff will work with high water using commercial/retail and industrial facilities to develop programs to reduce water use.

Stage 5

Stage 5 occurs when:

- A 50% water use reduction from the established base year is required, or
- The SWP allocation averages less than 5% for four consecutive years

In this stage the District will impose restrictions similar to Resolution 2015-05, but prohibit lawn watering except for lawns and turf irrigated with recycled or non-potable water. No filling of swimming pools; topping off only permitted on covered pools. Hand watering of plantings is permitted one day per week if using a hose with a shut-off nozzle. Use of potable water for construction will be prohibited; only recycled or non-potable water may be used for construction activities, as determined by the Board of Directors. Trucking recycled water may be necessary. “Will serve” letters or annexations will not be approved by the Board of Directors. The District will adopt financial incentives to encourage efficient water use. Stricter enforcement penalties will be developed. The water conservation advisory committee will continue to function. This committee will comprise of officials from the District, the City of Beaumont, and the Cherry Valley community. Public awareness in schools will continue. District staff will work with high water using commercial/retail and industrial facilities to develop programs to reduce water use.

Implementation

Implementation of any of the above stages will require action by the Board of Directors and should only be considered after a public hearing wherein the conditions that bring about the reduction in supply and current consumption are discussed, options considered, and impacts on the revenue stream and public are presented. The public will generally be provided an opportunity to provide public input on implementation of water shortage contingency stages.

Prohibitions on End Users

> ***CWC 10632***
>
> *(a)(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.*
>
> *(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.*

Table 8-2 provides a list of water use prohibitions and the various stages when they would be implemented. The list is "fixed" by DWR; other prohibitions may be considered by the Board. Note that if a prohibition is listed for a given stage, it would be applicable to all higher numbered stages. For example, a prohibition in Stage 2 would be prohibited in Stages 3, 4, and 5 also.

Except in extreme sudden emergencies, the Board of Directors would normally hold a public hearing to discuss the conditions requiring prohibitions in water use. Comments from the public will be taken and considered before making a decision. Some of the restrictions could include one or more of the above depending on the water shortage and its duration. A resolution would be adopted identifying the course of action and mandatory restrictions.

It is possible that the initial recommended prohibitions may not result in the desired reduction and more restrictive measures need to be taken. The Board would then call for another public hearing, present the facts and the results to-date of the implementation of the water restrictions and the need for further reductions. Further reductions could then be implemented through a resolution.

The list presented in Table 8-2 is not intended to include all possible restrictions; other measures may be identified during the public hearing and implemented.

Customers would be notified in writing of any prohibitions set by the Board and notices would be posted on the District's website, and the local newspapers and cable TV (English and Spanish versions.

Water Features and Swimming Pools

> ***CWC 10632***
>
> *(b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.*

Health and Safety Code Section 115921

As used in this article the following terms have the following meanings:

(a) "Swimming pool" or "pool" means any structure intended for swimming or recreational bathing that contains water over 18 inches deep. "Swimming pool" includes in-ground and aboveground structures and includes, but is not limited to, hot tubs, spas, portable spas, and non-portable wading pools.

In Table 8-2, swimming pools are separate and distinct from "water features." Water features include decorative ponds, water hazards on golf courses, artificial waterfalls and fountains. Golf course water hazard ponds that serve as irrigation reservoirs or balancing ponds, supplied with private wells are not covered by BCVWD's water restrictions. BCVWD water restrictions do not apply to water features supplied by private wells.

Stock ponds for animal watering are not covered under the swimming pool or water feature restrictions. Recycled and non-potable water may be used without restriction in water features and ponds if approved for use.

Penalties, Charges, and Enforcement of Provisions

10632(f) Penalties or charges for excessive use, where applicable.

BCVWD has provisions within its Rules and Regulations to establish charges for excessive water use. Currently there is 2-tiered rate structure in effect which increases the unit cost (per one hundred cubic feet (HCF) for water use in a billing period over 44 HCF. BCVWD could increase these charges, initiate consumption surcharges for excessive use to cover the additional cost of imported replacement water, and/or provide for additional tiers upon proper notification and following the procedures established by Proposition 218. This is not something that can be done on short notice however.

BCVWD has "water waster" provisions in Part 15 of its Rules and Regulations.

> "15-1 PROHIBITION OF WATER WASTER – No person, firm, or corporation shall use, deliver, or apply waters received from this District in any manner that causes the loss, waste, or the applications of water for unbeneficial purposes. Within the meaning of this Regulation, any waters that are allowed to escape, flow, and run into areas which do not make reasonable beneficial use of such water, including but not limited to streets, gutters, drains, channels, and uncultivated lands, shall be presumed to be wasted contrary to the prohibitions of these Rules and Regulations.
>
> 1) Upon the first failure of any person, firm, or corporation to comply, this District shall serve or mail a warning notice upon any person determined to be in violation of these Rules and Regulations.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
All	Landscape - Restrict or prohibit runoff from landscape irrigation	Part of BCVWD's Water Waste Provisions	Yes
2	Landscape - Limit landscape irrigation to specific times		Yes
2	Landscape - Limit landscape irrigation to specific days	2 days per week	Yes
2	CII - Lodging establishment must offer opt out of linen service		Yes
2	CII - Restaurants may only serve water upon request		Yes
2	Landscape - Prohibit all landscape irrigation	Prohibit irrigation of street median turf only	Yes
2	Water Features - Restrict water use for decorative water features, such as fountains		Yes
2	Other - Prohibit use of potable water for washing hard surfaces		Yes
3	Other - Require automatic shut of hoses		Yes
3	Landscape - Limit landscape irrigation to specific days	1 day per week	Yes
3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
4	Landscape - Prohibit certain types of landscape irrigation	Hand watering only with auto nozzle	Yes
5	Pools and Spas - Require covers for pools and spas		Yes
5	Pools - Allow filling of swimming pools only when an appropriate cover is in place.		Yes
5	Other - Prohibit use of potable water for construction and dust control		Yes
5	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
NOTES:			

2) Upon the second failure of any person, firm or corporation to so comply, the water charges of any such consumer shall be doubled until full compliance with these Rules or Regulations has been established to the satisfaction of the Board of Directors of the District.

3) Upon the third failure of any person, firm, or corporation to so comply, the District shall terminate water service to any connection through which waters delivered by the District are wasted in violation of these Rules and Regulations."

In Resolution 2016-05, there was a list of financial penalties for violation of the water restrictions in the Resolution.

- Upon the first failure of any person, firm, or corporation to comply, the District shall serve or mail a warning notice upon any person determined to be in violation of the District's Rules and Regulations
- Upon the second failure of any person, firm, or corporation to so comply, the water charges of any such customer shall be doubled until full compliance with the District's Rules and Regulations has been established to the satisfaction of the Board of Directors of the District.
- Upon the second failure of any person, firm, or corporation to so comply, the District shall terminate water service to any connection through which waters delivered by the District are wasted in violation of the District's Rules and Regulations.

Consumption Reduction Methods

CWC 10632

(a)(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

Table 8-4 presents some consumption reduction methods, separate from the restrictions and prohibitions presented previously. The list in Table 8-5 is limited by DWR and so does not include all possible methods.

- **Expand Public Information** – BCVWD should work with SGPWA and the other retailers in the San Gorgonio Pass to develop a consistent, region-wide message that could include regular articles in the local newspapers, displays at major events, low water using garden workshops, etc. Expand into the schools and service clubs. Work with the high volume water users in the commercial/retail/industrial area to determine if there are water reduction opportunities.

- **Improved Customer Billing** – Provide customers with their historic usage for the past year in graphical format (bar charts) with target levels for water conservation. Provide data on other typical customers in the District's service area.

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
2	Expand Public Information Campaign	
3	Improve Customer Billing	Provide Historic Record and comparison of use on similar properties. Show targets and actual reductions
4	Provide Rebates for Landscape Irrigation Efficiency	Consider rebates on smart controllers with SGPWA
3	Provide Rebates for Turf Replacement	Work with SGPWA to develop replacement programs
NOTES:		

- **Rebates for Irrigation Efficiency Improvements** – BCVWD should work with SGPWA to provide rebates to improve irrigation efficiency including drip systems and smart controllers. Replacement of spray nozzles with rotating nozzles reduces water consumption significantly and prevents overspray.
- **Rebates for Turf Replacement** -- BCVWD should work with SGPWA to provide rebates to convert turf areas to low water using drought tolerant plantings.
- **Other Methods Not on DWR's List:**
    - Work with the City of Beaumont and developers to install drought tolerant, low water using plantings in common areas and street medians. Reduce turf and planted areas in new home construction.
    - Convert existing street median and common area turf areas to drought tolerant, low water using plantings.
    - Begin using recycled water for landscape irrigation. This method has the greatest potential for reducing potable water use in the BCVWD service area.
    - Restrict construction water use to non-potable water

- Implement more tiers in the rate structure to reflect the cost for purchase of imported water as a result of higher use.

BCVWD does not perform extensive main flushing or any hydrant flow testing. All water taken from fire hydrants is metered and billed.

Determining Water Shortage Reductions

10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

The District keeps historic and current pumping records on all of its wells. The imported water delivered by the Pass Agency is metered both by the Pass Agency/DWR Meter and BCVWD's own meter. All of the District's customers are metered. BCVWD's customer billing system retains customer water usage by billing period. Except for water used from hydrants to fight fires or water lost due to accidents breaking fire hydrants, all water taken from hydrants for construction, street sweeping, vactor trucks, etc. is metered. These records are used to determine seasonal and annual fluctuations in water use.

BCVWD can compare pumping records from one year to the next to determine actual reductions in water use. The District, through its billing system, is able to track historic and current use by service account and therefore track customer usage during a drought and evaluate the effectiveness of each conservation measure implemented under this plan.

Revenue and Expenditure Impacts

10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

Drought Rate Structures and Surcharges

BCVWD does not have a drought rate structure or surcharge in place at this time.

Use of Financial Reserves

Rather than identify the financial impacts of each prohibition on BCVWD's financial position, the impacts will be assessed on a "percent reduction in water demand" basis.

The District's current water rate structure includes a service (meter) charge (bimonthly, regardless of how much water is used), and a 2-tiered commodity charge per 100 cu ft of water used. In addition there is a power surcharge and an imported water surcharge per 100 cu ft of water used.

During times of drought, the revenue from the commodity charge and the power and imported water surcharges would be reduced by an amount equal to the water conservation effort. The meter charge would not be affected. But the reduction in water consumption will also reduce the power consumption needed to pump and produce water and reduce the need for imported water, essentially balancing out the reduction in surcharge revenue.

For 2016, the proposed budget estimated $2.6 million in fixed meter (service) charges and $3.79 million in water sales revenue including agricultural water sales and construction water sales (commodity charge). Water importation surcharges were budgeted at $1.75 million and SCE power surcharge at $1.55 million. So total "variable" revenue would be $7.09 million. The expenses budgeted for chemicals and treatment, electricity and imported water was $2.33 million. The fixed meter (service) charges would not be affected by a reduction in water sales. All of the other revenues and expenses would be.

It is important to note the 2016 budget was based on 8,700 AFY of water sales, which is about 10% less than year 2015 projected ending. So this already represents a conservative position.

Assuming a water reduction of 25% is required for a 2-month long-term interruption, the annual reduction would be (2/12) * 25% or 4.2%. The resultant loss in water sales revenue would be $298,000, i. e, 0.042 *$7.09 million; the reduction in chemicals, electricity and imported water purchase would be $98,000. The net would be an annual loss of revenue of $200,000.

A 50% reduction in water demand for a period of 1 month would result in a similar net annual revenue loss of $200,000.

The costs above do not include additional staff overtime that may be required providing notifications, production, publication, and mailing of notices; updates, water conservation messages, inspection and enforcement. An estimate of $25,000 for each "event" is reasonable to cover these costs. So the total annual impact could be in the $225,000 to $250,000 range.

If water reduction of another 10% on an annual basis were required, i.e., water sales at 7,900 AFY versus the 8,700 AFY budgeted, the impact would be a net loss of $476,000.

The BCVWD audited Financial Report for 2014 showed BCVWD with over $131.6 million in net assets of which $13.5 million was in unrestricted funds. The impact of a net $175,000 loss due to a water reduction of 25% over a 2 month period (or 50% for a 1 month period), or even another 10% reduction on an annual basis will not affect BCVWD's operation. The $476,000 is less than 4% of the District's unrestricted cash assets. As a result, no special action is needed.

Other Measures

BCVWD will be looking a performing a rate review in 2017. The last rate review was in 2010, and the Board of Directors established rates from 2010 through 2015. The 2015 rates are currently in effect. The financial analysis presented above was based on reduced consumption and the 2015 rates.

Resolution or Ordinance

10632(h) A draft water shortage contingency resolution or ordinance.

A draft water shortage contingency resolution is included at the end of this Section.

Catastrophic Supply Interruption

Water Shortage Contingency Planning

10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

Water supplies may be interrupted or reduced significantly in a number of ways –regional and local power outage, an earthquake that damages water delivery or storage facilities, or a contaminated well or water source. This section describes how BCVWD will meet the maximum day demands of their customers and their plans to respond to such emergencies so that emergency needs are met promptly and equitably. Table 8-4 presents the average day and maximum day demands for the period 2005 through 2035 based on BCVWD's maximum day/average day ratio of 2.0. The data was taken from BCVWD's 2015 Potable Water Master Plan and represents a very conservative approach to growth and does not consider any lingering water conservation effect. This provides the backdrop for the sub-sections to follow.

Table 8-4
Historic and Projected Average and Maximum Day Potable Water Demands
(source: 2015 Potable Water Master Plan)--(no conservation effect)

Year	Average Day Demand, AFY	Average Day Demand, mgd	Maximum Day Demand, mgd
2005	9,306[1]	7.4	17.0 actual
2010	11,023[1]	8.3	19.7 actual
2015	10,252[2]	9.2	15.3 actual
2020	14,753	13.17	26.34
2025	16,576	14.80	29.59
2030	18,674	16.67	33.34
2035	20,658	18.44	36.88
2040	22,483	20.07	40.14

[1] Total water demand since potable water used in non-potable system

[2] Total potable water demand and potable water into non-potable system

Regional and Local Power Outage

To meet emergency water needs BCVWD has both gravity storage and wells. Storage can provide for short term power outages; wells, equipped with standby generators or emergency power connections can meet longer term power outages.

Storage

The storage can provide short term water supply for regional or local power outage, i.e., a few hours to one day depending on the time of year and water demand. Approximately 24 MG (72.5 acre-feet) of gravity storage is available as listed in Table 8-5.

The reservoir storage capacity in Table 8-5 does not include the Twelfth and Palm Reservoir (0.4 MG). This serves as an equalization tank for the Twelfth and Palm Boosters. The almost 23.45 MG of gravity storage is more than 2.5 x maximum day based on 2015 conditions. Considering the vast amount of water storage in the Beaumont Basin aquifer, the need for large amounts of above-ground gravity storage is not warranted– provided, of course, there is adequate well capacity to meet the maximum day demands. BCVWD has such well capacity on standby power or capable of being connected to portable standby generators.

Table 8-5
Gravity Storage Reservoirs in BCVWD System

Available Reservoirs	Total Aboveground Storage (MG)	Total Aboveground Storage (AF)
Upper Edgar	0.75	1.5
Lower Edgar	1.0	3.1
Noble & Highland Springs	3.0	9.2
Vineland I, II & III	5.5	18.5
Cherry I,II, and III	4.1	12.3
Taylor	3.9	12.0
Hannon (2650 Zone)	5.0	15.3
3900 Zone (not yet operational)	0.2	0.6
TOTAL	23.45	72.5

Wells

Wells equipped with emergency power or emergency power connections can supply up to a maximum of 14,880 gpm, or 65.7 acre-feet per day (AF/day) or 21.4 mgd and assumes all wells in service. See Table 8-6. This capacity only includes BCVWD's share of the joint wells with the City of Banning. (If there was a regional power outage, the City of Banning would likely need water too, and would rely on their share of the well capacity.)

The District has three portable generators. The portable units have the capability of running up to 50, 350 and 550 horsepower (hp) motors respectively.

BCVWD's wells with standby power or standby power connections can provide water to meet the maximum day demand to the year 2018 assuming all wells with standby power or standby power connections are in service and growth occurs as projected. With conservation, the wells should have capacity to beyond 2020. So a local or regional power outage should have little or no impact. If, however, Well 29, BCVWD's largest well, is out of service for any reason due to mechanical failure, BCVWD will only be able to supply 15.4 mgd and will not be able to meet the maximum day demand during a regional power outage of extended duration. During such an event, water use, e.g., irrigation, will have to be restricted. It should be noted that 15.4 mgd **will** be able to supply an average day to well beyond the year 2035; so the impacts of a regional power outage will depend on the time of year.

BCVWD has plans for the rehabilitation/replacement of Well 2 which should boost capacity by 1,500 gpm (2.2 mgd) or more. This well should be equipped with a generator or standby power connection. As other wells are constructed, they should have standby power to provide back-up and reliability.

Pressure Zone Transfers and Boosting

BCVWD is able to move water between pressure zones through pressure regulators and booster pumping stations. Except for the Cherry Yard Boosters (21A, 21B and 21C), which are used regularly, the other boosters are usually used only for emergency transfers when gravity transfer from higher pressure zones cannot be made.

Boosters 21A and 21B which pump from the Cherry Reservoir (2750 Zone) to Noble Reservoir (3040 Zone) have transfer switches so a portable generator can be connected. Booster 21C has a natural gas driven pump that has a capability of pumping 1,500 gpm from the Cherry reservoir (2750 Zone) to the Noble reservoir (3040 Zone).

Table 8-6
BCVWD Wells with Standby Power or Connections for Standby Power

Well No.	Location	Total Capacity		Remarks
		GPM	AF/Day	
12	Upper Edgar Canyon	130	0..6	Auxiliary engine drive
14	Upper Edgar Canyon	200	0.9	Portable generator connection
6	Middle Edgar Canyon	250	1.1	Portable generator connection
4A	Lower Edgar Canyon	300	1.3	Portable generator connection
16	BSU (Vineland)	800	3.5	Portable generator connection
21	BSU (Cherry Ave)	2,100	9.3	Portable generator connection
22	BSU (Michigan Ave)	1,700	7.5	Portable generator connection
23	BSU (Recharge Site)	2,700	11.9	Standby Generator
24	BSU (Brookside)	1,250	5.5	Standby Generator (only BCVWD's Share of Capacity Shown – total = 2500 gpm)
25	BSU (Starlight)	1,250	5.5	Standby Generator (only BCVWD's Share of Capacity Shown – total = 2900 gpm)
26	BSU (Snapdraggon)	825	3.6	Standby Generator (only BCVWD's Share of Capacity Shown – total = 1650 gpm) Pumps to Potable and Non-potable System
29	BSU (Sunny Cal Egg)	4,000	17.7	Standby Generator
Total Wells with Standby Power or Standby Power Connections		15,505	68.4	22.3 mgd capacity
Total Wells with Standby Power or Standby Power Connections with Well 29 out of service and 26 to Non-potable System		10,680	47.2	15.4 mgd capacity
Total All Wells incl. Edgar Canyon		18,935	83.7	27.3 mgd capacity

There is an emergency booster at the Well 4A site with a 100 hp motor; which is rated at 500 gpm and can boost water from the 3040 Zone to the Upper Edgar Tank (3620 Zone), BCVWD's

highest active pressure zone. In addition, the 50 hp Noble Tank Booster, which has a rated capacity of 500 gpm, can boost water from the 3040 Zone to the 3330 Mesa Pressure Zone.

Stationary backup generators with automatic transfer switches were installed at the headquarters building and at Highland Springs Hydropneumatic system.

Summary

BCVWD is well positioned with a combination of ground storage, wells with standby power or standby power connections and pressure zone boosters to weather extended local or regional power outages. If BCVWD's largest well is out of service for mechanical reasons and demands are high due to climatic conditions, there will be a need to initiate water restrictions to reduce the demands.

As population increases as projected, additional well capacity will be needed to keep pace with the maximum day demand. New wells will be equipped with standby power generators.

Earthquake or Other Natural Disasters

BCVWD Facilities

The San Andreas Fault passes through the San Gorgonio Pass area about 8 to 10 miles north of the center of BCVWD's service area. If a major earthquake were to occur along the San Andreas Fault in the Pass area many of the BCVWD's facilities could be affected.

The Cherry Tanks, Upper Edgar Tank, Taylor Tank, the Vineland Tanks and the Hannon Tank are all equipped with flexible connectors (EBBA Iron Flex-tends) for movement during an earthquake. Upper Edgar, Cherry Tank III, Vineland II and III, and Taylor Tank are all anchored to their ring wall foundation and have been designed to resist seismic shaking. These are all relatively new tanks constructed since year 2000 and designed and constructed to recent AWWA standards. These tanks should be capable of resisting significant earthquake shaking. BCVWD's other tanks were designed according to AWWA standards in effect at the time they were constructed; but over time the design standards have improved and become more stringent. The greatest vulnerability will be with the older steel tanks.

Experience with other earthquakes, e.g., Landers, magnitude 7.3 (1992), has shown steel water tanks survive but do suffer some minor structural damage. Observations of some of the water tanks showed the inlet/outlet piping sheared off and some "elephant footing" of the side wall occurred but the tanks remained intact. This is what would be expected with BCVWD's older tanks. The newer tanks should survive with little or no damage. The older tanks should be able to be put back into service within a week, if not sooner.

Wells and well pumps could be damaged during a very severe earthquake but they should be able to be returned to service within a month depending on the availability of replacement parts and equipment to repair the pumps.

Piping breaks could be expected to occur, but these can be repaired fairly quickly. BCVWD has an inventory of repair clamps, fittings and pipe as well as staff and equipment to make these repairs.

BCVWD has also constructed emergency "interties" at various locations along Highland Springs Road so that water can be supplied in either direction between the City of Banning and BCVWD.

Another threat is fire in the watershed which could cause damage to wells in Little San Gorgonio Canyon (Edgar Canyon). A severe fire could damage and make inoperable some or all of the eleven active wells in the canyon. Damage could occur to power and telemetry poles, electrical panels, pump house roofs etc. If all of the wells in Edgar Canyon were put out of service, BCVWD would lose about 2.2 mgd (or about 8 percent) of its well capacity. This can be made up by the Beaumont Basin wells; so the impact from a water supply standpoint would be minimal. In this case there would be a financial impact since the replacement water from the Beaumont Basin would be more costly to pump.

Each well is in a concrete masonry block building, but the roof and electrical power lines/poles are vulnerable to fires. A severely burned watershed could present a problem if heavy rains cause mud and debris flows that make access into the canyon difficult. One of the largest fires in the District was the Repplier Fire 11/2/1993 to 11/4/1993 which burned 8,000 acres and caused 2,000 people to be evacuated from Cherry Valley[1]. The cause was determined to be arcing power lines. No District facilities were impacted though the fire did surround the District's "middle houses." No water supply outages occurred. In fact the fire fighters relied on BCVWD water supply facilities to fight the fires.

The bulk of the watershed where the wells are located is owned by BCVWD. BCVWD rigorously controls entry which minimizes the fire danger; but the threat is always there. BCVWD has established procedures for fires in the watershed with a number of the staff actually experiencing them in the past.

Imported Water Interruptions

The SWP California Aqueduct could be interrupted for a number of reasons including:

- Earthquake or extremely high floods destroying levees in the Sacramento-San Joaquin Delta
- Earthquake damage to the aqueduct or any of its major pumping stations
- Subsidence/slippage/flooding of the aqueduct

[1] The Southland Firestorm: Week 2: Latest Southland Fires (1993). Los Angeles Times, Cecilia Rasmussen, researcher, Nov. 3.

Levee Destruction

The U.S. Geological Survey indicated a 63 percent chance of a magnitude 6.7 quake in the next 30 years in the Bay/Delta Area. A 6.7 quake could create a collapse of the 100-year-old levees that channel Delta water, causing saltwater to flood in (dam break in reverse) and contaminate the supply [2] A seismic event creating levee breeches could create an outage of 1 to 2 years[3] A report by the U.S. Department of the Interior, indicated a large earthquake with significant levee breaches could cause disruption in the water supply for 28 months.[4] Based on this, it is not unreasonable to assume the SWP would not be delivering water for at least 2.3 years or say 2.5 years minimum.

Land subsidence in the Delta has been on-going since the 1800s as the peat soil dries and oxidizes. The land subsidence creates increased water level differences and increased water pressures on the levees which increases the risk of breach from causes other than seismic events.

Since 1900 there have been 163 levee breaches which flooded 114 islands. Fifty-one of the breaches have occurred since 1970 about the time the SWP began operation and Oroville Dam was constructed. One levee break occurred in 2004 at the Jones Tract. The cause of the failure was unknown. It happened in June and took about 1 month to "seal" the breach and almost six months to pump out the flooded island.[5] These breaches have not caused significant disruption in the SWP delivery up until now.

Climate is always changing which will bring its own stresses on the Delta levees. Sea level rise will exacerbate the water level differential over time, increasing hydrostatic pressures on the levees. Climate changes will affect the hydrologic response of the Sacramento-San Joaquin River watersheds resulting in higher peak flows and less snowmelt. This will mean higher peak

[2] SCWC (Southern California Water Committee) Blog (2012). April is Earthquake Preparedness Month in California--Time to Protect California's Water Supply from a Quake, Richard Atwater, April 12.

[3] Jack R. Benjamin and Assoc. in assoc. with Resource Management Associates and Economics Insight (2005). Preliminary Seismic Risk Analysis Associated with Levee Failures in the Sacramento – San Joaquin Delta. Prepared for California Bay-Delta Authority and California Department of Water Resources (June)

[4] US Dept of Interior (undated). Anticipating California Levee Failure: Government response strategies for protecting natural resources from freshwater oil spills, Office of Environmental Policy and Compliance, Region IX, prepared by: Melissa Blach, Karen Jurist, and Sara Morton

[5] DWR (undated). Levee Failures in the Sacramento-San Joaquin Delta, Water Conference Poster, prepared by URS Consultants.

flows earlier in the season than the levees have historically experienced. This in combination with sea level rise will cause increased water pressure on the levees.[6]

In summary, climate change, subsidence, and aging levees will increase the risk of levee breach and the "Jones Tract" experiences can be expected to become more frequent and more severe. However, these should be less catastrophic than a significant seismic event causing an outage of supply due to numerous levee breaches and salt water intrusion shutting down deliveries for as much as 2.5 years or perhaps longer.

Aqueduct or Pump Station Damage

The California Aqueduct could be ruptured by displacement on the San Andreas Fault, and supply may not be restored for a three to six week period or perhaps even longer. The situation would be further complicated by physical damage to the pumping equipment of the electrical switchgear. These repairs could take a number of months depending on the severity.

One of the SWP's important design engineering features is the ability to isolate parts of the system. The Aqueduct is divided into "pools." Thus, if one reservoir or portion of the California Aqueduct is damaged in some way, other portions of the system can still remain in operation and supply water. For example, if the Banks Pumping Plant in Tracy were to be out of service or the aqueduct out of service between Banks Pumping Plant and San Luis Reservoir, water could be delivered into the East Branch from water stored in San Luis Reservoir or Silverwood Reservoir. Similarly if the Edmonston Pumping Plant or the aqueduct either upstream or downstream of Edmonston Pumping Plant were out of service, water to the East Branch could be delivered from water stored in Silverwood Reservoir.

If however, there was damage to the Devil Canyon Power Generating Station or the penstocks leading to it, the East Branch Extension bringing water to the Pass Water Agency would be out of service. The length of service outage could be 6 months or more depending on the severity.

Aqueduct Subsidence, Slippage and Flooding

The Aqueduct is subject to damage from a wide variety of causes. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Banos), and various subsidence repairs needed along the East Branch of the Aqueduct since the 1980s. All these outages were short-term in nature (on the order of weeks), and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation while repairs were made. Thus, the SWP contractors experienced no significant

[6] Lund, J. et. al. (2007). Envisioning Futures for the Sacramento-San Joaquin Delta, Public Policy Institute of California.

interruption in deliveries.[7] These events would not have a significant impact on water deliveries to the Pass Agency assuming there is adequate storage in Silverwood Reservoir.

Summary

In the event of a major catastrophe which caused an outage of the State Water Project for an extended period of time, e.g., a year or more, BCVWD would be relying on its own Beaumont Basin storage account to make up the difference. In the event the outage is long enough to deplete the District's storage account, BCVWD could request Watermaster to temporarily waive the need for immediate replenishment and give permission to draw on the Basin. There is over 2 million acre-ft of water in storage in the basin, and short term "mining" will have little impact on the overall water levels in the basin. In this event, BCVWD would begin to implement some water use restrictions. BCVWD is in a unique position that interruptions in supply can easily be accommodated.

Water Supply Contamination

Contamination of BCVWD's water supply could occur as a result of past or current industrial/commercial operations, old dumps and landfills, on-site wastewater disposal systems, cross-connections, vandalism or terrorism. A cross-connection or bacteriological contamination would be the most serious and require immediate action once detected. The actions that are to be taken and the required notification procedures are in the BCVWD's Emergency Response Plan (ERP). The ERP was developed in 2004 and most recently updated in 2011. It is currently (2016) being reviewed and adjustments are made as needed.

Past Industrial/Commercial Operations etc.

Lockheed Martin Corporation[8`]

Lockheed Martin Corporation used two remote sites near Beaumont, Calif., to test solid rocket propellant and motors, weapons, and ballistics. Contamination related to these operations has been identified at both sites—Potrero Canyon and Laborde Canyon. Although the sites are owned or managed by entities other than Lockheed Martin today, Lockheed Martin has assumed responsibility for environmental cleanup at both locations.

The Potrero Canyon site is south of Beaumont and not overlying any of the Beaumont Basin. BCVWD is not extracting any groundwater from this area. Laborde Canyon is located

[7] Kern County Water Agency (2010). Urban Water Management Plan Update.

[8] http://www.lockheedmartin.com/us/who-we-are/sustainability/remediation/beaumont.html Accessed 09052012

southwest of the City of Beaumont in the San Timoteo Badlands and also does not overly the Beaumont Groundwater Basin.

Other Contaminated Sites

The Regional Board's Geographic Environmental Information Management System (GEIMS/GeoTracker) was reviewed for contaminated sites in the BCVWD service area. There are 3 "open" sites in Beaumont; two are in the remediation phase; one is in the site assessment phase. There are 8 "closed" sites which means the Regional Board has approved the remediation or the site was not considered to need remediation. There were 4 sites identified in Cherry Valley; all have been closed.

On-site Wastewater Disposal Systems

BCVWD has been monitoring the nitrate concentration in its wells over the years and has noticed a gradual increase in some wells. At this point in time, no wells are shut down because of nitrate contamination.

The University of California Riverside (UCR), under contract with the SWRCB, conducted a water quality assessment of Beaumont Management Zone with the specific objective of looking at nitrate contamination from on-site wastewater disposal systems.[9]

Forty wells and 11 surface water sites were sampled and analyzed in the UCR study. In the central part of the BMZ, i.e., generally in Cherry Valley, several wells "showed clear signs of contamination by septic systems. The groundwater within the central part of Cherry Valley appeared to be more strongly affected by septic systems than groundwater on the periphery of Cherry Valley. Several wells had measureable concentrations of pharmaceuticals and personal care products (PPCPs) and major anions and cations suggesting septic waste was entering the groundwater system.[10]"

Figure 8-1 shows historical trends in the nitrate concentrations in the BCVWD's wells; wells 1, 16 and 21 are in the Beaumont Basin; wells 4 and 5 are in lower Edgar Canyon.

[9] Univ. of California Riverside (2012). Final Report: Water Quality Assessment of the Beaumont Management Zone: Identifying Sources of Groundwater Contamination Using Chemical and Isotope Tracers. SWRCB Agreement No. R*-2010-0022, Department of Environmental Sciences, Riverside, CA 92521, Feb 3.

[10] Ibid, pg 27

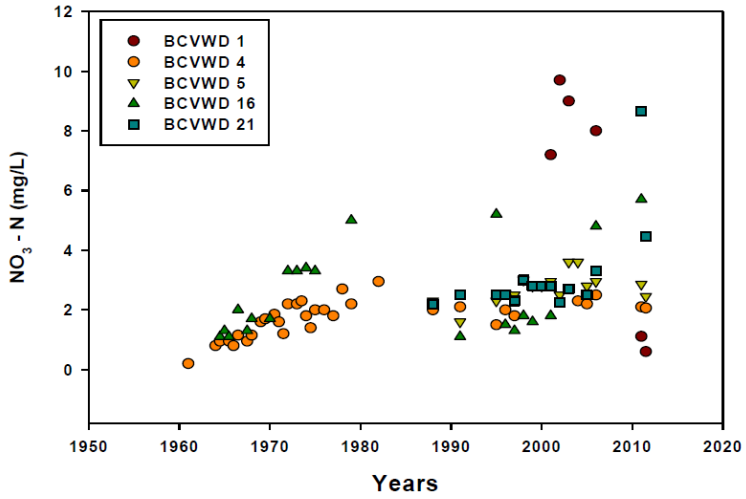


Figure 8-1
Historical Trends in Nitrate-N Concentration in Selected BCVWD Wells11
(MCL for NO3-N = 10 mg/L)

BCVWD has been able to deal with the nitrate concentrations by blending with other lower nitrate source waters when it has become an issue. The last time was in 2006-07 when the District was required by CDDW to monitor nitrate concentration in Well 16 and the 2850 zone reservoir on a regular basis. It is believed that the nitrate incidents may occur again. At some point in time it may be necessary to either install well-head treatment for nitrate removal (ion exchange or reverse osmosis) if blending alone cannot mitigate the problem. If the problem gets worse, sewers may need to be installed in the more densely developed portions of Cherry Valley.

Vandalism and Terrorism

Vandalism and terrorism-related contamination are remote possibilities; nevertheless they could occur. BCVWD has installed intrusion alarms on its new well pump buildings and reservoirs and other critical facilities. Cameras have been installed at the District headquarters and elsewhere. Vandalism has not been a cause for concern in the past; terrorism can be cause for concern; however, BCVWD did have a Vulnerability Assessment and Emergency Response Plan prepared as required by the US EPA after 9/11/2001 attacks. The Vulnerability Assessment is a sensitive document and is kept confidential on file with BCVWD's Director of Operations. The document outlines steps and procedures to be implemented to prevent or minimize terror incidents.

[11] Ibid

BCVWD Actions Needed During Water Supply Interruption

BCVWD has a water system Emergency Response Plan which is reviewed annually. It was last updated in May 2011 and is currently under review. This ERP identifies the actions to be taken, emergency reporting stations, notification and alert process, and procedures for various emergencies. These actions will not be repeated here.

Impact of Local Interruptions of Supply, Vandalism and Terrorism

BCVWD has its own field crews, equipment and materials to respond promptly and make emergency repairs to the water system should vandalism occur. Several of BCVWD's operations staff live on District property in Little San Gorgonio Canyon and so are able to respond to emergencies quickly. There is always an on-call staff person. Operations staff can "poll" the telemetry system remotely with laptop computers to make adjustments and identify problems. When an interruption occurs, such as a pipeline main break, BCVWD staff will immediately respond and isolate the main and stop the leak. That is their first duty. They then assess the situation and determine what needs to be done next. Time permitting they will notify the affected customers of the outage and its expected duration.

BCVWD's Emergency Response Plan contains the procedures to be followed and the required notification process when cross-connections, bacteriological contamination, or other emergency action is required by the CDDW.

The ERP provides specific details on dealing with terror attacks on the water system. This is confidential.

Impact of Longer Term Aqueduct Interruptions

As stated previously, BCVWD is fortunate to have the Beaumont Groundwater Basin available to meet demands even during extended periods of imported water supply outages. BCVWD has an 80,000 AF authorized storage account. As of December 31, 2015, BCVWD's storage account had a balance of 25,568 AF[12]. At the current demand (2015) of about 6,100 AFY for imported water, the amount of water presently in storage is sufficient to meet BCVWD's imported water demands for about four years even if no imported water is available. (Note this does not include the District's additional demand for imported water banking.)

Outage Due to Contamination

Well outage due to contamination, not terrorism-related and not bacteriological, typically occurs gradually. Because of regulatory testing, these problems are identified quickly and appropriate action is taken in accordance with the District's Emergency Response Plan.

[12] 2015 Annual Report (2016). Beaumont Basin Watermaster, Draft, August.

The most serious incident in the past occurred at Wells 1, 16 and 21 where nitrate spiking occurred. Well 1 pumps into a small reservoir at 12th and Palm Avenue which receives water from another well (Well 3 and ultimately Well 2 when it is put back into service). Both Wells 2 and 3 are low in nitrate, so the nitrate spike can easily be blended down to meet the MCL before it is introduced into the distribution system by the 12th and Palm Boosters. Well 16 and 21 pump into a reservoir (Vineland and Cherry respectively). These reservoirs receive water indirectly from a number of other low nitrate wells. Blending is carefully monitored to ensure there is ample low-nitrate water in the reservoir to meet the MCL. So far this has not been an issue and the system blending has complied with CDDW requirements. If these wells increase in nitrates, blending may not be a solution and treatment will be required.

On July 1, 2014 the SWRCB DDW established an MCL for hexavalent chromium (Cr+6) at 0.010 mg/L (10 µg/L). The first step in the implementation was sampling of the District's wells. Amounts just over the MCL were detected in several wells. This hexavalent chromium is due to natural causes. In response to state-mandated hexavalent chromium testing, Well 25 was rehabilitated and Well 26 was modified to pump to the non-potable water system in lieu of providing wellhead treatment at this time. In the future, well head treatment may be installed.

Actions taken during outages due to cross-connection or bacteriological contamination are in the Emergency Response Plan and were discussed above.

Advisory Reductions for Short-term Interruptions

A short-term interruption could result in district-wide water shortage, e.g., several major production wells out of service for maintenance, bacteriological contamination etc., or a localized water shortage, e.g., transmission main break, reservoir out of service, etc. In the latter case, reduction in demand would only be required in a small (localized) portion of the service area.

Localized Interruption

If the interruption is localized, BCVWD staff would typically go "door to door" in the affected area notifying the affected customers of the interruption and the estimated time to get the water supply "back to normal." The purpose is to request the customers to voluntarily reduce their water use until the situation can be remedied. Staff will suggest that they do the following:

1. Avoid watering lawns, washing cars (except at commercial car washes), and filling or adding make-up water to swimming pools
2. Minimize use of water using appliances, e.g., automatic washing machines and dishwashers, i.e., full loads only.
3. Use water wisely within the house, shorten showers, minimize faucet running time, etc.
4. Stop using water from hydrants for construction and dust control

5. Reduce park, school and street median landscape watering to the minimum needed to sustain plant life.

Once the short term emergency is over, BCVWD staff will again notify the customers that the water supply is "back to normal," thank them for using water wisely and encourage them to continue to do so.

District-wide Interruption

If the interruption is District-wide, individual customer notification is not practical. A more extensive outreach program is needed.

BCVWD management will notify the District's Board of Directors, City of Beaumont elected officials and management, and the Riverside County Supervisor whose district covers the service area of the District-wide interruption, as appropriate. In addition BCVWD will notify the newspapers, e.g., Riverside Press-Enterprise, Banning Record Gazette, etc., cable TV provider (Time Warner), and local radio stations in Riverside, San Bernardino, and the Coachella Valley, including the Spanish language stations In addition a notice will be posted on the BCVWD website.

Consumers will be urged to conserve water by taking the steps listed above for a localized interruption. Once the short term emergency is over, BCVWD staff will again notify all of the local elected officials, newspapers and cable TV and radio stations that the water supply is "back to normal," thank them for their conservation efforts and encourage customers to continue to use water wisely.

Minimum supply Next Three Years

§10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

Table 8-7 (DWR Table 8-4) presents a summary of the water supply available over the next 3 years (2016, 2017, and 2018). Table 8-8 provides the back-up for Table 8-7.

Table 8-7
(DWR Table 8-4) Minimum Water Supply Next Three Years (2016 – 2018)

DWR Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	13,826	9,650	4,508
NOTE: 2016 based on BCVWD receiving 9,870 AF per SGPWA email. Year 2017 and 2018 assumes 35% and 5% SWP Allocation as used in Stress Test. SPW amounts per SGPWA for Stess Test Analysis.			

Table 8-8
Minimum Water Supply Available Next 3 Years

	YEAR		
	2016	**2017**	**2018**
DEMAND			
Potable Water Demand, AFY	11,110	12,020	12,930
Non-Potable Water Demand, AFY	1,410	1,530	1,660
Recycled Water Into Non-potable System, AFY	-	-	775
Total Water Demand Supplied from Groundwater, AFY	12,520	13,550	15,365
SUPPLY			
Groundwater			
Edgar Canyon, AFY	1,117	1,117	1,117
Beaumont Basin, AFY	2,839	2,791	2,826
Imported SPW,AFY	9,870	5,742	565
Subtotal Supply, AFY	13,826	9,650	4,508
From (to) Banked Beaumont Basin Storage, AF	(1,306)	3,900	10,857
BCVWD Beaumont Basin Storage Account Balance, AF	26,874	22,974	12,117

The assumptions in Table 8-8 are:

- The non-potable water system is supplied by non-potable water from the Beaumont Basin. Non-potable water extractions from the Beaumont Basin are assumed to be considered as extractions from BCVWD's storage account.
- The Edgar Canyon extractions represent the smallest 3-year moving average of pumping from 1983 through 2015.
- For the SPW supply for 2016, the allocation to each Contractor is 60%; so the Pass Agency will receive 60% of 17,300 AFY, their Table A amount, or 10,380 AF. Communication from SGPWA indicated BCVWD would receive 9,870 AF for 2016[13]. For the succeeding years, the allocation will follow the period 2013 (35%) and 2014 (5%) as assumed in BCVWD's Self-certification provided to DWR in response to the Drought Emergency Water Conservation directive. These amounts, (5,742 AFY and 565 AFY), were provided to BCVWD by SGPWA.
- Recycled water delivery is assumed to start in 2018.

[13] Email. J. Davis GM SGPWA to E. Fraser, GM BCVWD, April 26, 2016.

- Banked storage in BCVWD's account at the end of 2015 was 25,568 AF.[14]
- An increase in demand of 22.7% from 2016 to 2020.
- Beaumont Basin available groundwater is determined by Watermaster based on a projection of reallocation of unused overlier rights.[15]

The result shows that BCVWD will still have over 12,000 AF in storage at the end of 2018. Even if recycled water has not started, there will still be over 11,300 AF in storage. With some conservation, there will be even more water remaining in storage. This is close to a 1-year supply.

Reconciliation with Self-certification Report

BCVWD submitted a Self-certification Report to DWR in response to the Drought Emergency Water Conservation directive. The Self-certification Report covered the 3-year period 2017 through 2019. The assumptions in the Self-certification Report were slightly different that in Table 8-8. In the Self-certification Report:

- The water was the average of 2013 and 2014 demands demand and remained constant for the 3-year period rather than increasing as in Table 8-8.
- Edgar Canyon supply was the average of years 2013 through 2015 as opposed to the minimum 3-year moving average used in Table 8-8.
- BCVWD did not include any recycled water.
- The reallocated unused overlier rights were based on the 2014 Watermaster Annual Report vs. the 2015 Watermaster Annual Report in Table 8-8.
- The amount of water in banked storage in January 2017, the start of the Self-certification Report evaluation, was estimated to be 27,576 AF.
- The amount of groundwater in banked storage at the end of the 3-year Self-certification period was 16,831 AF

The analysis presented in Table 8-8 represents a more severe drought analysis although in either case, BCVWD has water, in storage, even after the extension of the drought.

[14] Beaumont Basin Watermaster (2016). 2015 Annual Report – Draft., August

[15] Ibid

DRAFT

RESOLUTION _____

**RESOLUTION OF THE BOARD OF DIRECTORS
OF THE BEAUMONT CHERRY VALLEY WATER DISTRICT
WATER SHORTAGE CONTINGENCY REGULATIONS**

The Board of Directors of the Beaumont Cherry Valley Water District (District) does hereby resolve:

WHEREAS, the Urban Water Management Plan (UWMP), 2015 Update, adopted by the Board contains provisions relating to water shortages and contingencies due to catastrophic outage of state, regional and District supply facilities, hydrologic conditions resulting in lower than normal water supply or other factors which prevent the District from providing as much water as is customary; and

WHEREAS, the District endeavors to supply water in sufficient quantities to protect public health; and

WHEREAS, the District has established four stages of action in the UWMP 2015 Update which impose both voluntary and mandatory reductions in water use depending on the severity of the shortage,

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the District as follows:

1. The General Manager is hereby authorized to declare a Water Shortage according to the Water Shortage Contingency Plan in the UWMP 2015 Update
2. The General Manager is hereby authorized and directed to implement the various stages identified in the UWMP 2015 Update
3. The General Manager shall monitor water use and recommend to the Board of Directors additional measures as may be required to conserve water resources and ensure public health.

ADOPTED this _____

BEAUMONT CHERRY VALLEY WATER DISTRICT

_____

President of the Board of Directors of the
Beaumont Cherry Valley Water District

Section 9

Demand Management Measures

The goal of this Demand Management Measures (DMM) section is to provide a comprehensive description of the water conservation programs that BCVWD has implemented, is currently implementing, or plans to implement in order to ensure its customers use water wisely and the District meets its urban water use targets. During the period May 2015 through April 2016, BCVWD was able to reduce water consumption by 24% from the same period in 2013; but this was still below the target value of 32%. This was accomplished with two days per week landscape irrigation and Stage 2 water restrictions.

The section on the California Water Code (CWC) addressing DMMs was significantly modified in 2014 to simplify, clarify and update the DMM reporting requirements. This was done by reducing the 14 specific measures in previous UWMPs to 6 more general requirements plus an "other" category.

Demand Management Measures for Retail Agencies

CWC 10631

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

CWC 10631

(f)(A)…The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

Water waste prevention ordinances.

Metering.

Conservation pricing.

Public education and outreach.

Programs to assess and manage distribution system real loss.

Water conservation program coordination and staffing support.

Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

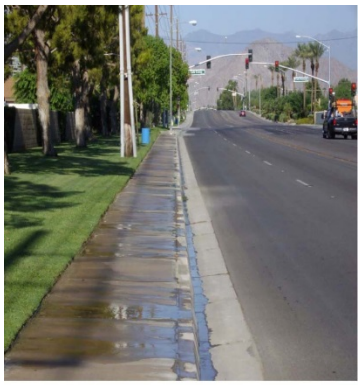
Water Waste Prevention Ordinances

Section 9.6 of the District's Rules Governing Water Service states the following:

> *It is a violation of these Regulations:*
>
> *3) To cause or permit the waste of water from the water system or to maintain or cause or permit to be maintained any leaky outlets, apparatus or plumbing fixtures through which water is permitted to waste;*
>
> *4) To use water for washing sidewalks and driveways in a manner that prevents the usual and customary use of public streets and sidewalks by others;*
>
> *5) To permit water sprinklers to spray onto sidewalks and streets or to permit water to run from the consumer's property onto public sidewalks and streets to cause risk and/or damage to the public or to public and private property;*

Section 15 of the District's Rules Governing Water Service states the following:

> *No person, firm or corporation shall use, deliver, or apply waters received from this District in any manner that causes the loss, waste, or the application of water for unbeneficial purposes. Within the meaning of this Regulation, any waters that are allowed to escape, flow, and run into areas which do not make reasonable beneficial use of such waters, including but not limited to streets, gutters, drains, channels, and uncultivated lands, shall be presumed to be wasted contrary to the prohibitions of these Rules and Regulations.*



The Regulations for Water Service have a series of warnings/penalties. The first notice is a written warning; the second offense results in a doubling of the water charges until full compliance is attained. After the third offense, the District can terminate water service to the customer.

BCVWD Board of Directors adopted Resolution No. 2016-05 implementing new water use restrictions. The new resolution prohibited, among others:

- Use of potable water on driveways and sidewalks
- No washing of cars unless the hose had an shutoff valve
- Serving of water to restaurant guests unless specifically requested
- No irrigation within a rain event or 48 hours afterwards
- Giving hotel/motel guests the option of reusing their own towels
- No fountain use except recirculating type

In addition the District set up a "water waster hotline" which would accept anonymous calls. Customer Service Representatives would respond to these calls and request one of the District's operations staff to investigate. Calls were taken for leaks, water running in gutters, etc.

Implementation: The District already has the ordinance in place. Also, recycled water shall be used wherever available.

Metering

> ***CWC 526***
>
> *Notwithstanding any other provisions of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract... shall do both of the following:*
>
> *On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings... located within its service area.*
>
> ***CWC 527***
>
> *An urban water supplier that is not subject to Section 526 shall do both the following:*
>
> *Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.*

All of BCVWD's services are metered. This includes all residential, commercial/retail, industrial, institutional and landscape irrigation connections. In addition BCVWD meters construction water taken from hydrants and street sweeping and vactor truck water. On-site fire services are metered to prevent theft. BCVWD has a regular program of replacing meters. Meters are read every other month; landscape and other high volume users are read monthly.

BCVWD had some Automatic Meter Reading (AMR) systems installed when they first came available. These are now in the process of being replaced on a gradual basis with newer, more effective AMR devices. These can be very effective at identifying leaks at the customer service side and reduce meter reading time.

Implementation: This is already in place with AMR starting to be installed.

Conservation Pricing

BCVWD has rate schedule (effective 1/1/2013) that includes a:

- Service (meter) charge which depends on the size of the meter. The larger the meter, the larger the bi-monthly service charge
- Commodity charge which is two tiered. For single family residences from 0 – 44 HCF and greater than 45 HCF. The unit price for water use over 45 HCF is a little over 9% more than the unit price from 0 to 44 HCF. For multi-family residential, the first block rate is from 0 – 35 HCF; the second is over 36 HCF. The unit price for the second block rate is about 2% more than the first block rate. This accounts for the generally lower family incomes in multi-family residences.
- SCE Power Charge per HCF to cover a portion of the cost of pumping power. This is applied to all water sold.
- State Project Water Charge per HCF to cover the cost of importing SPW.

Implementation: BCVWD will be evaluating its rate structure late in 2016 or earl 2017 to eliminate non-conserving pricing structures and consider including additional tiers for more incentives.

Public Education and Outreach



BCVWD provides water conservation literature in the lobby where customers pay their bills or enter for District Board Meetings. The District's web site http://www.bcvwd.org/tips.html has over one hundred water conservation tips. In addition the District constructed its own demonstration water conservation garden that is open 24/7 at the District's groundwater recharge facilities. Many of the plants are identified. There are marked trails and pathways through the garden and picnic tables and barbecue pits. The public is free to enjoy the gardens anytime. An annual fishing derby is held at the site in cooperation with the Parks and Recreation District.

All new customers requesting water service are told about water conservation and water restrictions by the customer service representatives.

The District presently does not make a special effort to promote water conservation at local schools. District staff are available on an "as requested" basis to explain the benefits of water conservation and its importance on the community.

Implementation: The public information programs are ongoing and information is provided as needed. District staff may consider coordinating with School District staff, events where information packets on water conservation and water savings techniques can be distributed to students. Once recycled water is provided to the schools, BCVWD will be much more active with the schools as part of the on-site inspections and working with the school's on-site recycled water site supervisor. This could evolve into a regular presentation to all entering freshmen and transfer students to educate them in the recycled water system and the need for water conservation programs.

Programs to Assess and Manage Distribution System Real Loss

Much of the BCVWD water system is new having been installed within the last 15 years or so with the housing boom. Older leak-prone lines are replaced; BCVWD has developed and funded a Capital Improvement Program to replace aging and leaking pipes over the next 5 to 19 years. Water distribution lines are routinely checked and/or tested for leaks; when leaks are found they are promptly repaired.

BCVWD annually performs a distribution system water audit comparing the amount of water produced from wells to the amount of water used by consumers (as reported by metering readings). The District meters construction water and private fire systems. Very little water is unmetered. After allowing for authorized unmetered uses such as fire fighting, main flushing, and public use, it can be assumed that the remaining unmetered water is explained by inaccurate meter readings, malfunctioning valves and leakage, and theft. The District has very little unaccounted-for or non-revenue water.

To save water, the District does not perform hydrant flow testing. Fire flow verification is performed on the District's calibrated computer model.

Implementation: The District has an ongoing schedule to inspect facilities and periodically calibrate master water meters. The District has already implemented leak detection measures. Water system audits are generally done at least once a year

Water Conservation Program Coordination and Staffing Support

The District presently does not have a designated conservation coordinator. All conservation and water use restriction information is provided by the District's Customer Service Representatives. BCVWD has been operating at reduced staff levels to keep expenditures to a minimum so that water rates do not have to be raised. During these economic times, it is very difficult to justify such a position when BCVWD staff has been reduced to a minimum.

Implementation: The District is a small agency and funding a full time water conservation coordinator would have significant financial impacts – perhaps as much as $5 per household per year for just salary and benefits. The District will investigate opportunities regionally through the Pass Agency.

Both Beaumont and Cherry Valley have been classified by the Santa Ana Watershed Project Authority (SAWPA) as disadvantaged or partially disadvantaged communities so it is important to keep rates as low as possible.

Other Demand Management Measures

Conversion to Recycled Water. Currently there are about 300 landscape irrigation connections connected to a non-potable (untreated and recycled) water system. The District has installed over 30 miles of recycled water transmission mains and a 2 MG reservoir for recycled water. The system is separated such that one part (larger part) is currently served by non-potable water Well No. 26, supplemented as needed by potable water discharged through an air gap into the 2 MG reservoir.

The portion of the system with is south of I-10 is pressurized with potable water from the Hannon (2650 Zone Potable Water Tank).

A facilities planning grant application to bring in recycled water from YVWD has been approved by the SWRCB. Discussions are on-going with YVWD for non-potable water from the Henry Wochholz Water Reclamation Facility. Negotiations are on-going with the City of Beaumont for recycled water from their treatment plant. Any recycled water which is introduced into the system will offset the existing potable water demand on a gallon for gallon basis. Currently about 1700 acre-ft/yr (measured through the irrigation meters) is supplied to the landscape irrigation services. The potable demand will be reduced once recycled water is available.

Implementation or Scheduled Implementation

Recycled water will most likely be introduced into the non-potable water system by 2018 to 2020.

Planned Implementation to Achieve Water Use Targets

To achieve the SB7x7 water use targets in Section 5, BCVWD intends to continue and expand implementation of the DMMS presented above. In the future the District may look to partnering and possibly cost sharing with SGPWA for rebate programs. Large and small wholesalers have provided and managed rebate programs on behalf of their member retailers. Both parties benefit.

Within BCVWD's service area, 68 percent of the housing units have been built since 1990; so they have reduced water use plumbing fixtures. In Cherry Valley, the residences have on-site wastewater disposal systems; those homeowners tend to be very frugal with indoor water use anyway. Consequently, low flush toilet rebate programs would not be effective.

With over 60 percent of the housing stock in Beaumont constructed since 2000, there is likely not much opportunity for replacement of dishwashers or washing machines with more water efficient machines. Most of the developers are very conscious of water use and are installing these high efficient devices in their new models.

There may be opportunity for replacement of dishwashers and washing machines in Cherry Valley where the housing stock is older and the residences are on septic tanks.

The implementation of new landscape ordinances at the state and local level will help reduce outdoor water use. Requirements for smart irrigation controllers on new housing will go a long way to reduce outdoor water use. BCVWD believes the greatest opportunity for water savings is conversion of street medians and common area turf areas to more drought tolerant planting materials and converting these irrigated areas to recycled water. The use of recycled water for landscape irrigation is key to BCVWD meeting the water use target.

Section 10
Plan Adoption, Submittal and Implementation

This section describes the public notification, plan adoption, submittal and implementation of BCVWD's 2015 UWMP.

The draft 2015 UWMP was completed on November 2, 2016 and was available for a 10-day public review prior to the public hearing. Copies of the draft 2015 UWMP were available at the BCVWD District Office, 560 Magnolia Avenue, Beaumont, CA 92223 during regular business hours and was posted on BCVWD's website http://www.bcvwd.org/.

A public hearing was held on December 14, 2016 at BCVWD's Board Room, 560 Magnolia Avenue, Beaumont, CA 92223. Board member and public comments and testimony were taken and staff considered all comments and revised the 2015 UWMP as necessary. The final UWMP was adopted by the Board of Directors through a resolution at a meeting at the BCVWD office held on January 11, 2017. The final 2015 UWMP was submitted to DWR within 30 days of Board approval. The final adopted 2015 UWMP was available to the public and was posted on the District's website within 60 days of submission to DWR.

The 2015 UWMP is intended to serve as a general, flexible, open-ended document that periodically can be updated to reflect changes in service area growth and demands, available water supply and conservation policies and practices. The plan will guide the Board and staff through the year 2020 when the UWMP is required to be updated again.

Inclusion of All 2015 Data

BCVWD's 2015 UMWP includes all water use and planning data from calendar year 2015

Notice of Public Hearing

BCVWD held a public hearing on December 14, 2016 prior to having the Board of Directors adopt the Plan. The public hearing provided an opportunity for the public to provide input to the plan before it is adopted. The Board of Directors considered all public input. The hearing was noticed to the nearby cities, the County of Riverside, the County of San Bernardino, and public. Copies of the notification letters are in Appendix C.

Notice of Cities and Counties

CWC 10621

(b) Every urban water supplier required to prepare a plan shall… at least 60 days prior to the public hearing on the plan … notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

CWC 10642

…The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area…

Table 10-1 is a checklist for the notification of cities and counties required by DWR; Table 10-2 is a summary of agencies and notifications.

Table 10-1 Retail: Notification to Cities and Counties

City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Beaumont	☑	☑
Banning	☑	☑
Yucaipa	☑	☑
Calimesa	☑	☑
County Name *Drop Down List*	☐ 60 Day Notice	Notice ☐ Public Hearing
Add additional rows as needed		
Riverside County	☑	☑
San Bernardino County	☑	☑
Notes:		

The 60-day Notification was sent out May 12, 2016 more than 60 days prior to the public hearing. A copy of the Notification Letter is included in Appendix F. A public hearing for written and oral comments on the 2015 UWMP was held on December 14, 2016. Notice of the hearing followed Government Code 6066. Copies of the Notices are in Appendix F.

Table 10-2
Coordination with Appropriate Agencies, Groups and Organizations

Agency, Group or Organization	Sent Public Hearing Notice	Sent copy of draft UWMP Update	Attended public meetings	Commented on the draft UWMP Update	Sent notice of intention to adopt UWMP	Sent Final UWMP Update
City of Beaumont	•	•	•		•	
City of Banning	•	•			•	
City of Yucaipa	•	•		•	•	
City of Calimesa	•	•			•	
YVWD	•	•			•	
South Mesa WC	•	•			•	
County of Riverside Flood Control	•	•		•	•	
Riverside County LAFCO	•	•			•	
Eastern MWD	•	•			•	
SAWPA	•	•				
SGPWA	•	•	•	•	•	
San Bernardino County LAFCO	•	•			•	
Beaumont Unified School District	•	•			•	
Beaumont Cherry Valley Parks and Recreation	•	•	•		•	
CVAN	•	•	•		•	
Riverside BIA	•	•			•	
General Public		Newspaper	•			On Website
Pardee Homes		Newspaper	•	•		

Notice to the Public

> ***CWC 10642***
>
> *…Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection…Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code…*
>
> ***Government Code 6066***
>
> *Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.*

Copies of the Public Hearing Notice and dates of publication are included in Appendix F. The Public Hearing was held on December 14, 2016 at the BCVWD District Office, Board Room, 560 Magnolia Avenue, Beaumont CA 92223. Copies of the 2015 UWMP were available at the office during regular business hours. It was also published on BCVWD's websitehttp://www.bcvwd.org/ .

Public Hearing and Adoption

> ***CWC 10642***
>
> *…Prior to adopting a plan, the urban water supplier shall hold a public hearing thereon.*
>
> ***CWC 10608.26***
>
> *In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:*
>
> *Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.*
>
> *Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.*
>
> *Adopt a method, pursuant to subdivision (b) of Section 10608.20 for determining its urban water use target.*

BCVWD provided information on their baseline water use targets and implementation plan required in the Urban Water Conservation Act of 2009.

The public hearing was held on December 14, 2016. In attendance were Mayor Lloyd White, City of Beaumont, David Fenn, Director, SGPWA, Michael Tidus, Attorney and Jeff Chambers for Pardee Homes, and other members of the public.

Both oral and written comments were taken; Joseph C. Reichenberger PE, senior engineer with BCVWD presented the findings of the 2015 UWMP. A copy of the presentation is in Appendix C. When the public hearing was closed, the Board gave direction to staff to consider all comments and make revisions to the 2015 UWMP Update as required.

The 2015 UWMP was revised by staff to incorporate comments from the public hearing. The revised UWMP was made available at the District Office and posted on the District's website

prior to the date of adoption. On January 11, 2017 at a regular meeting of the Board of Directors, the 2015 UWMP was adopted. The meeting was duly noticed per Government Code.

Plan Submittal

> ***CWC 10621***
>
> *(d) An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.*
>
> ***CWC 10644***
>
> *(a)(1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.*
>
> ***CWC 10635***
>
> *(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.*

BCVWD's 2015 UWMP will be submitted to DWR within 30 days of adoption and as close to July 1, 2016 as practical. The submittal will be electronic using DWR's WUEdata submittal tool.

A hard copy or CD will be submitted to the California State Library within 30 days of adoption. The addresses are:

California State Library Government Publications Section
P.O. Box 942837 Sacramento, CA 94237-0001
Attention: Coordinator, Urban Water Management Plans

Or if hand carried --

California State Library Government Publications Section
914 Capitol Mall
Sacramento, CA 95814

Public Availability

> *§10645 Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.*

BCVWD will, within 30 days of filing with DWR, make the plan available to the public at the District's office at 560 Magnolia St., Beaumont, CA 92223 during normal business hours. It will also be posted on the District's website in pdf form for reading/downloading by the public.

Amending an Adopted UWMP

> ***CWC 10621***
>
> *(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).*
>
> ***CWC 10644***
>
> *(a)(1) Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.*

If the 2015 UWMP needs to be amended, any amendments or changes will be adopted and filed as described above.











Prepared by

BCVWD

APPENDICES

Appendix A	California Water Code, Urban Water Management Planning
Appendix B	California Water Code, Sustainable Water Use and Demand Reduction (SB X7-7)
Appendix C	UWMP Tables
Appendix D	SB X7-7 Verification Form
Appendix E	Beaumont Basin Adjudication
Appendix F	Notices to Cities and Counties, Notice of Public Hearing, Meeting Minutes, Comments, and Resolution of Adoption
Appendix G	DWR UWMP Checklist

Appendix A
California Water Code
Urban Water Management Planning

California Water Code Division 6, Part 2.6.

Chapter 1. General Declaration and Policy §10610-10610.4
Chapter 2. Definitions §10611-10617
Chapter 3. Urban Water Management Plans
Article 1. General Provisions §10620-10621
Article 2. Contents of Plans §10630-10634
Article 2.5. Water Service Reliability §10635
Article 3. Adoption And Implementation of Plans §10640-10645
Chapter 4. Miscellaneous Provisions §10650-10656

Chapter 1. General Declaration and Policy

SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. “Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses,

reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that

share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

Article 2. Contents of Plan

SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of

water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single-dry water year.

(C) Multiple-dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(3) (A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(4) (A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

(g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water

use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(i) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan may, but is not required to, include any of the following information:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

(b) The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has

submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are

appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Article 2.5. Water Service Reliability

SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.

After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

(b) (1) Notwithstanding Section 10231.5 of the Government Code, the department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part.

The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(2) A report to be submitted pursuant to paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Chapter 4. Miscellaneous Provisions

SECTION 10650-10656

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26

(commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

Appendix B
California Water Code
Sustainable Water Use and Demand Reduction (SB X7-7)

California Water Code Division 6, Part 2.55.

Chapter 1. General Declarations and Policy §10608-10608.8
Chapter 2. Definitions §10608.12
Chapter 3. Urban Retail Water Suppliers §10608.16-10608.44
Chapter 4. Agricultural Water Suppliers §10608.48
Chapter 5. Sustainable Water Management §10608.50
Chapter 6 Standardized Data Collection §10608.52
Chapter 7 Funding Provisions §10608.56-10608.60
Chapter 8 Quantifying Agricultural Water Use Efficiency §10608.64

Chapter 1. General Declarations and Policy

SECTION 10608-10608.8

10608. The Legislature finds and declares all of the following:

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to

January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2 Definitions

SECTION 10608.12

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3 Urban Retail Water Suppliers

SECTION 10608.16-10608.44

10608.16.(a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20.(a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in paragraph (1) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method

described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the

Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

(2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph(3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24.(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in

paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26.(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the conservation of that military installation under federal Executive Order 13514.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit

an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28.(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans

submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42.(a) The department shall review the 2015 urban water management plans and report to the Legislature by July 1, 2017, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

(b) A report to be submitted pursuant to subdivision (a) shall be submitted in compliance with Section 9795 of the Government Code.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use at facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

Chapter 4 Agricultural Water Suppliers

SECTION 10608.48

10608.48.(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5 Sustainable Water Management

Section 10608.50

10608.50.(a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

Chapter 6 Standardized Data Collection

SECTION 10608.52

10608.52.(a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

Chapter 7 Funding Provisions

Section 10608.56-10608.60

10608.56.(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

10608.60.(a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

Chapter 8 Quantifying Agricultural Water Use Efficiency

SECTION 10608.64

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

Appendix C
UWMP Tables

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
331002	Beaumont Cherry Valley Water District	16,799	9,293
	TOTAL	16,799	9,293
NOTES:			

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* *drop down list*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☑	Water Supplier is also a member of a Regional Alliance	Other
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES: BCVWD is a member of the San Gorgonio Pass Regional Water Alliance which was formed in 2015; they did not prepare a 2015 UWMP			

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
San Gorgonio Pass Water Agency
NOTES:

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	48,377	61,386	69,306	78,393	86,949	94,804
NOTES: See Table 3-8 and text in Section 3 for methodoloogy						

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	6,612
Multi-Family		Drinking Water	287
Commercial	estimated	Drinking Water	118
Industrial		Drinking Water	169
Institutional/Governmental	estimated	Drinking Water	611
Landscape		Drinking Water	772
Landscape	non-potable groundwater	Raw Water	514
Agricultural irrigation		Drinking Water	49
Other	Metered construction and street sweeping etc	Drinking Water	160
Losses	estimated	Drinking Water	500
Groundwater recharge	Imported water banked for future extractions during dry periods. During 2015, 2090 AF imported water recharged and extracted in 2015	Raw Water	0
		TOTAL	9,792
NOTES: Landscape irrigation used drinking water and non-potable groundwater (raw water) in 2015			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Use Type *(Add additional rows as needed)* ***Drop down list*** *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
		2020	2025	2030	2035	2040
Single Family		12,702	14,191	16,084	17,878	19,533
Multi-Family		400	625	710	785	855
Commercial		126	135	145	155	165
Industrial		180	190	200	210	220
Institutional/Governmental		650	685	730	770	820
Landscape	recycled water	0	0	0	0	0
Agricultural irrigation		60	55	50	45	40
Other	Metered construction and street sweeping water etc.	300	315	325	340	350
Losses		335	380	430	473	500
Other	Raw water to supplement non-potable water system	163	280	455	449	398
Groundwater recharge	Imported raw water banked for future extractions during dry periods. Does NOT include imported water to meet Adjudication replacement obligations	1,000	1,500	2,000	2,500	2,500
TOTAL		15,916	18,356	21,129	23,605	25,381

NOTES: Ground water recharge quantities are planned quantities to build 5-year supply per BCVWD Resolution 2014-05; landscape demand will be met with recycled water and supplemented with other non-potable water as needed.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	9,792	15,916	18,356	21,129	23,605	25,381
Recycled Water Demand* *From DWR Table 6-4*	0	2,196	2,525	2,892	3,238	3,579
TOTAL WATER DEMAND	9,792	18,112	20,881	24,021	26,843	28,960
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES: The recycled water demand includes the forecast amount used on landscaping irrigated by the non-potable water system, plus any recycled water supplied to golf courses when surplus recycled water is available. Sources of recycled water are YVWD and City of Beaumont.						

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	500
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES: BCVWD believes the amount calculated in the Water Audit Spreadsheet is not correct due to changes in the method of accounting for the 2-month long lag between production and consumption (meter read time --- mostly bi-monthly, but some read monthly.) The District believes the Water Loss Volume is really about 500 AF.	

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

Table 5-1 Baselines and Targets Summary
Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*1999*	*2008*	*302*	*272*	*242*
5 Year	*2004*	*2008*	*291*		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance

Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
180	272	0	0	0	0	180	180	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES: The persistent drought and Stage 2 Water Use Restrictions imposed by BCVWD resulted in a 24.3% water savings in year 2015-16 vs.

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Little San Gorgonio Creek	2158	1990	1732	1325	1418
Alluvial Basin	Beaumont Basin	9431	10162	11097	10806	8833
	TOTAL	11,589	12,152	12,829	12,131	10,251

NOTES: Little San Gorgonio Creek, also known as Edgar Canyon, is a mix of shallow alluvial deposits and fractured rock aquifer. The Little San Gorgonio Creek extractions in 2014 and 2015 were low primarily due to larger canyon wells (Well No. 6 and Well No. 14) being out of service.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
39	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
86	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Beaumont	Metered	3,360	City of Beaumont	Plant No. 1	Yes	Yes
Total Wastewater Collected from Service Area in 2015:		3,360				

NOTES: Wastewater volume based on monthly reports to RWQCB. Except for Highland Springs Village, which is sewered by the City of Beaumont, the remainder of Cherry Valley is unsewered.

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

☐ No wastewater is treated or disposed of within the UWMP service area.
The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
City of Beaumont	DP-001	Cooper's Creek	8 330101001	River or creek outfall	No	Tertiary	3,360	3,360	0	0
City of Beaumont	DP-007	Tributary of Marshall Creek	8 330101001	River or creek outfall	No	Tertiary	0	0	0	0
City of Beaumont	R-001	Tukwet Golf Course	8 330101001	Other	No	Tertiary	0	0	0	0
City of Beaumont	R-002	Oak Valley Golf Course	8 330101001	Other	No	Tertiary	0	0	0	0
City of Beaumont	R-003	BCVWD RW System	8 330101001	Other	No	Tertiary	0	0	0	0
						Total	3,360	3,360	0	0

NOTES: City of Beaumont claims that a portion of the effluent discharged at DP-001 and DP-007 incidentally recharge the Beaumont Groundwater Basin. Watermaster is still awaiting proof. The effluent does not comply with planned groundwater recharge regulations.

Table 6-4 A Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☐ Recycled water is not used and is not planned for use within the service area of the supplier.
The supplier will not complete the table below.

Name of Agency Producing (Treating) the Recycled Water:	Yucaipa Valley Water District
Name of Agency Operating the Recycled Water Distribution System:	Beaumont Cherry Valley Water District
Supplemental Water Added in 2015	0
Source of 2015 Supplemental Water	NA

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation	none							
Landscape irrigation (excludes golf courses)	none	Advanced	0	921	977	1,018	1,028	1,032
Golf course irrigation	none	Advanced	0	121	66	25	16	11
Commercial use	none							
Industrial use	none							
Geothermal and other energy production	none							
Seawater intrusion barrier	none							
Recreational impoundment	none							
Wetlands or wildlife habitat	none							
Groundwater recharge (IPR)*	none							
Surface water augmentation (IPR)*	none							
Direct potable reuse	none							
Other *(Provide General Description)*	none							
		Total:	0	1,042	1,043	1,043	1,044	1,043

**IPR - Indirect Potable Reuse*

NOTES: YVWD must provide some amount of effluent discharge to maintain habitat. Per DWR instructions, this is not considered recycled water beneficial use. YVWD provides membrane treatment using reverse osmosis. Supply AF is based on correspondence from YVWD to BCVWD and is assumed to not change over time to be conservative. Supply includes some filter washwater during summer months.

Table 6-4 B Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☐ Recycled water is not used and is not planned for use within the service area of the supplier.
The supplier will not complete the table below.

Name of Agency Producing (Treating) the Recycled Water:	City of Beaumont
Name of Agency Operating the Recycled Water Distribution System:	Beaumont Cherry Valley Water District
Supplemental Water Added in 2015	0
Source of 2015 Supplemental Water	NA

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation	none							
Landscape irrigation (excludes golf courses)	none	Secondary, Disinfected - 2.2	0	822	1,117	1,462	1,753	2,019
Golf course irrigation	none	Secondary, Disinfected - 2.2	0	332	365	387	441	517
Commercial use	none							
Industrial use	none							
Geothermal and other energy production	none							
Seawater intrusion barrier	none							
Recreational impoundment	none							
Wetlands or wildlife habitat	none							
Groundwater recharge (IPR)*	none							
Surface water augmentation (IPR)*	none							
Direct potable reuse	none							
Other *(Provide General Description)*	none							
		Total:	0	1,154	1,482	1,849	2,194	2,536

**IPR - Indirect Potable Reuse*

NOTES: City of Beaumont is required to discharge 1.8 mgd (2,016 AFY) to maintain habitat in Cooper's Creek. Per DWR this is not considered a beneficial use. Recycled water for GW recharge (IPR) assumes 80% recovery. Total does not reflect advance treated recycled water recharged to Beaumont Basin since this is not a demand, but rather a water supply. (Year 2025 -- 418 AF, Year 2030 -- 491 AFY, Year 2035 -- 646 AF, Year 2040 -- 827 AF)

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☐	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		**2010 Projection for 2015**	**2015 Actual Use**
Agricultural irrigation			
Landscape irrigation (excludes golf courses)		1,500	0
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	*Type of Use*		
Total		1,500	0
NOTES: City of Beaumont is required to discharge 1.8 mgd (2016 AFY) to maintain habitat in Cooper's Creek. Per DWR instructions this is not considered a beneficial use			

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
6-56	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
Const. YVWD Connection	Construct connection to YVWD non-potable water system including pumping station	2018	1043
Const. City of Beaumont Connection	Construct storage and pumping station at City Treatment Plant	2020	1154
Edgar Canyon Nitrate Wells	Install extraction wells at mouth of Edgar Canyon to extract high nitrate groundwater for non-potable water system	2030	300
San Timoteo Groundwater Capture	Install extraction wells in San Timoteo Canyon to extract wastewater which percolates from 1.8 mgd habitat mitigation flow	2030	800
		TOTAL AFY	3,297
NOTES: These projects will increase the non-potable water supply which allows BCVWD to serve more non-potable water.			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
6-59	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Agency *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
Add additional rows as needed						
Beaumont MDP Line 16	Yes	RCF&WCD	Const of SD to divert water into BCVWD Recharge Facility	2021	All Year Types	185
Misc. Urban Runoff Capture	Yes	Beaumont	Various recharge basin enhancements	2025	All Year Types	200-545
Lower Edgar Canyon Non-potable Groundwater	No		Install extraction wells for high nitrate GW for non-potable water system	2025	All Year Types	300
San Timoteo Canyon GW Extraction	Yes	Beaumont	Install series of wells to recapture percolated ww used for habitat mitigation	2030	All Year Types	400-800
Non-potable water interconnection with YVWD	Yes	YVWD	Install Interconnecting pipeline and booster pumping station and pressure regulating stations	2018	All Year Types	1,043
Connection to City of Beaumont for recycled water	Yes	Beaumont	Install storage tank, booster pumping station and interconnecting pipeline	2020	All Year Types	1,154
Advance Treated Recycled Water	Yes	Beaumont	Construct advanced treatment facility and brine line	2025	All Year Types	300-660
NOTES: Yield from City of Beaumont Recycled Water Connection will increase to 3363 AFY by 2040 due to increases in wastewater flows over time. Expected increase in water supply for Advance Treated Wastewater is based on 80% recovery in membrane treatment process.						

Table 6-8 Retail: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Groundwater	Little San Gorgonio Canyon	1,418	Drinking Water	2,200
Groundwater	Beaumont Basin	2,300	Drinking Water	
Purchased or Imported Water	SGPWA	2,090	Raw Water	
Transfers	From banked GW Storage	3,984	Drinking Water	
	Total	9,792		2,200

NOTES: BCVWD typically receives reallocated and unused Overlying Party Rights, forbearance water for suppling potable or non-potable water to Overlying Parties, and return flow credits for importing SPW, groundwater, or reycled water per the Beaumont Basin Watermaster. This varies from year to year.

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*									
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		**2020**		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Groundwater	Little San Gorgonio Canyon	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200
Groundwater	Beaumont Basin	1,765		1,970		2,334		2,782		2,836	
Groundwater	Beaumont Basin GC forbearance	453		431		416		457		528	
Stormwater Use	Beaumont MDP Line 16	185		185		185		185		185	
Stormwater Use	Various Urban Runoff Basins	0		245		545		545		545	
Purchased or Imported Water	From SGPWA for Recharge	10,150		11,127		12,503		13,843		15,362	
Recycled Water	From YVWD for Landscaping	921		977		1,018		1,026		1,032	
Recycled Water	From City of Beaumont for Landscaping	822		1,117		1,462		1,753		2,019	
Recycled Water	Recycled Water to Golf Courses	453		431		416		457		528	
Recycled Water	Advance Treated and Recharged	0		418		491		646		827	
Purchased or Imported Water	From SGPWA to supplement Non-potable Water Supply	163		280		0		0		0	
Groundwater	Non-potable Groundwater at Mouth of Edgar Canyon	0		0		200		200		200	
Groundwater	Non-potable Groundwater along San Timoteo Creek	0		0		251		249		198	
Purchased or Imported Water	From SGPWA for Banking	1,000		1,500		2,000		2,500		2,500	
Total		18,112	2,200	20,881	2,200	24,021	2,200	26,843	2,200	28,960	2,200
NOTES: Beaumont Basin Groundwater includes forbearance water (except for golf courses), unused overlier rights and return flow credits.											

Table 7-1 Retail: Basis of Water Year Data			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location Tables 7-2 thru 7-8
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	**% of Average Supply**
Average Year			100%
Single-Dry Year			
Multiple-Dry Years 1st Year			
Multiple-Dry Years 2nd Year			
Multiple-Dry Years 3rd Year			
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			

Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

NOTES:

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	18,112	20,881	24,021	26,843	28,960
Demand totals *(autofill from Table 4-3)*	18,112	20,881	24,021	26,843	28,960
Difference	0	0	0	0	0
NOTES:					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	4,962	5,877	6,557	7,472	8,042
Demand totals	17,112	19,381	22,021	24,343	26,460
Difference	(12,150)	(13,504)	(15,464)	(16,871)	(18,418)
NOTES: Demand includes recyced water demands but not banked water since banking will not occur during single or multiple dry years. Differnce between supply and demand will be provided from previously banked water in the Beaumont Basin					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	6,595	7,650	8,570	9,575	10,325
	Demand totals	17,112	19,381	22,021	24,343	26,460
	Difference	(10,517)	(11,731)	(13,451)	(14,768)	(16,135)
Second year	Supply totals	6,595	7,650	8,570	9,575	10,325
	Demand totals	17,112	19,381	22,021	24,343	26,460
	Difference	(10,517)	(11,731)	(13,451)	(14,768)	(16,135)
Third year	Supply totals	6,595	7,650	8,570	9,575	10,325
	Demand totals	17,112	19,381	22,021	24,343	26,460
	Difference	(10,517)	(11,731)	(13,451)	(14,768)	(16,135)
Fourth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES:						

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	7,707	8,842	9,852	10,967	11,837
	Demand totals	14,545	16,474	18,718	20,692	22,491
	Difference	(6,838)	(7,632)	(8,866)	(9,725)	(10,654)
Second year	Supply totals	7,707	8,842	9,852	10,967	11,837
	Demand totals	14,545	16,474	18,718	20,692	22,491
	Difference	(6,838)	(7,632)	(8,866)	(9,725)	(10,654)
Third year	Supply totals	7,707	8,842	9,852	10,967	11,837
	Demand totals	14,545	16,474	18,718	20,692	22,491
	Difference	(6,838)	(7,632)	(8,866)	(9,725)	(10,654)
Fourth year *(optional)*	Supply totals	7,707	8,842	9,852	10,967	11,837
	Demand totals	14,545	16,474	18,718	20,692	22,491
	Difference	(6,838)	(7,632)	(8,866)	(9,725)	(10,654)
Fifth year *(optional)*	Supply totals	7,707	8,842	9,852	10,967	11,837
	Demand totals	14,545	16,474	18,718	20,692	22,491
	Difference	(6,838)	(7,632)	(8,866)	(9,725)	(10,654)
Sixth year *(optional)*	Supply totals	7,707	8,842	9,852	10,967	11,837
	Demand totals	14,545	16,474	18,718	20,692	22,491
	Difference	(6,838)	(7,632)	(8,866)	(9,725)	(10,654)
NOTES:						

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
Add additional rows as needed		
1	10%	Up to a 10% reduction in normal, "long term" water supply; imported water supply allocation averages approximately 50% over a 2-year (or longer) period
2	20%	Up to 20% reduction in normal, "long term" water supply; imported water supply allocation between 49.9% and 25% over a 3-year (or longer) period
3	25%	Up to 25% reduction in normal, "long term" water supply; imported water supply allocation between 24.9% and 10% over a 3-year (or longer) period
4	30%	Up to 30% reduction in normal, "long term" water supply; imported water supply allocation between 9.9% and 5% over a 3-year (or longer) period
5	50%	Up to 50% reduction in normal, "long term" water supply; imported water supply allocation averages less than 5% over a 4-year (or longer)period
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
All	Landscape - Restrict or prohibit runoff from landscape irrigation	Part of BCVWD's Water Waste Provisions	Yes
2	Landscape - Limit landscape irrigation to specific times		Yes
2	Landscape - Limit landscape irrigation to specific days	2 days per week	Yes
2	CII - Lodging establishment must offer opt out of linen service		Yes
2	CII - Restaurants may only serve water upon request		Yes
2	Landscape - Prohibit all landscape irrigation	Prohibit irrigation of street median turf only	Yes
2	Water Features - Restrict water use for decorative water features, such as fountains		Yes
2	Other - Prohibit use of potable water for washing hard surfaces		Yes
3	Other - Require automatic shut of hoses		Yes
3	Landscape - Limit landscape irrigation to specific days	1 day per week	Yes
3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
4	Landscape - Prohibit certain types of landscape irrigation	Hand watering only with auto nozzle	Yes
5	Pools and Spas - Require covers for pools and spas		Yes
5	Pools - Allow filling of swimming pools only when an appropriate cover is in place.		Yes
5	Other - Prohibit use of potable water for construction and dust control		Yes
5	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
NOTES:			

Table 8-3 Retail Only: **Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**		
Stage	Consumption Reduction Methods by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
2	Expand Public Information Campaign	
3	Improve Customer Billing	Provide historic record and comparison of use on similar properties. Show targets and actual reductions.
4	Provide Rebates for Landscape Irrigation Efficiency	Consider rebates on smart irrigation controllers with SGPWA
3	Provide Rebates for Turf Replacement	Work with SGPWA to develop replacement programs.
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	13,826	9,650	4,508
NOTES: 2016 based on BCVWD receiving 9,870 AF per SGPWA email. Year 2017 and 2018 assumes 35% and 5% SWP Allocations as used in Stress Test. SPW amounts per SGPWA for Stress Test Analysis.			

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Beaumont	☑	☑
Banning	☑	☑
Yucaipa	☑	☑
Calimesa	☑	☑
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Riverside County	☑	☑
San Bernardino County	☑	☑

Appendix D
SB X7-7 Verification Form

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	12,607	Acre Feet
	2008 total volume of delivered recycled water	-	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1999	
	Year ending baseline period range[3]	2008	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2004	
	Year ending baseline period range[4]	2008	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☐	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES: U.S. Census Data for decade years, incl 2010 for City of Beaumont and Cherry Valley CDP.	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1999	17,131
Year 2	2000	17,298
Year 3	2001	18,014
Year 4	2002	19,223
Year 5	2003	22,390
Year 6	2004	24,612
Year 7	2005	30,994
Year 8	2006	35,745
Year 9	2007	39,013
Year 10	2008	40,894
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2004	24,612
Year 2	2005	30,994
Year 3	2006	35,745
Year 4	2007	39,013
Year 5	2008	40,894
2015 Compliance Year Population		
2015		48,377
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1999	5,887	-		-	-	-	5,887
Year 2	2000	6,308	-		-	-	-	6,308
Year 3	2001	5,063	-		-	-	-	5,063
Year 4	2002	8,896	-		-	-	-	8,896
Year 5	2003	7,109	-	-	-	-	-	7,109
Year 6	2004	8,308	-	-	-	-	-	8,308
Year 7	2005	9,306	-	-	-	-	-	9,306
Year 8	2006	11,503	-	-	-	164	-	11,339
Year 9	2007	13,164	-	-	-	110	-	13,054
Year 10	2008	13,554	-	-	-	113	-	13,441
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**8,871**
5 Year Baseline - Gross Water Use								
Year 1	2004	8,308	-	-	-		-	8,308
Year 2	2005	9,306	-	-	-		-	9,306
Year 3	2006	11,503	-	-	-		-	11,503
Year 4	2007	13,164	-	-	-		-	13,164
Year 5	2008	13,554	-	-	-		-	13,554
5 year baseline average gross water use								**11,167**
2015 Compliance Year - Gross Water Use								
2015		9,792	-		-	49	-	**9,743**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES: year 2015 includes 305 AF potable water make up into the non-potable system

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	Groundwater Beaumont and Edgar Canyon
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	5,887		5,887
Year 2	2000	6,308		6,308
Year 3	2001	5,063		5,063
Year 4	2002	8,896		8,896
Year 5	2003	7,109		7,109
Year 6	2004	8,308		8,308
Year 7	2005	9,306		9,306
Year 8	2006	11,503		11,503
Year 9	2007	13,164		13,164
Year 10	2008	13,554		13,554
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2004	8,308		8,308
Year 2	2005	9,306		9,306
Year 3	2006	11,503		11,503
Year 4	2007	13,164		13,164
Year 5	2008	13,554		13,554
2015 Compliance Year - Water into Distribution System				
2015		9,792		9,792

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1999	17,131	5,887	307
Year 2	2000	17,298	6,308	326
Year 3	2001	18,014	5,063	251
Year 4	2002	19,223	8,896	413
Year 5	2003	22,390	7,109	283
Year 6	2004	24,612	8,308	301
Year 7	2005	30,994	9,306	268
Year 8	2006	35,745	11,339	283
Year 9	2007	39,013	13,054	299
Year 10	2008	40,894	13,441	293
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**302**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2004	24,612	8,308	301
Year 2	2005	30,994	9,306	268
Year 3	2006	35,745	11,503	287
Year 4	2007	39,013	13,164	301
Year 5	2008	40,894	13,554	296
5 Year Average Baseline GPCD				**291**
2015 Compliance Year GPCD				
2015		48,377	9,743	**180**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	302
5 Year Baseline GPCD	291
2015 Compliance Year GPCD	180

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
302	**242**
NOTES:	

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☑		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**0**
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
291	276	242	**242**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
242	302	**272**
NOTES:		

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)* Enter "0" if Adjustment Not Used: Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
180	272	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	180	180	**YES**
NOTES:								

Appendix E
Beaumont Basin Adjudication

ORIGINAL COPY

JOSEPH S. AKLUFI (Bar No. 68619)
AKLUFI AND WYSOCKI
3403 Tenth Street, Suite 610
Riverside, California 92501
(909)682-5480 Office
(909)682-2619 Fax

NO FILING FEE REQUIRED PER GOVERNMENT CODE, SEC. 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB - 4 2004

Attorneys for Plaintiff, SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF RIVERSIDE, RIVERSIDE COURT

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY, a public agency,

Plaintiff,

vs.

CITY OF BANNING, a municipal corporation; BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district; YUCAIPA VALLEY WATER DISTRICT, a county water district; PLANTATION ON THE LAKE LLC, a California limited liability company; SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association; SOUTH MESA MUTUAL WATER COMPANY, a mutual water company; CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company; OAK VALLEY PARTNERS LP, a Texas limited partnership; SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation; SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation; MANHEIM, MANHEIM & BERMAN, a California General Partnership; WALTER M. BECKMAN, individually and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990; THE ROMAN CATHOLIC BISHOP of San Bernardino,

CASE NO. RIC 389197

JUDGMENT PURSUANT TO STIPULATION ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN

LAW OFFICES
AKLUFI / WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

a California corporation; MERLIN PROPERTIES, LLC; LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991; and DOES 1 through 500, inclusive,

Defendants.

I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction

The complaint herein was filed on February 20, 2003, seeking an adjudication of water rights, injunctive relief and the imposition of a physical solution. The defaults of certain defendants have been entered, and certain other defendants dismissed. Other than defendants who have been dismissed or whose defaults have been entered, all defendants have appeared herein. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation for Judgment

Stipulation for Entry of Judgment has been filed by and on behalf of all defendants who have appeared herein.

3. Definitions

As used in this Judgment, these terms shall have the following meanings:

A. Appropriator or Appropriator Parties: the pumpers identified in Exhibit "C" attached hereto.

B. Appropriator's Production Right: consists of an Appropriator's share of Operating Yield, plus (1) any water acquired by an Appropriator from an Overlying Producer or other Appropriator pursuant to this Judgment, (2) any water

LAW OFFICES
AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

withdrawn from the Appropriator's storage account, (3) and New Yield created by the Appropriator.

C. Appropriative Water: the amount of Safe Yield remaining after satisfaction of Overlying Water Rights.

D. Appropriative Water Right: each Appropriator's share of Appropriative Water, such share expressed as a percentage as shown on Exhibit "C".

E. Beaumont Basin or Beaumont Storage Unit: the area situated within the boundaries shown on Exhibit "A" attached hereto.

F. Conjunctive Use: the storage of water in a Groundwater Basin for use at a later time.

G. Groundwater: water beneath the surface of the ground within the zone below the water table in which soil is saturated with water.

H. Groundwater Basin: an area underlain by one or more permeable formations capable of furnishing a substantial water supply.

I. Groundwater Storage Agreement: a standard form of written agreement between the Watermaster and any Person requesting the storage of Supplemental Water.

J. Groundwater Storage Capacity: the space available in a Groundwater Basin that is not utilized for storage or regulation of Safe Yield and is reasonably available for Stored Water and Conjunctive Use.

K. Minimal Producer: any Producer who pumps 10 or fewer acre feet of Groundwater from the Beaumont Basin per year.

LAW OFFICES
AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

L. New Yield: increases in yield in quantities greater than historical amounts from sources of supply including, but not limited to, capture of available storm flow, by means of projects constructed after February 20, 2003, as determined by the Watermaster.

M. Operating Yield: the maximum quantity of water which can be produced annually by the Appropriators from the Beaumont Basin, which quantity consists of Appropriative Water plus Temporary Surplus.

N. Overdraft: a condition wherein the total annual production from a Groundwater Basin exceeds the Safe Yield thereof.

O. Overlying Parties: the Persons listed on Exhibit "B", who are owners of land which overlies the Beaumont Basin and have exercised Overlying Water Rights to pump therefrom. Overlying Parties include successors in interest and assignees.

P. Overlying Water Rights: the quantities decreed to Overlying Parties in Column 4 of Exhibit "B" to this Judgment.

Q. Overproduction: by an Appropriator, measured by an amount equal to the Appropriator's actual annual production minus the Appropriator's Production Right. By a new overlying producer, an amount equal to what the overlying producer pumped during the year.

R. Party (Parties): any Person(s) named in this action, or who has intervened, or has become subject to this Judgment either through stipulation, trial or otherwise

LAW OFFICES
AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

S. Person: any individual, partnership, association, corporation, governmental entity or agency, or other organization.

T. Physical Solution: the physical solution set forth in Part V of this Judgment.

U. Produce, Producing, Production, Pump or Pumping: the extraction of groundwater.

V. Producer or Pumper: any Person who extracts groundwater.

W. Recycled Water: has the meaning provided in Water Code Section 13050(n) and includes other nonpotable water for purposes of this Judgment.

X. Safe Yield: the maximum quantity of water which can be produced annually from a Groundwater Basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage. The Safe Yield of the Beaumont Basin is 8650 acre feet per year in each of the ten (10) years following entry of this Judgment.

Y. San Timoteo Watershed Management Authority: a joint powers public agency whose members are the Beaumont-Cherry Valley Water District, the City of Beaumont, the South Mesa Mutual Water Company and the Yucaipa Valley Water District.

Z. Stored Water: Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

AA. Supplemental Water: water imported into the

LAW OFFICES
AKLUFI / WYSOCKI
3403 TENTH ST., SUITE 610
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Beaumont Basin from outside the Beaumont Basin including, without limitation, water diverted from creeks upstream and tributary to Beaumont Basin and water which is recycled and useable within the Beaumont Basin.

BB. Temporary Surplus: the amount of groundwater that can be pumped annually in excess of Safe Yield from a Groundwater Basin necessary to create enough additional storage capacity to prevent the waste of water.

CC. Watermaster: the Person appointed by the Court to administer and enforce the Physical Solution.

4. List of Exhibits

The following exhibits are attached to this Judgment and made a part hereof:

Exhibit "A" -- "Location Map of Beaumont Basin"
Exhibit "B" -- "Overlying Owners and Their Water Rights"
Exhibit "C" -- "Appropriators and Their Water Rights"
Exhibit "D" -- "Legal Description of Lands of the Overlying Parties"
Exhibit "E" -- "Location of Overlying Producer Parcels and Boundary of the Beaumont Basin"

II. INJUNCTIONS

1. Injunction Against Unauthorized Production of Beaumont Basin Water

Each party herein is enjoined, as follows:

A. Overlying Parties: Each defendant who is an Overlying Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any five-year period hereafter in excess of five times the share of the Safe Yield assigned to the Overlying Parties as set

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forth in Column 4 of Exhibit "B", as more fully described in the Physical Solution.

B. Appropriator Parties: Each defendant who is an Appropriator Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any year hereafter in excess of such party's Appropriator's Production Right, except as additional annual Production may be authorized by the provisions of the Physical Solution.

2. Injunction Against Unauthorized Storage or Withdrawal of Stored Water

Each and every Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from storing Supplemental Water in the Beaumont Basin for withdrawal, or causing withdrawal of water stored by that Party, except pursuant to the terms of a written Groundwater Storage Agreement with the Watermaster and in accordance with Watermaster Rules and Regulations. Any Supplemental Water stored in the Beaumont Basin, except pursuant to a Groundwater Storage Agreement, shall be deemed abandoned and not classified as Stored Water.

III. DECLARATION AND ADJUSTMENT OF RIGHTS

1. Overlying Rights

The Overlying Parties are currently exercising Overlying Water Rights in the Beaumont Basin. As shown on Exhibit "B", the aggregate Projected Maximum Production of water from the Beaumont Basin pursuant to Overlying Water Rights is 8650 acre feet and the Overlying Water Rights are individually decreed, in Column 4 of Exhibit "B", for each Overlying Party. The Overlying Parties

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shall continue to have the right to exercise their respective Overlying Water Right as set forth in Column 4 of Exhibit "B" except to the extent their respective properties receive water service from an Appropriator Party, as contemplated by Paragraph III.3 of this Judgment.

2. Appropriator's Share of Operating Yield

Each Appropriator Party's share of Operating Yield is shown on Exhibit "C". Notwithstanding any other provision of this Judgment, each Appropriator Party may use its Appropriator's Production Right anywhere within its service area.

3. Adjustment of Rights

A. The Overlying Parties shall have the right to exercise their respective Overlying Water Rights except as provided in this Paragraph 3.

B. To the extent any Overlying Party requests, and uses its Exhibit "B", Column 4 water to obtain water service from an Appropriator Party, an equivalent volume of potable groundwater shall be earmarked by the Appropriator Party which will serve the Overlying Party, up to the volume of the Overlying Water Right as reflected in Column 4 of Exhibit "B" attached hereto, for the purpose of serving the Overlying Party. The intent of this provision is to ensure that the Overlying Party is given credit towards satisfying the water availability assessment provisions of Government Code, Section 66473.7 et seq. and Water Code, Section 10910 et seq. or other similar provisions of law, equal to the amount of groundwater earmarked hereunder.

C. When an Overlying Party receives water service as

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provided for in subparagraph III.3.B the Overlying Party shall forebear the use of that volume of the Overlying Water Right earmarked by the Appropriator Party. The Appropriator Party providing such service shall have the right to produce the volume of water foregone by the Overlying Party, in addition to other rights otherwise allocated to the Appropriator Party.

D. Should the volume of the Overlying Water Right equal or exceed the volume of potable groundwater earmarked as provided in subparagraph 3.B, the Appropriator Party which will serve the Overlying Party shall (i) impose potable water charges and assessments upon the Overlying Party and its successors in interest at the rates charged to the then-existing regular customers of the Appropriator Party, and (ii) not collect from such Overlying Party any development charge that may be related to the importation of water into the Beaumont Basin. The Appropriator Party which will serve the Overlying Party pursuant to Subparagraph III.3.B shall also consider, and negotiate in good faith regarding, the provision of a meaningful credit for any pipelines, pump stations, wells or other facilities that may exist on the property to be served.

E. In the event an Overlying Party receives Recycled Water from an Appropriator Party to serve an overlying use served with groundwater, the Overlying Water Right of the Overlying Party shall not be diminished by the receipt and use of such Recycled Water. Recycled Water provided by an Appropriator Party to an Overlying Party shall satisfy the

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criteria set forth in the California Water Code including, without limitation, the criteria set forth in Water Code Sections 13550 and 13551. The Appropriator Party which will serve the Recycled Water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of Recycled Water service pursuant to the terms of this subparagraph; provided, however, that such right of use by the Appropriator Party shall no longer be valid if the Recycled Water, provided by the Appropriator Party to the Overlying Party, does not satisfy the requirements of Sections 13550 and 13551 and the Overlying Party ceases taking delivery of such Recycled Water.

F. Nothing in this Judgment is intended to impair or adversely affect the ability of an Overlying Party to enter into annexation or development agreements with any Appropriator Party.

G. Oak Valley Partners LP ("Oak Valley") is developing its property pursuant to Specific Plans 216 and 216A adopted by the County of Riverside ("County") in May 1990, and Specific Plan 318 adopted by the County in August, 2001, (Specific Plans 216, 216A and 318 are collectively referred to as the "Specific Plans"). The future water supply needs at build-out of the Specific Plans will greatly exceed Oak Valley's Projected Maximum Production, as reflected in Exhibit "B" to the Judgment, and may be as much as 12,811 acre feet per year. Oak Valley has annexed the portion of its property now within the City of Beaumont into the Beaumont-Cherry Valley Water District ("BCVWD"), and is in

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the process of annexing the remainder portion of its property into the Yucaipa Valley Water District ("YVWD"), in order to obtain retail water service for the development of the Oak Valley property pursuant to the Specific Plans (for purposes of this subparagraph BCVWD and YVWD are collectively referred to as the "Water Districts", and individually as a "Water District"). YVWD covenants to use its best efforts to finalize the annexation of the Oak Valley property within the Calimesa City limits. Oak Valley, for itself and its successors and assigns, hereby agrees, by this stipulation and upon final annexation of its property by YVWD, to forbear from claiming any future, unexercised, overlying rights in excess of the Projected Maximum Production of Exhibit "B" of 1806 acre feet per year. As consideration for the forbearance, the Water Districts agree to amend their respective Urban Water Management Plans ("UWMP") in 2005 as follows: BCVWD agrees that 2,400 acre feet per year of projected water demand shall be included for the portion of Oak Valley to be served by BCVWD in its UWMP, and YVWD agrees to include 8,000 acre feet per year of projected water demand as a projected demand for the portion of Oak Valley to be served by YVWD in its UWMP by 2025. The Water Districts agree to use their best judgment to accurately revise this estimate to reflect the projected water demands for the UWMP prepared in 2010. Furthermore, the Water Districts further agree that, in providing water availability assessments prior to 2010, as required by Water Code §10910 and water supply verifications as required by Government Code §§66455.3 and

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66473.7, or any similar statute, and in maintaining their respective UWMP, each shall consider the foregoing respective projected water demand figures for Oak Valley as proposed water demands. The intent of the foregoing requirements is to ensure that Oak Valley is credited for the forbearance of its overlying water rights and is fully accounted for in each Water District's UWMP and overall water planning. The Water Districts' actions in performance of the foregoing planning obligations shall not create any right or entitlement to, or priority or allocation in, any particular water supply source, capacity or facility, or any right to receive water service other than by satisfying the applicable Water District's reasonable requirements relating to application for service. Nothing in this subparagraph G is intended to affect or impair the provision of earmarked water to Overlying Parties who request and obtain water service from Appropriator Parties, as set forth in subparagraph III.3.B, above.

H. Persons who would otherwise qualify as Overlying Producers based on an interest in land lying within the City of Banning's service area shall not have the rights described in this Paragraph III.3.

4. Exemption for Minimal Producers

Unless otherwise ordered by the Court, Minimal Producers are exempt from the provisions of this Judgment.

IV. CONTINUING JURISDICTION

Full jurisdiction, power and authority is retained and reserved to the Court for purposes of enabling the Court, upon

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application of any Party, by a motion noticed for at least a 30-day period (or consistent with the review procedures of Paragraph VII.6 herein, if applicable), to make such further or supplemental order or directions as may be necessary or appropriate for interim operation of the Beaumont Basin before the Physical Solution is fully operative, or for interpretation, or enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to the provisions hereof consistent with the rights herein decreed; except that the Court's jurisdiction does not extend to the redetermination of (a) Safe Yield during the first ten years of operation of the Physical Solution, and (b) the fraction of the share of Appropriative Water of each Appropriator.

V. THE PHYSICAL SOLUTION

1. Purpose and Objective

In accordance with the mandate of Section 2 of Article X of the California Constitution, the Court hereby adopts, and orders the parties to comply with, a Physical Solution. The purpose of the Physical Solution is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Beaumont Basin, to facilitate conjunctive utilization of surface, ground and Supplemental Waters, and to satisfy the requirements of water users having rights in, or who are dependent upon, the Beaumont Basin. Such Physical Solution requires the definition of the individual rights of all Parties within the Beaumont Basin in a manner which will fairly allocate the native water supplies and which will provide for equitable sharing of costs of Supplemental Water.

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2. Need for Flexibility

The Physical Solution must provide maximum flexibility and adaptability in order that the Watermaster and the Court may be free to use existing and future technological, social, institutional and economic options. To that end, the Court's retained jurisdiction shall be utilized, where appropriate, to supplement the discretion granted herein to the Watermaster.

3. Production and Storage in Accordance With Judgment

This Judgment, and the Physical Solution decreed herein, address all Production and Storage within the Beaumont Basin. Because the Beaumont Basin is at or near a condition of Overdraft, any Production outside the framework of this Judgment and Physical Solution will potentially damage the Beaumont Basin, injure the rights of all Parties, result in the waste of water and interfere with the Physical Solution. The Watermaster shall bring an action or a motion to enjoin any Production that is not in accordance with the terms of this Judgment.

4. General Pattern of Operation

One fundamental premise of the adjudication is that all Producers shall be allowed to pump sufficient water from the Beaumont Basin to meet their respective requirements. Another fundamental premise of the adjudication is that Overlying Parties who pump no more than the amount of their Overlying Water Right as shown on Column 4 of Exhibit "B" hereto, shall not be charged for the replenishment of the Beaumont Basin. To the extent that pumping exceeds five (5) times the share of the Safe Yield assigned to an Overlying Party (Column 4 of Exhibit "B") in any five (5) consecutive years, or the share of Operating Yield

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Right of each Appropriator Party, each such Party shall provide funds to enable the Watermaster to replace such Overproduction.

5. Use of Available Groundwater Storage Capacity

A. There exists in the Beaumont Basin a substantial amount of available Groundwater Storage Capacity. Such Capacity can be reasonably used for Stored Water and Conjunctive Use and may be used subject to Watermaster regulation to prevent injury to existing Overlying and Appropriative water rights, to prevent the waste of water, and to protect the right to the use of Supplemental Water in storage and Safe Yield of the Beaumont Basin.

B. There shall be reserved for Conjunctive Use a minimum of 200,000 acre feet of Groundwater Storage Capacity in the Beaumont Basin provided that such amount may be reduced as necessary to prevent injury to existing water rights or existing uses of water within the Basin, and to prevent the waste of water. Any Person may make reasonable beneficial use of the Groundwater Storage Capacity for storage of Supplemental Water; provided, however, that no such use shall be made except pursuant to a written Groundwater Storage Agreement with the Watermaster. The allocation and use of Groundwater Storage Capacity shall have priority and preference for Producers within the Beaumont Basin over storage for export. The Watermaster may, from time-to-time, redetermine the available Groundwater Storage Capacity.

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VI. ADMINISTRATION

1. Administration and Enforcement by Watermaster

The Watermaster shall administer and enforce the provisions of this Judgment and any subsequent order or instructions of the Court.

2. Watermaster Control

The Watermaster is hereby granted discretionary powers to develop and implement a groundwater management plan and program for the Beaumont Basin, which plan shall be filed with and shall be subject to review and approval by, the Court, and which may include water quantity and quality considerations and shall reflect the provisions of this Judgment. Except for the exercise by Overlying Parties of their respective Rights described in Column 4 of Exhibit "B" hereto in accordance with the provisions of the Physical Solution, groundwater extractions and the replenishment thereof, and the storage of Supplemental Water, shall be subject to procedures established and administered by the Watermaster. Such procedures shall be subject to review by the Court upon motion by any Party.

3. Watermaster Standard of Performance

The Watermaster shall, in carrying out its duties and responsibilities herein, act in an impartial manner without favor or prejudice to any Party or purpose of use.

4. Watermaster Appointment

The Watermaster shall consist of a committee composed of persons nominated by the City of Banning, the City of Beaumont, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company and the Yucaipa Valley Water District, each of

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which shall have the right to nominate one representative to the Watermaster committee who shall be an employee of or consultant to the nominating agency. Each such nomination shall be made in writing, served upon the other parties to this Judgment and filed with the Court, which shall approve or reject such nomination. Each Watermaster representative shall serve until a replacement nominee is approved by the Court. The nominating agency shall have the right to nominate that representative's successor.

5. Powers and Duties of the Watermaster

Subject to the continuing supervision and control of the Court, the Watermaster shall have and may exercise the following express powers, and shall perform the following duties, together with any specific powers, authority, and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the Court in the exercise of its continuing jurisdiction:

A. Rules and Regulations: The adoption of appropriate rules and regulations for the conduct of Watermaster affairs, copies of which shall be provided to all interested parties.

B. Wellhead Protection and Recharge: The identification and management of wellhead protection areas and recharge areas.

C. Well Abandonment: The administration of a well abandonment and well destruction program.

D. Well Construction: The development of minimum well construction specifications and the permitting of new wells.

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E. Mitigation of Overdraft: The mitigation of conditions of uncontrolled overdraft.

F. Replenishment: The acquisition and recharge of Supplemental Water.

G. Monitoring: The monitoring of groundwater levels, ground levels, storage, and water quality.

H. Conjunctive Use: The development and management of conjunctive-use programs.

I. Local Projects: The coordination of construction and operation, by local agencies, of recharge, storage, conservation, water recycling, extraction projects and any water resource management activity within or impacting the Beaumont Basin.

J. Land Use Plans: The review of land use plans and coordination with land use planning agencies to mitigate or eliminate activities that create a reasonable risk of groundwater contamination.

K. Acquisition of Facilities: The purchase, lease and acquisition of all necessary real and personal property, including facilities and equipment.

L. Employment of Experts and Agents: The employment or retention of such technical, clerical, administrative, engineering, accounting, legal or other specialized personnel and consultants as may be deemed appropriate. The Watermaster shall maintain records allocating the cost of such services as well as all other expenses of Watermaster administration.

M. Measuring Devices: Except as otherwise provided

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by agreement the Watermaster shall install and maintain in good operating condition, at the cost of the Watermaster, such necessary measuring devices or meters as Watermaster may deem appropriate. Such devices shall be inspected and tested as deemed necessary by the Watermaster and the cost thereof borne by the Watermaster. Meter repair and retesting will be a Producer expense.

N. Assessments: The Watermaster is empowered to levy and collect the following assessments:

(1) Annual Replenishment Assessments

The Watermaster shall levy and collect assessments in each year, in amounts sufficient to purchase replenishment water to replace Overproduction by any Party.

(2) Annual Administrative Assessments

a. Watermaster Expenses: The expenses of administration of the Physical Solution shall be categorized as either "General Watermaster Administration Expenses", or "Special Project Expenses".

i. General Watermaster Administration Expenses: shall include office rent, labor, supplies, office equipment, incidental expenses and general overhead. General Watermaster Administration Expenses shall be assessed by the Watermaster equally against the Appropriators who have appointed representatives to the Watermaster.

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ii. Special Project Expenses: shall include special engineering, economic or other studies, litigation expenses, meter testing or other major operating expenses. Each such project shall be assigned a task order number and shall be separately budgeted and accounted for. Special Project Expenses shall be allocated to the Appropriators, or portion thereof, on the basis of benefit.

O. Investment of Funds; Borrowing: The Watermaster may hold and invest Watermaster funds as authorized by law, and may borrow, from time-to-time, amounts not exceeding annual receipts.

P. Contracts: The Watermaster may enter into contracts for the performance of any of its powers.

Q. Cooperation With Other Agencies: The Watermaster may act jointly or cooperate with other local, state and federal agencies.

R. Studies: The Watermaster may undertake relevant studies of hydrologic conditions and operating aspects of the management program for the Beaumont Basin.

S. Groundwater Storage Agreements: The Watermaster shall adopt uniform rules and a standard form of agreement for the storage of Supplemental Water, provided that the activities undertaken pursuant to such agreements do not injure any Party.

T. Administration of Groundwater Storage Capacity: Except for the exercise by the Overlying Parties of their

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respective Overlying Water Rights described in Part III, above, in accordance with the provisions of the Physical Solution, all Groundwater Storage Capacity in the Beaumont Basin shall be subject to the Watermaster's rules and regulations, which regulations shall ensure that sufficient storage capacity shall be reserved for local projects. Any Person or entity may apply to the Watermaster to store water in the Beaumont Basin.

U. Accounting for Stored Water: The Watermaster shall calculate additions, extractions and losses and maintain an annual account of all stored water in the Beaumont Basin, and any losses of water supplies or Safe Yield resulting from such stored water.

V. Accounting for New Yield: Recharge of the Beaumont Basin with New Yield water shall be credited to the Party that creates the New Yield. The Watermaster shall make an independent scientific assessment of the estimated New Yield created by each proposed project. New Yield will be allocated on an annual basis, based upon monitoring data and review by the Watermaster.

W. Accounting for Acquisitions of Water Rights: The Watermaster shall maintain an accounting of acquisitions by Appropriators of water otherwise subject to Overlying Water Rights as the result of the provision of water service thereto by an Appropriator.

X. Annual Administrative Budget: The Watermaster shall prepare an annual administrative budget for public review, and shall hold a public hearing on each such budget

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prior to adoption. The budget shall be prepared in sufficient detail so as to make a proper allocation of the expenses and receipts. Expenditures within budgeted items may thereafter be made by the Watermaster as a matter of course.

Y. Redetermining the Safe Yield: The Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of this Judgment.

6. Reports and Accounting

(a) Production Reports: Each Pumper shall periodically file, pursuant to Watermaster rules and regulations, a report showing the total production of such Pumper from each well during the preceding report period, and such additional information as the Watermaster may reasonably require.

(b) Watermaster Report and Accounting: The Watermaster shall prepare an annual report of the preceding year's operations, which shall include an audit of all assessments and Watermaster expenditures.

7. Replenishment

Supplemental Water may be obtained by the Watermaster from any source. The Watermaster shall seek the best available quality of Supplemental Water at the most reasonable cost for recharge in the Basin. Sources may include, but are not limited to:

(a) Recycled Water;

(b) State Water Project Water;

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(c) Other imported water.

Replenishment may be accomplished by any reasonable method including:

(a) Spreading and percolation, or injection of water in existing or new facilities; and/or

(b) In-lieu deliveries for direct surface use, in lieu of groundwater extraction.

VII. MISCELLANEOUS PROVISIONS

1. Designation of Address for Notice and Service

Each Party shall designate, in writing to the plaintiff, the name and address to be used for purposes of all subsequent notices and service herein, such designation to be delivered to the plaintiff within 30 days after the Judgment has been entered. The plaintiff shall, within 45 days after judgment has been entered, file the list of designees with the Court and serve the same on the Watermaster and all Parties. Such designation may be changed from time-to-time by filing a written notice of such change with the Watermaster. Any Party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by the Watermaster. The Watermaster shall maintain, at all times, a current list of Parties to whom notices are to be sent and their addresses for purposes of service. The Watermaster shall also maintain a full current list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall be available to any Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (i) the Party's attorney of record; or (ii) if the Party does not have an

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3403 TENTH [illegible], SUITE 610
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attorney of record, the Party itself at the address on the Watermaster list.

2. Intervention After Judgment

Any Person who is neither a Party to this Judgment nor a successor or assignee of a Party to this Judgment may seek to become a party to this Judgment by filing a petition in intervention.

3. Interference with Pumping

Nothing in this judgment shall be deemed to prevent any party from seeking judicial relief against any other party whose pumping activities constitute an unreasonable interference with the complaining party's ability to extract groundwater.

4. Successors and Assigns

This Judgment and all provisions herein shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto.

5. Severability

The provisions of this Judgment are severable. If any provision of this Judgment is held by the Court to be illegal, invalid or unenforceable, that provision shall be excised from the Judgment. The remainder of the terms of the Judgment shall remain in full force and effect and shall in no way be affected, impaired or invalidated by such excision. This Judgment shall be reformed to add, in lieu of the excised provision, a provision as similar in terms to the excised provision as may be possible and be legal, valid and enforceable.

6. Review Procedures

Any action, decision, rule or procedure of the Watermaster

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pursuant to this Judgment shall be subject to review by the Court on its own motion or on timely motion by any Party, as follows:

A. Effective Date of Watermaster Action: Any order, decision or action of the Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

B. Notice of Motion: Any Party may, by a regularly-noticed motion, petition the Court for review of the Watermaster's action or decision pursuant to this Judgment. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to the Watermaster, together with the service fee established by the Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. The Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by the Watermaster according to Part VII, paragraph 1, above. A Party's obligation to serve the notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

C. Time for Motion: A motion to review any Watermaster action or decision shall be filed within 90 days after such Watermaster action or decision, except that motions to review Watermaster assessments hereunder shall be filed within 30 days of mailing of notice of the assessment.

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D. De Novo Nature of Proceeding: Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

E. Decision: The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon the Watermaster and the Parties.

Dated: FEB - 4 2004

GARY TRANBARGER

JUDGE OF THE SUPERIOR COURT

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AKLUFI & WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

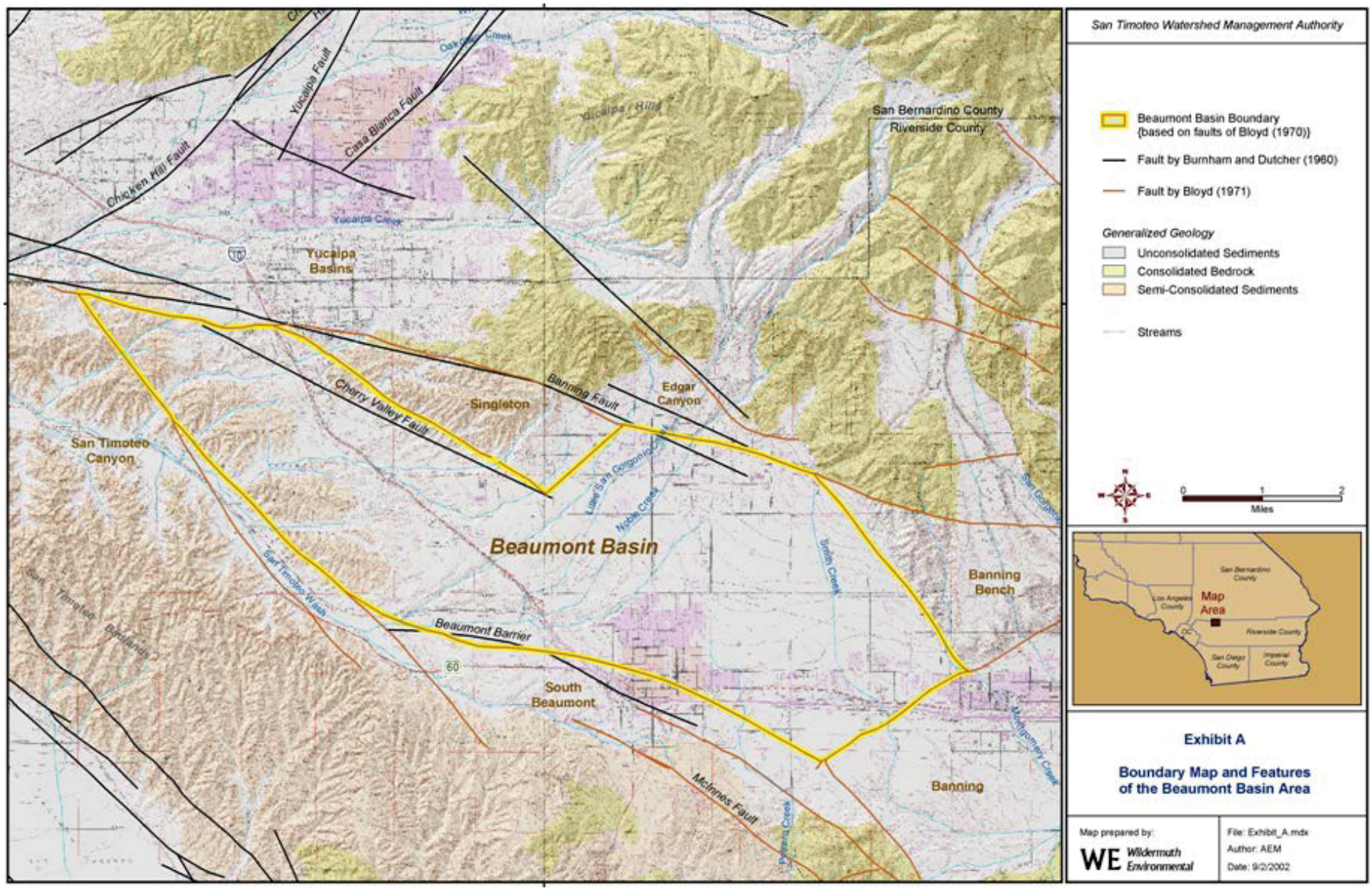
San Timoteo Watershed Management Authority
Beaumont Basin Boundary
(based on faults of Bloyd (1970))
Fault by Burnham and Dutcher (1960)
Fault by Bloyd (1971)
Generalized Geology
Unconsolidated Sediments
Consolidated Bedrock
Semi-Consolidated Sediments
Streams
0
1
2
Miles
Map Area
San Bernardino County
Riverside County
Los Angeles County
San Diego County
Imperial County
Exhibit A
Boundary Map and Features of the Beaumont Basin Area
Map prepared by:
Wildermuth Environmental
File: Exhibit_A.mdx
Author: AEM
Date: 9/2/2002
Yucaipa Fault
Casa Blanca Fault
Chicken Hill Fault
Yucaipa Hills
San Bernardino County
Riverside County
Yucaipa Creek
Yucaipa Basins
Cherry Valley Fault
Banning Fault
Singleton
Edgar Canyon
San Timoteo Canyon
Lower San Gorgonio Creek
Noble Creek
Beaumont Basin
San Timoteo Wash
Smith Creek
Banning Bench
Beaumont Barrier
South Beaumont
Montgomery Creek
McInnes Fault
Potrero Creek
Banning

Exhibit B
Overlying Producers and Their Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Exercised Rights[1] (acre-ft/yr)	(4) Projected Maximum Production (acre-ft/yr)
Beckman, Walt	0	0	75
Roman Catholic Bishop of San Bernardino	104	114	154
Rancho Calimesa Mobile Home Park	60	150	150
Merlin Properties, LLC.	540	550	550
Sunny-Cal Egg and Poultry Company[2]	1,340	1,340	1,439.5
Sunny-Cal North - Manheim, Manheim & Berman[2]			300
Nick Nikodinov[3]			20
Ronald L. McAmis[4]			5
Nicolas and Amalia Aldama[5]			7
Hector Gutierrez, Luis Gutierrez and Sebastian Monroy[6]			10
Boris and Miriam Darmont[7]			2.5
California Oak Valley Golf and Resort LLC	692	950	950
Leonard Stearn	0	0	200
Oak Valley Partners	510	553	1,806
So. California Professional Golf Association	680	1,688	2,200
Sharondale Mesa Owners Association	184	200	200
Plantation on the Lake	271	300	581
Totals	4,381	5,845	8,650

Note 1 -- Maximum Reported Production during 1997-2001

Note 2 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 300 af of the aggregate right to MMB aka Sunny-Cal North on February 7, 2006.*

Note 3 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 20 af of aggregate right to Nick Nikodinov on April 17, 2006.*

Note 4 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 5 af of aggregate right to Ronald L. McAmis on June 13, 2006.*

Note 5 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 7 af of aggregate right to Nicolas and Amalia Aldama on June 13, 2006.*

Note 6 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 10 af of aggregate right to Hector Gutierrez, Luis Gutierrez and Sebastian Monroy on June 13, 2006.*

Note 7 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 2.50 af of aggregate right to Boris and Miriam Dermont on June 13, 2006.*

Exhibit C
Appropriators and Their Water Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Share of Safe Yield Allocated to Appropriators	(4) Initial Estimate of Appropriate Rights[1] (acre-ft/yr)	(5) Controlled Overdraft and Supplemental Water Recharge Allocation [2] (acre-ft/yr)	(6) Operating Yield (acre-ft/yr)
Banning, City of	2,170	31.43%	882	5,029	5,910
City of Beaumont	0	0.00%	0	0	0
Beaumont Cherry Valley Water District	2,936	42.51%	1,193	6,802	7,995
South Mesa Water Company	862	12.48%	350	1,996	2,346
Yucaipa Valley Water District	938	13.58%	381	2,173	2,554
Totals	6,906	100.00%	2,805	16,000	18,805

Note 1 – Based on a 8,650 acre-ft/yr safe yield

Note 2-- Controlled overdraft will not exceed 160,000 acre-ft during for first ten years of operation under the physical solution.

Exhibit D

Overlying Producers and the Parcels Upon Which Their Overlying Rights are Exercised[1]

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Beckman, Walt	405250004	19.04
	405250005	19.00
Total Area		38.04
California Oak Valley Golf and Resort	406070041	209.71
Total Area		209.71
Manheim, Manheim & Berman[2]	407200009	20.35
	407200011	20.00
	407200012	20.04
	407210001	45.41
	407210002	12.04
	407210004	4.16
Total Area		122.00
Roman Catholic Bishop of San Bernardino	413280016	16.78
	413280030	2.06
	413280036	12.42
Total Area		31.26
Oak Valley Partners	406060010	115.82
	406060015	4.00
	406060017	19.03
	406230020	4.26
	411210003	2.40
	411210005	105.41
	411210010	15.14
	411210016	9.77
	411210017	8.94
	413030011	315.30
	413040001	493.40
	413040002	137.00
	413040003	74.48
	413040004	6.50
	413040005	80.02
	413040006	75.54
	413040007	76.22

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Oak Valley Partners (cont'd)	413040008	144.48
	413040009	10.00
	413040010	78.22
	413060003	1.70
	413160003	80.00
	413160004	106.92
	413160005	53.08
	413160006	64.47
	413160007	15.53
	413170020	40.26
	413170021	27.62
	413170023	12.38
	413170027	14.19
	413170028	4.11
	413170029	2.35
	413170030	20.28
	413170031	66.63
	413170033	2.79
	413170035	11.74
	413180017	556.91
	413180019	9.77
	413190001	111.31
	413190003	5.64
	413190005	10.35
	413190008	12.40
	413190011	138.92
	413200002	0.23
	413200003	0.15
	413200010	5.94
	413200014	10.61
	413200015	11.36
	413200020	5.00
	413200023	14.47
	413200024	5.00
	413200026	32.86
	413200027	42.90
	413200028	116.62
	413200029	6.39
	413200030	19.01
	413200034	2.18
	413200035	10.99
	413200036	10.42
	413200037	4.95
	413270021	0.31
	413280034	2.37
	413280039	13.61
	413280040	1.91

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Oak Valley Partners (cont'd)	413280041	2.24
	413280042	6.86
	413290003	510.57
	413290004	16.08
	413290006	8.40
	413290007	103.68
	413450019	74.85
	413450020	169.96
	413450021	146.99
	413450024	48.25
	413450025	50.83
	413450026	122.59
	413450029	108.92
	413460036	199.12
	413460037	23.51
	413460038	19.58
	413460039	45.23
	413460039	45.23
	414090005	1.59
	414090007	1.38
	414090013	31.60
	414090017	20.00
	414090018	4.50
	414100002	42.13
	414100003	65.00
Total Area		5,331.65
Plantation on the Lake	407230031	12.36
	407230010	1.25
	406050018	156.85
	406050002	5.12
	406050003	1.81
Total Area		177.39
Rancho Calimesa Mobile Home Park	413270001	29.66
Total Area		29.66
Merlin Properties, LLC.	407230014	48.52
Total Area		48.52
Sharondale Mesa Owners Association	413330014	1.55
	413330015	2.14
	413331022	0.48
	413331035	0.22
	413340021	0.04
	413340022	0.04
	413340023	1.53
	413340024	2.52
	413341033	0.29

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Sharondale Mesa Owners Association (cont'd)	413341034	0.81
	413341036	0.35
	413342004	0.35
	413350011	1.04
	413350012	1.44
	413351018	17.08
	413351019	0.16
	413360032	1.92
	413360033	2.30
	413360035	0.90
	413361001	0.14
	413361008	0.12
	413361010	0.18
	413370027	0.39
	413370028	5.34
	413370030	0.69
	413371018	2.07
	413372019	1.39
Total Area		45.48
So. California Professional Golf Association	406060011	146.59
	406060013	2.83
	406060014	4.58
	406060016	10.35
	413450016	99.66
	413450022	95.15
	413450023	2.89
	413450027	91.53
Total Area		453.58
Stearns, Leonard	413221001	0.25
	413221002	0.34
	413260018	49.33
	413260025	0.37
	413270007	10.58
	413280010	1.27
	413280018	9.37
	413280021	4.26
	413280027	3.80
	413280037	14.32
Total Area		93.89
Sunny-Cal Egg and Poultry Company[2]	406080013	0.07
	407190016	4.95
	407190017	31.32
	407230022	20.03
	407230023	20.03
	407230024	20.03
	407230025	21.99

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Sunny-Cal Egg and Poultry Company[2] (cont'd)	407230026	25.94
	407230027	21.63
	407230028	21.56
Total Area		187.55
Nikodinov, Nick[4]	407180004	9.35
Total Area		9.35
McAmis, Ronald L.[5]	407190018	0.93
Total Area		0.93
Aldama, Nicolas and Amalia[6]	407190015	1.35
Total Area		1.35
Hector Gutierrez, Luis Gutierrez and Sebastian Monroy[7]	407190013	2.01
Total Area		2.01
Darmont, Boris and Miriam[8]	407190014	0.50
Total Area		0.50
Total Area for All Overlying Producers[3]		**6,782.87**

Note 1 -- Parcels as of June 1, 2003; updated to include Nick Nikodinov per April 17, 2006 Watermaster action; updated to include Ronald L. McAmis, Nicolas and Amalia Aldama, Hector Gutierrez, Luis Guiterrez, and Sebastian Monroy, and Boris and Miriam Darmont per June 13, 2006 Watermaster actions.

Note 2 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to MMB on February 7, 2006.

Note 3 -- The Watermaster shall recognize adjustments in parcel boundaries that result in de minimus changes in water use

Note 4 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Nick Nikodinov on Aprin 17, 2006.

Note 5 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Ronald L. McAmis on June 13, 2006.

Note 6 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Nicolas and Amalia Aldama on June 13, 2006.

Note 7 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Hector Gutierrez, Luis Gutierrez and Sebastian Monroy on June 13, 2006.

Note 8 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Boris and Miriam Durmont on June 13, 2006.

RESOLUTION NO. 2015 – 01

A RESOLUTION OF THE BEAUMONT BASIN WATERMASTER ADOPTING THE 2013 REEVALUATION OF THE BEAUMONT BASIN SAFE YIELD REPORT AND REDETERMINATION OF THE SAFE YIELD OF THE BEAUMONT BASIN

WHEREAS, the Stipulated Judgment filed February 4, 2004 establishing the Beaumont Basin Watermaster (Riverside Superior Court Case No. 389197) empowers Watermaster to adopt appropriate rules and regulations for the conduct of Watermaster affairs; and

WHEREAS, the Stipulated Judgment, per section VI.5.Y. requires Watermaster to redetermine the Safe Yield of the Beaumont Basin at least every 10 years beginning 10 years after the date of entry of the Stipulated Judgment; and

WHEREAS, a special projects committee, consisting of representatives from the City of Banning, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company, and the Yucaipa Valley Water District was commissioned to provide Watermaster with a recommendation concerning the redetermination of safe yield; and

WHEREAS, the special projects committee commissioned Thomas Harder & Co. in association with Alda, Inc. to prepare a report analyzing and recommending a redetermined Safe Yield as defined by Rule 4.1 of the Beaumont Basin Watermaster Rules and Regulations; and

WHEREAS, the special projects committee conducted several public workshops concerning the redetermination of the Safe Yield of the Beaumont Basin during which considered and analyzed studies and draft reports prepared by Thomas Harder & Co. in association with Alda, Inc., and also received and considered comments submitted by overlyers, appropriators and members of the public; and

WHEREAS, Thomas Harder & Co. in association with Alda, Inc. conducted studies and prepared a report entitled "Final 2013 Reevaluation of the Beaumont Basin Safe Yield" based on the projected water balance for the 10 year period between 2013 to 2022; and

WHEREAS, the Thomas Harder & Co. in association with Alda, Inc. report recommended the redetermined Safe Yield of the Beaumont Basin to be 6,700 acre-feet/yr for the next 10 years of operations within the Beaumont Basin; and

WHEREAS, the special projects committee has recommended to Watermaster that the Final 2013 Reevaluation of the Beaumont Basin Safe Yield report be approved and adopted, and that the redetermined Safe Yield of the Beaumont Basin be 6,700 acre-feet/yr;

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE BEAUMONT BASIN WATERMASTER that:

1. The Beaumont Basin Watermaster does accept and adopt the Final 2013 Reevaluation of the Beaumont Basin Safe Yield report; and
2. The Beaumont Basin Watermaster redetermines the Safe Yield of the Beaumont Basin to be 6,700 acre-feet/yr.

PASSED AND ADOPTED this 1st day of April, 2015.

Appendix F
Notices to Cities and Counties, Notice of Public Hearing, Meeting Minutes, Comments, and Resolution of Adoption

Appendix F
Notices to Cities and Counties, Notice of Public Hearing, Meeting Minutes, Comments, and Resolution of Adoption

60-day Notification Letters

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Art Vela ,P.E.
Acting Director
City of Banning/Department of Public Works
99 East Ramsey Street
Banning, CA 92220

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Vela,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the Beaumont-Cherry Valley Water District service area which includes portions of San Bernardino and Riverside County. Water demand projections will rely upon growth and population estimates from local land use plans and state and regional agencies. Beaumont-Cherry Valley Water District is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP**. Beaumont-Cherry Valley Water District would like to extend to your agency an opportunity to meet with us to go over the various elements of the Urban Water Management Plan., including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.**

We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Ray Casey
City Manager
City of Yucaipa
34272 Yucaipa Blvd.
Yucaipa, CA 92399

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Casey,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

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Board of Directors
David Hoffman
Division 5
John Covington
Division 4
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Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Ms. Bonnie Johnson
City Manager
City of Calimesa
908 Park Avenue
Calimesa, CA 92320

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Ms. Johnson,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the Beaumont-Cherry Valley Water District service area which includes portions of San Bernardino and Riverside County. Water demand projections will rely upon growth and population estimates from local land use plans and state and regional agencies. Beaumont-Cherry Valley Water District is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP**. Beaumont-Cherry Valley Water District would like to extend to your agency an opportunity to meet with us to go over the various elements of the Urban Water Management Plan., including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.**

We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
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Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Joseph Zoba
General Manager
Yucaipa Valley Water District
P.O. Box 730
Yucaipa, CA 92399-0730

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Zoba,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the Beaumont-Cherry Valley Water District service area which includes portions of San Bernardino and Riverside County. Water demand projections will rely upon growth and population estimates from local land use plans and state and regional agencies. Beaumont-Cherry Valley Water District is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP**. Beaumont-Cherry Valley Water District would like to extend to your agency an opportunity to meet with us to go over the various elements of the Urban Water Management Plan., including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.**

We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
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Board of Directors
David Hoffman
Division 5
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Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. David Armstrong
General Manager
South Mesa Water Company
P.O. Box 458
Calimesa, CA 92320

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Armstrong,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the Beaumont-Cherry Valley Water District service area which includes portions of San Bernardino and Riverside County. Water demand projections will rely upon growth and population estimates from local land use plans and state and regional agencies. Beaumont-Cherry Valley Water District is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP**. Beaumont-Cherry Valley Water District would like to extend to your agency an opportunity to meet with us to go over the various elements of the Urban Water Management Plan., including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.**

We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Paul D. Jones ,II P.E.
General Manager
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. D. Jones,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the Beaumont-Cherry Valley Water District service area which includes portions of San Bernardino and Riverside County. Water demand projections will rely upon growth and population estimates from local land use plans and state and regional agencies. Beaumont-Cherry Valley Water District is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP**. Beaumont-Cherry Valley Water District would like to extend to your agency an opportunity to meet with us to go over the various elements of the Urban Water Management Plan., including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.**

We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

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Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Jeff Davis
General Manager
San Gorgonio Pass Water Agency
1210 Baumont Avenue
Beaumont, CA 92223

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Davis,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the Beaumont-Cherry Valley Water District service area which includes portions of San Bernardino and Riverside County. Water demand projections will rely upon growth and population estimates from local land use plans and state and regional agencies. Beaumont-Cherry Valley Water District is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP**. Beaumont-Cherry Valley Water District would like to extend to your agency an opportunity to meet with us to go over the various elements of the Urban Water Management Plan., including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.**

We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Jay Orr
Executive Officer
County of Riverside - LAFCO
3850 Vine Street, Ste. 110
Riverside, CA 92507-4277

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Orr,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

May 12, 2016

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

Ms. Patsy Reeley
President
Cherry Valley Acres and Neighbors
P.O. Box 3257
Beaumont, CA 92223

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Ms. Reeley,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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We anticipate that a draft UWMP will be available for public review starting in May or early June 2016 and our agency will hold a public hearing in June 2016, prior to adoption of the UWMP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about Beaumont-Cherry Valley Water District's Urban Water Management Plan, please contact Dan Jaggers at (951) 845-0159.

Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
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Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Bill Blankenship
Chief Executive Officer
Riverside Building Industry Association
3891 11th Street
Riverside, CA 92501

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Blankenship,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

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www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
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Jeffrey Cottrell
Division 1

May 12, 2016

Ms. Kathleen Rollings-McDonald
Executive Officer
County of San Bernardino - LAFCO
215 North D. Street, Ste. 204
San Bernardino, CA 92415-0490

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Ms. Rollings-McDonald,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

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Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
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Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Amer Jakher
Director of Public Works
City of Beaumont
550 East 6th Street
Beaumont, CA 92223

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Jakher,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

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www.bcvwd.org

Board of Directors
David Hoffman
Division 5
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Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

May 12, 2016

Mr. Duane Burke
General Manager
Beaumont Cherry Valley Recreation and Parks District
650 Oak Valley Parkway
Beaumont, CA 92223

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Burke,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

May 12, 2016

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
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Nathan Douglas
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Jeffrey Cottrell
Division 1

Mr. Terrence Davis
Superintendant
Beaumont Unified School District
350 Brookside Avenue
Beaumont, CA 92223

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. Davis,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

Board of Directors
David Hoffman
Division 5
John Covington
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Nathan Douglas
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Jeffrey Cottrell
Division 1

May 12, 2016

Ms. Celeste Cantu'
General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Ms. Cantu',

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District
Phone: (951) 845-9581 Fax: (951) 845-0159
www.bcvwd.org

May 12, 2016

Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

Mr. Stuart McKibbin
General Manager
Riverside County Flood Control & Water Conservation
1995 Market Street
Riverside, CA 92501

RE: 2015 Regional Urban Water Management Plan for Beaumont-Cherry Valley Water District

Dear Mr. McKibbin,

Beaumont-Cherry Valley Water District is in the process of developing the 2015 Urban Water Management Plan. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for Beaumont-Cherry Water District to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

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Sincerely,

Dan Jaggers
Director of Engineering

Public Hearing Notification

Record Gazette
218 N. Murray St.

Proof of Publication

(2015.5 C.C.P.)

137873 2015UWMP

State of California)
County of Riverside) **ss.**

I am a citizen of the United States and a resident of the State of California; I am over the age of eighteen years, and not a party to or interested in the above matter. I am the principal clerk of the printer and publisher of Record Gazette, a newspaper published in the English language in the City of Banning, County of Riverside, and adjudicated a newspaper of general circulation as defined by the laws of the state of California by the Superior Court of the County of Riverside, under the date October 14, 1966, Case No. 54737. That the notice, of which the annexed is a copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

November 11, 18, 2016

Executed on: 11/18/2016

At Banning , CA

I ceritfy (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

The Beaumont-Cherry Valley Water District (District) will be holding a public hearing at the regular board meeting on December 14, 2016 to receive input and comment on the draft version of the Districts 2015 Urban Water Management Plan (UWMP) Update In accordance with 10642 of the California Water Code. Both written and oral comments will be accepted either on or prior to the date of the public hearing.
Date of Public Hearing: December 14, 2016
Time of Public Hearing: 7:00 pm
Location: Beaumont-Cherry Valley Water District Board Room
560 Magnolia Avenue
Beaumont, CA 92223
The Beaumont Cherry Valley Water District has revised its 2013 Urban Water Management Plan and a copy of the draft 2015 UWMP Update is available for review at the District Office at the location identified above.
The 2015 UWMP Update is also available for review and comment on the Districts website: www.bcvwd.org
The 2015 Urban Water Management Plan may be adopted by the Districts Board of Directors at the December 14, 2016 meeting or a subsequent meeting and will be submitted to the Department of Water Resources within 30 days of adoption.
Published in
The Record Gazette
No. 137873
11/11, 18, 2016

Public Hearing Notification Letters

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Amer Jakher
Director of Public Works
City of Beaumont
550 East 6th Street
Beaumont, CA 92223

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Jakher,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

The Beaumont Cherry Valley Water District has revised its 2015 Urban Water Management Plan and one copy of the draft 2015 UWMP Update is included herein.

The 2015 UWMP Update is also available for review and comment on the District's website: www.bcvwd.org

Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Art Vela ,P.E.
Director of Public Works/City Engineer
City of Banning/Department of Public Works
99 East Ramsey Street
Banning, CA 92220

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Vela,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Bill Blankenship
Chief Executive Officer
Riverside Building Industry Association
3891 11th Street
Riverside, CA 92501

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Blankenship,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

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Division 4

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Jeffrey Cottrell
Division 1

November 7, 2016

Ms. Bonnie Johnson
City Manager
City of Calimesa
908 Park Avenue
Calimesa, CA 92320

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Ms. Johnson,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

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Nathan Douglas
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Jeffrey Cottrell
Division 1

November 7, 2016

Ms. Celeste Cantu'
General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Ms. Cantu',

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

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Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

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Board of Directors

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Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. David Armstrong
General Manager
South Mesa Water Company
P.O. Box 458
Calimesa, CA 92320

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Armstrong,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

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560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

The Beaumont Cherry Valley Water District has revised its 2015 Urban Water Management Plan and one copy of the draft 2015 UWMP Update is included herein.

The 2015 UWMP Update is also available for review and comment on the District's website: www.bcvwd.org

Sincerely,

Daniel K. Jaggers
Director of Engineering

www.bcvwd.org

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Duane Burke
General Manager
Beaumont Cherry Valley Recreation and Parks District
650 Oak Valley Parkway
Beaumont, CA 92223

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Burke,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

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Board of Directors
David Hoffman
Division 5
John Covington
Division 4
Daniel Slawson
Division 3
Nathan Douglas
Division 2
Jeffrey Cottrell
Division 1

November 3, 2016

Mr. Jeff Davis
General Manager
San Gorgonio Pass Water Agency
1210 Baumont Avenue
Beaumont, CA 92223

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2016 Urban Water Management Plan Update

Dear Mr. Davis,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2016 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

The Beaumont Cherry Valley Water District has revised its 2016 Urban Water Management Plan and one copy of the draft 2016 UWMP Update is included herein.

The 2016 UWMP Update is also available for review and comment on the District's website: www.bcvwd.org

Sincerely,

Dan Jaggers
Director of Engineering

BCVWD_WMWP_ltr2_JD_20161103.docx

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

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Nathan Douglas
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Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Jay Orr
Executive Officer
County of Riverside - LAFCO
3850 Vine Street, Ste. 110
Riverside, CA 92507-4277

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Orr,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

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www.bcvwd.org

Board of Directors

David Hoffman
Division 5

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Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Jason E. Uhley
General Manager
Riverside County Flood Control & Water Conservation
1995 Market Street
Riverside, CA 92501

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. McKibbin,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
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Daniel Slawson
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Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Joseph Zoba
General Manager
Yucaipa Valley Water District
P.O. Box 730
Yucaipa, CA 92399-0730

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Zoba,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Ms. Kathleen Rollings-McDonald
Executive Officer
County of San Bernardino - LAFCO
215 North D. Street, Ste. 204
San Bernardino, CA 92415-0490

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Ms. Rollings-McDonald,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

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www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Paul D. Jones ,II P.E.
General Manager
Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. D. Jones,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

Phone: (951) 845-9581 Fax: (951) 845-0159

www.bcvwd.org

Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Ms. Patsy Reeley
President
Cherry Valley Acres and Neighbors
P.O. Box 3257
Beaumont, CA 92223

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Ms. Reeley,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

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Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

Beaumont-Cherry Valley Water District

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Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Ray Casey
City Manager
City of Yucaipa
34272 Yucaipa Blvd.
Yucaipa, CA 92399

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Casey,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

Date of Public Hearing: December 14, 2016

Location: Beaumont-Cherry Valley Water District
Board Room
560 Magnolia Avenue
Beaumont, CA 91123

Time of Public Hearing: 7:00 pm

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Sincerely,

Daniel K. Jaggers
Director of Engineering

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Board of Directors

David Hoffman
Division 5

John Covington
Division 4

Daniel Slawson
Division 3

Nathan Douglas
Division 2

Jeffrey Cottrell
Division 1

November 7, 2016

Mr. Terrence Davis
Superintendant
Beaumont Unified School District
350 Brookside Avenue
Beaumont, CA 92223

Subject: Notice of Public Hearing and Possible Adoption of Beaumont-Cherry Valley Water District 2015 Urban Water Management Plan Update

Dear Mr. Davis,

In accordance with §106442 of the California Water Code, The Beaumont-Cherry Valley Water District (District) will be holding a public hearing to receive input and comment on the draft version of the District's 2015 Urban Water Management Plan (UWMP) Update. Both written and oral comments will be accepted either on or prior to the date of the public hearing.

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Board Room
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Sincerely,

Daniel K. Jaggers
Director of Engineering

UWMP Public Hearing Presentation

Draft 2015 Urban Water Management Plan

Beaumont Cherry Valley Water District
December 14, 2016

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

What is the UWMP?

- Required by California Water Code
  - For all water suppliers with 3,000 customers or supplying more than 3,000 acre-ft/year (AFY)
- Must be completed every 5 years
  - DWR extended the 2015 deadline into 2016
- Demonstrates how BCVWD will meet water demands over next 20 to 25 years
- It is a "Planning Document" that complements BCVWD's Potable and Non-potable Water Master Plans

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Some Specific Requirements for this "Edition"

- Are we complying with SB X7-7?
  - Reduce per capita water use by 20% by 2020
- How are we doing with respect to system water losses?
- Do we have adequate supply for single and multi-year drought conditions?
- Can we meet demands during catastrophic supply interruptions?
- Potential climate change impacts on imported and local water supplies

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Purpose of Today's Presentation

- Present Draft UWMP and receive Board, Public, and other Agency Comments
  - Required by the Water Code
- Provide an insight into what BCVWD is considering for future water supplies
- Provide an opportunity for Board and Public input into the planning direction
- Make revisions as needed to the "Draft"
- Adopt the UWMP (assuming no significant changes)

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

The Next Steps

- Submit the adopted version along with a Board resolution of adoption to DWR
- DWR will place the adopted BCVWD's UWMP on DWR's website
- BCVWD will place the adopted UWMP on the District's website

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Presentation Outline

- Historical water use and projection of future demands
- Sources of water to meet demands
- Supply reliability
- Water shortage contingency planning
- Demand management measures

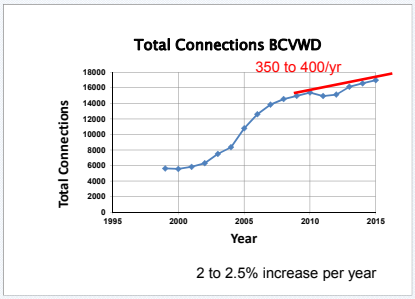
Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

BCVWD's Plan

- Rely on Firm Sources
- Ensure there is adequate, reliable imported water supply available to meet future needs
- Supplement with future sources to reduce the need to purchase imported water
- Encourage conservation and using water wisely

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

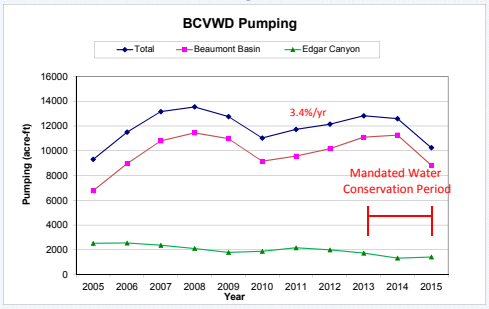
Connection Growth in BCVWD



2 to 2.5% increase per year

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Total Water Pumped



Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Predicting the Future

- Population growth in BCVWD service area taken from adopted Potable Water Master Plan
  - Construction started and grading and utilities completed when construction stalled
  - Still about 4,200 EDUs left to construct in Sundance, K-Hov, and Fairway Canyon
  - Approximately 10,500 additional planned EDUs in other areas
- Cherry Valley growth – very gradual

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Planned EDU Status

- Housing Sites Under Construction: ~4,200 EDUs
  - Sundance, K-Hov, Fairway Canyon, Heartland (partially graded)
- Housing Sites Approved For Construction: ~3,800 EDUs
- Development/Tracts Under Review (By City of Beaumont): ~6,700

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Projected Growth – probably aggressive

Table 3-7
Summary of New EDUs in BCVWD Service Area (base year 2013)
(Taken from BCVWD 2015 Potable Water Master Plan)

	Cumulative New EDUs							
	2015	2020	2025	2030	2035	2040	2045	Build-out
Beaumont	893	5,530	8,301	11,382	14,144	15,852	16,317	17,856
Cherry Valley	13	23	82	251	552	1,661	2,233	4,655
Totals	918	5,553	8,383	11,633	14,696	17,513	18,550	22,511
Average New EDUs/year		927	566	650	612	563	207	

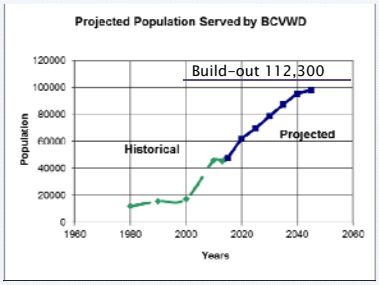
Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Table 3-8
Current and Projected Population in BCVWD Service Area

	Population						
	2015	2020	2025	2030	2035	2040	Build-out
Based on EDU Growth in Table 3-5							
Beaumont	41,780	54,764	62,522	71,149	78,883	83,665	92,806
Cherry Valley	6,597	6,622	6,784	7,244	8,066	11,139	19,494
Totals BCVWD	48,377	61,386	69,306	78,393	86,949	94,804	112,300
Based on 500 EDUs/year in Beaumont							
Cherry Valley	6,597	6,622	6,784	7,244	8,066	11,139	19,494
Beaumont	41,780	48,780	55,780	62,780	69,780	76,780	92,806
Totals BCVWD	48,377	55,402	62,564	70,024	77,846	87,919	112,300

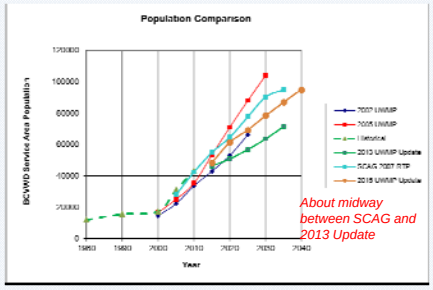
Reduced growth rate results in a 5-year lag
-- not significant in water supply planning

Projections for Future Populations



Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Comparison to Previous UWMPs



About midway between SCAG and 2013 Update

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Water Demands

	2015	2020	2025	2030	2035	2040
Potable Water, AFY	9,792	14,753	16,576	18,674	20,658	22,483
Non-Potable Water, AFY	0	1,906	2,374	2,931	3,228	3,449
Subtotal, AFY	9,792	16,659	18,950	21,605	23,886	25,932
Imported Water for Banking to meet Reliability Requirements for Future Growth, AFY		1,000	1,500	2,000	2,500	2,500
Total Demands, AFY	9,792	17,659	20,450	23,605	26,386	28,432

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Water Demand Summary

- Potable water demand increase of about 400 AF to 500 AF per Year over next 25 years (average)
- Imported water "banking" will increase from 1,000 AFY to over 2,500 AFY over next 25 years to build up storage account for drought contingency
  - Over and above that needed to offset replacement obligations

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Sources to Meet Demands

Source	Current	Future
Groundwater	X	X
Imported Water from SGPWA	X	X
Recycled Water for Landscape Irrigation (YVWD & Beaumont)		X
Advance Treated Recycled Water for Groundwater Recharge (YVWD & Beaumont)		Potential
Captured Urban Runoff and Stormwater		X
Non-potable Groundwater	X	X
Joint Projects with Other Agencies with Exchanges		Potential

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Total Groundwater Sources

Source/Year	2015	2020	2025	2030	2035	2040
Edgar Canyon, AFY	1,418	2,200	2,200	2,200	2,200	2,200
Beaumont Basin, AFY	1,927	1,765	1,970	2,334	2,782	2,836
Beaumont Basin Forbearance from Supplying Golf Courses. AFY	0	453	431	416	457	528
Total Extractable Groundwater without replacement, AFY	3,345	4,418	4,601	4,950	5,439	5,564
BCVWD Total Potable Water Demand, AFY	9,792	14,753	16,576	18,674	20,658	22,483
Shortfall, AFY	6,447	10,335	11,975	13,724	15,219	16,919

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Meeting the Potable Water Shortfall

- Captured urban and storm water runoff
- Imported water from SGPWA
- Advance treated recycled water percolated to the groundwater
- Increased conservation

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Stormwater can be captured!





Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Stormwater Capture

Facility	Estimated Amount of New Water, AFY
Grand Ave. Storm Drain (Beaumont MDP Line 16)	185
Cherry Ave. Basin	245
Eighth St. Basin	220
Starlight Basin	80
Total	730

Amount captured depends on drainage area, extend of development, storm pattern, and recharge/storage basin capacity

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Advance Treated Recycled Water

Source	2015	2020	2025	2030	2035	2040
Advance Treated City of Beaumont Recycled Water, AFY	0	0	418	491	646	827

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Potable Water Summary

Source	2015	2020	2025	2030	2035	2040
Shortfall, AFY	6,447	10,335	11,975	13,724	15,219	16,919
Captured Urban Runoff & Storm Water, (New Water), AFY	0	185	430	730	730	730
Advance Treated Recycled Water, Percolated, AFY	0	0	418	491	646	827
Imported Water from SGPWA to meet potable water demand, AFY	6,447	10,150	11,127	12,503	13,843	15,362

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Sources to Meet Non-potable Water Demands

- Non-potable nitrate groundwater from mouth of Edgar Canyon
- Non-potable groundwater extracted from San Timoteo Canyon
- Recycled Water

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

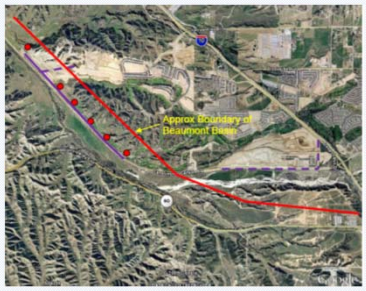
High Nitrate Groundwater at Mouth of Edgar Canyon



A series of extraction wells which would pump high nitrate groundwater into the non-potable water system

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

San Timoteo Extraction Wells



A series of extraction wells along Oak Valley Pkwy to extract high groundwater to non-potable water system

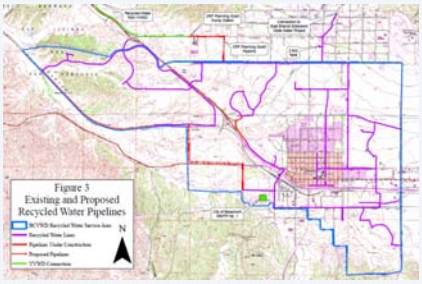
Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Recycled Water

- Very Important and Reliable Source
- YVWD
- City of Beaumont

Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

BCVWD's Existing Recycled Water System – 40+ miles of pipe!



Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

City of Beaumont Recycled Water

- Status
  - Completed the UV Validation Testing and UV is approved
  - Need to install instrumentation and monitoring systems and coagulation system to meet Title 22
  - Title 22 Engineering Report for WWTP has been completed and awaiting approval
  - WWTP flows are above 75% trigger point; City needs to move forward to increase capacity
  - A consulting firm is under contract to perform preliminary design

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Special Requirements

- Need to maintain 1.8 mgd (about 2000 AFY) of flow in Cooper's Creek for Environmental Mitigation
  - Reduces the amount which can be recycled
  - Some may be recovered through extraction wells
- Need to treat to meet TDS limits
- Need to construct storage tank and booster pumping station at or near WWTP
  - BCVWD pipelines already extend front of WWTP

YVWD Recycled Water

- Recycled Water meets Max Benefit requirements (meets TDS requirements)
- Approximately 1,045 AFY of recycled water and filter washwater from the water treatment plant is available
- Requires a 5-mile long pipeline connection along I-10
  - Joint project with YVWD since it would also serve their Summerwind project
  - BCVWD prepared a facility plant for a loan/grant from SWRCB

Non-potable Water Demand

Source	2015	2020	2025	2030	2035	2040
Non-potable Water Demand, (Landscaping), AFY	0	1,906	2,374	2,931	3,228	3,449
Non-potable Water to Golf Courses, as available, AFY	0	453	431	412	457	528
Total Non-Potable, AFY	0	2,362	2,805	3,343	3,685	3,977
YVWD Supplied, AFY	0	1,042	1,043	1,043	1,044	1,043
City of Beaumont Supplied, AFY	0	1,154	1,482	1,849	2,194	2,536
Total Recycled Water Supplied, AFY	0	2,196	2,525	2,892	3,238	3,579
Non-potable Groundwater or Other Sources, AFY	0	166	280	451	447	398

Imported Water

- Subject to Reliability Issues
  - Currently per DWR, on the average, 50% of the time, only 64% of SGPWA's Table A available
- No immediate system capacity limitations except for BCVWD's turnout from EBX at Noble Creek
  - Limited by SGPWA to 24 cfs. More flow is possible with turnout upgrades already requested

Imported Water Requirement from SGPWA

Source	2015	2020	2025	2030	2035	2040
Imported Water from SGPWA to meet potable water demand, AFY	6,447	10,150	11,127	12,503	13,843	15,362
Imported Water for Banking to Meet Reliability Requirements for Growth, AFY	0	1,000	1,500	2,000	2,500	2,500
Total Imported Water Needed, AFY	6,447	11,150	11,627	14,503	16,343	17,862

Note imported water totals for 2020 and 2025 differ from Table 6-26 in UWMP. UWMP assumes imported water will be used instead of non-potable groundwater

BCVWD Imported Water Facilities

- Pipeline
  - Current 24-in pipeline (34 cfs) – up to 22,500 AFY
  - Requested Second Turnout to Recharge Facility
- Groundwater Recharge Facility
  - Total Capacity – 25,000 AFY to 35,000 AFY
- Putting in perspective BCVWD projected 2040 total water demand only about 17,860 AFY
- Having extra capacity makes it possible to take Article 21 & Turnback pool water when available

Underlying Principles for Imported Water

WHEREAS, the Board of Directors of the SGPWA finds and determines that the present existing water importation, production, transportation, delivery facilities and water supplies are inadequate to meet anticipated demand;"

"The Agency is prepared to take the necessary actions to provide its service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. As additional water resources are required to meet increasing needs, the Agency will be prepared to take the necessary actions to deliver such supplies."

"The Agency would ensure that future development within that entity's service area would be covered in the Agency's urban water management plan and that entity would have a right to expect future water supplies to be provided by the Agency for that development."

Imported Water Responsibility

Based on the foregoing, BCVWD can rely on the SGPWA to secure and deliver the imported water needed to meet BCVWD's current and future demands as set forth in this 2015 UWMP and subsequent UWMP Updates.

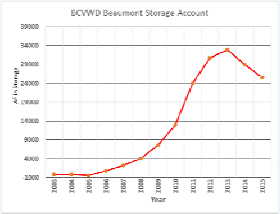
It is assumed the Pass Agency will consider the SWP reliability factor (64%) in the purchase of any additional Table A water from other State Water Contractors to ensure 100% reliability of Table A water.

Reliability Assessment

- Evaluated our water supply under:
  - Single Dry Year
  - 2 Consecutive Dry Years
  - 3 Consecutive Dry Years
  - 6 Consecutive Dry Years
  - For Edgar Canyon based on 33 years of record
- Imported Water Deliveries (based on historical):
  - Minimum year 5%
  - Minimum 2 consecutive years 12.5%
  - Minimum 3 consecutive years 20%
  - Minimum 6 consecutive years 42.5%
- Evaluated for conditions from 2015 through 2040

Key to Water Supply Reliability

- BCVWD's Beaumont Basin Storage Account
  - Capacity for up to 80,000 AF of banked water



Was nearly 34,000 AF, end of 2012
25,568 AF at start of 2016

Decline due to lack of imported water supply

Water available this year so should partially recover storage account level

Results of Reliability Analysis

BCVWD Groundwater Storage Account Needs

	Amount Needed in Storage, AF	
	2020	2040
Single Dry Year	11,700	17,900
2 Consecutive Dry Years	21,800	33,600
3 Consecutive Dry Years	30,200	46,800
6 Consecutive Dry Years	40,400	64,300

To achieve 40,400 AF in storage, need about 3,000 AFY to be recharged

To achieve 64,300 AF in storage by 2040, need about 1,600 AFY to be recharged

Our Plan of banking 1,000 to 2,500 AFY over next 25 years will achieve this goal

Water Shortage Contingency Planning

- UWMP presents 5 stages of mandatory water reductions and mandatory prohibitions in the event of an emergency
- Reduction depends on the severity & length of the outage
- A public hearing will be held to discuss implementation of voluntary or mandatory reductions
- Board has responsibility to assess emergency situation and make recommendation on appropriate stage of reduction

Table 8-1 Retail
Stages of Water Shortage Contingency Plan

Stage	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition *(Narrative description)*
1	10	Up to a 10% reduction in normal, "long term" water supply; imported waer supply allocation averages approximately 50% over a 2-year (or longer) period
2	20	Up to 20% reduction in normal, "long term" water supply; imported waer supply allocation between 49.9% and 25% over a 3-year (or longer) period
3	25	Up to 25% reduction in normal, "long term" water supply; imported waer supply allocation between 24.9% and 10% over a 3-year (or longer) period
4	30	Up to 30% reduction in normal, "long term" water supply; imported waer supply allocation between 9.9% and 5% over a 3-year (or longer) period
5	50	Up to 50% reduction in normal, "long term" water supply; imported waer supply allocation averages less than 5% over a 4-year (or longer)period

[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*

NOTES:

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Contingency Planning Stages

- Stage 1
  - 10% demand reduction
  - SWP allocation 50% over 2-year period
  - Voluntary through notification and public awareness
- Stage 2
  - 20% demand reduction
  - 49.9% > SWP allocation > 25%
  - Restrictions similar to Resolution 2105-05

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Contingency Planning Stages

- Stage 3
  - 25% reduction in water use
  - 24.9% < SWP Allocation >10% over 3-year period
  - Restrictions similar to Resolution 2015-05 plus one day per week watering
- Stage 4
  - 30% reduction in water use
  - 9.9% < SWP Allocation >5% over 3-year period
  - Restrictions similar to Resolution 2015-05 but may include no lawn turf watering except for recycled water

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Contingency Planning Stages

- Stage 5
  - 50% water use reduction
  - SWP Allocation < 5% for 4 consecutive years
  - Restrictions similar to Resolution 2015-05 but may include no lawn turf watering except for recycled water
  - Hand watering of plants 2 days per week
  - Water conservation advisory committee formed
  - Work with commercial/industrial users to reduce water consumption

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Catastrophic Supply Interruption

- Regional and local power outages
  - 23.5 MG of above ground storage
  - Major wells have standby power generators
- Earthquakes
  - Upper Edgar, Cherry III, Vineland II and III, and Taylor Tank are anchored, Hannon is a new pre-stressed concrete tank
- Contaminated wells
  - Adequate standby wells available

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Imported Water Interruptions

- Will have to rely on banked water in the Beaumont Basin
- As of end of 2015, 25,568 AF in storage
- 2015 demand was 9,792 AF
  - With Edgar Canyon we have 3-years worth of water

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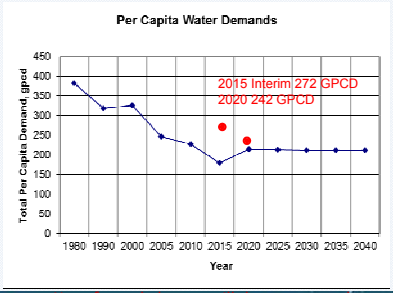
BCVWD's Per Capita & Targets



Doing well and with recycled water available the per capita will reduce

Use of recycled water will decrease actual per capita

We should be OK

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Let's Summarize

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Water Supply Summary Plan

- Heavy reliance on imported water
  - 11,350 AFY (2020) to 17,870 AFY (2040)
  - Bank between 1,000 and 2,500 AFY for future
- Recycled water will be important source for landscaping irrigation and advance treated water for groundwater recharge
- Storm water and urban runoff capture and other local water resource projects will help offset need for imported water

Beaumont-Cherry Valley Water District
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Beaumont-Cherry Valley Water District
Serving the Beaumont, Cherry Valley and some areas of Calimesa

Comment Letters, Minutes of Public Hearing, and Responses

BEAUMONT-CHERRY VALLEY WATER DISTRICT
AGENDA
MINUTES OF REGULAR MEETING OF THE BOARD OF DIRECTORS
560 Magnolia Avenue, Beaumont, CA 92223
Wednesday, December 14th, 2016
Regular Session 7:00 p.m.

Swearing-in of re-elected Director Douglass and newly elected Director Ramirez

Director of Finance & Administrative Services Rodriguez swore in new Director Andy Ramirez and returning Director Nathan Douglass.

Call to Order, Vice President Hoffman

Vice President Hoffman began the meeting at 7:02 p.m.

Pledge of Allegiance, Director Slawson

Director Slawson led the pledge.

Invocation, Director Covington

Director Covington led the invocation.

Roll Call

Present at the meeting were: Director Covington, Ramirez, Hoffman, Slawson and Director Douglass. Legal Counsel: James Markman. District Staff: General Manager: Eric Fraser, Director of Engineering: Dan Jaggers, Director of Operations: Anthony Lara and Director of Finance & Administrative Services: Yolanda Rodriguez.

Public who registered their attendance were Lloyd White, David Fenn, and Jannshed Yazdani.

Public Comment

Mr. Lloyd White, Mayor for the City of Beaumont, congratulated and welcomed new Board member Director Ramirez and returning Board member Director Douglass.

Mr. White shared that he heard BCVWD November's Board meeting recordings, and stated that he disagreed with Beaumont's Councilman Mr. Mark Orozco's comments. He stated that it is not the role of council to tell the Board what to do with management and staff, but instead he looks forward to reaching out from elected Board to elected Board and work together for the best solutions for the community with issues such as the recycled water and the SGPWA challenges.

ACTION ITEMS

1. Adjustments to the Agenda

There were no changes to the Agenda.

2. **Reorganization of the Board of Directors**** (page 4)

   - Nomination and Election of the President

     Director Hoffman nominated Director Slawson for President. The motion was seconded by Director Douglass and passed 5-0 by roll call: Director Covington - Aye; Director Ramirez - Aye; Director Hoffman – Aye; Director Douglass – Aye; Director Slawson – Aye.

     .

   - Nomination and Election of the Vice President

     Director Ramirez nominated Director Covington for Vice President. The motion was seconded by President Slawson and passed 5-0 by roll call: Director Ramirez - Aye; Director Hoffman – Aye; Director Douglass – Aye; President Slawson – Aye; Director Covington – Aye.

   - Nomination and Election of the District Treasurer

     Director Douglass nominated Director Hoffman for Treasurer. The motion was seconded by President Slawson and passed 5-0 by roll call: Director Ramirez - Aye; Director Hoffman – Aye; Director Douglass – Aye; President Slawson – Aye; Director Covington – Aye.

   - Nomination and Election of the District Secretary

     Director Hoffman nominated Director Douglass for Secretary. The motion was seconded by President Slawson and passed 5-0 by roll call: Director Ramirez - Aye; Director Hoffman – Aye; Director Douglass – Aye; President Slawson – Aye; Director Covington – Aye.

   - Appointment of the Personnel Committee

     President Slawson appointed Director Covington and Director Ramirez to the Personnel Committee.

   - Appointment of the Finance & Audit Committee

     President Slawson appointed Director Hoffman and Director Douglass to the Finance & Audit Committee.

3. **Consent Calendar:** All matters listed under the Consent Calendar are considered by the Board of Directors to be routine and will be enacted in one motion. There will be no discussion of these items prior to the time the Board considers the motion unless members of the Board, the administrative staff, or the public request specific items to be discussed and/or removed from the Consent Calendar.

   a. October 2016 Budget Variance Report Review** (pages 5-9)
   b. October 31st, 2016 Cash/Investment Balance Report** (page 10)
   c. November 2016 Check Register Review** (pages 11-22)
   d. November 2016 Invoices Pending Approval**(pages 23-24)
   e. Minutes of the Regular Meeting November 9th, 2016**(pages 25-30)
   f. Minutes of the Special Meeting December 1st, 2016***(pages 31-32)

Director Hoffman motioned to approve all items on the Consent Calendar. The motion was seconded by Director Douglass and passed 5-0.

4. **Public Hearing and Consideration of Adoption of the District's 2015 Urban Water Management Plan Update****(pages 33-37)

    a. Open the Public Hearing for consideration of the 2015 Urban Water Management Plan Update;
    b. Consider the final draft 2015 Urban Water Management Plan Update and any related public comments thereon;
    c. Close the public hearing; and
    d. Consider the resolution of the Board of Directors of the Beaumont-Cherry Valley Water District Adopting the 2015 Urban Water Management Plan Update and associated staff actions.

Mr. David Fenn shared his concerns regarding the 80% increase in water usage projection in the five year span from 2015 to 2020, compared to the population growth projection of 27% for the same period and stated that he thought it was overestimated.

Mr. Michael Tidus, attorney for Pardee Homes, shared Pardee Homes' concerns in regards to the investment they have already made for infrastructure and water rights and requested that the Sundance Project be properly categorized as a development project that the District is obligated to serve as an existing use.

Legal Counsel Markman responded to Mr. Tidus' concerns regarding the projections and stated that this is a planning document, and does not warrant exempting people at this point.

General Manager Fraser gave an overview displaying a reconciliation spreadsheet of Capacity Fees Collected versus the Facilities Built from the period of 2000 to 2016, which demonstrates approximately $8.1 million reserved for Facilities. He stated that moving forward with the Capital Improvement Plan the District will build facilities as needed.

Mr. Jeff Chambers, with Pardee Homes, had questions regarding the deficit of Facility Fees collected versus Facilities built.

General Manager Fraser thanked Director of Engineering Dan Jaggers and contract Engineer Joe Reichenberger for their hard work in the Urban Water Management Plan Update.

Director of Engineering Jaggers introduced Joe Reichenberger, who gave a PowerPoint presentation on the proposed 2015 Urban Water Management Plan Update. Mr. Reichenberger shared that the District received comments from the Riverside County Flood Control and Water Conservation District relating to the Grand Avenue Storm drain, which he included in the errata sheet. He shared that the City of Yucaipa also commented on their concerns regarding recycled water not always being available. Mr. Reichenberger stated that he prepared an errata sheet to correct any inconsistencies.

After receiving no further public comment, the hearing was closed. Director Ramirez requested additional time to review the errata sheet and motioned

to consider the resolution at the January 2017 Regular Board meeting. The motion was seconded by Director Douglass and passed 5-0 to bring back item in January 2017 Regular Board meeting for final consideration.

Consideration of Request for Update of "Will Serve Letter" for Commercial Development Infill Parcel - Riverside County Assessor's Parcel No. 419-267-075.**(pages 38-67)

Public Comment on Item:

Ms. Judy Bingham shared her concerns regarding the Urban Water Management Plan, and stated she just wanted to share that the City of Beaumont is out of the bond market.

Director of Engineering Jaggers gave an overview of the request for the update "Will Serve Letter".

After discussion, Director Covington motioned to approve the Request for Update of the "Will Serve Letter". The motion was seconded by Director Ramirez and passed 5-0.

a. Ad Hoc Committees

No reports were made.

b. General Manager

General Manager Fraser presented slides showing the City of Beaumont's Council meeting at which accusations made by the City's consultant Brian Knoll, from Webb Associates, stated that the BCVWD was nonresponsive in providing water infrastructure information. General Manager Fraser shared slides showing multiple email exchanges between District staff and the Webb Consultant, which demonstrated that the District provided comprehensive recycled water planning information. In addition, the emails showed that District staff was more than happy to meet with Webb's consultant. General Manager Fraser stated that the District has always been very responsive to any type of public records requests or meeting requests. He stated that the District is an agency based on getting things done. He stated he just wanted to set the record straight.

Director Ramirez thanked General Manager Fraser for keeping the integrity of the District regarding these statements presented by Brian Knoll.

c. Directors Reports

Director Covington reported that the Annual Ground Water Conference is being held at the Radisson in Ontario on February 15th – 16th, 2017.

Director Douglass shared that he attended the San Gorgonio Pass Water Agency (SGPWA) meeting. He shared that at the meeting it was discussed that the Noble Creek connection time frame would take about 6 months. Director Douglass wanted District staff to clarify with the SGPWA that it is the District's desire to upgrade this connection as soon as possible.
General Manager Fraser stated he will try to reach out to Mr. Davis.

d. Legal Counsel Report

No reports were made.

5. Announcements

- District Offices will be closed on December 26th, 2016 in observance of Christmas Day
- District Offices will be closed on January 2nd, 2017 in observance of New Year's Day
- Finance and Audit Committee meeting, January 5th, 2017 at 3:00 p.m.
- Regular Board meeting, January 11th, 2017 at 7:00 p.m.
- District Offices will be closed on January 16th, 2017 in observance of Martin Luther King Day

President Slawson made the announcements above.

6. Action List for Future Meetings

- Proposition 1 Bond Opportunities

President Slawson made the announcements above.

7. Adjournment

President Slawson adjourned the meeting at 9.38 p.m.

Attest:

_____	_____
Director Daniel Slawson, President to the Board of Directors of the Beaumont-Cherry Valley Water District	Director Nathan Douglass, Secretary to the Board of Directors of the Beaumont-Cherry Valley Water District

** Information included in the agenda packet

December 13, 2016

Daniel K. Jaggers, Director of Engineering
Beaumont-Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

SUBJECT: 2015 Urban Water Management Plan Update

Dear Mr. Jaggers:

The City of Yucaipa (City) has had the opportunity to review the Draft 2015 Urban Water Management Plan Update (UWMP) for the Beaumont-Cherry Valley Water District that was provided by your office. The UWMP is a very comprehensive document that identifies the District's planned growth, current and proposed infrastructure, and an analysis of water supply reliability to meet future growth.

The UWMP contains references to a Facilities Planning Report that was completed by the District in 2014 which would involve the construction of a recycled water supply pipeline and pump station. A key component of this plan would be a connection to the Yucaipa Valley Water District (YVWD) recycled system near the intersection of Interstate 10 and Cherry Valley Boulevard. In Section 7 of the UWMP, Water Supply Reliability Assessment, the anticipated use of recycled water from YVWD is factored into the reliability assessment. Table 7-7, Estimated Recycled Water Available During Extended Periods, identifies an estimated 921 acre-feet of recycled water from YVWD in 2020 and increasing to 1,032 acre-feet in 2040 (the table does reduce this amount by 10 to 15% for dry years). These figures are then used in Tables 7-9 through 7-12 to demonstrate water supply reliability to meet present and future demand.

In June 2016, the City had the opportunity to review and comment on the YVWD's Urban Water Management Plan. One of the City's comments addressed the the utilization of "surplus" recycled water. In Paragraph 12.6.5.2 of YVWD's Urban Water Management Plan the following is stated:

> "YVWD will be constructing a Regional Recycled Water Conveyance System to the YVWD's southernmost service area boundary. This extension would involve the construction of a 24" recycled water pipeline, approximately 18,500 linear feet (3.5 miles) through the City of Calimesa. The purpose of the pipeline is to provide recycled water service to customers within YVWD and provide surplus recycled water to neighboring water agencies such as the Beaumont-Cherry Valley Water district and the City of Banning."

The City understands and appreciates the benefit of recycled water, and the work that both the YWVD and BCVWD has, and continues to pursue, in developing this valuable resource. However, the City is not aware of reports or studies that have demonstrated that there is, or will

be, surplus recycled water generated by the residents of Yucaipa and Calimesa which would allow exportation beyond the boundaries of Yucaipa Basin. The City has partnered with several governmental agencies, including YVWD, to develop conjunctive use projects to recharge the Yucaipa basin, manage groundwater resources, and ensure basin stability. In addition, we have been attempting to maximize our use of recycled water, with some difficulty, in certain areas, for irrigating our parks and facilities through the City. Recycled water is a key component of this management strategy, and the City continues to work closely with YVWD to maximize its use within the Yucaipa Basin.

These comments are not meant to challenge the methodology used in the development of your UWMP. We are simply addressing the issue of whether or not there will be surplus recycled water available from YVWD, which could have an impact on BCVWD water supplies for future projects.

Thank you for the opportunity to review the UWMP. The City would be happy to discuss and review these comments with you at your convenience.

Sincerely

Fermin G. Preciado, P.E.
City Engineer

Jackson Tidus
A LAW CORPORATION

www.jacksontidus.law

FAX COVER MEMO

PLEASE DELIVER THE FOLLOWING MATERIAL AS SOON AS POSSIBLE

Date: December 12, 2016

TO:
Name: Board of Directors
Company: Beaumont-Cherry Valley Water District
Fax Number: (951) 845-0159
Phone Number: (951) 845-9581

Number of pages, including this page: -7-

PLEASE NOTIFY US IMMEDIATELY IF NOT RECEIVED PROPERLY.
Please call 949.752.8585 and ask for the Fax Center

FROM:
Name: Michael L. Tidus
File No: 124529
Client: Pardee Homes
Matter: Beaumont-Cherry Valley Water District

COMMENTS:

CAUTION! CONFIDENTIAL! THE DOCUMENT BEING TRANSMITTED TO YOU MAY CONTAIN INFORMATION PROTECTED BY THE ATTORNEY-CLIENT/WORK PRODUCT PRIVILEGES. It is intended for the person to whom it is addressed. If you are not the intended recipient or an authorized agent, then this is notice to you that dissemination, distribution or copying of this document is prohibited. If this was received in error, please call us at once and destroy this document.

Jackson Tidus
A LAW CORPORATION

December 12, 2016

Direct Dial: 949.851.7424
Email: mtidus@jacksontidus.law
Reply to: Irvine Office
File No: 4861.124529

VIA FAX (951) 845-0159 & U.S. MAIL

Board of Directors
Beaumont-Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223-2258

Re: Comments on Draft 2015 Beaumont-Cherry Valley Water District Urban Water Management Plan (December 14, 2016, Board Agenda Item No. 4)

Dear Members of the Board of Directors:

We represent Pardee Homes, a California corporation ("Pardee"), a master developer of homes in the City of Beaumont (the "City"). The purpose of this letter is to provide Pardee's comments on the draft 2015 Beaumont-Cherry Valley Water District ("District") Urban Water Management Plan ("Draft UWMP").

As discussed in greater depth below, the Draft UWMP should be revised as follows before its adoption, in order to fulfill its core purpose of providing an assessment of the extent to which current and future water supply sources will be adequate to reliably meet the needs of the District's various categories of customers (Water Code, §§ 10610.2, subds. (a)(4) and (b), 10631, subd. (c)(2)):

- Clarify that Pardee's Sundance development project's total water demand is included in the District's category of customers that the District is obligated to serve, and included in the Draft UWMP's "existing demand" calculations; and,

- Correct the Draft UWMP's internal inconsistencies and its inconsistencies with information in the District's 2015 Potable Water System Master Plan ("2015 Master Plan") and District's Urban Water Management Plan Update dated July 2013 ("2013 UWMP").

1. The Draft UWMP Should Clarify that Pardee's Sundance Project Is Included in the District's Category of Customers that the District is Obligated to Serve.

The Draft UWMP lists Pardee's Sundance project ("Sundance Project" or "Project") among several large development projects that were approved for development and started

construction before the economic downturn. (Draft UWMP, p. 3-14.) The Draft UWMP should clarify that Pardee's Sundance Project has already been grandfathered to obtain District water connections and is to be treated as an existing customer of the District.

When the Sundance Project was annexed into the District's service area, the District's Plan of Services dated March 4, 2002, identified water necessary for the Project, infrastructure necessary to serve the Project, and the fees necessary for the District to develop or obtain the water to supply the Project. Pardee has paid millions of dollars for this fee which "includes a new water source fee to construct or obtain additional water required as a result of new development." (Plan of Services, p. 7.) Also, Pardee has built millions of dollars of infrastructure to supply water to its Sundance Project and the City of Beaumont.

Specifically, Pardee has incurred about $25 million for District facility fees (including $3.5 million for the District facility fee Water Rights (SWP) component), Pardee constructed and paid about $7.5 million for local infrastructure, and Pardee constructed and paid for about $4.5 million for backbone infrastructure. The District is obligated to supply water for the Project's demands as an existing obligation, or else the District would have to reimburse Pardee (plus interest and other damages) for its significant expenditures. If the District treated its water service obligation to the Sundance Project as being subject to securing additional future water supplies, the District would be at risk of taking Pardee's property by way of unconstitutional exactions under *Nollan v. California Coastal Commission* (1987) 483 U.S. 825, 837, and *Dolan v. City of Tigard* (1994) 512 U.S. 374, 391.

The District recognized its water service obligation in 2014, when it included a "grandfather" exception in Section 2(b) of District Resolution No. 2014-05 that precluded the issuance of will serve letters under certain circumstances. The grandfather provision excepted projects such as Sundance where a will serve letter was previously issued and the recipient relied on that letter to pay fees to the District, annex into the District, or construct District infrastructure to provide water service to the property in reliance on that will serve letter. Resolution No. 2014-05 recognized and protected Pardee's significant investment to secure water supplies and infrastructure in reliance on the District's will serve commitment.

The Sundance Project's water demands were already considered by the District's 2013 UWMP, and the District has concluded that there is enough water to serve the Project. For example, a District staff memo dated October 6, 2016 confirms:

> "The impact of this development on the District's water supply system is identified in the District's 2013 Urban Water Management Plan Update."

The District's need to secure additional water supplies to serve future water demands is the result of planned development projects that have not fully paid into and improved the District's water system. The Draft UWMP should clarify that, due to Pardee's significant investment in the District's infrastructure and water rights, Pardee's Sundance Project has

already been grandfathered to obtain District water connections and is treated as an existing customer of the District.

2. **The Draft UWMP Contains A Number Of Errors and Inconsistencies That Should Be Corrected In Order for the Draft UWMP to Comply with the Required UWMP Provisions and Include Substantial Evidence Supporting its Assessment of the Adequacy of the District's Water Supplies.**

The Draft UWMP uses supply and demand figures that are internally inconsistent and inconsistent with information in the District's 2015 Master Plan. These inconsistencies and errors should be corrected in order to provide substantial evidence to support the Draft UWMP's assessment of the District's water supplies.

A. The Draft UWMP includes inconsistent supply and demand figures, and does not explain how those figures match up.

Though the Draft UWMP contains a number of inconsistencies, the summary below focuses on some of the more substantive inconsistencies as opposed to the non-substantive drafting issues.

1) Calculations of the amount of water in the Beaumont Basin Storage Account Balance are inconsistent.

The water supply during the Two, Three and Six Consecutive Dry Years scenarios relies heavily on water supplied from the District's Storage Account. Therefore, the correct Storage Account balance number is critical to understanding the District's groundwater banking plans. The 2015 Storage Account balance is inconsistently reported throughout the Draft UWMP. On page 6-27, it is listed as 21,700 AF. On p. 8-23 it is listed as 25,568 AF. On page 8-2 it is described as "about 28,000 AF." There is a significant difference (more than 30%) in these inconsistent figures.

Page 7-4 provides that adding 35,000 AF to the Storage Account over the next twenty years will bring the account balance to "about 50,000." However, significantly less water would need to be banked to reach that goal. For example, if the current Storage Account balance is 21,700 AF above is correct, the balance after adding 35,000 AF would be 56,700 AF; if the 25,568 AF number is correct the balance would be 60,658 AF; and if the 28,000 AF number is correct the balance would be 63,000 AF. This inconsistency needs to be corrected.

2) Numbers in the Water Supply and Demand Tables are Inconsistent.

The supply and demand numbers for all years in the Single Dry Year scenario in California Department of Water Resources ("DWR") Table 7-3 in Appendix C do not match the corresponding numbers in Table 7-9 on p. 7-9.

The available supply numbers in DWR Table 8-4 in Appendix C are not the same as the numbers in Table 8-7 at p. 8-25 (2018 supply numbers do not match, Table 8-8 may need to be corrected depending on the correct number). Similarly, the 2016 number in Table 8-7 is supposed to carry over into Table 8-8, but it does not.

The Draft UWMP incorrectly underestimates water supply from future water supply projects. Table 6-24 on p. 6-60 (Expected Future Water Supply Projects or Programs) includes seven future projects. It is unclear whether the supply totals from all of the projects is carried over into Table 6-26 on p. 6-62 (BCVWD Water Supplies). But, at least with respect to two supply totals that are carried over (for the "Lower Edgar Canyon Non-potable Groundwater" and "San Timoteo Canyon GW Extraction" projects), the supply totals listed in Table 6-26 are less than the supply totals listed in Table 6-24.

The Draft UWMP also underestimates supply from the Edgar Canyon wells. Specifically, in the dry years scenarios, Edgar Canyon supply ranges from 1,117 AFY (Single Dry Year) to 1,367 AFY (Six Consecutive Dry Years). (Draft UWMP, pp. 7-9 to 7-11) However, according to Table 2-2 in the 2015 Master Plan, the annual Edgar Canyon supply during 2007-2014 exceeded 1,700 AF in every year except one – 2014. In 2014, the supply was 1,325 AF, but the Draft UWMP notes that the supply in 2014 and 2015 (1,418 AF) "were low, partially due to [two] larger canyon wells…being out of service." (Draft UWMP, Table 6-7, p. 6-31).

The Draft UWMP also mistakenly overestimates demand. First, the full build out demand numbers under all conditions are inflated because the trend in development projects has shown a reduction in the construction of approved units. For example, Pardee is reducing the number of units to be constructed in its Sundance project below the number of approved units. Second, the water demand projections in Table 4-2 do not include any water conservation effects, resulting in overestimating demand by as much as 10% to 15%. (Draft UWMP, pp. 4-6 – 4-7.) This overestimation is due to the District's decision not to take into account the construction of "much more water efficient homes with limited turf landscaping and more efficient landscaping." (Draft UWMP, p. 4-7.) As a result, the District's use of .65 AFY/EDU to calculate demand is questionable and overestimates projected demand.

Also, in the Single Dry Year, Two Consecutive Dry Years and Three Consecutive Dry Years scenarios, demand is overestimated by omitting water conservation/water restrictions under the District's Water Shortage Contingency Plan. As explained on page 7-11, only the Six Consecutive Dry Years scenario includes any demand reduction due to conservation/water restrictions. However, some or all of the other dry year scenarios would trigger at least Stage 1 of the District's Water Shortage Contingency Plan, which would include a District recommended 10% voluntary use reduction. The dry year demand projections should account for conservation.

B. The Draft UWMP's anticipated imported water needs are inconsistent with the District's 2015 Master Plan.

The numbers included in the Draft UWMP discussion of the District's anticipated need for imported water (Draft UWMP, p. 6-13) are based on the District's projections in the 2015 Master Plan, but are inconsistent with the numbers in the 2015 Master Plan. Specifically, the Draft UWMP projects between 18,500 AFY to 23,000 AFY of imported water will be needed at buildout, but Table 5-29 of the 2015 Master Plan projects significantly lower imported water demands of between 15,600 AFY and 18,300 AFY (a difference of over 18% & 25%, respectively). The Draft UWMP should explain how the District's imported water demand projections in the Draft UWMP relate to the projections in the 2015 Master Plan.

C. The Draft UWMP is missing the required distribution system water loss calculation.

The Draft UWMP is required to include the District's distribution system water loss quantification calculated in accordance with the DWR worksheet. (Water Code, § 10631, subd. (c)(1)(B).) Instead, the Draft UWMP "estimates" the District's distribution system water loss in 2015 to be 500 AFY (Draft UWMP Table 4-4). Table 4-4 explains that the reason the District estimated water loss in the current Draft UWMP is that it "believes the amount calculated in the Water Audit Spreadsheet is not correct due to change in this method of accounting for the 2 month lag between production (measured daily) and consumption (meter read time)". The Draft UWMP does not include the required Water Audit Spreadsheet calculation or even provide the methodology required for calculating the District's distribution system water losses. The Draft UWMP references Appendix L for details on the required methodology for calculating system losses (Draft UWMP, p. 4-3), but Appendix L is missing.

The discussion of District water loss is also inconsistent with information provided in the 2013 UWMP. The Draft UWMP explains that the District annually audits its distribution system water losses by comparing the amount of water produced from wells to the amount of water used by consumers (as reported by metering readings). (Draft UWMP, p. 9-5.) However, the Draft UWMP deletes information from the 2013 UWMP about the range of loss the District has determined is acceptable for its distribution system. The 2013 UWMP reported that the District "annually reviews data records to confirm that unaccounted for water losses stay within an acceptable range of 5% to 7%". (2013 UWMP, p. 6-3.) The District's distribution system water losses projected in Table 4-2 of the Draft UWMP are inconsistent with the District's 5% to 7% acceptable loss standard. The water losses projected in the Draft UWMP are underestimated at less than half the amount of loss that the District's standard would allow in every 5-year increment shown in Table 4-2.

Quantifying the District's distribution system water losses based on DWR's standardized calculation is important to assess the District's distribution system efficiency, find leaks that inevitably occur through the many miles of District pipes and fittings that bring water to the District's customers, and promote timely repairs. The UWMP's compliance with the required DWR worksheet calculation of water loss is needed to prohibit waste and free up additional water supplies. Without the DWR worksheet calculation, the Draft UWMP does not calculate

and disclose the District's distribution system water losses in the manner required by Water Code section 10631(e)(3)(B).

Conclusion

Thank you for the opportunity to comment on the Draft UWMP. As discussed in this letter, a core purpose of the Draft UWMP is to provide an assessment of the extent to which current and future water supply sources will be adequate to reliably meet the needs of the District's various categories of customers. Pardee's Sundance Project is not properly categorized because it is discussed amongst planned development projects that have not fully paid into and improved the District's water system. Due to Pardee's significant investment in the District's infrastructure and water rights for Sundance Project, Pardee requests that the Sundance Project be properly categorized as a development project that the District is obligated to serve as an existing use.

In addition, before adopting the Draft UWMP, the District should fix the Draft UWMP to include the information and correct the errors discussed in this letter, and provide an adequate opportunity for public review and comment of the revised Draft UWMP.

Very truly yours,

Michael L. Tidus

MLT:dt

cc: Mr. Eric Fraser, General Manager*
James L. Markman, Esq., Richards Watson & Gershon*
Stephanie Osler Hastings, Esq., Brownstein Hyatt Farber Schreck *

*via email only

1336420.5

Dan Jaggers

From: Venable, Michael <mlvenable@rcflood.org>
Sent: Tuesday, December 6, 2016 2:14 PM
To: Dan Jaggers
Cc: Gallup, Kyle
Subject: BCVWD 2015 Urban Water Management Plan Update
Attachments: 2015 Urban Water Management Plan Update_RCFC Comments.pdf

Good Afternoon Dan,

Please see the attached pdf for comments from RCFC&WCD on the 2015 Urban Water Management Plan Update. A summary of the comments is below.

General Comment:
Please change project name throughout document from "Grand Ave Storm Drain/Grand Ave Interceptor" to match the grant's language of "Beaumont MDP Line 16".
Pages: 2-5, 6-37 (table 6-10), 6-38, 6-39 (Figure 6-11), 6-40 (Tables 6-11, 6-12), 6-41 (Table 6-13), 6-59, 6-60 (Table 6-24)

Other Comments:
6-37, Table 6-10: Project Marshal Creek: Typo "developed area"
6-37, Table 6-10: Project Grand Avenue Storm Drain: Change area from 505 Acres to 571
6-38, 2nd Paragraph: Delete "It should be operational before 2018". Change to "Deadline for completion of construction is December 31st, 2021" (or something equivalent).
6-40, Table 6-11: Change area from 505 to 571 Acres.
6-60, Table 6-24: Project title, Agency-RCFC&WCD, Implementation year 2021

Please call if you have any questions.

Respectfully,

Michael L. Venable
Watershed and Water Conservation Planning
Riverside County Flood Control & Water Conservation District
951-955-1248 / 951-961-4297

BEAUMONT CHERRY VALLEY WATER DISTRICT

560 Magnolia Avenue

Beaumont, CA 92223

(951)-845-9581

December 12, 2016

2015 Urban Water Management Plan

Errata Sheet

Pardee-Sundance Comments (Jackson Tidus):

1. **Page 6-27, 2nd last paragraph**

   Revise sentence to read: "Data from Watermaster's 2015 Annual Report indicates that BCVWD's groundwater storage account balance at the end of 2015 is 25,568 AF."

2. **Page 7-4, 3rd paragraph, Second last sentence to read**:

   "Looking at the quantities in Table 6-26, (rather than 6-25), BCVWD anticipates banking 35,000 AF over the next 20 years which would bring BCVWD's storage account to about 60,560 AF."

3. **Page 8-2, paragraph above "Stage 1", 2nd sentence:**

   Revise sentence to read: "BCVWD currently has 25,568 AF in storage…."

4. **Appendix C DWR Table 7-3, Substitute the following:**

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	4,962	5,877	6,657	7,472	8,042
Demand totals	16,659	18950	21,605	23,886	25,932
Difference	(11,697)	(13,073)	(14,948)	(16,414)	(17,890)
NOTES: The Difference between Supply and Demand will be provided from Banked Water in the Beaumont Basin.					

5. **Appendix C DWR Table 8-4, revise as follows and replace Table 8-7 with the following:**

DWR Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	13,826	9,650	4,508
NOTE: 2016 based on BCVWD receiving 9,870 AF per SGPWA email. Year 2017 and 2018 assumes 35% and 5% SWP Allocation as used in Stress Test. SPW amounts per SGPWA for Stess Test Analysis.			

Riverside County Flood Control and Water Conservation District:

6. **Page 2-5, Last line, revise name of "Grand Avenue Storm Water Capture" to "Beaumont MDP Line 16"**
7. **Table 6-10, Revise Title of Grand Avenue Storm Drain, correct typographical error "area" in Marshall Creek Description**

Table 6-10
Potential Storm Water Capture Projects

Project	Brief Description
Soft plug in Noble Creek at BCVWD Groundwater Recharge Facility	Large flows which would bypass the spreading basins at the mouth of Edgar Canyon (Figure 6-10 above) could still be captured. Provide "soft plug" in lined portion of Noble Creek channel and divert flows into BCVWD's recharge facility. (Note that only extreme flows actually make it out of the canyon). Estimated Yield – 500 AFY.
Stormwater Capture Noble Creek	Noble Creek flows could be desilted on property owned by BCVWD (15.7 acres) along Noble Creek upstream of Noble St and west of Cherry Ave. Unfortunately this area is not over the Beaumont Basin, but the property could be used for desilting basins with the desilted water released back into Noble Cr. and recaptured at a soft plug in the lined channel and diverted into the District's recharge site. Estimated Yield = 400 AFY.
Marshall Creek s/o Elm to I-10	There is a significant amount of urban runoff from the developed area east of Beaumont Ave, between Oak Valley Parkway and Brookside Ave. which could be captured in the soft bottom of Marshall Creek using training dikes to prevent the water from going under the I-10 bridge. There is about 300 ac of urban drainage. Estimated Yield = 150 AFY.
Beaumont MDP Line 16	Approximately 517 acres of area could be intercepted by a storm drain along Grand Ave. and conveyed to the District's Recharge facility. This water is relatively free of sediments and runoff is generated with even the slightest amount of rainfall

8. **Table 6-11, page 6-40 Revise title and Drainage Area for Grand Avenue Interceptor**

Table 6-11
Summary of the Urban Runoff Drainage Areas and Retention Basin Volumes

Facility	Drainage Area, acres	Basin Volume, acre-ft
Beaumont MDP Line 16	517	90[1]

9. Table 6-12, page 6-40 Revise title for Grand Avenue Interceptor

Table 6-12
Urban Runoff Capture Summary

Facility	Estimated Captured Runoff, AFY	Percent of Storms Totally Captured	Total Average Annual Runoff, AFY, Based on 77 years of Record	Percent of All Possible Storm Water Captured
Beaumont MDP Line 16	200	98.5%	232	90.0%

10. Table 6-13, page 6-41, Revise title of Grand Avenue Interceptor

Table 6-13

Estimate of "New Water" from Storm Water Capture

Facility	Estimated Captured Runoff, AFY	Runoff from Undeveloped Land		Estimated Amount of New Water, AFY
		3-in Total Storm Rainfall, AFY	4-in Total Storm Rainfall, AFY	
Beaumont MDP Line 16	200	41	75	172 to 192 (Use185)

11. Figure 6-11 Change Title of Figure to "Beaumont MDP Line 16" and the drainage area to 517 acres.

12. Table 6-24, (DWR Table 6-7) Revise First Line of Table to change name from Grand Avenue Storm Drain to Beaumont MDP Line 16 and change the year of implementation to 2021

DWR Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency, AFY
Beaumont MDP Line 16 (Line 16)	Yes	RCF&WCD	Const of SD to divert water into BCVWD Rehcharge Facility	2021	All Year Types	185

13. Page 6-59, 2nd Paragraph, revise first sentence as follows:

"The Beaumont MPD Line 16 Project is already in the preliminary…."

District Staff Corrections:

14. Page 5-6, 3rd paragraph from bottom: Change confirmed 2020 target to 242 GPCD.

15. Page 5-6, 2nd last paragraph: Change 2015 interim target to 272 GPCD.

16. Table DWR Table 5-1, pg 5-7; Replace with the following to revise interim and 2020 GPCD Target:

Table 5-1 Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target GPCD *	Confirmed 2020 Target GPCD*
10-15 year	*1999*	*2008*	*302*	*272*	*242*
5 Year	*2004*	*2008*	*291*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

17. Page 5-7, middle of page, Revise sentence to the following:

"BCVWD's actual per capita for 2015 was 180 GPCD, which is well below the interim target of 272 GPCD in Table 5-1."

18. Appendix D, SB X7-7 Verification Forms, Table 7F and Table 8, Substitute the following:

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
291	276	242	**242**
[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*			
NOTES:			

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
242	302	**272**
NOTES:		

Staff Report for UWMP Adoption

BEAUMONT-CHERRY VALLEY WATER DISTRICT
AGENDA
MINUTES OF REGULAR MEETING OF THE BOARD OF DIRECTORS
560 Magnolia Avenue, Beaumont, CA 92223
Wednesday, January 11th, 2017
Regular Session 7:00 p.m.

Call to Order, President Slawson

President Slawson began the meeting at 7:01 p.m.

Pledge of Allegiance, Director Covington

Director Covington led the pledge.

Invocation, Director Hoffman

Director Hoffman led the invocation.

Roll Call

Present at the meeting were: President Slawson, Directors Covington, Hoffman, Ramirez, Director Douglass was absent. Legal Counsel: James Markman. District Staff: General Manager: Eric Fraser, Director of Engineering: Dan Jaggers and Director of Finance & Administrative Services: Yolanda Rodriguez.

Public who registered their attendance were Patsy Reeley and Barbara Brown.

Public Comment

Mr. Pat Doherty, Cherry Valley resident, shared his concerns regarding the Gateway warehouse and asked the Board to renew the objections in building the Gateway warehouse.

Mr. Mike Lara, City of Beaumont Councilman, introduced himself as the new appointed liaison for the City of Beaumont and Beaumont-Cherry Valley Water District and stated he looked forward in working with BCVWD.

Ms. Judy Bingham asked regarding the status of the 90 day period given by the Board in a prior Board meeting, for the BCVWD's General Manager and the San Gorgonio Pass Water Agency's General Manager to come up with an agreement from the SGPWA on a plan to secure water supply. She additionally shared her concerns regarding the City of Beaumont's recent audit.

ACTION ITEMS

1. **Adjustments to the Agenda**

   There were no changes to the Agenda.

2. **Consent Calendar:** All matters listed under the Consent Calendar are considered by the Board of Directors to be routine and will be enacted in one

motion. There will be no discussion of these items prior to the time the Board considers the motion unless members of the Board, the administrative staff, or the public request specific items to be discussed and/or removed from the Consent Calendar.

a. November 2016 Budget Variance Report Review** (pages 3-7)
b. November 30th, 2016 Cash/Investment Balance Report** (page 8)
c. December 2016 Check Register Review** (pages 9-21)
d. December 2016 Invoices Pending Approval**(pages 22-23)
e. Minutes of the Regular Meeting December 14th, 2016**(pages 24-28)
f. Consideration of Resolution 2017-02: A Resolution of the Board of Directors of the Beaumont-Cherry Valley Water District establishing the District's Investment Policy**(pages 29-38)

Director Ramirez requested item 2e be pulled for correction to the minutes to include his recommendation in the Urban Water Management Plan of a water schedule of two days of watering when at level four restrictions. Director Covington motioned to approve item 2e with the amendments stated by Director Ramirez. The motion was seconded by Director Hoffman, and passed 4-0, with Director Douglass absent.

Director Covington motioned to approve items 2a – 2d and 2f. The motion was seconded by Director Hoffman and passed 4-0, with Director Douglass absent.

3. Consider Adoption of the District's 2015 Urban Water Management Plan in Accordance with Resolution 2017-01. ** (pages 39-66).

Public Comment on Item:

Mr. Jeff Chambers, with Pardee Homes, asked questions regarding the final plan and its modifications stated on the errata sheet. He also asked if the current change in water conditions would reflect in the final document.

General Manager Fraser, shared that the final Urban Water Management Plan would have the changes reflected in the errata sheet.

After discussion, Director Covington motioned to approve the 2015 Urban Water Management Plan. The motion was seconded by Director Hoffman and passed 4-0, with Director Douglass absent.

4. Reports For Discussion

a. Ad Hoc Committees

Director Covington shared that at the last Collaborative Committee meeting, representatives from the City of Beaumont shared that the City is working on the General Plan and is asking for members of public agencies to sit on the task force. He also shared that if anyone was interested to contact the City Manager.

b. General Manager

General Manager Fraser, gave an update on the current reservoir conditions and the effects of the atmospheric river conditions which are currently taking place. He stated that there is a risk of losing carryover water if the San Luis Reservoir has to release some of its water to capture rain water. He also shared, this is one of the reasons why staff

has urged the SGPWA to give the District as much water at the highest rate as possible early in the season, so if events such as the one currently does happen, it will diminish the risk of losing carryover water. He shared that currently the flow of water is 25 cfs, versus the 20 cfs historically staff has been told it can do.

General Manager Fraser also gave an update on the ponds and shared that the District is preparing to have a shut-down of some of the ponds to do maintenance and remove any algae growth.

General Manager Fraser addressed Ms. Bingham's concerns and stated he is working collaborative with Yucaipa Valley Water District and the SGPWA for the last two and a half months to come up with an agreement that works for both agencies for the collection of Capacity fees. He shared that the process is engaged and legal counsel has been participating to ensure the District's interests are protected.

General Manager shared that the Capital Improvement Plan will be shared at the first Engineering Workshop on February 2, 2017.

Director Covington had questions regarding the agreement and if there was any opposition from the SGPWA to revise the Capacity Fee agreement. He also wanted to know if the agreement would be a different agreement than the existing agreement between YVWD and Calimesa. Lastly, he asked about any knowledge of SGPWA intentions to rescind a 2014 Resolution.

General Manager Fraser explained that the SGPWA has hired a consultant to revisit the Capacity Fee rates to revise the numbers where needed to reflect the changes in the market condition.

General Manager Fraser stated the goal of the agreement is to ensure long term supply and make sure permanent water rights are acquired for future generations, not just spot market water. He shared that the Calimesa agreement is the basis, but that the verbiage of the agreement is being reviewed carefully.

General Manager Fraser shared his knowledge of the proposed intention to rescind the SGPWA Resolution, which is the basis to acquire additional water supply. He stated that our issue is whether they are going out to get the water and if not, they need to let the agencies know so they can figure out how to secure water supply for the region. He stated that he reminded the SGPWA's Board that the days of supplemental water are long gone, and that imported water is the basis of supply for all new customers.

Director Hoffman asked how many ponds were available and also if the algae was coming in with the imported water. He also requested to have the status of the maintenance of the pond as a follow up on a future agenda.

General Manager Fraser explained that the algae was present with the imported water. He also shared that there were 2-3 ponds available, but at this point the District is looking at strategies to remove and prevent algae growth.

Director Ramirez asked what was more cost effective: copper sulfate treatment or draining the pond and scrapping it, to which General Manager Fraser replied that both would have to be done.

c. Directors Reports

No reports were made.

d. Legal Counsel Report

No reports were made.

5. Announcements

- District Offices will be closed on January 16th, 2017 in observance of Martin Luther King Day.
- Beaumont Basin Watermaster meeting, February 1st, 2017 at 10:00 a.m.
- Finance and Audit Committee meeting, February 2nd, 2017 at 3:00 p.m.
- Regular Board meeting, February 8th, 2017 at 7:00 p.m.
- District Offices will be closed February 20th, 2017 in observance of President's Day.

President Slawson made the announcements above.

6. Action List for Future Meetings

- Proposition 1 Bond Opportunities

President Slawson made the announcements above.

Director Ramirez shared he would like to get with the fellow Director regarding the Personnel Committee and investigate further when they can have their next meeting.

7. Adjournment

President Slawson adjourned the meeting at 7:54 p.m.

Attest:

_____	_____
Director Daniel Slawson, President to the Board of Directors of the Beaumont-Cherry Valley Water District	Director Nathan Douglass, Secretary to the Board of Directors of the Beaumont-Cherry Valley Water District

** Information included in the agenda packet

Beaumont-Cherry Valley Water District
Regular Board Meeting
January 11th, 2017

DATE: January 5, 2017

TO: Board of Directors

FROM: Eric Fraser, General Manager

SUBJECT: Consider Adoption of the District's 2015 Urban Water Management Plan in Accordance with Resolution 2017-01

Recommendation

Staff recommends adoption of the District's 2015 Urban Water Management Plan in accordance with Resolution 2017-01:

Background

Pursuant to the requirements of the California Urban Water Management Act of 1984 (Act), the Beaumont-Cherry Valley Water District (District) Board of Directors held public hearing regarding the District's draft 2015 Urban Water Management Plan (UWMP) at the December 14, 2016 regular meeting. Prior to, and during that meeting, the District received public comment related to the draft plan. An errata sheet was distributed at the meeting to address the relevant changes to the plan based on the comments received and additional staff review. The Board directed staff to bring the item back for Board consideration at the January 2017 meeting to allow for further review of the minor changes. No other comments or changes have been made since the errata sheet was distributed at the public hearing. The revised pages are attached to this report for insertion into the plan presented at the December meeting.

Upon adoption of District's 2015 UWMP by the Board of Directors, the plan will be filed with the DWR and will be made available to other agencies and the public, in accordance with the Act. The adoption and filing of the 2015 UWMP with DWR is required for the District to be eligible for any state grants and loans, and for drought assistance.

Post Hearing Modifications

The final 2015 UWMP may include *de minimis* modifications related to grammar, typographical errors, and formatting as necessary.

Financial Impact

The fiscal impact to the District will be minimal and will include reproduction and mailing costs associated with transmitting copies of the District's Final 2015 UWMP to the Department of Water Resources and appropriate agencies. The 2015 UWMP was prepared completely in-house by District staff.

BEAUMONT CHERRY VALLEY WATER DISTRICT

560 Magnolia Avenue

Beaumont, CA 92223

(951)-845-9581

December 12, 2016

2015 Urban Water Management Plan

Errata Sheet

Pardee-Sundance Comments (Jackson Tidus):

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   Revise sentence to read: "Data from Watermaster's 2015 Annual Report indicates that BCVWD's groundwater storage account balance at the end of 2015 is 25,568 AF."

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Marshall Creek s/o Elm to I-10	There is a significant amount of urban runoff from the developed area east of Beaumont Ave, between Oak Valley Parkway and Brookside Ave. which could be captured in the soft bottom of Marshall Creek using training dikes to prevent the water from going under the I-10 bridge. There is about 300 ac of urban drainage. Estimated Yield = 150 AFY.
Beaumont MDP Line 16	Approximately 517 acres of area could be intercepted by a storm drain along Grand Ave. and conveyed to the District's Recharge facility. This water is relatively free of sediments and runoff is generated with even the slightest amount of rainfall

8. **Table 6-11, page 6-40 Revise title and Drainage Area for Grand Avenue Interceptor**

Table 6-11
Summary of the Urban Runoff Drainage Areas and Retention Basin Volumes

Facility	Drainage Area, acres	Basin Volume, acre-ft
Beaumont MDP Line 16	517	90[1]

9. Table 6-12, page 6-40 Revise title for Grand Avenue Interceptor

Table 6-12
Urban Runoff Capture Summary

Facility	Estimated Captured Runoff, AFY	Percent of Storms Totally Captured	Total Average Annual Runoff, AFY, Based on 77 years of Record	Percent of All Possible Storm Water Captured
Beaumont MDP Line 16	200	98.5%	232	90.0%

10. Table 6-13, page 6-41, Revise title of Grand Avenue Interceptor

Table 6-13

Estimate of "New Water" from Storm Water Capture

Facility	Estimated Captured Runoff, AFY	Runoff from Undeveloped Land		Estimated Amount of New Water, AFY
		3-in Total Storm Rainfall, AFY	4-in Total Storm Rainfall, AFY	
Beaumont MDP Line 16	200	41	75	172 to 192 (Use185)

11. Figure 6-11 Change Title of Figure to "Beaumont MDP Line 16" and the drainage area to 517 acres.

12. Table 6-24, (DWR Table 6-7) Revise First Line of Table to change name from Grand Avenue Storm Drain to Beaumont MDP Line 16 and change the year of implementation to 2021

DWR Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency, AFY
Beaumont MDP Line 16 (Line 16)	Yes	RCF&WCD	Const of SD to divert water into BCVWD Rehcharge Facility	2021	All Year Types	185

13. Page 6-59, 2nd Paragraph, revise first sentence as follows:

"The Beaumont MPD Line 16 Project is already in the preliminary…."

District Staff Corrections:

14. Page 5-6, 3rd paragraph from bottom: Change confirmed 2020 target to 242 GPCD.

15. Page 5-6, 2nd last paragraph: Change 2015 interim target to 272 GPCD.

16. Table DWR Table 5-1, pg 5-7; Replace with the following to revise interim and 2020 GPCD Target:

Table 5-1 Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target GPCD *	Confirmed 2020 Target GPCD*
10-15 year	*1999*	*2008*	*302*	*272*	*242*
5 Year	*2004*	*2008*	*291*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

17. Page 5-7, middle of page, Revise sentence to the following:

"BCVWD's actual per capita for 2015 was 180 GPCD, which is well below the interim target of 272 GPCD in Table 5-1."

18. Appendix D, SB X7-7 Verification Forms, Table 7F and Table 8, Substitute the following:

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
291	276	242	**242**
[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*			
NOTES:			

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
242	302	**272**
NOTES:		

Table 2-5
Agencies, Communities, and Organizations Having an Interest BCVWD's UWMP

Agency	Sent Notice		Agency	Sent Notice
City of Beaumont	■		Eastern MWD	■
City of Banning	■		SGPWA	■
City of Yucaipa	■		Beaumont Basin Watermaster	■
City of Calimesa	■		Riverside County LAFCO	■
YVWD	■		San Bernardino County LAFCO	■
South Mesa WC	■		CVAN	■
Santa Ana Watershed Project Authority (SAWPA)	■		Riverside BIA	■
Beaumont Cherry Valley Parks and Recreation District	■		Riverside County Flood Control and Water Conservation District	■
HOAs			Beaumont Unified School District	■
Riverside County Planning Department			San Bernardino County Land Use Services	

The City of Beaumont has a direct interest since the city is served by BCVWD; BCVWD is also in discussions with the City about recycled water. The City of Banning has agreements with BCVWD to recharge imported water on their behalf, has an existing emergency potable water connection with BCVWD and stub outs across Highland Springs Avenue for potable and recycled water connections and has financially participated with BCVWD in the construction of several production wells. BCVWD has pipeline facilities within the City of Calimesa; however the District does not serve the city. The city is served by YVWD.

YVWD has been working with BCVWD to provide recycled (non-potable) water to BCVWD. BCVWD prepared a Facilities Planning Report in June 2014 for a Recycled Water Supply Pipeline and Pump Station; this report has been approved by the SWRCB.

The County of Riverside Planning Department is involved with land use planning and building permit approval in the unincorporated community of Cherry Valley; the County of San Bernardino Land Use Services controls land use planning in the unincorporated portion of the District's service in that county. The Riverside and San Bernardino County LAFCOs have an interest since they have requirements for water supply assessments whenever there is an annexation. Riverside County Flood Control and Water Conservation District are involved with BCVWD on the Beaumont MDP Line 16 project

2015 and 2020 Targets

> *CWC 10608.20*
>
> *(e) An urban retail water supplier shall include in its urban water management plan due in 2010. . . urban water use target, interim urban water use target,…along with the bases for determining those estimates, including references to supporting data (10608.20(e)).*
>
> *CWC 10608.20*
>
> *(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan…*

The Water Code identified four methods which could be used to establish the target GPCD; BCVWD chose Target Method 1 – 80% of the 10-year Baseline GPCD.

Year 2020 Target (by Target Method 1) = 0.80 * 302 GPCD = 242 GPCD

5-year Target Confirmation

> *CWC 10608.22*
>
> *Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.*

Year 2020 Target (by Target Confirmation) = 0.95 * 291 GPCD = 276 GPCD

In BCVWD's case, CWC §10608.22 controls, and the District's confirmed **year 2020 target is 242 GPCD.**

Calculate the 2015 Interim Urban Water Use Target

The year 2015 Interim Target GPCD is midway between the 10-year Baseline (302 GPCD) and the year 2020 Confirmed Target (276 GPCD). BCVWD's **year 2015 Interim Target is 272 GPCD.**

Baselines and Targets Summary

Table 5-1 presents a summary of results of the baseline per-capita and target analysis. Table 5-2 shows that BCVWD met the intermediate, year 2015 target and the year 2020 target by a considerable margin. It should be pointed out that Stage 2 Water Restrictions were in effect in the District during this period.

Table 5-1 Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target GPCD *	Confirmed 2020 Target GPCD*
10-15 year	*1999*	*2008*	*302*	*272*	*242*
5 Year	*2004*	*2008*	*291*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

2015 Compliance Daily per Capita Water Use (GPCD)

CWC 10608.12

(e) "Compliance daily per-capita water use" means the gross water use during the final year of the reporting period…

CWC 10608.24

(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

CWC 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

BCVWD's actual per capita for 2015 was 180 GPCD, which is well below the interim Target of 272 GPCD in Table 5-1. See Table 5-2.

Table 5-2: 2015 Compliance *Retail Agency or Regional Alliance Only*								
Actual 2015 GPCD*	2015 Interim Target GPCD*	**Optional Adjustments to 2015 GPCD** Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
180	272	0	0	0	0	180	180	Yes
All values are in Gallons per Capita per Day (GPCD)								
NOTES: The persistent drought and Stage 2 Water Use Restrictions imposed by BCVWD resulted in a 24.3% water savings year 2015-16 vs comparable period in 2013. Without the water savings the year 2015 per capita would have been closer to 223 GPCD								

Table 5-2 provides for some adjustments to the 2015 GPCD for such reasons as defined in the Water Code. For BCVWD there were no adjustments needed. But is should be pointed out that the Stage II water restrictions and water conservation measures resulted in a 24.3% savings in potable water. Without the restrictions the 2015 GPCD would have been about 223 GPCD. Still well below the interim target.

- Minimal producers (10 or less acre-ft/yr) are exempt from the Adjudication. §III.4.and §I.3.K

Watermaster is responsible for providing the legal and practical means of ensuring the waters of the Beaumont Basin are put to maximum beneficial use and include:

- Administer the Judgement; approve Producer activities,
- Maintain and improve water supply; maintain and improve water quality; monitor and understand the Basin
- Develop and administer a well policy; develop contracts for beneficial programs and services; provide cooperative leadership

To simplify the Judgement, an appropriator, like BCVWD, after February 2014, can only extract water within the appropriator's storage account as determined by Watermaster. Water in the storage account can include:

- Imported water recharged by the Appropriator.
- Water transferred from one Appropriator's storage account to the Appropriator.
- Recycled water recharged to the Beaumont Basin which meets Regional Board and SWRCB Division of Drinking Water (DDW) groundwater water recharge regulations.
- "New" captured storm water or urban runoff recharged by the Appropriator.
- Unused Overlying Party pumping rights allocated back to the Appropriator.
- Return flows from imported water or recycled water applied to land overlying the Beaumont Basin by the Appropriator
- Forbearance water allocated to the Appropriator for providing potable or recycled water to the Overlying Party's land.

Watermaster performs an annual accounting of these sources and produces an annual report identifying the water in storage for each appropriator.

According to Watermaster, BCVWD had 28,930 acre-ft in storage in the Beaumont Basin at the end of 2014. Data from Watermaster's 2015 Annual Report, indicates that BCVWD's storage account balance at the end of 2015 is 25,568 AF.[21] BCVWD's storage account has a maximum capacity of 80,000 acre-ft.

The entire Judgment is contained in Appendix E.

[21] Beaumont Basin Watermaster (2016). 2015 Annual Report, Alda, Inc., Thomas Harder and Company, December

The diversions in Upper and Middle Edgar Canyon capture most of the storm flows and runoff that flows in the creek and diverts the flow to a series of percolation basins. The water is subsequently extracted by the adjacent wells.

On occasion there are very high flows which flow the entire length of Edgar Canyon. A portion of these flows can be captured in the new basins at the mouth of Edgar Canyon shown in Figure 6-10. In addition, BCVWD retains the right to use the older ponds, downstream of the new basins to capture flood water when they occur. During those times, the SGPWA would be precluded from percolating SPW.

Potential Storm Water Capture Projects

There were a number of projects which were explored in more detail in BCVWD's 2016 Potable Water Master Plan. These projects are listed in Table 6-11.

Edgar Canyon, Noble Creek and Marshall Creek

In BCVWD's 2013 UWMP Update, an estimate of the yield from the Edgar Canyon, Noble Creek and Marshall Creek Capture Projects was presented. No further work has been performed on these conceptual projects, so at this time the preliminary yield from the projects remains at 1,050 AFY.

Table 6-10
Potential Storm Water Capture Projects

Project	Brief Description
Soft plug in Noble Creek at BCVWD Groundwater Recharge Facility	Large flows which would bypass the spreading basins at the mouth of Edgar Canyon (Figure 6-10 above) could still be captured. Provide "soft plug" in lined portion of Noble Creek channel and divert flows into BCVWD's recharge facility. (Note that only extreme flows actually make it out of the canyon). Estimated Yield – 500 AFY.
Stormwater Capture Noble Creek	Noble Creek flows could be desilted on property owned by BCVWD (15.7 acres) along Noble Creek upstream of Noble St and west of Cherry Ave. Unfortunately this area is not over the Beaumont Basin, but the property could be used for desilting basins with the desilted water released back into Noble Cr. and recaptured at a soft plug in the lined channel and diverted into the District's recharge site. Estimated Yield = 400 AFY.
Marshall Creek s/o Elm to I-10	There is a significant amount of urban runoff from the developed area east of Beaumont Ave, between Oak Valley Parkway and Brookside Ave. which could be captured in the soft bottom of Marshall Creek using training dikes to prevent the water from going under the I-10 bridge. There is about 300 ac of urban drainage. Estimated Yield = 150 AFY.
Beaumont MDP Line 16	Approximately 517 acres of area could be intercepted by a storm drain along Grand Ave. and conveyed to the District's Recharge facility. This water is relatively free of sediments and runoff is generated with even the slightest amount of rainfall
Sundance Urban Runoff	Eighth St., Cherry Ave., and Starlight Ave. Basins capture runoff from the Sundance development. These basins capture runoff effectively, but percolation needs to be improved.



Figure 6-10
Runoff Collected in Sundance Detention Basin

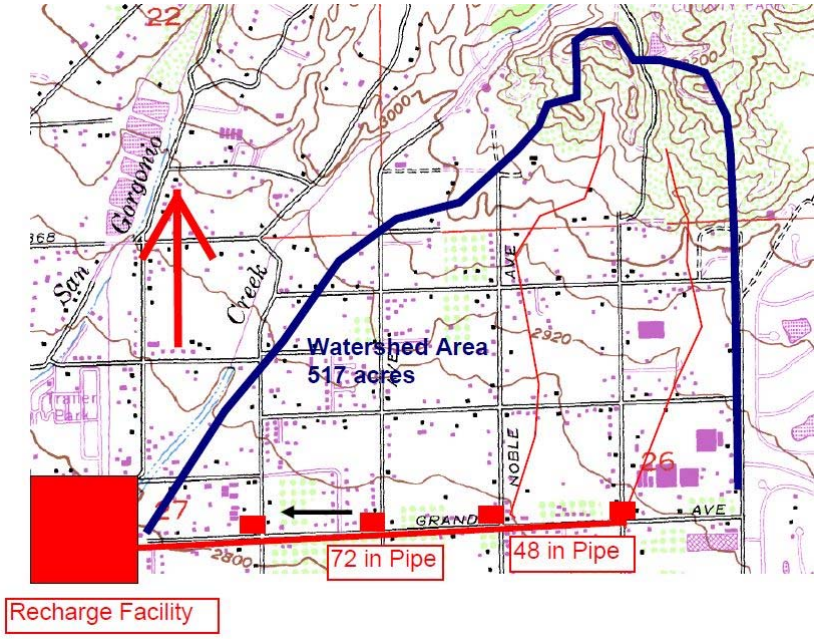


Figure 6-11
Beaumont MDP Line 16Watershed Area

Table 6-11 shows some information about the watershed and the detention basin volume.

A detailed analysis of the runoff potential from these projects was performed as part of the 2016 BCVWD Potable Water Master Plan. Daily Beaumont rainfall totals for the 77-year period January 1, 1929 through December 31, 2006 were used in the runoff analysis. Individual rainfall periods were identified and the runoff from each storm was determined using the Natural Resources Conservation Service (NRCS) Curve Number approach. Table 6-12 shows the amount of storm runoff that can actually be captured – close to 800 acre-ft annual average.

Table 6-11
Summary of the Urban Runoff Drainage Areas and Retention Basin Volumes

Facility	Drainage Area, acres	Basin Volume, acre-ft
Beaumont MDP Line 16	517	90[1]
Cherry Ave Basin	426	240
Eighth St. Basin	475	128
Starlight Basin	250	32

[1] Recharge during a multi-day storm even would add another 100 to 125 acre-ft

"Before and after" development calculations were made to determine "new water." From a water resources perspective, the Beaumont Basin Watermaster would likely not consider all of the captured storm water as "new water." "New water" is water which is developed over and above what would have occurred naturally, in an undeveloped condition.

Table 6-12
Urban Runoff Capture Summary

Facility	Estimated Captured Runoff, AFY	Percent of Storms Totally Captured	Total Average Annual Runoff, AFY, Based on 77 years of Record	Percent of All Possible Storm Water Captured
Beaumont MDP Line 16	200	98.5%	232	90.0%
Cherry Ave Basin	258	95.8%	276	93.4%
Eighth St Basin	237	94.6%	308	76.9%
Starlight Basin	89	89.2%	171	52%
Total	784			

Table 6-13 shows an estimate of "new water" from the projects – about 730 AFY.

Table 6-13
Estimate of "New Water" from Storm Water Capture

Facility	Estimated Captured Runoff, AFY	Runoff from Undeveloped Land		Estimated Amount of New Water, AFY
		3-in Total Storm Rainfall, AFY	4-in Total Storm Rainfall, AFY	
Beaumont MDP Line 16	200	41	75	172 to 192 (Use185)
Cherry Ave Basin	258	9	19	249 to 239 (Use 245
Eighth St Basin	237	10	21	226 to 216 (Use 220)
Starlight Basin	89	5	11	84 to 78 (use 80)
Total				730

Wastewater and Recycled Water

Recycled water use for non-potable purposes has a major role in BCVWD's water portfolio. BCVWD began planning the use of recycled water for landscape and golf course irrigation since the early 1990s with the development of a cooperative financing agreement to fund water supply infrastructure including recycled water. In November 1997, the City of Beaumont City Council adopted Ordinance 773 mandating the use of potable water for non-potable uses including cemeteries, golf courses, parks, street and highway landscaping, athletic fields, and other irrigation uses is a waste or an unreasonable use of water if recycled water is available. BCVWD's UWMPs dating to the 90s included plans and projections for the use of recycled water from the City of Beaumont. BCVWD continues in discussions with the City of Beaumont.

Recognizing that additional water may be needed than can be supplied by the City of Beaumont, BCVWD began discussions with YVWD around 2013. In June 2014, BCVWD prepared a Recycled Water Facilities Planning Report for a Recycled Water Supply Pipeline and Pump Station for a connection to YVWD's non-potable water system. The Facilities Planning report was approved by the SWRCB in August 2014. Since then discussions have move forward with YVWD

BCVWD's Existing Non-potable Water System

BCVWD has an extensive network of about 30 miles of non-potable transmission pipelines already constructed that can convey untreated SPW, groundwater, and recycled water. An extensive network of smaller distribution mains have been constructed by Tract developers to serve parks, medians, schools and common areas in their respective developments. The system includes a 2 million gallon non-potable water reservoir (2800 Zone Non-potable

Future Water Projects

> *CWC 10631*
>
> *(g) …The urban water supplier shall include a detailed description of expected future projects and programs…that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.*

Table 6-24 (DWR Table 6-7) presents a list of potential future projects which BCVWD could construct to increase the available water supply.

The Beaumont MDP Line 16 Project is already in the preliminary design phase with work being done by the Riverside County Flood Control and Water Conservation District. This is funded under a DWR grant through SAWPA. BCVWD and YVWD are in discussions on the non-potable water connection with YVWD. BCVWD completed a Facilities Planning report in 2014 for the project which was approved by the SWRCB for potential funding.

These projects, when all are implemented, will yield about 3,900 AFY initially and about 6,100 AFY by year 2040. The large growth is due to increases in recycled water from the City of Beaumont as a result of development and population growth in the City of Beaumont.

Table 6-25, (DWR Table 6-8), summarizes BCVWD's water supply for the year 2015.

Summary of Existing and Planned Sources of Water

> *CWC 10631*
>
> *(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision 10631(a).*
>
> *(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

Table 6-26, (DWR Table 6-6), summarizes BCVWD's projected water supply for the years 2020, 2025, 2030, 2035 and 2040.

Table 6-24
(DWR Table 6-7) Expected Future Water Supply Projects or Programs

DWR Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency, AFY
Beaumont MDP Line 16 (Line 16)	Yes	RCF&WCD	Const of SD to divert water into BCVWD Rehcharge Facility	2021	All Year Types	185
Misc Urban Runoff Capture	Yes	Beaumont	Various recharge basin enhancements	2025	All Year Types	200-545
Lower Edgar Canyon Non-potable Groundwater	No		Install extraction wells for high nitrate GW for non potable water system	2025	All Year Types	300
San Timoteo Canyon GW Extraction	Yes	Beaumont	Install series of wells to recapture percolated ww used for habitat mitigation	2030	All Year Types	400-800
Non-potable Water interconnection with YVWD	Yes	YVWD	Install interconnecting pipeline, and booster pumping station and pressure regulating stations	2018	All Year Types	1,043
Connection to City of Beaumont for recycled water	Yes	Beaumont	Install storage tank, booster pumping station and interconnecting piping	2020	All Year Types	1,154
Advance Treated Recycled Water	Yes	Beaumont	Construct Advanced Treatment Facility and Brine Line	2025	All Year Types	300-660
NOTES: Yield from City of Beaumont Recycled Water Connection will increae to 3,363 AFY by 2040 due to increases in wastewater flows over time. Expected increase in water supply for Advance Treated Wastewater is based on 80% recovery in the membrane treatment process						

At the end of 2015, for example, BCVWD had 25,568 AF in storage. This dropped from a maximum in 2013 of nearly 34,000 AF due to the drought and the reduced SWP. BCVWD can store up to 80,000 AF in the Beaumont Basin managed by the Watermaster.

In Section 6, Table 6-25 (DWR Table 6-9), a quantity of BCVWD-purchased imported water was identified as "SGPWA for Banking." This varied from 1,000 AFY to 2,500 AFY and is over and above the amount of imported water needed to meet demands. The purpose of this "banking water" is to build up BCVWD's Beaumont Basin Groundwater Storage Account to be used as reserve for drought periods when adequate, (as projected in Table 6-25), SPW is not available.

SGPWA is to supply the imported water requested in Table 6-25 (DWR Table 6-9) to meet BCVWD's needs plus the anticipated SPW for banking. If in any year(s), either of these quantities cannot be supplied, for any reason, the accumulated shortfall is expected to be delivered to BCVWD by SGPWA as soon as possible once imported water is available. In this way, BCVWD will be able to keep adequate water in storage for current (2015) needs and accommodate growth in BCVWD's service area. Looking at the quantities in Table 6-26, BCVWD anticipates banking 35,000 AF of water over the next 20 years, which would bring BCVWD's storage account to about 60,560 AF. This is over 3 years of SPW requirements to meet demand. In other words, BCVWD would be able to meet year 2040 demands with no SPW for over 3 years.

Groundwater

Beaumont Basin

The Beaumont Basin is managed by the Beaumont Basin Watermaster. A discussion of the principles of the Adjudication was presented previously in Section 6.

In any given year, BCVWD can pump out its stored (banked) water. The storage is replenished, at least partially, every year by forbearance water, reallocated unused Overlying Party pumping rights, return flows, and imported water when available. The amount of imported water that can be recharged in any year depends on DWR's SWP allocation. This varies from year to year. See Figure 6-2 presented previously.

Table 6-9, presented previously, showed the amount the Watermaster credits to BCVWD's Beaumont Basin Storage Account annually. The amount of unused Overlying Party rights is based on a 5-year moving average and could decrease slightly during drought periods as the Overlying Parties use more well water to compensate for the lack of rainfall. The forbearance water and return flows will decrease during dry periods as users reduce water consumption.

Table 7-2 shows the estimated amount of water credited to BCVWD by Watermaster for a single or multiple dry year analysis. For the dry year analysis, it was estimated that there would be a 15% conservation effect; in other words, for dry year analysis, only 85% of average annual forbearance, reallocated Overlying Party rights, etc. would be available. In Table 7-2, the 15% reduction factor is also applied to the recycled forbearance water to account for a potential

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
1	10	Up to a 10% reduction in normal, "long term" water supply; imported waer supply allocation averages approximately 50% over a 2-year (or longer) period
2	20	Up to 20% reduction in normal, "long term" water supply; imported waer supply allocation between 49.9% and 25% over a 3-year (or longer) period
3	25	Up to 25% reduction in normal, "long term" water supply; imported waer supply allocation between 24.9% and 10% over a 3-year (or longer) period
4	30	Up to 30% reduction in normal, "long term" water supply; imported waer supply allocation between 9.9% and 5% over a 3-year (or longer) period
5	50	Up to 50% reduction in normal, "long term" water supply; imported waer supply allocation averages less than 5% over a 4-year (or longer)period
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

These stages and the percent reductions in demand are based on BCVWD's experience during the state mandated water conservation program targets comparing 2015 with a similar period in 2013. BCVWD was able to reduce consumption by 24.3% for the period May 2015 through April 2016. This was done through the restrictions in Board of Directors Resolution 2015-05 which limited watering to two days per week.

In establishing the "Stages," BCVWD has the advantage of the Beaumont Basin, its large storage capacity for banked water, and BCVWD's 80,000 AF storage account. BCVWD currently has 25,568 AF in storage, despite an average SWP allocation of only 43% for the period 2012 through 2015. BCVWD's plan is to purchase additional imported water over that needed to meet demands to add to the storage account balance each year including making up for any shortfall that may occur during dry years. The District's goal is to fill the storage account by 2040 or before.

Stage 1

Stage 1 occurs when:

- A 10% water use reduction from the established base year is required, or

5. Reduce park, school and street median landscape watering to the minimum needed to sustain plant life.

Once the short term emergency is over, BCVWD staff will again notify the customers that the water supply is "back to normal," thank them for using water wisely and encourage them to continue to do so.

District-wide Interruption

If the interruption is District-wide, individual customer notification is not practical. A more extensive outreach program is needed.

BCVWD management will notify the District's Board of Directors, City of Beaumont elected officials and management, and the Riverside County Supervisor whose district covers the service area of the District-wide interruption, as appropriate. In addition BCVWD will notify the newspapers, e.g., Riverside Press-Enterprise, Banning Record Gazette, etc., cable TV provider (Time Warner), and local radio stations in Riverside, San Bernardino, and the Coachella Valley, including the Spanish language stations In addition a notice will be posted on the BCVWD website.

Consumers will be urged to conserve water by taking the steps listed above for a localized interruption. Once the short term emergency is over, BCVWD staff will again notify all of the local elected officials, newspapers and cable TV and radio stations that the water supply is "back to normal," thank them for their conservation efforts and encourage customers to continue to use water wisely.

Minimum supply Next Three Years

§10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

Table 8-7 (DWR Table 8-4) presents a summary of the water supply available over the next 3 years (2016, 2017, and 2018). Table 8-8 provides the back-up for Table 8-7.

Table 8-7
(DWR Table 8-4) Minimum Water Supply Next Three Years (2016 – 2018)

DWR Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	13,826	9,650	4,508
NOTE: 2016 based on BCVWD receiving 9,870 AF per SGPWA email. Year 2017 and 2018 assumes 35% and 5% SWP Allocation as used in Stress Test. SPW amounts per SGPWA for Stess Test Analysis.			

Table 5-1 Baselines and Targets Summary

Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target GPCD *	Confirmed 2020 Target GPCD*
10-15 year	*1999*	*2008*	*302*	*272*	*242*
5 Year	*2004*	*2008*	*291*		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance

Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
180	272	0	0	0	0	180	180	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES: The persistent drought and Stage 2 Water Use Restrictions imposed by BCVWD resulted in a 24.3% water savings year 2015-16 vs comparable period in 2013. Without the water savings the year 2015 per capita would have been closer to 223 GPCD

DWR Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency, AFY
Beaumont MDP Line 16 (Line 16)	Yes	RCF&WCD	Const of SD to divert water into BCVWD Rehcharge Facility	2021	All Year Types	185
Misc Urban Runoff Capture	Yes	Beaumont	Various recharge basin enhancements	2025	All Year Types	200-545
Lower Edgar Canyon Non-potable Groundwater	No		Install extraction wells for high nitrate GW for non potable water system	2025	All Year Types	300
San Timoteo Canyon GW Extraction	Yes	Beaumont	Install series of wells to recapture percolated ww used for habitat mitigation	2030	All Year Types	400-800
Non-potable Water interconnection with YVWD	Yes	YVWD	Install interconnecting pipeline, and booster pumping station and pressure regulating stations	2018	All Year Types	1,043
Connection to City of Beaumont for recycled water	Yes	Beaumont	Install storage tank, booster pumping station and interconnecting piping	2020	All Year Types	1,154
Advance Treated Recycled Water	Yes	Beaumont	Construct Advanced Treatment Facility and Brine Line	2025	All Year Types	300-660
NOTES: Yield from City of Beaumont Recycled Water Connection will increae to 3,363 AFY by 2040 due to increases in wastewater flows over time. Expected increase in water supply for Advance Treated Wastewater is based on 80% recovery in the membrane treatment process						

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	4,962	5,877	6,657	7,472	8,042
Demand totals	16,659	18950	21,605	23,886	25,932
Difference	(11,697)	(13,073)	(14,948)	(16,414)	(17,890)
NOTES: The Difference between Supply and Demand will be provided from Banked Water in the Beaumont Basin.					

DWR Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	13,826	9,650	4,508

NOTE: 2016 based on BCVWD receiving 9,870 AF per SGPWA email. Year 2017 and 2018 assumes 35% and 5% SWP Allocation as used in Stress Test. SPW amounts per SGPWA for Stess Test Analysis.

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
291	276	242	**242**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
242	302	**272**
NOTES:		

Resolution 2017-01

Appendix G

DWR UWMP Checklist

RESOLUTION No. 2017-01

RESOLUTION OF THE BOARD OF DIRECTORS OF THE BEAUMONT-CHERRY VALLEY WATER DISTRICT ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN AND AUTHORIZING THE GENERAL MANAGER TO FILE THE URBAN WATER MANAGEMENT PLAN AND TAKE SUCH OTHER NECESSARY ACTION TO IMPLEMENT AND ADMINISTER THE PLAN

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-84 Regular Session, and as amended subsequently, which mandates that every water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Plan and update it as required, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the California Water Conservation Bill of 2009, SB 7X-7, also known as the "20% by 2020" bill, requires that California achieve a 20 percent reduction in urban per-capita water use on or before December 31, 2020 and that the District's UWMP include a baseline per-capita water use, an interim (year 2015) urban water use per-capita target, demonstrated compliance with that year 2015 target, and a year 2020 compliance daily per-capita water use; and

WHEREAS, the District is an urban water supplier delivering nearly 10,000 acre-feet of water annually (year 2015); and

WHEREAS, the Plan shall be periodically reviewed at least once every five years, and that the District shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, the District has therefore, prepared and circulated for public review a draft 2015 Urban Water Management Plan, and a properly noticed public hearing regarding the Plan was held by the Board of Directors on December 14, 2016; and

WHEREAS, the District shall file the Plan with the California Department of Water Resources and the California State Library, Government Publications Section on or before January 14, 2016

NOW THEREFORE, BE IT RESOLVED by the Board of Directors of the Beaumont-Cherry Valley Water District as follows:

1. The 2015 Urban Water Management Plan is hereby adopted, including modifications to the 2015 Urban Water Management Plan made after the Public Hearing by the General Manager limited to (i) de minimis refinements, and (ii) such changes to address public input received (if any) at the Public Hearing.

2. The General Manager is hereby authorized and directed to file the 2015 Urban Water Management Plan within thirty (30) days after its adoption with the California Department of Water Resources, the California State Library - Government Publications Section, and any city or county within which the District provides water supplies,

RESOLUTION No. 2017-01

RESOLUTION OF THE BOARD OF DIRECTORS OF THE BEAUMONT-CHERRY VALLEY WATER DISTRICT ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN AND AUTHORIZING THE GENERAL MANAGER TO FILE THE URBAN WATER MANAGEMENT PLAN AND TAKE SUCH OTHER NECESSARY ACTION TO IMPLEMENT AND ADMINISTER THE PLAN

3. The General Manager is hereby authorized and directed to take any necessary actions to implement and administer the 2015 Urban water Management Plan.

ADOPTED, SIGNED AND APPROVED, THIS 11th DAY OF JANUARY 2017 BY THE FOLLOWING VOTES:
AYES:
NOES:
ABSENT:
ABSTAIN:

APPROVED:

Daniel Slawson, President of the
Board of Directors of the
Beaumont-Cherry Valley Water District

(seal)

ATTEST:

Nathan Douglass, Secretary to the
Board of Directors of the
Beaumont-Cherry Valley Water District

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Pg 10-4
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Pg 10-1 thru 10-3
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	Table 10-2
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Pg 3-2
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Pg 3-8
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Table 3-10
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Pg 3-27
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Table 3-3, Table 3-10
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Pg 4-4 and Table 4-1 and Table 4-2
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Pg 4-8
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Table 4-4A, pg 4-11

10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Pg 5-6
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	Pg 5-6 and Table 5-1 and SB X7-7 Verification Tables
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Pg 5-6
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Pg 5-7
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A, no adjustment made
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	BCVWD is not Wholesale Agency
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	See SB X7-7 Verification Tables
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Table 6-25
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 6
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Basin is Adjudicated
10631(b)(2)	**Describe the groundwater basin.**	**System Supplies**	**Section 6.2.1**	P 6-16 to 6-24

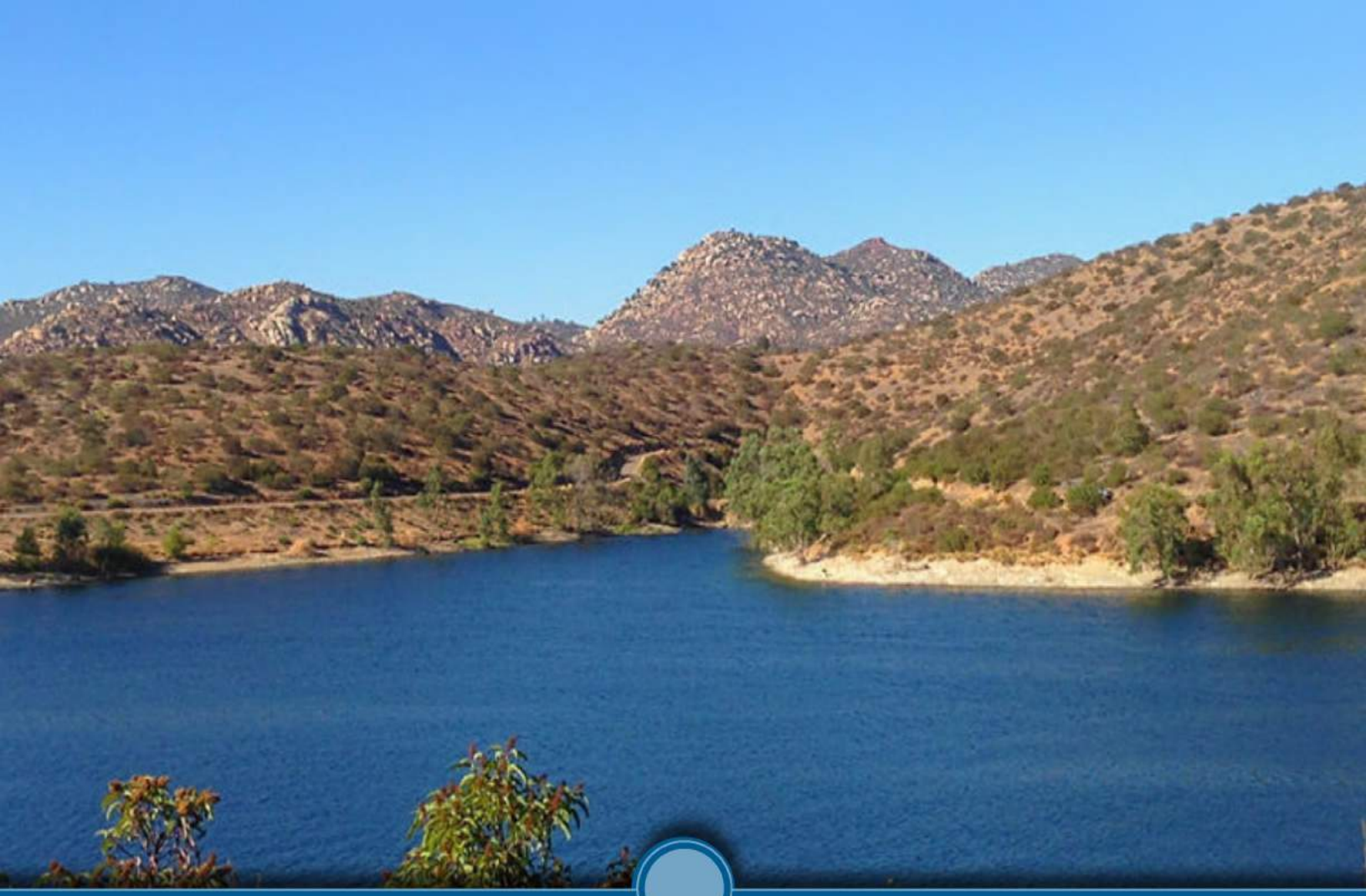
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump	System Supplies	Section 6.2.2	Appendix E and Pg 6-24
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Edgar Canyon not adjudicated and not in overdraft See Table 6-8
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	Table 6-7
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Table 6-8 and Table 6-9, Table 6-25
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Pg 6-57
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Table 6-23
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Pg 6-56
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	Pg 2-4
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	BCVWD is a Retailer
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Pg 2-5

10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	Pg 6-42
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Pg 6-45 and Table 6-14,
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	Table 6-17
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	Tble 6-18 and 6-19
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	Table 6-19
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Pg 6-53
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Pg 6-54 to 6-55, Table 6-22
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	See Storm Water pg 6-35 and Recycled Water pg 6-40
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 7, Table 7-1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Pg 7-5 to 7-8
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Pg 7-11

10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Pg 6-16, 6-20 and 6-44
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Tables 7-9 through 7-12
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Pg 8-1
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Pg 8-25 and 8-26
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Pg 8-12 thru 8-25
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Pg 8-24
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Pg 8-1 thru 8-5
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Pg 8-6
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Pg 8-10
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	See Pg 8-28
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Pg 8-10

10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Pg 9-1 thru 9-5
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	BCVWD is a Retailer
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	BCVWD is not a CUWCC member
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Pg 10-4 as part of UWMP adoption
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	Pg 10-2
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	Submitted before end of 2016
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Provided with copy of 2015 UWMP Update
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	See Appendix F of 2015 UWMP Update
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	See Appendix F of 2015 UWMP Update

10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	See Appendix F of 2015 UWMP Update
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	See Appendix F of 2015 UWMP Update
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	See Appendix F of 2015 UWMP Update
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	It will on completion
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	On BCVWD Website www.bcvwd.org



FINAL

2015 Urban Water Management Plan *for* **San Gorgonio Pass Water Agency**



March 2017

Prepared by

Kennedy/Jenks Consultants

RESOLUTION NO. 2017-03

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN GORGONIO PASS WATER AGENCY ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act (Water Code, Part 2.6, Section 10610 et seq.) mandates that every urban water supplier providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, and update its Urban Water Management Plan at least once every five years; and

WHEREAS, the Water Conservation Act of 2009 (Water Code, Part 2.55, Section 10608 et seq.) established, among other things, standards for urban retail water suppliers to achieve reductions in urban per capita water use statewide; and

WHEREAS, the San Gorgonio Pass Water Agency (Agency) is an urban wholesale water supplier for purposes of the requirements of the Urban Water Management Planning Act and the Water Conservation Act of 2009; and

WHEREAS, in accordance with the Urban Water Management Planning Act and the Water Conservation Act of 2009 , the Agency has prepared its 2015 Urban Water Management Plan (2015 UWMP) and has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its 2015 UWMP;

WHEREAS, as authorized by Section 10620(e) of the Urban Water Management Planning Act, the Agency has prepared its 2015 UWMP with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its 2015 UWMP, and has also utilized and relied upon the California Department of Water Resources Guidebook for Urban Water Suppliers to Prepare 2015 Urban Water Management Plans (March 2016), including its related appendices; and

WHEREAS, in accordance with applicable law, including Water Code Section 10642 and Government Code Section 6066, a properly noticed public hearing regarding the Agency's 2015 UWMP was conducted by the Agency's Board of Directors on March 6, 2017 in order to provide members of the public and other interested entities with the opportunity to be heard in connection with the 2015 UWMP and the proposed adoption thereof; and

WHEREAS, pursuant to said public hearing on the 2015 UWMP, the Agency, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within the Agency's service area with regard to the preparation and proposed adoption of the 2015 UWMP; and

WHEREAS, the Board of Directors of the Agency has reviewed and considered the purposes and requirements and of the Urban Water Management Planning Act and the Water Conservation Act of 2009, the contents of the 2015 UWMP, and the documentation contained in the administrative record in support of the 2015 UWMP, and has determined that the factual analyses and conclusions set forth in the 2015 UWMP are supported by substantial evidence.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the San Gorgonio Pass Water Agency as follows:

1. The Board of Directors approves and adopts the Agency's 2015 Urban Water Management Plan, a final copy of which is attached hereto as Exhibit "A";

2. The General Manager is hereby authorized and directed to include a copy of this Resolution in the 2015 Urban Water Management Plan, and to electronically submit a copy of the 2015 Urban Water Management Plan to the California Department of Water Resources;

3. The General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a) to submit a copy of the 2015 Urban Water Management Plan to the California State Library within thirty (30) days after this adoption date;

4. The General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a), and in satisfaction of Water Code section 10635(b), to submit a copy of the 2015 Urban Water Management Plan, specifically including the portion of the Plan prepared in accordance with Water Code section 10635(a), to any city or county within which the Agency provides water supplies within thirty (30) days after this adoption date;

5. The General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the 2015 Urban Water Management Plan available for public review at the Agency's offices during normal business hours not later than thirty (30) days after filing a copy thereof with the California Department of Water Resources;

6. The General Manager is hereby authorized and directed to recommend to the Board of Directors additional steps necessary or appropriate to effectively carry out the implementation of the 2015 Urban Water Management Plan in accordance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

Resolution No. 2017-03 was adopted this 20th day of March 2017, by the following vote:

Ayes: Stephenson, Lehtonen, Castaldo, Duncan Thompson and Fenn
Noes:
Abstain: Ball
Absent:

ADOPTED AND APPROVED this 20th day of March, 2017.

President, Board of Directors
San Gorgonio Pass Water Agency

ATTEST:

Secretary, Board of Directors
San Gorgonio Pass Water Agency

Kennedy/Jenks Consultants

2775 North Ventura Road, Suite 100
Oxnard, California 93036
805-973-5700
FAX: 805-973-1440

2015 San Gorgonio Pass Water Agency Urban Water Management Plan

Public Final

21 March 2017

Prepared for

San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223

K/J Project No. 1544217*00

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List of Acronyms

µg/L	micrograms per liter
AB	Assembly Bill
ACS	American Community Survey
AF	acre-feet
AFY	acre-feet per year
AWWA	American Water Works Association
BCVWD	Beaumont-Cherry Valley Water District
BDCP	Bay Delta Conservation Plan
BHMWC	Banning Heights Mutual Water Company
BO	Biological Opinion
Cal OES	California Office of Emergency Services
CEQA	California Environmental Quality Act
CFS	cubic feet per second
CIMIS	California Irrigation Management Information System
CLAWA	Crestline-Lake Arrowhead Water Agency
CVP	Central Valley Project
CWC	California Water Code
CWD	Cabazon Water District
CWP	California Water Plan
DCR	Delivery Capability Report
DDW	Division of Drinking Water
DMM	Demand Management Measure
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ELT	Early Long Term
ETo	evapotranspiration
F	Fahrenheit
GSP	Groundwater Sustainability Plan
HVWD	High Valley Water District
MG	million gallons
mg/L	milligrams per liter
MGD	million gallons per day
MSWD	Mission Springs Water District
MWQI	Municipal Water Quality Investigations
NMFS	National Marine Fishery Service
PHG	Public Health Goal

ppm	parts per million
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBVMWD	San Bernardino Valley Municipal Water District
SGMA	Sustainable Groundwater Management Act
SGPWA	San Gorgonio Pass Water Agency
SMWC	South Mesa Water Company
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan
YVRWFF	Yucaipa Valley Regional Water Filtration Facility
YVWD	Yucaipa Valley Water District

Section 1: Introduction

1.1 Overview

This document presents the wholesale Urban Water Management Plan 2015 (Plan) for the San Gorgonio Pass Water Agency (Agency, SGPWA) service area. This chapter describes the general purpose of the Plan, discusses Plan implementation, and provides general information about SGPWA, retail water purveyors, and service area characteristics.

The State of California mandates that all urban water suppliers within the state prepare an Urban Water Management Plan (UWMP). Detailed information on what must be included in these plans as well as who must complete them can be found in California Water Code sections 10610 through 10657. According to the UWMP Act of 1983, an urban water supplier is defined as a supplier, either public or private, that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 acre-feet (AF) annually.

1.2 Purpose

An UWMP is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan include a Section which "describes the opportunities for exchanges or water transfers on a short-term or long-term basis." (California Urban Water Management Planning Act, Article 2, Section 10630(d).) The identification of such opportunities, and the inclusion of those opportunities in a general water service reliability analysis, neither commits a water management agency to pursue a particular water exchange/transfer opportunity, nor precludes a water management agency from exploring exchange/transfer opportunities not identified in the plan. When specific projects are chosen to be implemented, detailed project plans are developed, environmental analysis, if required, is prepared, and financial and operational plans are detailed.

"A plan is intended to function as a planning tool to guide broad-perspective decision making by the management of water suppliers." (*Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal. App. 4th 33, 39.) It should not be viewed as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty and planning projections may change in response to a number of factors. "[L]ong-term water planning involves expectations and not certainties. The State Supreme Court has recognized the uncertainties inherent in long-term land use and water planning and observed that the generalized information required . . . in the early stages of the planning process are replaced by firm assurances of water supplies at later stages." (*Id.*, at 41.) From this perspective, it is appropriate to look at the UWMP as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is the reasonable probable yield from them?

- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?

- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these "framework" questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands. SGPWA will explore enhancing basic supplies from traditional sources such as the State Water Project (SWP) as well as other options.

The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five year increments. (SGPWA is going beyond the requirements of the Act by developing a plan which spans 25 years.)

- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single dry, and multiple dry years.

- Implements conservation and efficient use of urban water supplies.

Significant new requirements for quantified demand reductions have been added by the enactment of SBX7-7, which amends the Act; a portion of this law applies to SGPWA. In addition, a number of changes to the Water Code have been enacted since 2010 that affect implementation of the 2015 Plan updates. These changes apply to:

- Demand Management Measures CWC (CWC) Section 10631(f)(1) and (2) Assembly Bill (AB) 2067, 2014

- Submittal Date CWC Section 10621 (d) AB 2067, 2014

- Electronic Submittal CWC Section 10644 (a)(2) Senate Bill (SB) 1420, 2014

- Standardized Forms CWC Section 10644(1)(2) SB 1420, 2014

- Water Loss CWC Section 10631 (e)(1)(J) and (e)(3)(A) and (B) SB 1420, 2014

- Estimating Future Water Savings CWC Section 10631 (e)(4) SB 1420, 2014

- Voluntary Reporting of Energy Intensity CWC Section 10631.2 (a) and (b) Senate Bill 1036, 2014

- Defining Water Features CWC Section 10632 (b) Assembly Bill 2409, 2014

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A. A copy of the required standardized data tables is provided as Appendix B.

In short, the Plan answers the question: *Will there be enough water for the communities within the SGPWA service area in future years?* It also addresses what mix of programs should be explored for making this water available, and sets a framework for discussion of the priority of these programs.

It is the stated goal of SGPWA to import supplemental water and to protect and enhance local water supplies for use by present and future water users and to sell imported water at wholesale to local retail water purveyors within its service area. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal. It is important to note that this document has been completed to address regional resource management and does not address the particular conditions of any specific retail water agency or entity within the SGPWA service area. The retail urban water suppliers within SGPWA service area are preparing their own separate UWMPs, but SGPWA has coordinated with the retailers during development of this Plan to ensure a level of consistency with the retailers to the extent possible.

1.3 Basis for preparing a plan

In accordance with the California Water Code, urban water suppliers with 3,000 or more service connections, or supplying 3,000 or more AF of water per year, are required to prepare a UWMP every five years. The 2015 UWMP shall be updated and submitted to the California Department of Water Resources (DWR) by July 1, 2016.

1.4 Implementation of the Plan

The SGPWA service area encompasses a number of different local water agencies, three (3) of which are required to prepare individual UWMPs because they meet the threshold requirement. The three retail purveyors within SGPWA service area required to prepare their own UWMP include:

- City of Banning
- Beaumont-Cherry Valley Water District (BCVWD)
- Yucaipa Valley Water District (YVWD)

Other retail water agencies within the SGPWA service area that fall under the threshold for preparation of an UWMP (less than 3,000 connections or provide less than 3,000 AFY) include the following:

- South Mesa Water Company (SMWC)
- Cabazon Water District (CWD)
- Banning Heights Mutual Water Company (BHMWC)
- High Valleys Water District (HVWD)

- Mission Springs Water District (MSWD)
- Morongo Band of Mission Indians

1.5 Cooperative Preparation of the Plan

Wholesale water agencies are permitted by the State to either work independently to develop a wholesale UWMP or they can coordinate their planning with retail agencies within their service area to develop a cooperative regional plan. The former approach has been adopted by the SGPWA; however, the Plan was developed in coordination with the retail water agencies within the SGPWA service area. Water resource specialists with expertise in water resource management were retained to assist the local water agencies in preparing the details of their Plans. Agency coordination for this Plan is summarized in Table 1-1.

TABLE 1-1

AGENCY COORDINATION SUMMARY

	Participated in UWMP Development	Received Copy of Draft	Commented on Draft	Attended Public Meetings	Contacted for Assist	Sent Notice of Intent to Adopt
City of Banning Water Department	✓	✓			✓	✓
Beaumont-Cherry Valley Water District	✓	✓	✓		✓	✓
Yucaipa Valley Water District	✓	✓			✓	✓
Cabazon Water District	✓	✓			✓	✓
South Mesa Water Company	✓	✓			✓	✓
Banning Heights Mutual Water Company	✓	✓			✓	✓
High Valleys Water District	✓	✓			✓	✓
Mission Springs Water District	✓	✓			✓	✓
Morongo Band of Mission Indians	✓	✓			✓	✓
City of Calimesa		✓				✓
City of Beaumont		✓				✓
Riverside County		✓				✓
San Bernardino County		✓				✓

1.5.1 Plan Adoption

SGPWA began preparation of this Plan for its service area in October 2015. The final draft of the Plan was adopted by the SGPWA Board in March 2017 and submitted to DWR within 30 days of Board approval. This Plan includes all information necessary to meet the requirements of Water Conservation Act of 2009 (Wat. Code, §§ 10608.12-10608.64) and the Urban Water Management Planning Act (Wat. Code, §§ 10610-10656).

1.5.2 Public Outreach

The SGPWA has encouraged community participation in water planning. Interested groups were informed about the development of the Plan along with the schedule of public activities. Notices of the Public Hearing were published in the local press. Copies of the Draft Plan were made available at the water agency's office, local public libraries and sent to the County of San Bernardino as well as interested parties.

SGPWA coordinated the preparation of the Plan with the local land use planning agencies; SGPWA notified the cities and counties within its service area of the opportunity to provide input regarding the Plan. Table 1-2 presents a timeline for public participation during the development of the Plan. A copy of the public outreach materials are provided in Appendix C.

TABLE 1-2

PUBLIC PARTICIPATION TIMELINE

Date	Event	Description
October 20, 2015	UWMP Kick-off	Describe UWMP requirements and process
January 17, 2017	Draft UWMP	Draft UWMP released to solicit input
March 6, 2017	Public Hearing	Review contents of Draft UWMP and take comments
March 20, 2017	Board Adoption	Final Draft UWMP considered for approval by the Board of Directors

The components of public participation include local media, water agency public participation, city and county government outreach, and public availability of documents.

Local Media

- Paid advertisements in local newspapers

Water Agencies Public Participation

- Draft UWMP sent to retail purveyors for review (see Table 1-1)

City/County and Other Government Outreach

- Notice sent to various Local, County, and State agencies

Public Availability of Documents

- SGPWA website
- Local libraries

1.5.3 Resources Maximization

Several documents were developed to enable the water suppliers to maximize the use of available resources and minimize use of imported water, including the 2010 SGPWA UWMP, the Integrated Regional Water Management Plan for the Upper Santa Ana River Watershed (2015), DWR's 2015 State Water Project Delivery Capability Report (2015 DCR), SGPWA's Reports on Water Conditions (2010 to 2014), the 2012 SGPWA Strategic Plan, and discussions with SGPWA staff. Chapter 3 of this Plan describes in detail the water resources available to SGPWA and the retail purveyors for the twenty-five-year period covered by the Plan. A complete reference list is provided in Section 8 of this Plan.

1.5.4 Fiscal or Calendar Year

A water supplier may report on a fiscal year or calendar year basis, but must clearly state in its UWMP the type of year that is used for reporting. The type of year should remain consistent throughout the Plan. This plan provides data consistent with a calendar year, in acre-feet per year (AFY).

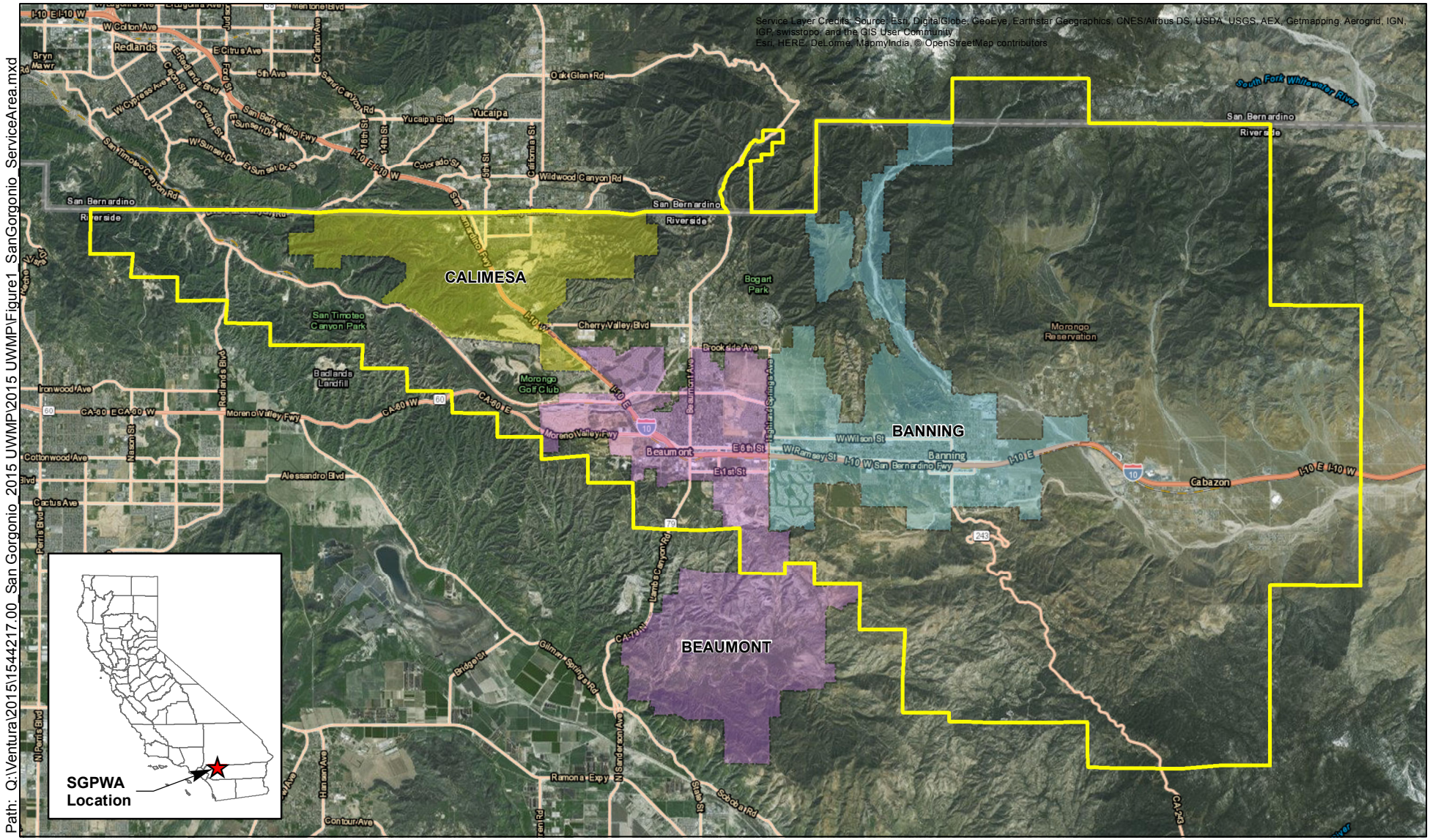
1.6 Water Management within the SGPWA Service Area

1.6.1 San Gorgonio Pass Water Agency

The SGPWA was established by the SGPWA Act, passed by the California Legislature in 1961 and signed by Governor Pat Brown in July of 1961. At its inception, the agency service area had a population of approximately 21,000 (today is closer to 95,000).

The San Gorgonio Pass is located between the San Bernardino Mountains on the north and the San Jacinto Mountains on the south, connecting the San Bernardino Valley on the west to the Coachella Valley on the east. The Cities of Calimesa, Beaumont, and Banning are within the SGPWA's service area (Figure 1-1). The municipalities located within the service areas of water agencies in the SGPWA service area are summarized below.

The principle drainage basins and streams within the service area are shown on Figure 1-2.



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Legend

- San Gorgonio Pass Water Agency (SGPWA) Boundary
- County Boundary
- City of Banning
- City of Beaumont
- City of Calimesa

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Kennedy/Jenks Consultants

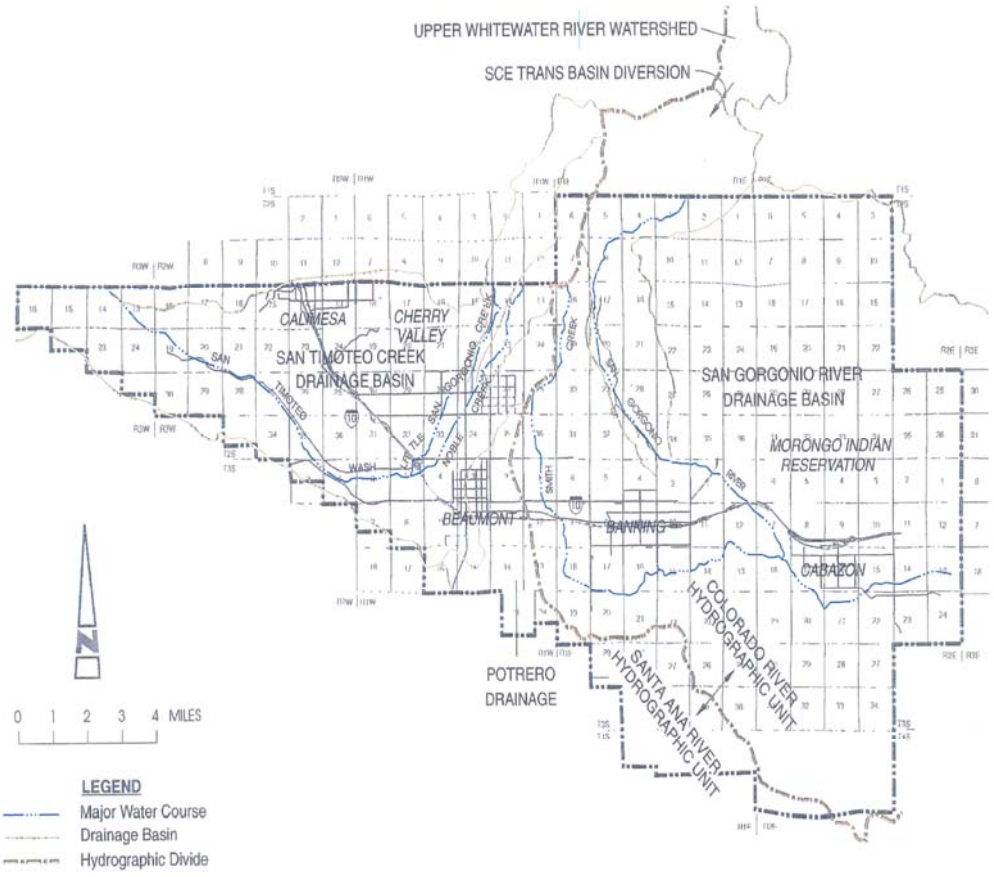
San Gorgonio Pass Water Agency
2015 Urban Water Management Plan
Riverside County, California

San Gorgonio Pass Water Agency Service Area Boundary

KJ 1544217*00
January 2016

Figure 1-1

FIGURE 1-2 PRINCIPLE DRAINAGE BASINS AND STREAMS



Source: SGPWA 2014 Report on Water Conditions

1.6.2 Exclusively or Primarily Wholesale Urban Water Supplier

If an urban water supplier meets the definition of an urban wholesale water supplier, as found in 10608.12 (r), it is considered a wholesale urban water supplier. Only the water code requirements that apply to wholesale suppliers must be addressed. SGPWA is a wholesale urban water supplier.

1.6.3 Retail Water Purveyors

Nine retail purveyors provide water services to most residents and businesses within the SGPWA service area[1]. While only the City of Banning, BCVWD, and YVWD currently receive SWP water directly from the SGPWA, all nine retailers supply water to their customers from local groundwater, which is replenished by SWP water imported by SGPWA. In addition, the YVWD serves water to its customers through direct deliveries from its surface water filtration plant.

City of Banning supplies water and wastewater services to the City of Banning. The City currently comprises a total land area of approximately 23 square miles in northern Riverside County. The City's water system is currently part of the City of Banning Public Works Department and Water Division.

Beaumont-Cherry Valley Water District's service area covers approximately 28 square miles, in Riverside and San Bernardino Counties, and includes the City of Beaumont and the community of Cherry Valley. The District purchases imported water from the SWP through the SGPWA for recharge of the Beaumont groundwater basin. The District also jointly owns and operates three groundwater wells with the City of Banning.

Yucaipa Valley Water District provides drinking water, recycled water, sewer collection, sewer treatment, and brine disposal services to the City of Yucaipa and the City of Calimesa in both San Bernardino and Riverside Counties. Yucaipa's service area encompasses approximately 40 square miles. YVWD also receives water from the San Bernardino Valley Municipal Water District (SBVMWD). Water demands and supplies within this portion of YVWD's service area are excluded from this UWMP.

South Mesa Water Company's service area includes parts of both the City of Calimesa and the City of Yucaipa.

Cabazon Water District's service area includes the unincorporated community of Cabazon in the eastern portion of SGPWA's service area.

Banning Heights Mutual Water Company's service area is the unincorporated community of Banning Bench, north of the City of Banning.

High Valleys Water District provides service to residents of the Twin Pines and Poppet Flats communities. HVWD receives all of its water from the City of Banning.

Mission Springs Water District's service area includes Desert Hot Springs and surrounding areas.

Morongo Band of Mission Indians' service area is approximately 35,000 acres northeast of the City of Banning.

[1] Other very small mutual water companies, such as Cherry Valley, exist in the Agency's service area. Their demands will be considered in future updates of the UWMP as appropriate.

1.6.4 Public Water Systems

Public water systems are the systems that provide drinking water for human consumption and these systems are regulated by the State Water Resources Control Board (SWRCB), Division of Drinking Water. Reporters file electronic Annual Reports to the Drinking Water Program to the Board, which include annual reports of water usage and other information.

The service areas of SGPWA and the major retail water purveyors are shown on Figure 1-3. As of 2015, retail water purveyors with demands on SGPWA, which are also agencies required to complete UWMPs, served approximately 25,000 connections, as presented in Table 1-3.

TABLE 1-3

RETAIL PUBLIC WATER SYSTEMS[a]

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015 (AFY)
3310002	BCVWD[b]	16,799	9,293
3310006	City of Banning[c]	10,650	5,971
3610055	YVWD[d]	12,304	9,595
Total		39,753	24,859

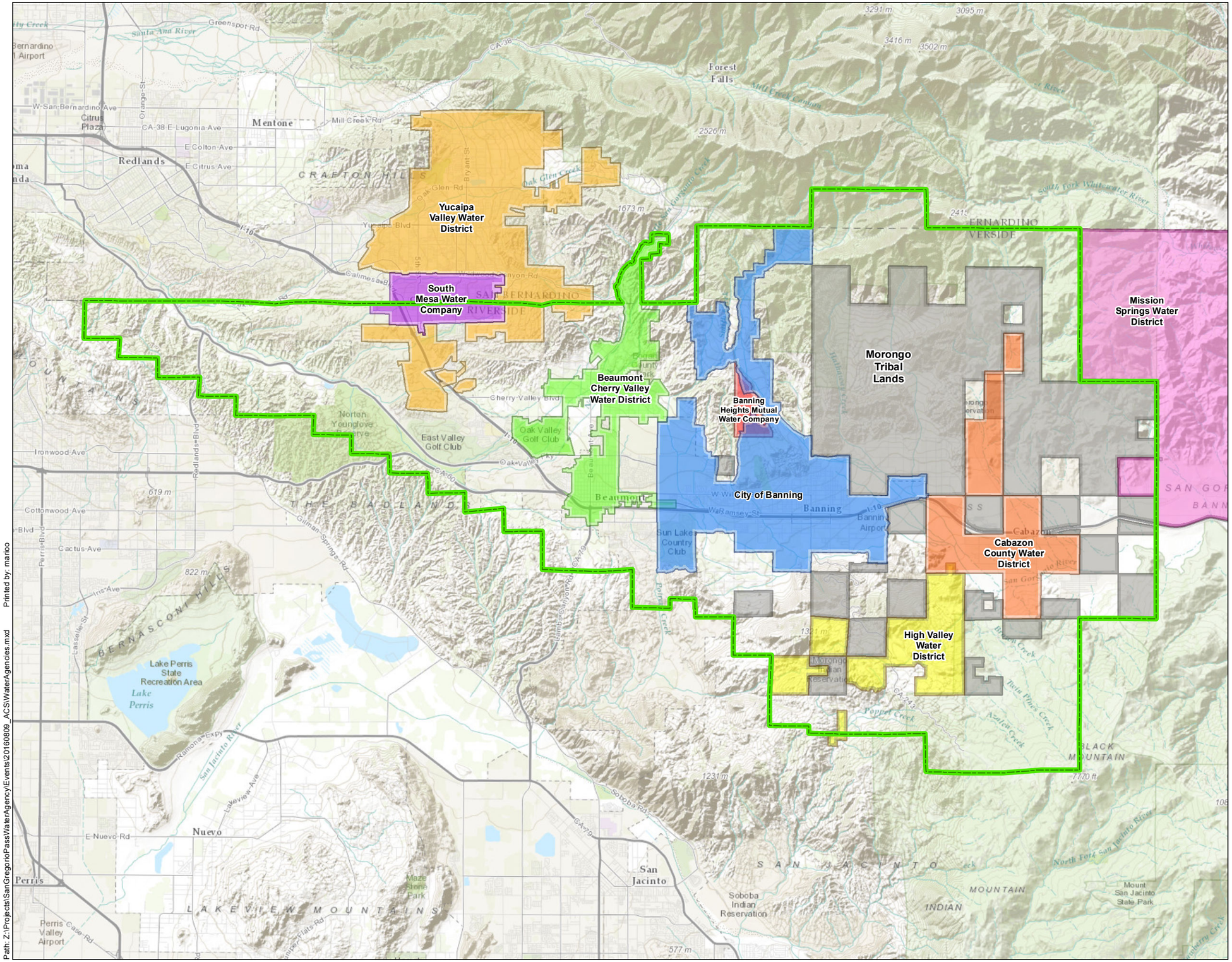
Notes:
(a) Data provided only for those retail agencies with 2015 demands on SGPWA
(b) BCVWD 2015 UWMP
(c) City of Banning 2015 UWMP
(d) San Bernardino Valley Regional 2015 UWMP; includes supply from both SGPWA and San Bernardino Valley Municipal Water District.

1.7 Climate

The SGPWA service area experiences a semi-arid climate with hot, dry summers and cool winters (Table 1-3). Temperatures in the summer can exceed 95 degrees Fahrenheit (F), but with low humidity. In the winter, high temperatures may not rise above 55 degrees F during rainy days. On average, January is the coldest month with an average high/low of 61degrees F/39 degrees F while August is the hottest with a high/low of 96 degrees F/58 degrees F. SGPWA receives about 17 inches of precipitation annually with most of it occurring from January through March, with February being the wettest month. Average rainfall within the lower lying areas of the region is roughly five to seven inches per year. The large variation in annual rainfall within the surrounding mountains directly affects the annual water supply of the region. During El Niño years, southern California can receive considerably more precipitation and cooler temperatures than average. Evapotranspiration follows a similar trend as temperature, peaking in July, and decreasing in December.

Representative precipitation, temperature, and average evapotranspiration (ETo) data are reported in Table 1-4, as recorded at Beaumont Station (040609) and Hemet Station (Station 239).

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community



Legend

- San Gorgorio Pass Water Agency Service Area
- City of Banning
- Beaumont Cherry Valley Water District
- Cabazon County Water District
- South Mesa Water Company
- Yucaipa Valley Water District
- Banning Heights Mutual Water Company
- High Valley Water District
- Mission Springs Water District
- Morongo Tribal Lands

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San Gregorio Pass Water Agency
Riverside County, California

Water Agencies within San Gorgorio Pass Water Agency Service Area

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September 2016
Figure 1-3

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TABLE 1-4

MONTHLY AVERAGE CLIMATE DATA SUMMARY

Month	Standard Monthly Average ETo (inches)[(a)]	Average Total Rainfall (inches) [(b)]	Average Temperature (degrees Fahrenheit)[(b)]	
			Max	Min
January	2.3	4.5	60	38
February	2.6	3.8	63	39
March	4.2	3.3	67	40
April	5.0	1.4	72	43
May	6.7	0.6	79	48
June	7.2	0.1	88	52
July	7.9	0.2	96	58
August	7.6	0.3	95	59
September	6.1	0.5	90	56
October	4.1	0.7	80	49
November	2.6	1.8	69	43
December	1.9	2.5	62	39

Notes:

(a) ETo data was obtained from the California Irrigation Management Information System (CIMIS) website at http://www.cimis.water.ca.gov/ for the Hemet Station (Station 239).

(b) Average rainfall data and average temperature data were obtained from the Western Regional Climate Center website at http://www.wrcc.dri.edu/ for the Beaumont #2 Station (040609) for the period of record 08/01/1939 to 1/20/2015.

1.8 Potential Effects of Climate Change

DWR's California Water Plan Update 2013 (CWP) considers how climate change may affect water availability, water use, water quality, and the ecosystem.[2]

Volume 1, Chapter 5 of the CWP, "Managing an Uncertain Future," evaluated how statewide and regional water demands that might change by 2050 in response to uncertainties both gradual and sudden. Gradual or long term factors include population growth, land use changes, and climate change. Sudden or short term changes include drought, flooding, earthquakes, the vulnerable condition of the Delta, fire, the economy, accidents, terrorist acts, and changes in policies, regulations, and laws. The uncertainties will play out differently across the regions of California. Each region will need to develop a portfolio of resource management strategies that consider regional water-management challenges and can be implemented to address regional issues.

In its 2015 State Water Project Delivery Capability Report (DCR), DWR included the potential effects of climate change in its analysis of SWP delivery reliability under future conditions. For that report, DWR selected a climate change scenario with median effects out of a number of climate change scenarios it analyzed in 2014.

[2] California Water Plan Update 2013 Investing in Innovation & Infrastructure: Bulletin 160-13.

Even without population changes, water demand could increase. Precipitation and temperature influence water demand for outdoor landscaping and irrigated agriculture. Outdoor water use is a large component of water demands in the service area. Lower spring rainfall increases the need to apply irrigation water. Further, warmer temperatures increase crop evapotranspiration, which increases consumptive use of water.

These effects and their potential to impact the supplies available to SGPWA have been evaluated indirectly in the DWR 2015 DCR, and their potential to impact demand is considered in SGPWA's assessment of demands in Chapter 2 of this UWMP.

1.9 Climate Change Vulnerability Analysis

Identification of watershed characteristics that could potentially be vulnerable to future climate change is the first step in assessing the climate change vulnerabilities in the Region. In the context of this analysis, vulnerability is defined as the degree to which a system is exposed to, susceptible to, and able to cope with and adapt to, the adverse effects of climate change, consistent with the definition in the recently issued Climate Change Handbook for Regional Water Planning (USEPA and DWR, 2011).

Water-related resources that are considered important in the Region and potentially sensitive to future climate change include water demands, water supplies, water quality, sea level rise, flooding, and ecosystem and habitat. A qualitative assessment of each of these resources with respect to anticipated climate change impacts has been prepared in the 2015 Integrated Regional Water Management Plan for the Upper Santa Ana River Watershed, in which SGPWA is a participant. The assessment follows the climate change vulnerability checklist assessment as defined in the Climate Change Handbook for Regional Water Planning and highlights those water-related resources that are important to the Region and are sensitive to climate change. This checklist is provided as Appendix D.

1.10 Other Demographic Factors

The past several years have been marked by both an economic recession and drought conditions in California, which have combined to substantially reduce water consumption in the SGPWA service area. The Governor issued an Executive Order in 2015 for mandatory water conservation calling for a 25 percent reduction in water consumption across the state in response to the severity of the drought.

It is anticipated that per capita water consumption will continue to decrease in the future, even with an economic recovery. This is due to the actions taken by local and state water agencies in response to the drought and the Governor's mandate, which are anticipated to remain in place moving into the future, as well as passive savings that will be realized through legislated codes, fixture and appliance standards, ordinances and education coupled with changing water use habits. Overall water consumption may stay relatively flat in the future as lower per capita water consumption is offset by increased population and economic activity.

Section 2: Water Use

2.1 Overview

This chapter describes past, current and projected water demands on SGPWA, including the methodology used to project future demands. Sales to other agencies, specifically BCVWD, City of Banning, and YVWD currently account for 100 percent of SGPWA's water demands. Additional smaller agencies and the Morongo Band of Mission Indians do not currently purchase water from the SGPWA, but may potentially request supplies in the future.

Numerous factors, including but not limited to, weather, conservation, population growth and land use changes, can affect the amount of water needed, as well as the timing of when it is needed. In addition, during an economic recession, there is a major downturn in development and a subsequent slowing of the projected demand for water. The projections in this Plan do not attempt to forecast recessions or droughts. Likewise, no speculation is made about future building and plumbing codes or other regulatory changes.

To the extent possible, relevant data was obtained from individual purveyor UWMPs that were completed for the 2015 cycle.

2.2 Demographics

Water service within the SGWPA service area is provided by retail purveyors to residential, commercial, industrial, institutional, recreational, and agricultural customers and for environmental and other uses, such as fire protection and landscaping. The total water demand trend is expected to continue to rise within the SGPWA's service area (along with most of California) because of population growth, economic activity, environmental and water quality needs and regulatory requirements.

2.3 Population

Table 2-1 shows the population projections for the SGPWA service area through 2040. The 2015 population is based on a 5-year American Community Survey (ACS) estimate for 2010-2014. Projections to 2040 were estimated using an average growth rate for the area based on available population projections for agencies within the SGPWA service area. When looking at individual agency projections, including BCVWD, City of Banning, YVWD and SMWC, projections are collectively higher than population projections estimated for the SGPWA service area using ACS data. This could be based on higher 2015 estimates for the individual agencies, as well as the fact that the SGPWA service area does not fully encompass the boundaries of all the individual agencies. Refer to Figure 1-1 for the purveyor service area boundaries.

TABLE 2-1
POPULATION PROJECTIONS FOR THE SGPWA SERVICE AREA

Subarea	2015	2020	2025	2030	2035	2040
SGPWA	87,192[a]	96,954	107,809	119,880	133,302	148,226

Notes:
(a) 2015 population based on 2010-2014 ACS 5-year estimate.

2.4 Historic Water Use, Sales to Other Agencies

SGPWA is a State Water Project Contractor and provides imported SWP water to the retail water purveyors within its service area. Purveyor demands on SGPWA generally showed a significant decrease between 2010 and 2015, primarily as a result of severe drought conditions and implementation of effective conservation measures. Table 2-2 shows historical (2010) and current (2015) water demands on SGPWA.

TABLE 2-2
HISTORICAL (2010) AND CURRENT (2015) WATER DEMANDS ON SGPWA (AF)[a]

Agency Name	2010	2015
BCVWD[b][c]	5,727	2,773
City of Banning[c]	1338	694
YVWD[c]	713	454
Total Demands	7,778	3,921

Notes:
(a) Volumes shown are actual deliveries.
(b) 2010 Data provided by BCVWD; 2015 data from BCVWD 2015 UWMP.
(c) Data from retailer 2015 UWMPs.

2.4.1 Historical Other Water Uses

In general, distribution systems experience system losses, being the difference between the amount of water supplied and the amount of authorized consumption. New legislation requires the analysis for the 2015 UWMP to include the reporting of distribution system water loss for the most recent 12-month period available. For future UWMP updates (i.e., 2020, 2025, etc.) the distribution system water loss shall be quantified for each of the five years preceding the plan update. It should be noted that recent legislation requires that as of January 1, 2017, distribution water loss must be reported on an annual basis. The data from these audits will be reported in future UWMP cycles.

SGPWA does not own or operate a distribution system; the water received from the SWP goes directly into groundwater recharge without treatment or distribution. However, in compliance with UWMP guidelines, SGPWA completed a water audit using the American Water Works Association (AWWA) water audit tool (provided in Appendix E), which is summarized in Table 2-3.

TABLE 2-3
12 MONTH WATER LOSS AUDIT REPORT SUMMARY

Reporting Period Start Date	Volume of Water Loss (AFY)[(a)]
January 2015	5

Notes:
(a) Sum of real and apparent losses based on AWWA water audit software output.

The SGPWA does not have any other sales to other water agencies to report in this UWMP.

2.5 Projected Water Use, Sales to Other Agencies

Table 2-4, below, shows retail purveyor demands that reflect reasonably anticipated demands on SGPWA supplies through the planning period. The distribution of water demands by water use sectors was not performed in this wholesale UWMP, but is detailed in each of the retail water purveyors' UWMPs. These demands take into account non-SGPWA supplies available to retail purveyors, such as local groundwater, local surface water, recycled water, and other imported water sources.

As discussed in Section 2.4, only three retail agencies within the SGPWA service area had demands on SGPWA in 2015, as noted in their respective UWMPs. However, additional retail agencies within the service area such as SMWC, CWD, BHMWC, HVWD, MSWD, and the Morongo Band of Mission Indians may have demands on the SGPWA in the future. Collective demands from those entities are estimated at 5,000 AF by 2040, as shown in Table 2-4 under "Other". These estimates will be revised every five years as the UWMP is updated.

Table 2-5, below, shows the projected imported water demands on SGPWA through the planning period, based on the potential maximum that can be expected. Future retail purveyor demands on SGPWA may differ based on the availability and actual use of non-SGPWA supplies, as well as actual "Other" demands.

TABLE 2-4
PROJECTED WATER DEMANDS ON SGPWA (AF)

Agency Name	2020	2025	2030	2035	2040
BCVWD[(a)]	10,860	12,476	14,087	15,886	17,334
City of Banning[(b)]	-	501	1,344	2,237	2,718
YVWD[(c)]	1,809	1,967	2,162	2,391	2,644
Other[(d)]	500	1,600	2,800	3,900	5,000
Total Water Demands	**13,169**	**16,544**	**20,393**	**24,414**	**27,696**

Notes:

(a) These demands are calculated by subtracting total BCVWD demands (BCVWD 2015 UWMP Table 4-2) from total non-SGPWA supplies (BCVWD 2015 UWMP Table 6-26 less the assumed imported supply from SGPWA). The remainder is assumed to be the demand for SGPWA supplies only. For example, for year 2025 demands were 20,450 AF (Table 4-2). Total supply in 2025 was 20,881 AF (Table 6-26) less 12,907 AF (Table 6-26) assumed supply from SGPWA for 7,974 AF. Total adjusted supply 7,974 AF less total adjusted demand 20,450 is -12,476 AF; therefore 12,476 AF is the assumed demand for imported SGPWA supplies. This assumes that BCVWD will prioritize non-SGPWA supplies, hence using SGPWA imported water to meet demands in excess of non-SGPWA supplies. Drinking water and banking demands are lumped together for purposes of this table, as the split for these demands is unknown.

(b) These demands are calculated by subtracting total adjusted Banning demands (City of Banning 2015 UWMP Table 3-3 plus system water losses from Table 3-1) from total non-SGPWA supplies, (City of Banning 2015 UWMP Table 5-4 less the assumed 2,718 AF from SGPWA). The remainder is assumed to be the demand for SGPWA supplies only. For example, for year 2025 demands were 10,199 AF (Table 3-1) plus 1,122 AF system water loss (Table 3-2) for 11,321 AF. Total supply in 2025 was 13,538 AF (Table 5-4) less 2,718 AF assumed supply from SGPWA for 10,820 AF. Total adjusted supply 10,820 AF less total adjusted demand 11,321 is -501 AF; therefore 501 AF is the assumed demand for imported SGPWA supplies. It assumed that City of Banning demands shown in UWMP Table 3-3 are accurate and calculations assume that the City of Banning will prioritize non-SGPWA supplies, hence using SGPWA imported water to meet demands in excess of non-SGPWA supplies.

(c) Projected imported SGPWA supply needs to meet drinking water demands from the Yucaipa Valley Water Filtration Facility and drinking water demands (referred to in the SBVRUWMP as conjunctive use demands) from 2015 SBVRUWMP, Table 12-15.

(d) Conservative projections of future demand on SGPWA from agencies within the service area that do not have current demands on the Agency, including SMWC, CWD, BHMWC, HVWD, MSWD, and Morongo Band of Mission Indians. This value may increase through time as service area demands are re-evaluated.

TABLE 2-5
PROJECTED MAXIMUM WATER DEMANDS ON SGPWA (AF)

Agency Name	2020	2025	2030	2035	2040
BCVWD[(a)]					
Drinking Water Demands	10,150	11,127	12,503	13,843	15,362
Raw Water to Supplement Non-Potable Water	163	280	0	0	0
Banking Demands	1,000	1,500	2,000	2,500	2,500
City of Banning[(b)]	2,718	2,718	2,718	2,718	2,718
YVWD[(c)]					
Drinking Water Demands	609	767	962	1,191	1,444
Conjunctive Use Demands	1,200	1,200	1,200	1,200	1,200
New Development Supply Sustainability Program	2,504	3,040	3,596	4,344	3,407
Other[(d)]	500	1,600	2,800	3,900	5,000
Total Water Demands	**18,844**	**22,232**	**25,779**	**29,696**	**31,631**

Notes:
(a) From BCVWD 2015 UWMP, Table 6-26 (DWR Table 6-9).
(b) Total imported SGPWA supply projections from City of Banning 2015 UWMP; based on draft "Regional Water Allocation Agreement" for Water Imported by the SGPWA.
(c) Total imported SGPWA supply projections from 2015 SBVRUWMP, Table 12-15.
(d) Same as Table 2-4.

Table 2-5 shows demands on SGPWA that are considered to be potential maximum water demands, as they incorporate demand management assumptions beyond the need to only meet municipal demands, as described in the following.

BCVWD in its 2015 UWMP shows projections for SGPWA supplies needing to meet municipal demands, raw water demands to supplement non-potable water, and demands to meet groundwater banking needs. The demands are based on the District's 2015 Potable Water Master Plan Update. BVCWD intends to use imported SGPWA supplies to supplement groundwater recharge to build-up or maintain BCVWD's Beaumont Basin groundwater storage account. If imported water from SGPWA is not available in a given year, the District says no groundwater recharge would occur. But when imported water is available, any deficiencies from previous years would be "carried over" and made up (BCVWD 2015 UWMP pg. 4-8).

In its 2015 UWMP, the City of Banning shows projections for SGPWA supplies based on a draft "Regional Water Allocation Agreement for Water Imported by SGPWA." The draft allocation agreement states that the City of Banning would receive 27.3% of the SGPWA Annual Table A Amount allocation, assuming 58% SWP delivery reliability (City of Banning 2016). The draft allocation agreement has not been adopted by SGPWA. Those demands are shown in Table 2-5.

YVWD demand projections in its 2015 UWMP are based on various potential needs, including drinking water demands, conjunctive use demands for local water banking, and demands by new development projects as part of the District's "New Development Supply Sustainability Program." The sustainability program requires developers to purchase a 20-year water supply for each new house built, in order to ensure that long-term supplies will be available for new developments prior to construction. These sustainability demands would be contingent upon

availability of supplies and the timing of such supplies (J. Zoba, personal communication 2016). These demand projections are also shown as potential maximum demands in Table 2-5.

Demands shown in Tables 2-4 and 2-5 are anticipated demands in average/normal hydrologic years.

2.6 Demands in Dry Years

Tables 2-6 through 2-9 show anticipated retail water demands on SGPWA in single-dry and multiple-dry years.

TABLE 2-6
PROJECTED WATER DEMANDS ON SGPWA – SINGLE-DRY YEAR (AF)

Agency Name	2020	2025	2030	2035	2040
BCVWD[(a)]	520	570	630	690	770
City of Banning[(b)]	-	501	1,344	2,237	2,718
YVWD[(c)]	600	600	700	700	700
Other[(d)]	500	1,600	2,800	3,900	5,000
Total Water Demands	**1,620**	**3,271**	**5,474**	**7,527**	**9,188**

Notes:
(a) From BCVWD 2015 UWMP, Table 7-9.
(b) City of Banning dry year supplies and demands are the same as normal years (City of Banning 2015 UWMP Tables 6-4 to 6-6). Demands here are the same as water demands for normal years (Table 2-4).
(c) YVWD demand projections in dry years are based on demands shown in the YVWD 2015 UWMP, Table 12-18, and assuming 10% of all of YVWD's demands are met through SGPWA.2
(d) Projections of future demand from "other" agencies is assumed to be the same as during normal/average water years.

TABLE 2-7
PROJECTED MAXIMUM WATER DEMANDS ON SGPWA – SINGLE-DRY YEAR (AF)

Agency Name	2020	2025	2030	2035	2040
BCVWD[(a)]	520	570	630	690	770
City of Banning[(b)]	2,718	2,718	2,718	2,718	2,718
YVWD[(c)]	600	600	700	700	700
Other[(d)]	500	1,600	2,800	3,900	5,000
Total Water Demands	**4,338**	**5,488**	**6,848**	**8,008**	**9,188**

Notes:

(a) From BCVWD 2015 UWMP, Table 7-9.

(b) City of Banning dry year supplies and demands are the same as normal years (City of Banning 2015 UWMP Tables 6-4 to 6-6). Demands here are the same as projected maximum water demands for normal years (Table 2-5).

(c) YVWD demand projections in dry years are based on demands shown in the YVWD 2015 UWMP, Table 12-18, and assuming 10% of all of YVWD's demands are met through SGPWA.[3]

(d) Projections of future demand from "other" agencies is assumed to be the same as during normal/average water years.

TABLE 2-8
PROJECTED WATER DEMANDS ON SGPWA – MULTIPLE-DRY YEAR (AF)

Agency Name	2020	2025	2030	2035	2040
BCVWD[(a)]	2,060	2,280	2,500	2,780	3,070
City of Banning[(b)]	-	501	1,344	2,237	2,718
YVWD[(c)]	600	600	700	700	700
Other[(d)]	500	1,600	2,800	3,900	5,000
Total Water Demands	**3,160**	**4,981**	**7,344**	**9,617**	**11,488**

Notes:

(a) From BCVWD 2015 UWMP, Table 7-11 and Appendix C UWMP Table 7-4, three-year extended dry period.

(b) City of Banning dry year supplies and demands are the same as normal years (City of Banning 2015 UWMP Tables 6-4 to 6-6). Demands here are the same as water demands for normal years (Table 2-4).

(c) YVWD demand projections in dry years are based on demands shown in the YVWD 2015 UWMP, Table 12-18, and assuming 10% of all of YVWD's demands are met through SGPWA.3

(d) Projections of future demand from "other" agencies is assumed to be the same as during normal/average water years.

[3] Approximately 10% of YVWD's supplies are provided by SGPWA; the remaining 90% is supplied by SBVMWD.

TABLE 2-9
PROJECTED MAXIMUM WATER DEMANDS ON SGPWA – MULTIPLE-DRY YEAR (AF)

Agency Name	2020	2025	2030	2035	2040
BCVWD[(a)]	2,060	2,280	2,500	2,780	3,070
City of Banning[(b)]	2,718	2,718	2,718	2,718	2,718
YVWD[(c)]	600	600	700	700	700
Other[(d)]	500	1,600	2,800	3,900	5,000
Total Water Demands	**5,878**	**7,198**	**8,718**	**10,098**	**11,488**

Notes:

(a) From BCVWD 2015 UWMP, Table 7-11 and Appendix C UWMP Table 7-4, three-year extended dry period..

(b) City of Banning dry year supplies and demands are the same as normal years (City of Banning 2015 UWMP Tables 6-4 to 6-6). Demands here are the same as potential maximum water demands for normal years (Table 2-5).

(c) YVWD demand projections in dry years are based on demands shown in the YVWD 2015 UWMP, Table 12-18, and assuming 10% of all of YVWD's demands are met through SGPWA.3

(d) Projections of future demand from "other" agencies is assumed to be the same as during normal/average water years.

2.7 Conservation Effects on Water Usage

Major factors that can affect water usage include weather and demand reducing behaviors. Historically, when the weather is hot and dry, water usage generally increases. The amount of increase varies according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool, wet years, water usage generally decreases, reflecting less water usage for exterior landscaping.

In recent years, water conservation has become an increasingly important factor in water supply planning and management in California. Over the past ten years there have been a number of regulatory changes related to conservation including new standards for plumbing fixtures, a new landscape ordinance, a state universal retrofit ordinance, new Green Building standards, mandatory demand reduction goals and more. The California plumbing code has also instituted requirements for new construction that mandate the installation of ultra-low-flow toilets and low-flow showerheads.

During the 1987 to 1992 drought period, overall demands due to the effects of hot, dry weather were projected to increase by approximately ten percent. As a result of extraordinary conservation measures enacted during the period, the overall water demand actually decreased by more than ten percent.

During the current drought, Governor Brown issued a January 2014 drought proclamation and April 2014 emergency declaration, calling on urban water suppliers to implement their local water shortage contingency plans. In April 2015, following the lowest snowpack ever recorded, Governor Brown directed the SWRCB to implement mandatory water reductions to reduce water usage by 25 percent.

In May 2015, the SWRCB adopted an emergency regulation requiring an immediate 25 percent reduction in overall potable urban water use. (See SWRCB Resolution No. 2015-0032.) The SWRCB began to track water conservation for each of the state's larger urban retail water suppliers (those with more than 3,000 connections) on a monthly basis; compliance with individual water supplier conservation requirements and the statewide 25 percent mandate is based on cumulative savings.

In February 2016, the SWRCB approved an updated and extended emergency regulation that will continue mandatory reductions through October 2016, unless revised before then. The extended regulation provides more flexibility to urban water suppliers in meeting their conservation requirements and provides credits for certain factors that affect water use such as hotter-than-average climates, population growth, and significant investments in new local drought resilient water sources such as recycled water. Locally, these mandates translated into water conservation standards ranging from 28 to 36 percent for the retail purveyors.

In 2015, the three retailers (BCVWD, City of Banning, and YVWD) reduced their total groundwater production by 24.5% over the previous year (2014). Assuming the focus on conservation continues it is conceivable that demands would continue to be reduced.

On May 18, 2016, the SWRCB adopted a new approach, which replaced the percentage reduction-based water conservation standard with a localized "stress test" approach. The new approach mandated urban water suppliers to ensure a three year supply of water under drought conditions. The regulation requires locally developed conservation standards based on each agency's specific circumstances and is currently in effect through January 2017.

In addition to, and in combination with, statewide regulations and mandates, demand management measures implemented by SGPWA and purveyors are contributing to increased water conservation in the service area. Details on ongoing and future water conservation actions are provided in Section 7, Demand Management Measures.

2.8 SBX7-7 Baseline and Targets

This section is not required for SGPWA as a wholesale water supplier. Measures, programs, and policies that SGPWA has adopted to help the retail water suppliers within its service area to achieve their SBX7-7 water use reduction targets are discussed in Section 7.

Section 3: Water Resources

3.1 Overview

This section describes the water resources available to SGPWA for the 25-year period covered by the Plan and provides a high-level overview of the local water supplies used by purveyors within the SGPWA service area. SGPWA receives exclusively water supplies from the SWP to meet purveyor demands. Retail agencies within the SGPWA service area also use local water supplies, including surface water, groundwater, and recycled water. SGPWA supplies are summarized in Table 3-1 and discussed in more detail below.

TABLE 3-1
SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES (AFY)

Water Supply Source	2015	2020	2025	2030	2035	2040
Existing Supplies						
Imported SWP[(a)]	10,700	10,700	10,700	10,700	10,700	10,700
Yuba Accord[(b)]	300	300	300	300	300	300
Total Existing Supplies	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**
Planned Supplies						
SBVMWD Purchased Supply[(c)]	-	2,000	2,000	2,000	2,000	2,000
Available Purchases of Supply[(d)]	-	1,500	3,800	7,700	11,700	15,000
Total Planned Supplies	-	**3,500**	**5,800**	**9,700**	**13,700**	**17,000**
Total Existing and Planned Supplies	**11,000**	**14,500**	**16,800**	**20,700**	**24,700**	**28,000**

Notes: Values are rounded to the nearest hundred.

(a) Assumes 62% of Table A amount (17,300 AFY) based on the California Department of Water Resources Final Delivery Capability Report 2015 (DWR 2015 DCR).

(b) See Section 3.2.4.1.

(c) An average of 2,000 AF is assumed over a five year period through a future agreement with SBVMWD. See Section 3.3.1.2.

(d) The Agency has a financial plan in place to obtain additional supplies necessary to meet projected demands within its service area (shown in Table 2-5). These future supplies are described in Section 3.3. Sources include the dry-year water purchase program, exchanges with CLAWA, and other supplemental water as available. The Agency is expected to purchase additional supplies by 2020 in order to meet demands shown in Table 2-5. Volumes shown assume the DWR 2015 DCR average reliability of 62%.

This section assesses supplies in an average year, a single dry year, and during multiple dry years.

- An average year (also called a normal year) is the average supply over a range of years and represents the median water supply available to SGPWA.
- The single-dry year is the year that represents the lowest water supply available to SGPWA.
- The multiple-dry year period is the lowest average water supply available to SGPWA for three or more consecutive dry years.

The term "dry" is used throughout this section and in subsequent sections concerning water resources and reliability as a measure of supply availability. As used in this Plan, dry years are those years when supplies are the lowest and demands are the highest, which occurs primarily when precipitation is lower than the long-term average precipitation. The impact of low precipitation in a given year on a particular source of supply may differ based on how low the precipitation is, or whether the year follows a high-precipitation year or another low-precipitation year. For the SWP, a low-precipitation year may or may not affect supplies, depending on how much water is in SWP storage at the beginning of the year. Also, dry conditions can differ geographically. For example, a dry year can be local to the San Gorgonio Pass Area (thereby affecting local groundwater replenishment and production), local to northern California (thereby affecting SWP water deliveries), or statewide (thereby affecting both local groundwater and the SWP). When the term "dry" is used in this Plan, statewide drought conditions are assumed, affecting both local groundwater and SWP supplies at the same time.

3.2 Imported Water Supplies

3.2.1 SWP Facilities

Water supplies available to SGPWA are imported from the SWP – the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most facilities completed by 1973. Today, the SWP includes 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Oroville Dam on the Feather River flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side of the San Joaquin Valley to Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains and the California Aqueduct then divides into the East and West Branches. SGPWA delivers its SWP supplies through the East Branch to use within the local groundwater basins through extensive transmission pipeline systems and direct releases from Silverwood Lake, a SWP regulating reservoir.

3.2.2 SWP Supplies Available to SGPWA

In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural public water supply agencies located throughout northern, central, and southern California for SWP water supplies. SGPWA is one of 29 water agencies (commonly referred to as “contractors”) that have a SWP Water Supply Contract with DWR.

The SWP Contracts entered into in the 1960s had initial 75-year terms, which thus would begin to expire in 2035. While the SWP Contracts provide for continued water service to the contractors beyond the initial term, efforts are currently underway to extend the SWP Contracts to improve financing for the SWP.

Negotiations on extending the SWP Contracts took place between DWR and the contractors during 2013 and 2014, and were open to the public. The following terms were agreed to and

are currently the subject of analysis under the requirements of the California Environmental Quality Act (CEQA) (Notice of Preparation dated September 12, 2014):

- Extend the term of the 29 SWP Contracts to December 31, 2085.
- Provide for increased SWP financial operating reserves during the extended term of the SWP Contracts.
- Provide additional funding mechanisms and accounts to address SWP needs and purposes.
- Develop a revised payment methodology with a corresponding billing system that better matches the timing of future SWP revenues to future expenditures.

It is anticipated that the term of the SWP Contracts will be extended to December 31, 2085. The Contracts and associated amendments are scheduled to be finalized summer 2017. To improve coordination between supply and demand projections beyond the year 2035, the data and information contained in this UWMP reflect that assumption, as provided in the Urban Water Management Planning Act. (CWC Section 10631(b).)

Each SWP contractor's SWP Water Supply Contract contains a "Table A," which lists the maximum amount of water an agency may request each year throughout the life of the contract. Table A is used in determining each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 million acre-feet (AF). The initial SWP storage facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional storage facilities planned as demands increased. However, essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of some Table A amount by two agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now totals about 4.17 million AF.

While Table A identifies the maximum annual amount of water an SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrology, the amount of water in SWP storage at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by SWP contractors.

According to the water supply contract between DWR and the SGPWA, SGPWA's maximum annual entitlement from the SWP ("Table A Amount") is 17,300 AFY. Table 3-2 presents historical SWP deliveries to SGPWA.

TABLE 3-2
HISTORICAL SWP DELIVERIES TO SGPWA

Year	Deliveries (AFY)
2003	116
2004	814
2005	687
2006	4,420
2007	4,815
2008	4,905
2009	6,609
2010	8,403
2011	10,730
2012	10,974
2013	9,695
2014	5,131
2015	3,930

Notes:
(a) Source: 2014 San Gorgonio Pass Water Agency Report on Water Conditions; 2015 data provided by SGPWA.

In addition to Table A supplies, the SWP Contracts provide for additional types of water that may periodically be available, including "Article 21" water and Turnback Pool water. Article 21 water (which refers to the SWP Contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. The Turnback Pool is a program through which contractors with allocated Table A supplies in excess of their needs in a given year may "turn back" that excess supply for purchase by other contractors who need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic years, although generally less excess water is turned back in dry years. As urban contractor demands have increased, the amount of water turned back and available for purchase has diminished.

The availability of Article 21 water and Turnback Pool water is uncertain. When available, these supplies provide additional water that SGPWA may be able to use, either directly to meet demands or for later use after storage in its groundwater banking programs. Due to the uncertainty in availability of Article 21 water and Turnback Pool water, supplies of these types of SWP water are not included in this report. However, to the extent SGPWA is able to make use of these supplies when available, SGPWA may be able to improve the reliability of its SWP supplies beyond the values used throughout this Plan.

While not specifically provided for in the SWP Contracts, DWR has in critically dry years created Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to agencies willing to purchase those supplies. The availability of these supplies is generally uncertain. However, SGPWA's access to these supplies when they

are available would enable it to improve the reliability of its dry-year supplies beyond the values used throughout this report.

3.2.3 Factors Affecting SWP Table A Supplies

Primary factors affecting SWP supply availability include: the availability of water at the source of supply in northern California, the ability to transport that water from the source to the primary SWP diversion point in the southern Delta and the magnitude of total contractor demand for that water, as summarized below.

Availability of SWP Source Water

SWP supplies originate in northern California, primarily from the Feather River watershed. The availability of these supplies is dependent on the amount of precipitation in the watershed, the amount of that precipitation that runs off into the Feather River, water use by others in the watershed and the amount of water in storage in the SWP's Lake Oroville at the beginning of the year. Variability in the location, timing, amount and form (rain or snow) of precipitation, as well as how wet or dry the previous year was, produces variability from year to year in the amount of water that flows into Lake Oroville. However, Lake Oroville acts to regulate some of that variability, storing high inflows in wetter years that can be used to supplement supplies in dry years with lower inflows.

As discussed in Section 1.8 and in DWR's 2015 State Water Project Delivery Capability Report (2015 DCR), climate change adds another layer of uncertainty in estimating the future availability of SWP source water. Current literature suggests that global warming may change precipitation patterns in California from the patterns that occurred historically. While different climate change models show differing effects, potential changes could include more precipitation falling in the form of rain rather than snow and earlier snowmelt, which would result in more runoff occurring in the winter rather than spread out over the winter and spring.

Ability to Convey SWP Source Water

As discussed previously, water released from Lake Oroville flows down natural river channels into the Delta. The Delta is a network of channels and reclaimed islands at the confluence of the Sacramento and San Joaquin rivers. The SWP and the federal Central Valley Project (CVP) use Delta channels to convey water to the southern Delta for diversion, making the Delta a focal point for water distribution throughout the state.

A number of issues affecting the Delta can impact the ability to divert water supplies from the Delta, including water quality, fishery protection and levee system integrity. Water quality in the Delta can be adversely affected by both SWP and CVP diversions, which primarily affect salinity, as well as by urban discharge and agricultural runoff that flows into the Delta, which can increase concentrations of constituents such as mercury, organic carbon, selenium, pesticides, and toxic pollutants, and reduce dissolved oxygen. The Delta also provides a unique estuarine habitat for many resident and migratory fish species, some of which are listed as threatened or endangered. The decline in some fish populations is likely the result of a number of factors, including water diversions, habitat destruction, degraded water quality and the introduction of non-native species. Delta islands are protected from flooding by an extensive levee system.

Levee failure and subsequent island flooding can lead to increased salinity requiring the temporary shutdown of SWP pumps.

In order to address some of these issues, SWP and CVP operations in the Delta are limited by a number of regulatory and operational constraints. These constraints are primarily incorporated into the SWRCB Water Rights Decision 1641 (D-1641), which establishes Delta water quality standards and outflow requirements that the SWP and CVP must comply with. In addition, SWP and CVP operations are further constrained by requirements included in Biological Opinions (BOs) for the protection of threatened and endangered fish species in the Delta, issued by the United States Fish and Wildlife Service (FWS) in December 2008 and the National Marine Fishery Service (NMFS) in June 2009. The requirements in the BOs are based on real-time physical and biological phenomena (such as turbidity, water temperature and location of fish), which results in uncertainty in estimating potential impacts on supply of the additional constraints imposed by the BOs.

Demand for SWP Water

The reliability of SWP supplies is affected by the total amount of water requested and used by SWP contractors, since an increase in total requests increases the competition for limited SWP supplies. As previously mentioned, contractor Table A Amounts in the SWP Contracts ramped up over time, based on projected increases in population and water demand at the time the contracts were signed. Urban SWP contractors' requests for SWP water were low in the early years of the SWP, but have increased steadily over time, although more slowly than the ramp-up in their Table A Amounts, which reached a maximum for most contractors in the early to mid-1990s. Since that time, urban contractors' requests for SWP water have continued to increase until recent years when nearly all SWP contractors are requesting their maximum Table A Amounts.

Consistent with other urban SWP contractors, SWP deliveries to SGPWA have increased as its requests for SWP water have increased. Historical total SWP deliveries to SGPWA are shown in Table 3-2.

3.2.3.1 SWP Table A Supply Assessment

DWR prepares a biennial report to assist SWP contractors and local planners in assessing the near and long-term availability of supplies from the SWP. DWR issued its most recent update, the 2015 DWR SWP Delivery Capability Report (2015 DCR), in July 2015. In the 2015 DCR, DWR provides SWP supply estimates for SWP contractors to use in their planning efforts, including for use in their 2015 UWMPs.

3.2.3.1.1 Analysis Assumptions

DWR's estimates of SWP deliveries are based on a computer model that simulates monthly operations of the SWP and CVP systems. Key assumptions and inputs to the model include the facilities included in the system, hydrologic inflows to the system, regulatory and operational constraints on system operations, and projected contractor demands for SWP water.

In the 2015 DCR, DWR uses the following assumptions to model current conditions: existing facilities; hydrologic inflows to the model based on 82 years of historical inflows (1922 through 2003), adjusted to reflect current levels of development in the supply source areas; current regulatory and operational constraints, including D-1641, the 2008 FWS BO, and the 2009 NMFS BO; and contractor demands for SWP water at maximum Table A Amounts.

To evaluate SWP supply availability under future conditions, the 2015 DCR included four model studies. The first of the future-conditions studies, the Early Long Term (ELT) scenario, used all of the same model assumptions for current conditions, but reflected changes expected to occur from climate change, specifically, a 2025 emission level and a 15 cm sea level rise. The other three future-conditions studies also include varying model assumptions related to the Bay Delta Conservation Plan (BDCP)/California Water Fix (Cal WaterFix), such as changes to facilities and/or regulatory and operational constraints.

BDCP/Cal WaterFix plans are currently in flux, environmental review is ongoing, and several regulatory and legal requirements must be met prior to any construction.

This UWMP uses the ELT scenario to estimate future SWP supply availability because it is based on existing facilities and regulatory constraints, with hydrology adjusted for the expected effects of climate change. This scenario is consistent with the studies DWR has used in its previous SWP Delivery Reliability Reports for supply availability under future conditions. Therefore, in this UWMP, future SWP supply availability is based on the ELT study included in the 2015 DCR.

3.2.3.1.2 Analysis Results

In the 2015 DCR, DWR estimates that for all contractors combined, the SWP can deliver on a long-term average basis a total Table A supply of 62 percent of total maximum Table A Amounts. In the worst-case single critically dry year, DWR estimates the SWP can deliver a total Table A supply of 11 percent of total maximum Table A Amounts. DWR estimates the SWP can deliver a total Table A supply during a four-year dry period averaging 33 percent of total maximum Table A Amounts.

DWR's analysis of current (2015) conditions is used in this Plan to estimate 2015 SWP supplies and its analysis of future (2035) conditions is used to estimate 2035-2050 SWP supplies. As has been suggested by DWR, SWP supplies for the five-year increments between 2015 and 2035 are interpolated between these values. SWP supplies for years beyond 2035 are assumed to be the same as for 2035.

The extremely dry sequence from the beginning of January 2013 through the end of 2015 was one of the driest two-year periods in the historical record. Water year 2013 was a year with two hydrologic extremes.[4] October through December 2012 was one of the wettest fall periods on record, but was followed by the driest consecutive 12 months on record. Accordingly, the 2013 SWP supply allocation was a low 35 percent of SWP Table A Amounts. The 2013 hydrology ended up being even drier than DWR's conservative hydrologic forecast, so the SWP began 2014 with reservoir storage lower than targeted levels and less stored water available for 2014

[4] A water year begins in October and runs through September. For example, water year 2013 is October 2012 through September 2013.

supplies. Compounding this low storage situation, 2014 also was an extremely dry year, with runoff for water year 2014 the fourth driest on record. Due to extraordinarily dry conditions in 2013 and 2014, the 2014 SWP water supply allocation was a historically low 5 percent of Table A Amounts. The dry hydrologic conditions that led to the low 2014 SWP water supply allocation were extremely unusual, and to date this hydrology has not been included in the SWP delivery estimates presented in DWR's 2015 DCR. It is anticipated that the hydrologic record used in the DWR model will be extended to include the period through 2014 during the next update of the model, which is expected to be completed prior to issuance of the next update to the biennial DCR. For purposes of this UWMP, the historical single dry year of 1977 is used to estimate single dry year supplies; however the worst-case scenario seen in 2014 is also calculated.

Table 3-3 shows SWP supplies projected to be available to SGPWA in average/normal years, a single dry year, and over a multiple dry year period, based on the supply reliability analyses provided in the 2015 DCR.

TABLE 3-3

SWP TABLE A AMOUNT SUPPLY RELIABILITY (AF)[a]

SWP Supply	2020	2025	2030	2035	2040
Average Water Year[b]					
Table A Supply	10,700	10,700	10,700	10,700	10,700
% of Table A Amount[c]	62%	62%	62%	62%	62%
Single Dry Year[d]					
Table A Supply	1,900	1,900	1,900	1,900	1,900
% of Table A Amount[c]	11%	11%	11%	11%	11%
Worst-Case Single Dry Year[e]					
Table A Supply	900	900	900	900	900
% of Table A Amount[c]	5%	5%	5%	5%	5%
Multi-Dry Year[f]					
Table A Supply	5,700	5,700	5,700	5,700	5,700
% of Table A Amount[c]	33%	33%	33%	33%	33%

Notes: Values rounded to nearest hundred.

(a) Projected SWP supplies to SGPWA based on analyses presented in DWR's "2015 Delivery Capability Report (DCR)."
(b) Based on average deliveries over the DCR's historic hydrologic period of 1921 through 2003.
(c) Supply as a percentage of SGPWA's Table A Amount of 17,300 AF.
(d) Based on a repeat of the worst case historic single dry year of 1977 (from DWR 2015 DCR).
(e) Based on the worst-case actual allocation of 2014 of 5%.
(f) Supplies are annual averages over four consecutive dry years, based on the historic four-year dry period of 1931-1934.

3.2.3.1.1 Potential Future SWP Supplies

An ongoing planning effort to increase long-term supply reliability for both the SWP and CVP is taking place through the California Water Fix and EcoRestore (Cal Water Fix) process. The co-equal goals of the Cal Water Fix are to improve water supply reliability and restore the Delta ecosystem. The Cal Water Fix is being prepared through a collaboration of state, federal and local water agencies, state and federal fish agencies, environmental organizations and other interested parties. Several "isolated conveyance system" alternatives are being considered in the plan that would divert water from the north Delta to the south Delta where water is pumped

into the south-of-Delta stretches of the SWP and CVP. The new conveyance facilities would allow for greater flexibility in balancing the needs of the estuary with the reliability of water supplies. The plan could also provide other benefits, such as reducing the risk of long outages from Delta levee failures.

Cal Water Fix has been in development since 2006, initially as the BDCP and is currently undergoing extensive environmental review. The Draft BDCP and its associated Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) were released for public review in December 2013. In response to public comments, the Cal Water Fix was reevaluated, and in April 2015 the lead agencies announced a modified alternative which effectively split the project into two parts: the conveyance portion (known as Cal WaterFix), and the restoration portion (known as EcoRestore). The Cal WaterFix alternative is evaluated in a partially recirculated draft environmental document (Recirculated Draft EIR/Supplemental Draft EIR) that was released for public review in July 2015. That environmental document is not anticipated to be final until at least 2016.

While there is support for the BDCP/Cal WaterFix project, plans are currently in flux and environmental review is ongoing. Additionally, several regulatory and legal requirements must be met prior to any construction. Because of this uncertainty, any improvements in SWP supply reliability or other benefits that could result from this proposed project are not included in this Plan.

3.2.4 Other Imported Supplies

3.2.4.1 Yuba Accord Water

SGPWA entered into the Yuba Accord Agreement (Appendix F), which allows for the purchase of water from the Yuba County Water Agency through DWR to 21 SWP contractors (including SGPWA) and the San Luis and Delta- Mendota Water Authority. Yuba Accord water comes from north of the Delta, and the water purchased under this agreement is subject to losses associated with transporting it through the Delta. While the amount of this water varies each year depending on hydrologic conditions, the average amount that the Agency has received has been approximately 300 AFY. The Agency recently signed an extension to this agreement allowing it to purchase this water well into the future.

3.2.4.2 Multi-Year Pool Demonstration Project

In 2013, DWR and the State Water Contractors developed a multi-year pool in which Contractors could purchase unused Table A water from a pool formed by several Contractors. The price of this water varied on a sliding scale depending on hydrologic conditions. The Agency, through this program, purchased 1,000 AF of water and delivered it to retail water agencies in its service area. This is not a long-term reliable supply and is only available in some years.

3.2.5 SGPWA SWP Supply Facilities

3.2.5.1 Conveyance

SGPWA receives SWP supplies via the East Branch Extension of the SWP. The East Branch Extension begins at Devil Canyon Power Plant in San Bernardino and ends in Cherry Valley. Efforts to increase the conveyance capacity of the East Branch extension to 48 cubic feet per second (CFS) are currently ongoing, with construction scheduled to be complete by the end of 2016 and startup testing to be concluded in the first half of 2017. This East Branch Extension, Phase 2 project will provide the additional capacity necessary to convey the full allocation of SWP supplies, as available.

SGPWA plans to purchase an additional 16 CFS of capacity from the East Branch Extension Phase 2 expansion from SBVMWD, bringing the conveyance capacity to 64 CFS or approximately 35,000 AFY at a 75 percent frequency of operation, sufficient to meet regional demand through 2035, assuming SGPWA obtains supplemental sources of imported water.

3.2.5.2 Treatment

SWP supplies delivered to the SGPWA service area are treated at the Yucaipa Valley Regional Water Filtration Facility (YVRWFF), with a capacity of 12 million gallons per day (MGD). Treated water from the YVRWFF is used to meet demands in both the SBVMWD and SGPWA service areas.

3.3 Transfers, Exchanges, and Groundwater Banking Programs

In addition to existing SWP water supplies, SGPWA is currently exploring opportunities to purchase water supplies from other water agencies and sources. Transfers, exchanges, and groundwater banking programs, such as those described below, are important elements to enhancing the long-term reliability of the total mix of supplies currently available to meet water demand.

3.3.1.1 Exchanges

Since 2010, the Agency has been involved in three exchanges with the Crestline-Lake Arrowhead Water Agency (CLAWA). In 2010, the Agency received 1,000 AF of CLAWA's Table A amount in exchange for a like amount to be returned by 2020. In 2013, the Agency received 2,000 AF of CLAWA's Table A amount in exchange for 1,300 AF to be returned by 2023. In 2016 the Agency is receiving 1,200 AF of CLAWA's Table A amount in exchange for 600 AF to be returned by 2026. The latter two exchanges are unbalanced exchanges approved by DWR.

3.3.1.2 Purchases

The Agency has a number of plans to procure additional water supplies. The Agency is currently in final negotiations with the SBVMWD to purchase up to 5,000 AF of its Table A water in years in which SBVMWD's Board declares a surplus. Based on past hydrologic conditions, that is likely to occur approximately two years out of every five. Thus, on the average, this will

amount to approximately 2,000 AFY. The SBVMWD Board of Directors has approved the concept; both Boards still need to approve the final terms, which should be finalized in calendar year 2017. This supply is reflected in Table 3-1. The term of this agreement is expected to be at least 20 years.

The Agency's Board has committed to keeping ahead of the regional water demand curve and implementation of the capacity fee will enable it to do so financially. The Agency has updated a study identifying additional supplemental supplies that are for sale around the state, particularly south of the Delta, and will move quickly to negotiate a deal for one or more of these sales in 2016 or early 2017.

3.3.1.3 Other Supplies

The Agency's Board has voted to participate as an owner of capacity in the proposed Sites Reservoir project, and submitted a proposal to the Sites Joint Powers Association to that effect in July 2016. The proposal was for 14,000 acre-feet of yield from the reservoir. It is anticipated that this will be a long-term investment whose returns will not become tangible for at least 10 years, if at all.

In addition to these efforts, the Agency has completed the design of a conjunctive use storage facility in its service area that will enable it to take advantage of additional supplies, including Article 21 water from the SWP when available. The Agency has the funds on hand to construct this facility and will do so within the next few years. This will ensure that there is ample space to store all new water supplies procured by the Agency to meet the projected demands within its service area.

A summary of planned supplies is provided in Table 3-4.

TABLE 3-4

SUMMARY OF POTENTIAL WATER TRANSFER AND EXCHANGE OPPORTUNITIES FOR SGPWA

Supplemental Water Source	Description	Type and Reliability	Potential Partners
Table A Transfers	Purchase of Table A allocations from agencies with allocations in excess of demand	Permanent, 60%	Kern County Water Agency (KCWA); Tulare Lake Basin Water District; Dudley Ridge Water District; Empire West Side Irrigation District; MWDSC; San Bernardino Valley Municipal Water District
Kern River Exchanges	Water agencies obtain diversion rights from the Kern River, making available Table A SWP supplies for exchange	Permanent, 100%	Nickel Family Farms via KCWA exchange; Buena Vista Water Storage District (WSD) via Buena Vista WSD or Rosedale-Rio Bravo WSD exchange
Banked Groundwater Exchanges	Purchases of banked groundwater delivered in-lieu from unused Table A deliveries	Short-term, 100%	Rosedale-Rio Bravo WSD; Water agencies participating in the Semitropic WSD Groundwater Storage Program; Water agencies south of Edmonston Pumping Plant
Banked Groundwater Pumpback	Purchase of banked groundwater delivered via "pumpback" to the California aqueduct	Short-term, 100%	Rosedale-Rio Bravo WSD; Kern Delta Water District; Semitropic WSD Stored Water Recovery Unit
Excess SWP Purchases	Purchase excess SWP supply from SWP or water agencies with a surplus	Short-term, 100%	SWP Article 21; SWP Turnback Pool (Table A); San Bernardino Valley Municipal Water District; Crestline-Lake Arrowhead Water Agency; West Side San Joaquin Valley Districts
Dry Year Water Purchases or Transfer Programs	Purchase or transfer of unused water from water agencies with a surplus to water agencies requesting supplemental dry year supply	Short-term in dry years, 100%	SWP Contractors (buyers and sellers are treated as singular entities); SWP Turnback Pool (Table A); Western Canal Water District; Yuba County Water Agency Dry Year Water Transfer Program

Source: Provost & Pritchard, 2016.

3.3.2 Plans to Acquire Additional Supplies

As discussed in Section 3.3, the Agency is planning to develop a diverse portfolio of water supplies that include a mix of dry year supplies, SWP Table A allocation purchased from or exchanged with other SWP Contractors, purchase of surplus water from a neighboring State Water Contractor, and other supplemental water as available. The Agency has put a financial plan in place to purchase additional supplemental water supplies from various sources, including Table A water, riparian water rights, or other various sources. This financial plan includes four sources of revenue: withdrawal from reserves, dedication of a portion of general fund and *ad valorem* tax revenues as needed and appropriate, a component of the wholesale water rate, and a recently adopted capacity fee on new growth in the region. The Agency currently has $5.7 million in reserves to purchase new water rights.

In order to collect the capacity fee, the Agency would have to sign cooperative agreements with retail water agencies or land use planning agencies. In areas where the Agency can collect the fee, it is assuring its retail customers that it will have the financial resources to procure the needed additional water supplies. As this report is being written, the Agency is in final negotiations with the YVWD and the City of Calimesa to sign a cooperative agreement to enable it to collect the fee and thus assure future water supplies for the YVWD service area. Meeting future water demands within the service area of the City of Banning and the BCVWD will be more difficult until cooperative agreements are signed with these entities. In the meantime, the Agency still has some financial resources to use to procure additional water for these areas, including the sources listed above (with the exception of the capacity fee).

3.4 Groundwater

Local groundwater does not provide a source of water to SGPWA, however the predominant means of providing SWP supply to retail agencies is to recharge the Beaumont groundwater Basin. The storage capacity of the Beaumont Basin (adjudicated at 200,000 AF, practically estimated to be 100,000 AF) exceeds the total annual demand for water at build-out. Storage capacity is not likely to be a limiting factor for importing SWP supplies and any additional supplemental imported water. The capacity to store imported water in the Beaumont Basin by spreading water in recharge basins is a key component of SGPWA's role as a wholesaler of SWP supply.

It is noted that local runoff of surface water accounts for a small portion of local water resources utilized by the retail agencies. Most of this runoff is typically recharged into local groundwater basins where it becomes part of the groundwater supply. Storm water capture represents a potential new source of water within the service area, however it is not currently considered a large supply source. Capturing storm water would present a water quality benefit to the groundwater if recharged.

3.4.1 Groundwater Recharge Facilities

BCVWD's Noble Creek facility is used to recharge SWP deliveries. The facility consists of recharge basins (eight cells) with a long-term recharge capacity of approximately 20,000 – 30,000 AFY. SWP deliveries to this facility will consist of BCVWD's imported water supply requirements, plus any water purchased for long-term banking prior to completion of additional basins. BCVWD has recently completed Phase 2, increasing the capacity.

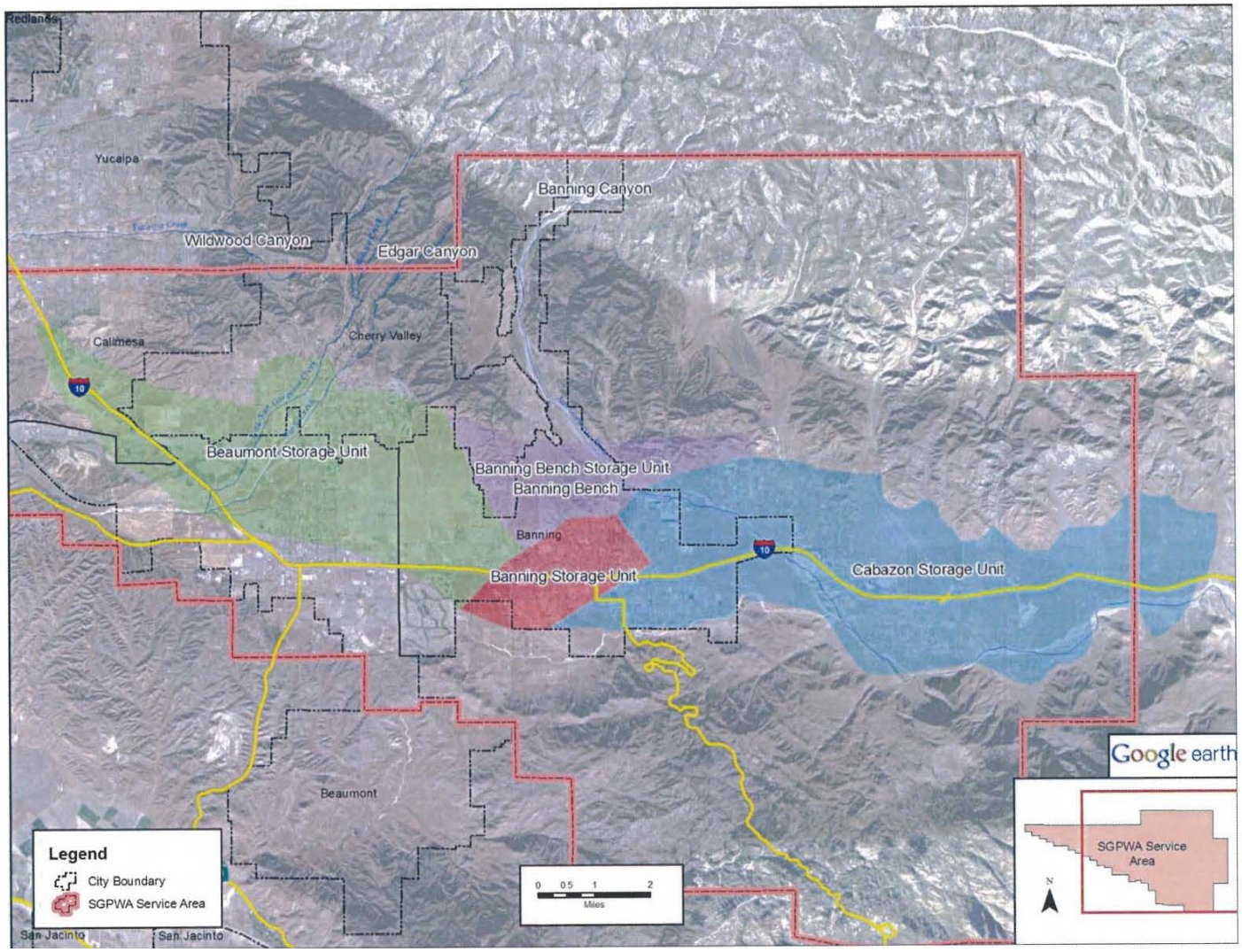
The Beaumont Avenue Recharge Facility, expected to be completed in 2017, enables SGPWA to import more water in wet years when available and to store it in the local groundwater basin. The facility consists of five large ponds, a pipeline connecting the ponds to the East Branch Extension and a new connection to the East Branch Extension.

3.4.2 Groundwater Basins

SGPWA is underlain by portions of two large groundwater basins, the Upper Santa Ana Valley Basin and Coachella Valley Basin, both of which are divided into subbasins. Of the many subbasins, three fall within the SGPWA boundaries, including the Yucaipa, San Timoteo, and San Gorgonio Pass Subbasins. The latter two subbasins are in turn divided into water storage

units, (also colloquially termed “basins”). The principal storage units and basins that are used by the water purveyors are the Beaumont, Banning, Yucaipa, and Cabazon groundwater basins. A summary of these local groundwater basins is provided below and shown on Figure 3-1. Details on basin characteristics, groundwater pumping, and basin management are provided in individual purveyor UWMPs.

FIGURE 3-1
GROUNDWATER BASINS WITH PUMPING BY SGPWA RETAIL AGENCIES



Source: SGPWA 2010 Urban Water Management Plan, prepared by CDM.

3.4.2.1 Beaumont Basin

The Beaumont Basin (storage unit) encompasses approximately 28 square miles and underlies the Cities of Calimesa, Beaumont, and Banning. Generally, hydro-geologic studies have identified major inflows to the Beaumont storage unit as runoff from Edgar Canyon (Little San Gorgonio and Noble Creeks) and from infiltration of rainfall within the groundwater basin boundary. The Beaumont Basin is the only adjudicated groundwater basin within the SGPWA service area. The Judgment for the adjudication (provided in Appendix G) allocates pumping rights to both overliers and appropriators, and provides guidelines for conversion of pumping rights from overliers to appropriators. Overliers are parties that own land overlying the Beaumont Basin and have exercised pumping rights. Appropriators are the water purveyors who serve water to serve demands within the Beaumont Basin, including the City of Banning, BCVWD, SMWC, and YVWD. Appropriators can obtain additional pumping rights from an overlier by providing water service, either potable or recycled. The Beaumont Basin Water Master develops annual projections of pumping rights conversion from overliers to appropriators.

According to the stipulated judgment, the long-term safe yield of the Basin is 8,650 AFY, recently (2013) updated to 6,700 AFY. Since 2003, SGPWA has purchased a portion of its Table A allocation to sell to retailers within its service area, including BCVWD, and the City of Banning.

3.4.2.2 Banning Groundwater Basin

The Banning Basin consists of the East Banning and West Banning storage units. The East Banning and Banning Bench storage units are separated from the West Banning storage unit by the McMullen fault (Bloyd 1971). The East Banning storage units encompass approximately 7 square miles and the West Banning storage unit encompasses approximately 4 square miles. The City of Banning is the only water purveyor that extracts water from the East Banning and West Banning storage units. The average of the estimated maximum perennial yield from the East Banning storage units is 1,050 AFY, and 350 AFY from the West Banning storage unit (Geoscience, 2003). Historical trends in water level have declined in the Banning groundwater basin, especially in the West Banning storage unit, where most well pumping occurs. The Banning groundwater basin is not adjudicated.

3.4.2.3 Yucaipa Basin

The Yucaipa Basin encompasses approximately 40 square miles and underlies the southeast part of San Bernardino Valley. The Basin is not adjudicated; sustainable yield is estimated to be approximately 9.600 AFY with a storage capacity of more than 800,000 AF (DWR Bulletin 118). Extractions from the basin are approximately 14,000 AFY (DWR Bulletin 118, California's Groundwater, 2004). DWR identifies the basin in overdraft in its Bulletin-118, however water levels have been historically rising. Moreover, the amount of groundwater pumping from the basin has significantly decreased being attributable to the supplemental supply of SWP and the use of recycled water.

The Basin is conjunctively managed by the Agency, SBVMWD, YVWD, SMWC, Western Heights Water Company, and the City of Yucaipa.

3.4.2.4 Cabazon Basin

The Cabazon Basin (storage unit) is located on the eastern boundary of SGPWA's service area. City of Banning, CWD, Mission Springs Water District, and the Morongo tribes rely on pumping from this basin to serve a portion of their respective water demands. The safe yield estimate of the Cabazon storage unit is estimated to be 1,770 AFY (Geoscience 2010).

3.4.2.5 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), passed in 2014, requires all groundwater basins in California to be managed sustainably by 2022. The legislation requires that a Groundwater Sustainability Plan (GSP) be prepared by 2022 in those basins the DWR has identified as medium to high priority. The San Gorgonio Pass, San Timoteo and Yucaipa Subbasins are listed as medium priority basins (per DWR's Final CASGEM Basin Prioritization Reports, June 2014). SGMA does not apply to basins that are managed through adjudication.

SGPWA is currently working with other water agencies that overly the San Gorgonio Pass Subbasin to develop a cooperative agreement to manage the subbasin in accordance with the legislation. The other agencies involved include Desert Water Agency, MSWD, HVWD, Morongo Band of Mission Indians, City of Banning, and BHMWC.

3.4.3 Recycled Water

The Agency does not provide supplemental treatment to recycled water and does not distribute recycled water, nor does the Agency have plans to provide recycled water as a part of its deliveries. As a result, UWMP Act Guideline Tables 6-3, 6-4 and 6-5 will not be completed.

The Cities of Beaumont and Banning, YVWD, and the Morongo Band of Mission Indians discharge treated wastewater within the SGPWA service area. The use of recycled water to offset potable water demands and for groundwater replenishment is a major component in the supply plans for most of the retail agencies and therefore is discussed briefly below.

BCVWD has an extensive non-potable water system, which provides non-potable water for landscape irrigation throughout the City of Beaumont. In the BCVWD 2015 UWMP, recycled water demands are estimated to range from 1,154 FY to 3,363 AFY between 2020 and 2040 (BCVWD 2015 UWMP Table 6-19).

YVWD operates an 8 MGD Wochholz Water Recycling Facility that provides advanced tertiary treatment of wastewater from its sewer system. Recycled water is used to meet approximately 10-15 percent of YVWD's overall water demands. YVWD plans to implement aggressive recycled water use for new development in the City of Calimesa, requiring dual plumbing for front yard irrigation on Single-family residential properties. Ultimately their facility will be capable of treating up to 11 MGD of wastewater. YVWD currently operates a 2.5 MGD reverse osmosis treatment system to purify the recycled water produced at their facility and a brineline to dispose of the salts removed by the treatment system. A 4.0 million gallon (MG) recycled water storage reservoir and pump station is used to store the recycled water. YVWD will be constructing a Regional Recycled Water Conveyance System which will allow it to provide surplus recycled water to BCVWD and the City of Banning.

The City of Banning currently spreads treated wastewater effluent in ponds overlying the Cabazon storage unit which has limited storage capacity to allow for indirect potable reuse of

this effluent. Banning has plans to upgrade its wastewater treatment plant to meet Title 22 requirements and increase capacity by 2025. Once on-line, this upgrade would make approximately 1,680 AFY of recycled water available to the City for irrigation use[5].

3.5 Development of Desalination

The California UWMP Act requires a discussion of potential opportunities for use of desalinated water (Water Code Section 10631[i]). SGPWA has explored such opportunities, and they are described in the following section, including opportunities for desalination of brackish water, groundwater and seawater. However, at this time, none of these opportunities are practical or economically feasible for SGPWA and SGPWA has no current plans to pursue them. Therefore, desalinated supplies are not included in the supply summaries in this Plan.

3.5.1 Opportunities for Brackish Water and/or Groundwater Desalination

As discussed in Section 4, groundwater supplies within the SGPWA service area impacted by total dissolved solids, and desalination could be implemented by the individual retail agencies to address this issue. YVWD for example is close to obtaining a permit to serve desalted recycled wastewater for non-potable uses.

It is noted that SGPWA could team with other SWP contractors and provide financial assistance in construction of other regional groundwater desalination facilities in exchange for SWP supplies. The desalinated water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to SGPWA from the SWP contractor. A list summarizing the groundwater desalination plans of other SWP contractors is not available; however, SGPWA would begin this planning effort should the need arise.

In addition, should an opportunity emerge with a local agency other than a SWP contractor, an exchange of SWP deliveries would most likely involve a third party, such as Metropolitan. Most local groundwater desalination facilities would be projects implemented by retail purveyors of SWP contractors and, if an exchange program was implemented, would involve coordination and wheeling of water through the contractor's facilities to SGPWA.

3.5.2 Opportunities for Seawater Desalination

Because the SGPWA service area is not in a coastal area, it is neither practical nor economically feasible for SGPWA to implement a seawater desalination program. However, similar to the brackish water and groundwater desalination opportunities described above, SGPWA and the purveyors could provide financial assistance to other SWP contractors in the construction of their seawater desalination facilities in exchange for SWP supplies.

SGPWA has been following the existing and proposed seawater desalination projects along California's coast. Table 3-5 provides a summary of the status of several of California's

[5] City of Banning 2015 UWMP

municipal/domestic seawater desalination facilities. As of December 2015, there was an estimated 10 active proposals for seawater desalination plants along the California Coast, as well as two additional proposed plants in Baja California, Mexico that would provide water to southern California communities (Pacific Institute, 2015). This is down from an estimated 21 proposals in 2006 and 19 in 2012 (Pacific Institute, 2015).

As shown Table 3-5, most of the existing and proposed seawater desalination facilities are/would be operated by agencies that are not SWP contractors. However, in these cases as described above, an exchange for SWP deliveries would most likely involve a third party (SWP contractor), the local water agency and SGPWA.

TABLE 3-5
EXISTING AND PROPOSED SEAWATER DESALINATION FACILITIES IN CALIFORNIA

Project	Member Agency Service Area or Project Developer	MGD	Status
Carlsbad Seawater Desalination Project	San Diego County Water Authority/Poseidon Water	50	Operational
Marina Desalination Plant	Marina Coast Water District	0.27	Idle
Sand City Coastal Desalination Facility	City of Sand City	0.3	Operational
Monterey Bay Aquarium	Monterey Bay Aquarium	0.008	Operational
Morro Bay Desalination Facility	City of Morro Bay	0.6	Idle
Diablo Canyon Power Plant	Pacific Gas and Electric	0.58	Operational
Gaviota Oil Heating Facility	Chevron Corporation	0.41	Operational
Santa Catalina Island	City of Avalon/Southern California Edison	0.325	Operational
San Nicholas Island	U.S. Navy	0.024	Operational
West Basin Seawater Desalination Project	West Basin Municipal Water District	20-60	Proposed
Huntington Beach Seawater Desalination Project	Orange County Water District	50	Proposed
DeepWater Desalination Project	DeepWater Desal, LLC	25	Proposed
Charles Meyer Desalination Plant	City of Santa Barbara	2.8	Idle
Expanding Diablo Canyon Nuclear Power's Desalination Plant	PG&E and San Luis Obispo County	1.5	Proposed
Monterey Peninsula Water Supply Project	Cal Am, Monterey County, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District	6.4 to 9.6	Proposed
The People's Moss Landing Water Desalination Project	Nader Agha	12	Proposed
Doheny Ocean Desalination Project	South Coast Water District and Laguna Beach County Water District	15 to 20	Proposed
City of Oceanside	City of Oceanside	5 to 10	Proposed
Rosarito Beach Seawater Desalination Plant	San Diego County Water Authority	25 to 75	Proposed
Binational Rosarito Desalination Project	NSC Agua and Otay Water District	100	Proposed
	Total MGD	**315 – 418 MGD**	

Source: Pacific Institute, December 2015, Available at: http://pacinst.org/publication/key-issues-in-seawater-desalination-proposed-facilities

Section 4: Water Quality

4.1 Overview

The quality of any natural water is dynamic in nature. This is true for the SWP water brought into the SGPWA service area. During periods of intense rainfall or snowmelt, routes of surface water movement are changed; new constituents are mobilized and enter the water while other constituents are diluted or eliminated. The quality of water changes over time. These same basic principles apply to groundwater. Depending on water depth, groundwater will pass through different layers of rock and sediment and leach different materials from those strata. Water quality is not a static feature of water, and these dynamic variables must be recognized.

Water quality regulations also change. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All retail water purveyors are subject to drinking water standards set by the Federal EPA and the California Department of Public Health. SGPWA imports SWP water primarily for groundwater basin recharge. Retail purveyors extract groundwater from these groundwater basins for delivery, with the exception of YVWD, who treats the imported water and delivers it directly to its customers.

This Section provides a general description of the water quality of both imported water and groundwater supplies. A discussion of potential water quality impacts on the reliability of these supplies is also provided.

The Agency prepares an annual Report on Water Conditions that generally describes the water quality of imported SWP water and local groundwater. Several state, regional and county agencies have jurisdiction and responsibility for monitoring water quality and contaminant sites. Programs administered by these agencies include basin management, waste regulation, contaminant cleanup, public outreach, and emergency spill response.

4.2 Imported Water Quality

SGPWA provides imported SWP water to its service area. The source of SWP water is rain and snow from the Sierra Nevada, and Coastal mountain ranges. This water travels to the Sacramento-San Joaquin Delta, which is a network of natural and artificial channels and reclaimed islands at the confluence of the Sacramento and San Joaquin rivers. The Delta forms the eastern portion of the San Francisco estuary, receiving runoff from more than 40 percent of the state's land area. It is a low-lying region interlaced with hundreds of miles of waterways. From the Delta, the water is pumped into a series of canals and reservoirs, which provides water to urban and agricultural users throughout the San Francisco Bay Area and Central and Southern California. SGPWA samples its water quality at the Devil Canyon sampling station in San Bernardino. This is the closest sampling station to the Agency and is representative of the water that the Agency receives from the SWP.

One important property of SWP water is the mineral content. SWP water is generally low in dissolved minerals, such as calcium, magnesium, sodium, potassium, iron, manganese, nitrate,

and sulfate. Most of these minerals do not cause health concerns. Nitrate is the main exception, as it has significant health effects for infants in high concentrations; however, the nitrate content of SWP water is very low. Also of significance is the chloride content. Although not a human health risk, chloride can have a negative impact on agricultural activities and regulatory compliance for local sanitation agencies. The chloride content of SWP water varies widely from well over 100 milligrams per liter (mg/L) to below 40 mg/L, depending on Delta conditions.

Salinity is becoming more heavily regulated by Regional Water Quality Control Boards (RWQCBs) throughout the State, especially as water agencies construct recycled water systems. In order to maintain reasonable total dissolved solids (TDS) (also known as salinity or salts) levels in the lower reaches of the Santa Ana watershed, the Santa Ana RWQCB must set standards for TDS at relatively low concentrations in the upper reaches of the watershed, where the western portion of the Agency's service area is located. This watershed already has among the highest levels of TDS in the State. Sewage treatment plant effluent from Beaumont, Yucaipa, and Calimesa is discharged into tributaries to the Santa Ana River and is regulated by the Santa Ana RWQCB; effluent from Banning is currently regulated by the Colorado River RWQCB, though it is likely that the Santa Ana RWQCB may at some time regulate this discharge or portions thereof. This is due to the fact that the City of Banning has plans for a recycled water system, parts of which will overlie a portion of the Santa Ana watershed.

Since SWP water imports to the underlying groundwater basins will be persistent, long term, and increasing, these imports are deemed to be a significant factor in the long term salt balance in the region. Data regarding the quantity and quality of SWP water delivered to the SGPWA service area are available from Santa Ana Regional Board, and are also reported in the Agency's annual Report on Water Conditions. As discussed for groundwater quality, TDS is the most significant constituent in the SWP water. The concentration of TDS is very dependent on hydrologic conditions, and during dry years, the concentration of TDS increases. In January of 2011, which was a relatively wet hydrologic year in California, TDS concentrations were found to greatly decrease. This is significant because the ambient salinity concentration of the Beaumont Basin is benefited by the recharge of SWP water.

4.2.1 Municipal Water Quality Investigations Program

SGPWA participates in the DWR Municipal Water Quality Investigations (MWQI) Program. The MWQI Program is funded by the sixteen SWP Contractors that provide water to their customers for municipal and industrial uses. The mission of the MWQI Program is to: a) support the effective and efficient use of the Sacramento-San Joaquin Delta (Delta) and the SWP as a source water supply for municipal purposes through monitoring, forecasting, and reporting water quality; b) provide early warning of changing conditions in source water quality used for municipal purposes; c) provide data and knowledge based support for operational decision-making on the SWP; d) conduct scientific studies of drinking water importance; and e) provide scientific support to DWR, the State Water Project Contractors Authority MWQI-Specific Project Committee, and other governmental entities.

The MWQI Program conducts extensive monitoring in the Delta and the outlet to San Luis Reservoir. The data from this program, combined with data collected throughout the SWP by the DWR Division of Operations and Maintenance, are used to understand how water quality changes from the Delta to the turn outs of the SWP Municipal and Industrial (M&I) Contractors.

The MWQI Program has also developed a forecasting model to forecast organic carbon concentrations and salinity levels throughout the SWP. A daily report is sent out via email to the M&I Contractors with recent water quality data at key locations and information on Delta conditions and pumping at the Banks and Jones pumping plants.

Ongoing work includes refinement of the forecasting model to more accurately predict water quality conditions and to better model the impacts of groundwater and surface water pump-ins. The MWQI Program is also conducting studies to better understand the dynamics of algal and aquatic plant growth in the SWP. Algae and aquatic plants create a number of problems, including taste and odor issues, wide swings in pH, filter clogging, and clogging of conveyance structures. The MWQI Program also conducts the sanitary survey of the SWP, which must be submitted to the State Water Resources Control Board, Division of Drinking Water every five years.

4.3 Groundwater Quality

Groundwater quality in the region is very high. There is no known historical industrial or mining activity in the region that has generated harmful plumes of pollutants. The Santa Ana RWQCB has a "maximum benefit" goal of 330 parts per million (ppm) for TDS (or salinity) for the Beaumont Basin. The current ambient TDS concentration in the Beaumont Basin is approximately 280 ppm (Report on Water Conditions, 2013). The Basin Plan requires local entities to begin planning desalters when the ambient TDS increases to 320 ppm. YVWD has constructed a desalination plant and brine disposal pipeline to address the TDS issue.

In addition to salinity or TDS, nitrate is also monitored closely. This too is regulated by the RWQCB, but nitrate concentrations are currently well within the maximum benefit standards. Over the past few years there have been isolated incidents of high nitrates at individual wells for short periods of time, typically after a large rainstorm that causes flushing of the system. These have not proven to be a health hazard.

Total chromium has been regulated by the SWRCB at an MCL of 50 microgram per liter (µg/L), which includes both chromium-3 and chromium-6. In 2011, California EPA Office of Environmental Health Hazard Assessment set a Public Health Goal (PHG) of 0.02 µg/L for chromium-6. California Department of Public Health then reviewed the PHG and recommended an MCL for chromium-6 at the level of 10 µg/L, which went into effect July 1st, 2014. In 2015, SB385 was passed and signed by Governor Jerry Brown that effectively pushed the enforcement of the new chromium-6 MCL out to 2020, if the water purveyor submitted a compliance plan to their local Division of Drinking Water (DDW).

Within the SGPWA service area, chromium-6 concentrations have been measured at levels above the MCL in several wells owned by the City of Banning and BCVWD, forcing some wells to be taken out of production temporarily, pending implementation of a fix to the problem.

More detail on groundwater quality management actions are identified in the retail water agencies' UWMPs.

4.4 Groundwater Protection

The general goal of groundwater protection activities is to maintain the groundwater and the aquifer to ensure a reliable high quality supply. Activities to meet this goal include continued and increased monitoring, data sharing, education and coordination with other agencies that have local or regional authority or programs. To increase its groundwater protection activities, SGPWA, YVWD, and BCVWD have been taking the actions to manage salinity in the Yucaipa, Beaumont, and San Timoteo Basins. The City of Banning is also planning to reduce TDS in recycled water for irrigation use.

4.5 Water Quality Impacts on Reliability

The quality of water dictates numerous management strategies a water purveyor will implement, including, but not limited to, the selection of raw water sources, treatment alternatives, blending options, and modifications to existing treatment facilities. Maintaining and utilizing high quality sources of water simplifies management strategies by increasing water supply alternatives, water supply reliability, and decreasing the cost of treatment. Maintaining high quality source water allows for efficient management of water resources by minimizing costs.

Maintaining the quality of water supplies increases the reliability of each source by ensuring that deliveries are not interrupted due to water quality concerns. A direct result from the degradation of a water supply source is increased treatment cost before consumption. The poorer the quality of the source water, the greater the treatment cost. Groundwater may degrade in quality to the point that is not economically feasible for treatment. In this scenario the degraded source water is taken off-line. This in turn can decrease water supply reliability by potentially decreasing the total supply and increasing demands on alternative water supplies.

Overall, the quality of imported water is not anticipated to affect water reliability. Water quality issues are constantly evolving, the Agency will continue to take action to protect supplies when needed, however it is recognized water quality treatment can have significant costs.

Section 5: Reliability Planning

5.1 Overview

The Act requires urban water suppliers to assess water supply reliability that compares total projected water use with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single-dry year and multiple-dry years. This chapter presents the reliability assessment for SGPWA's service area through 2040.

As stated in SGPWA's mission statement, the goal of SGPWA is to "is to import supplemental water and to protect and enhance local water supplies for use by present and future water users and to sell imported water to local water districts within the service areas of the San Gorgonio Pass Water Agency." This Plan helps SGPWA to achieve this goal even during dry periods based on a conservative water supply and demand assumptions over the next 25 years, as discussed in the following sections.

5.2 Supply And Demand Comparisons

The available supplies and water demands for SGPWA's service area were analyzed to assess the region's ability to satisfy demands during three scenarios: an average water year, single-dry year, and multiple-dry years. Table 5-1 presents the base years for the development of water year data. Tables 5-2, 5-3, and 5-4 summarize, respectively, Average Water Year, Single-Dry Water Year, and Multiple-Dry Year supplies.

TABLE 5-1
BASIS OF WATER YEAR DATA

Water Year Type	Base Years	Historical Sequence
Average Water Year	Average	1921-2003
Single-Dry Water Year	1977	--
Multiple-Dry Water Years	1931-1934	--

5.2.1 Normal Water Year

Table 5-2 summarizes SGPWA's water supplies available to meet demands over the 25-year planning period during an average/normal year. For SWP supplies it is assumed 62 percent of Table A will be available as the long-term average supply. As presented in the table, SGPWA's water supply is broken down into existing and planned water supply sources.

TABLE 5-2
PROJECTED AVERAGE/NORMAL YEAR SUPPLIES AND DEMANDS (AFY)

Water Supply Source	2020	2025	2030	2035	2040
Existing Supplies					
Imported SWP[(a)]	10,700	10,700	10,700	10,700	10,700
Yuba Accord[(b)]	300	300	300	300	300
Total Existing Supplies	**11,000**	**11,000**	**11,000**	**11,000**	**11,000**
Planned Supplies[(c)]					
SBVMWD Purchased Supply	2,000	2,000	2,000	2,000	2,000
Available Purchases of Supply [(d)]	1,500	3,800	7,700	11,700	15,000
Total Planned Supplies[(e)]	**3,500**	**5,800**	**9,700**	**13,700**	**17,000**
Total Existing and Planned Supplies	**14,500**	**16,800**	**20,700**	**24,700**	**28,000**
Total Demands[(f)]	**13,200**	**16,500**	**20,400**	**24,400**	**27,700**
Total Maximum Demands[(g)]	**18,800**	**22,200**	**25,800**	**29,700**	**31,600**

Notes: Values are rounded to the nearest hundred.

(a) Assumes 62% of Table A amount (17,300 AFY) based on the California Department of Water Resources Final Delivery Capability Report 2015 (DWR 2015 DCR).
(b) See Section 1.2.3.
(c) See Section 1, Table 3-1.
(d) The Agency is expected to purchase additional supplies by 2020 to meet projected demands during average years.
(e) SWP is the assumed source of planned supplies. Volumes shown assume 62% reliability of planned supplies based on the DWR 2015 DCR. Refer to Table 3-1.
(f) Demands from Table 2-4.
(g) Demands from Table 2-5.

5.2.2 Single-Dry Year

The water supplies and demands for SGPWA's service area over the 25-year planning period were analyzed in the event that a single-dry year occurs, similar to the drought that occurred in California in 1977. During a single-dry year, SWP supply availability is anticipated to be reduced to 11 percent. Table 5-3 summarizes the existing and planned supplies available to meet demands during a single-dry year. Demand during single-dry years are presented in section 2.6 and shown below. Dry year demand is lower than average year demand, as shown in Table 5-3.

TABLE 5-3
PROJECTED SINGLE-DRY YEAR SUPPLIES AND DEMANDS (AFY)

Water Supply Source	2020	2025	2030	2035	2040
Existing Supplies					
Imported SWP[(a)]	1,900	1,900	1,900	1,900	1,900
Yuba Accord[(b)]	300	300	300	300	300
Total Existing Supplies	**2,200**	**2,200**	**2,200**	**2,200**	**2,200**
Planned Supplies					
Future Dry Year Supplies[(c)] **[(d)]**	400	600	1,100	1,500	1,900
Total Planned Supplies	**400**	**600**	**1,100**	**1,500**	**1,900**
Total Existing and Planned Supplies	**2,600**	**2,800**	**3,300**	**3,700**	**4,100**
Total Demands[(e)]	**1,600**	**3,300**	**5,500**	**7,500**	**9,200**
Total Maximum Demands[(f)]	**4,300**	**5,500**	**6,800**	**8,000**	**9,200**

Notes: Values are rounded to the nearest hundred.

(a) Assumes 11% of Table A amount (17,300 AFY) based on the California Department of Water Resources Final Delivery Capability Report 2015 (DWR 2015 DCR).

(b) See Section 1.2.3.

(c) As described for average year supplies, the Agency is expected to purchase additional supplies by 2020 to meet projected demands during average years. SWP is the assumed source of planned supplies. Future dry year supplies shown here assume 11% availability of those planned supplies based on the DWR 2015 DCR.

(d) The Agency is negotiating a cooperative agreement with YVWD and the City of Calimesa to provide as-needed supplies as discussed in Section 3.3.2. Therefore, supplies shown are projected to meet those demands at a minimum. Procurement of additional dry year supplies will be ongoing to meet additional dry year demands, as discussed in Section 3.3.

(e) Demands from Table 2-6.

(f) Demands from Table 2-7.

5.2.3 Multiple-Dry Year

The water supplies and demands for SGPWA's service area over the 25-year planning period were analyzed in the event that a four-year multiple-dry year event occurs, similar to the drought that occurred during the years 1931 to 1934. During multiple-dry years, SWP availability is anticipated to be reduced to 33 percent. Table 5-4 summarizes the existing and planned supplies available to meet demands during multiple-dry years.

TABLE 5-4
PROJECTED MULTIPLE-DRY YEAR SUPPLIES AND DEMANDS (AFY)

Water Supply Source	2020	2025	2030	2035	2040
Existing Supplies					
Imported SWP[(a)]	5,700	5,700	5,700	5,700	5,700
Yuba Accord[(b)]	300	300	300	300	300
Total Existing Supplies	**6,000**	**6,000**	**6,000**	**6,000**	**6,000**
Planned Supplies					
Future Dry Year Supplies [(c) (d)]	1,200	1,900	3,200	4,500	5,600
Total Planned Supplies	**1,200**	**1,900**	**3,200**	**4,500**	**5,600**
Total Existing and Planned Supplies	**7,200**	**7,900**	**9,200**	**10,500**	**11,600**
Total Demands[(e)]	**3,200**	**5,000**	**7,300**	**9,600**	**11,500**
Total Maximum Demands[(f)]	**5,900**	**7,200**	**8,700**	**10,100**	**11,500**

Notes: Values are rounded to the nearest hundred.

(a) Assumes 33% of Table A amount (17,300 AFY) based on the DWR 2015 DCR.

(b) See Section 1.2.3.

(c) As described for average year supplies, the Agency is expected to purchase additional supplies by 2020 to meet projected demands during average years. SWP is the assumed source of planned supplies. Future dry year supplies shown here assume 33% availability of those planned supplies based on the DWR 2015 DCR.

(d) The Agency is negotiating a cooperative agreement with YVWD and the City of Calimesa to provide dry year supplies as discussed in Section 3.3.2. Therefore, supplies shown are projected to meet those demands at a minimum; other retail agencies are assumed to meet dry year demands with local supplies. Procurement of additional dry year supplies will be ongoing.

(e) Demands from Table 2-8.

(f) Demands from Table 2-9.

5.2.4 Summary of Comparisons

As shown in the analyses above, SGPWA has planned adequate supplies to meet demands during average and multiple-dry years throughout the 25-year planning period. However, the Agency will need to procure additional water supplies to meet projected future needs in single-dry year conditions. As discussed in Section 3.3, these additional supplies will represent a diverse portfolio of water, including dry year supplies, SWP Table A water purchased from or exchanged with other SWP Contractors, purchase of surplus water from a neighboring SWP Contractor, and other supplemental water as available. Refer to Section 3.4 for the Agency's plans to procure these additional supplies.

Section 6: Water Demand Management Measures

6.1 Demand Management

The purpose of the Demand Management Measures (DMM) section of this UWMP is to (a) provide a description of the past wholesaler water conservation programs that the Agency has implemented since 2010 and (b) describe the activities and actions the Agency plans to use in the future to assist its retailers in meeting their urban water use reduction targets. For the purposes of this UWMP the DMMs are categorized as "Foundational" and "Other". Foundational DMMs, listed below, are those DMMs that the UWMP Act and Water Code specifically mention that apply to a wholesaler such as SGPWA:

a) Metering
b) Public education and outreach
c) Water conservation program coordination and staffing support
d) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.
e) A narrative description of the wholesale supplier's distribution system asset management program
f) Wholesale supplier assistance programs

SGPWA does not have an internal distribution system. The Agency currently has three retail customers: the YVWD, the BCVWD, and the City of Banning. The YVWD is the only entity that purchases water for direct deliveries.

6.1.1 Metering

The Agency does not provide water directly to water users, hence it does not have a traditional metering system. The Agency does replenish the groundwater basin by recharging imported SWP water at several locations throughout the service area, as described in Section 3. The SWP water is metered at the turnouts where the Agency receives the water into its service area. All connections to the retailers listed above are metered.

6.1.2 Public Education and Outreach

The Agency recognizes the importance of public education and outreach for water resource conservation, and works towards providing materials to its customers informing them on ways to conserve water. A number of different resources including "Save our Water", "EPA Water Sense", "Be Water Wise", "Conservation Garden Brochure", and other activities related to conservation for children are made available on the Agency website (http://www.sgpwa.com/conservation) free of charge for the benefit of its customers and the public.

The Agency is involved in a number of outreach and education programs geared towards both children and adults.

Each year, the Agency sponsors a local high school in a regional solar boat race. During this weekend event, each high school team is required to write a paper and make a presentation on water conservation, and the Agency Board brings the high school to a Board meeting to hear from the students what they learned. Board members are judges for the event, which has raised the profile of water conservation considerably among high school students in the region. Approximately eight high schools compete each year.

The Agency has partnered with the Inland Empire Resource Conservation District to provide water conservation themed presentations in local schools for the three school districts within the Agency's service area. The programs focus on groundwater using a physical tabletop groundwater model purchased by the Agency. The program also describes the local retail water supplier that serves the school, where its water comes from, where the Agency's water comes from, how much water is used for everyday activities and to grow food, and other conservation-themed subjects. 2015 is the second year that the Agency began implementing this program. During the first year, 62 presentations were made to 48 different classes at eight different schools. These programs reached approximately 1,700 students. We anticipate similar numbers for 2015 and in subsequent years as the program continues.

The Agency has also contracted with a local small business, Drought Solutions, to provide workshops to gardening clubs, homeowners' associations, service organizations, and other adult groups. These typically focus on outdoor water use, though there are six separate topics that are offered. In 2015, approximately eight programs were given. Several hundred adults have attended these programs. The Agency will continue to build on this outreach program.

Finally, the Agency, its staff, and its Board of Directors participate in numerous speaking engagements in the communities of the service area whereby the importance of water conservation and investments in infrastructure and water supplies for the future are consistent themes that are emphasized.

6.1.3 Water Conservation Program Coordination and Staffing Support

The General Manager acts as the conservation coordinator. In addition to the above programs, he has direction from the Board to examine other conservation programs that meet the needs of the region and the retailers.

The Agency has set an example for other public agencies by re-landscaping its administration building with low water use vegetation and other hardscape. It has created a demonstration "back yard" that is a true conservation garden. Garden clubs and schools students have visited this garden. Flyers are available with the names of each of the plants so that the public is aware of what to purchase. The garden includes artificial turf, a winding pathway, and seats. This was done well before the recent drought, thus setting an example for other local public agencies, which have since begun to take similar actions.

6.1.4 Conservation pricing

SGPWA Ordinance No. 8 mandates that the Agency, at a minimum, shall establish and charge rates for the delivery of water sufficient to cover SGPWA's variable costs for delivery of imported water, internal SGPWA costs and other amounts as determined by the Board of Directors. Cost of delivery includes operations, administrative overhead, SBVMWD pass-through, dry year transfer costs, rate stabilization surplus reserves, new water purchase surplus reserve contributions, and DWR imported water purchase.

Currently, SGPWA charges a volumetric rate of $317/AF to its retailers. The wholesale water rate was established via Resolution No. 2009-3. The rate structure is supported by the 2009 Water Rate Study prepared for SGPWA (David Taussig Associates, Inc., 2009).

6.1.5 Wholesale Supplier Assistance Programs

SGPWA regularly explores potential support options for its retailers to assist them in meeting their SBX7-7 demand reduction targets. Where possible, SGPWA identifies partnerships to support DMM implementation. For example, SGPWA has contracted with the local Inland Empire Resource Conservation District to implement some of the Agency's education programs, and makes this program available to the retailers.

6.2 Asset Management Program

The Agency does not at this time have an internal distribution system or any other physical facilities. It anticipates constructing a distribution system in the future. Since it does not have an internal distribution system but rather sells water directly from the SWP to local retail water agency systems, no asset management program is required. At such time as the Agency constructs an internal distribution system, it will implement an asset management program.

6.3 Planned Wholesale Supplier Assistance Programs

Over the next five years, the Agency will continue to implement the Foundational DMMs as described in Section 6.1 and will offer to provide help to its retail agencies in meeting their water use targets. The Agency staff will continue to provide residents (adults and children) with educational information and outreach and other DMMs as feasible and appropriate.

The Agency General Manager is Chair of the Conservation Committee of the San Gorgonio Pass Regional Water Alliance, a consortium of water agencies and cities in the region, including the retail agencies with demands on SGPWA. Through this committee, the Agency is providing technical support and information to the smaller retail agencies that do not have staff to implement conservation programs or even to understand the implications of the State Board's recently-enacted emergency conservation regulations. It is also ensuring that local retail agencies are aware of the regulations and all public hearings associated with them so that the water agencies in the region can provide input on the emergency regulations as well as understand them. This is a valuable resource, especially for the smaller retail water agencies.

Monthly meetings include presentations on local, regional and state water issues, committee reports and individual agency presentations and updates. Topics have included California Water Plan Update, Integrated Regional Water Management Plans, Urban Water Management Plans,

water conservation programs, 2014 water bond, storm water resources, salinity management, State Water Project, and drought conditions presented by a representative of the California Department of Water Resources.

The Committee's website can be accessed at http://www.passwateralliance.com/conservation/.

6.3.1 Planned Implementation of DMMs to Achieve Water Use Targets

SGPWA will continue to implement the DMMs described in this section, and will continue to collaborate with the other retail purveyors to implement the measures outlined in this UWMP. These programs, taken together, will assist SGPWA in helping its retail agencies achieve their SBX7-7 2020 targets as described in their respective UWMPs.

Section 7: Water Shortage Contingency Planning

7.1 Overview

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, an earthquake which damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality. This chapter of the Plan describes how SGPWA plans to respond to various stages of shortage.

Cities and water agencies within SGPWA rely on large groundwater reserves to meet potable water supply needs. During previous drought periods, municipal water suppliers continued to draft from these reserves to meet customer needs without imposing restrictions on water use, but at rates exceeding natural replenishment in most areas. Large groundwater basins in the region serve as reservoirs and buffer the impacts of seasonal and year-to-year variations in precipitation and imported and natural surface water deliveries. This has been demonstrated during the recent drought, as groundwater supply was available to meet demands; in addition, the retailers have complied with the Governor's emergency and executive orders requiring mandatory conservation actions statewide. The area aquifers are either currently in balance or expected to be in balance in the near future due to the combination of water imports, State-mandated conservation requirements, and/or court ordered production "ramp-down." During multiple-year droughts or State Water Project outages, adequate groundwater supplies will be available to meet demands through the use of conjunctively banked pre-stored imported water.

The SGPWA adopted Ordinance No. 10 establishing a water shortage contingency plan in July 2014. The ordinance established procedures for allocating reduces deliveries of water to Purchasers in the event of single and multiple dry years and a shortage of water available to meet the demands of the Purchasers. SGPWA produced a draft update to Ordinance No. 10 in August 2016 to further guide its actions in the event of a water shortage emergency. This new draft Ordinance (provided in Appendix H) includes stages of action to be undertaken by the Agency in response to shortages in wholesale water supplies available for purchase by the Agency, including up to a 50 percent reduction in those supplies and to provide an outline of the specific water supply conditions that are applicable to each stage of action by reference to the allocation scenarios established in Agency Ordinance No. 10. It is also noted that the SGPWA's role is limited to the use of imported water to replenish local groundwater basins for subsequent pumping by its retail agencies. As such, direct delivery of water provided by SGPWA is minimal.

Therefore, the majority of the water shortage contingency planning in the SGPWA service area is undertaken by retail agencies, Riverside County, and the cities throughout the County. This section summarizes water shortage contingency plans developed by SGPWA retail agencies.

Actions of the SGPWA to address water shortages are summarized below.

7.2 SGPWA Stages of Action to Respond to Water Shortages

SGPWA's Board of Directors determines when to declare a level 0, 1, 2, or 3 water supply shortage in response to drought, regulatory requirements, or other water supply conditions, and what reduction in water use is necessary to make the most efficient use of water, protect public health and safety, and respond to existing water supply and/or regulatory conditions.

Table 7-1 presents the three-stage water supply shortage action plan for the Agency.

These stages are outlined in SGPWA Draft Resolution No. XX, and described in further detail below. See Appendix H for the complete Draft Resolution.

As a wholesale agency, SGPWA does not have the authority to impose mandatory restrictions on retail customers due to water shortages. Therefore, this level of contingency planning is conducted by the retail water agencies.

TABLE 7-1

RATIONING AND REDUCTION GOALS

Stage	Percent Supply Reduction[(a)]	Water Supply Condition	Stages of Action
0	0%	Year when at least 62% of contractual SWP Table A imported supplies are available to the Agency	• Coordination. Meet and coordinate with retail water agencies and other entities in the San Gorgonio Pass area regarding current and projected water supplies and demands. • Public Messaging. Encourage the public to avoid water waste and increase water use efficiency. • Manage Water Supplies in Excess of Demands. Pursue programs and projects to manage water supplies in excess of demands, including, but not limited to, placing such water in storage or water banking or exchange programs.
1	25%	47%	• Water Shortage Plan. The Agency will determine whether a Water Shortage Year exists in accordance with Ordinance 10 and the extent to which imported water supplies available for purchase by the Agency will need to be allocated in accordance with Ordinance No. 10. • Coordination. Meet and coordinate with retail water agencies and other entities in the San Gorgonio Pass area regarding current and projected water supplies and demands, and the extent to which other agencies may implement the appropriate stages and actions under their respective water shortage contingency plans. • Continue to undertake other applicable actions identified above under a Stage 0 Water Supply Condition.

Stage	Percent Supply Reduction[(a)]	Water Supply Condition	Stages of Action
2	26-45%	46-34%	• Water Shortage Plan. The Agency will determine whether a Water Shortage Year exists in accordance with Ordinance 10 and the extent to which imported water supplies available for purchase by the Agency will need to be allocated in accordance with Ordinance No. 10. • Shift and Increase in Public Messaging. The Agency will utilize its own website and other local media and communication efforts to educate the public on the shortage and to encourage greater conservation on the part of individuals, businesses, and institutions. • Dry Year Supplies. Determine from its customers if they desire additional dry-year supplies at an additional cost and, if so, to make reasonable and practicable attempts to obtain and deliver such supplies to customers who request and ensure payment for them. • Continue to undertake other applicable actions identified above under Stage 0 and Stage 1 Water Supply Conditions.
3	Greater than 45%	Greater than 34%	• Water Shortage Plan. The Agency will determine whether a Water Shortage Year exists in accordance with Ordinance 10 and the extent to which imported water supplies available for purchase by the Agency will need to be allocated in accordance with Ordinance No. 10. • Shift and Increase in Public Messaging. The Agency will utilize its own website and other local media and communication efforts to educate the public on the shortage and to encourage greater conservation on the part of individuals, businesses, and institutions. • Dry-Year Supplies. Determine from its customers if they desire additional dry-year supplies at an additional cost and, if so, to make reasonable and practicable attempts to obtain and deliver such supplies to customers who request and ensure payment for them. • Transfers. Evaluate and solicit input from its customers whether the Agency should pursue any transfers to augment supplies during the Stage 3 Condition, including related considerations of potential impacts to future water supplies. • Continue to undertake other applicable actions identified above under Stage 0, Stage 1, and Stage 2 Water Supply Conditions.

Source: SGPWA Ordinance No. XX, Ordinance Adopting a Wholesale Water Shortage Contingency Plan for Purposes of the Urban Water Management Planning Act (in Appendix H).

7.3 Minimum Water Supply Available During Next Three Years

The minimum water supply available during the next three years would occur during a three-year multiple-dry year event between the years 2016 and 2018. As shown in Table 7-3, the minimum regional water supply for agencies in the SGPWA service area for the next three years is about 6,000 AF. The water supply and demand are based on dry-year assumptions for the SWP and annual supply available for groundwater.

When comparing these supplies to the demand projections provided in Chapters 2 and 5 of this Plan, SGPWA does not have adequate supplies available to meet projected demands should a multiple-dry year period occur during the next three years, assuming SWP imported supply deliveries would be reduced to 33 percent, and based on realization of retail agency demand projections on SGPWA, as shown below. SGPWA will actively pursue transfers and exchanges in order to help meet demands.

TABLE 7-3
ESTIMATE OF MINIMUM SUPPLY FOR THE NEXT THREE YEARS

Water Supply Source	2016	2017	2018
Existing Supplies			
Imported SWP[(a)]	5,700	5,700	5,700
Yuba Accord[(b)]	300	300	300
Total Existing Supplies	**6,000**	**6,000**	**6,000**

Notes: Values rounded to the nearest hundred.

(a) SWP supplies are calculated by multiplying SGPWA's Table A amount of 17,300 AF by 33 % of total deliveries projected to be available based on the worst-case historic four-year drought of 1931-1934 (DWR 2015 DCR).

(b) See Section 3, Table 3-1. Assumes Yuba Accord supply available to meet demands.

7.4 Actions to Prepare For Catastrophic Interruption

7.4.1 General

The SGPWA service area is bounded on the east by a major portion of the San Andreas Fault. A major earthquake along the southern portion of the San Andreas Fault would affect the SGPWA service area.

The California Division of Mines and Geology has stated two of the aqueduct systems that import water to southern California (including the portion of the California Aqueduct that traverses the San Joaquin Valley) could be ruptured by displacement on the San Andreas Fault, and supply may not be restored for a three to six-week period. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power. DWR has a contingency aqueduct outage plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair.

In the case of the southern portion of the fault, experts agree it may be at least three days after the earthquake before outside help could get to the area. Extended supply shortages of both groundwater and imported water, due to power outages and/or equipment damage, would have to be managed although local effects of these types of outages would not materially affect the region based on local native groundwater and banked imported water supplies.

Power outages currently do not affect SGPWA because it does not own or operate any wells or distribution systems. However, for the retailer water agencies, all of the water systems have some form of storage as both regulating reservoirs and emergency supply. It is assumed that in an emergency the public would be asked to reduce consumption to minimum health and safety levels, extending the supply. This would provide sufficient time to restore a significant amount of groundwater production. After the groundwater supply is restored, the pumping capacity of the retail purveyors could meet the reduced demand until such time that the imported water supply was reestablished. Updates on the water situation would be made as often as necessary. In addition, the County of San Bernardino has an Emergency Response Plan (2005) which further defines functions, assigns responsibilities, specifies policies and general procedures for coordination of planning efforts of various department and staff to assist in an emergency situation.

The area's water sources are generally of good quality, and no insurmountable problems resulting from industrial or agricultural contamination are foreseen. If contamination did result from a toxic spill or similar accident, the contamination would be isolated and should not significantly impact the total water supply. In addition, such an event would be addressed in the retailers' emergency response plan.

7.4.2 SWP Emergency Outage Scenarios

In addition to earthquakes, the SWP could experience other emergency outage scenarios. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Banos), flood damage to the East Branch of the Aqueduct in 2015, and various subsidence and leakage repairs needed along the Main Branch and East Branch of the Aqueduct since the 1980s. All these outages were short-term in nature (on the order of weeks to several months), and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation and continue SWP deliveries while repairs were made. Thus, the SWP contractors generally experienced no interruption in total annual deliveries.

One of the SWP's important design engineering features is the ability to isolate parts of the system. The Aqueduct is divided into "pools." Thus, if one reservoir or portion of the California Aqueduct is damaged in some way, other portions of the system can still remain in operation. The primary SWP facilities are shown on Figure 7-1.

Other events could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damages the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta.

The response of DWR, SGPWA, and other SWP contractors to such events would be highly dependent on the type and location of any such event. In typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands, and the excess is stored in San Luis Reservoir. SWP aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, are also replenished during these periods. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors. The SWP share of maximum storage capacity at San Luis Reservoir is 1,062,000 AF.

SGPWA receives its SWP deliveries through the East Branch of the California Aqueduct. The other contractors receiving deliveries from the East Branch are Metropolitan Water District of Southern California, Antelope Valley-East Kern Water Agency, Palmdale Water District, Crestline-Lake Arrowhead Water Agency, Desert Water Agency, San Gabriel Valley Municipal Water District, San Bernardino Valley Municipal Water District, and Mojave Water Agency The East Branch has two terminal reservoirs, Silverwood Lake and Lake Perris, which were designed to provide emergency storage and regulatory storage (i.e., storage to help meet peak summer deliveries) for several of the East Branch contractors. However, SGPWA does not have contract rights to storage capacity in those reservoirs.

In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, a number of contractors have stored water in groundwater banking programs in the San Joaquin Valley and more recently along the East Branch, and many also have surface and groundwater storage within their own service areas.

Three scenarios that could impact the delivery to SGPWA of its SWP supply or other supplies delivered to it through the California Aqueduct are described below. For each of these scenarios, it was assumed that an outage of six months could occur. SGPWA's ability to meet demands during the worst of these scenarios is presented following the scenario descriptions.

FIGURE 7-1
PRIMARY SWP FACILITIES



7.4.2.1 Scenario 1: Emergency Freshwater Pathway

DWR has estimated that in the event of a major earthquake in or near the Delta, regular water supply deliveries from the SWP could be interrupted for up to three years, posing a substantial risk to the California business economy. Accordingly, a post-event strategy has been developed which would provide necessary water supply protections. The plan has been coordinated through DWR, the Army Corps of Engineers (Corps), Bureau of Reclamation, California Office of Emergency Services (Cal OES), the Metropolitan Water District of Southern California, and the State Water Contractors. Full implementation of the plan would enable resumption of at least partial deliveries from the SWP in less than six months.

DWR Delta Flood Emergency Management Plan. DWR has developed the Delta Flood Emergency Management Plan to provide strategies for a response to Delta levee failures, which addresses a range of failures up to and including earthquake-induced multiple island failures during dry conditions when the volume of flooded islands and salt water intrusion are large. Under such severe conditions, the plan includes a strategy to establish an emergency freshwater pathway from the central Delta along Middle River and Victoria Canal to the export pumps in the south Delta. The plan includes the pre-positioning of emergency construction materials at existing and new stockpiles and warehouse sites in the Delta, and development of tactical modeling tools (DWR Emergency Response Tool) to predict levee repair logistics, water quality conditions, and timelines of levee repair and suitable water quality to restore exports. The Delta Flood Emergency Management Plan has been extensively coordinated with state, federal and local emergency response agencies. DWR, in conjunction with local agencies, the Corps and Cal OES, regularly conduct simulated and field exercises to test and revise the plan under real time conditions.

DWR and the Corps provide vital Delta region response to flood and earthquake emergencies, complementary to an overall Cal OES structure. Cal OES is preparing its Northern California Catastrophic Flood Response Plan that incorporates the DWR Delta Flood Emergency Management Plan. These agencies utilize a unified command structure and response and recovery framework. DWR and the Corps, through a Draft Delta Emergency Operations Integration Plan (April 2014), would integrate personnel and resources during emergency operations.

Levee Improvements and Prioritization. The DWR Delta Levees Subvention Program has prioritized, funded, and implemented levee improvements along the emergency freshwater pathway and other water supply corridors in the central and south Delta region. These efforts have been complementary to the DWR Delta Flood Emergency Management Plan, which along with use of pre-positioned emergency flood fight materials in the Delta, relies on pathway and other levees providing reasonable seismic performance to facilitate restoration of the freshwater pathway after a severe earthquake. Together, these two DWR programs have been successful in implementing a coordinated strategy of emergency preparedness for the benefit of SWP and CVP export systems.

Significant improvements to the central and south Delta levee systems along Old and Middle Rivers began in 2010 and are continuing to the present time at Holland Island, Bacon Island, Upper and Lower Jones Tracts, Palm Tract and Orwood Tract. This complements substantially improved levees at Mandeville and McDonald Islands and portions of Victoria

and Union Islands. Together, levee improvements along the pathway and Old River levees consisting of crest raising, crest widening, landside slope fill and toe berms, meet the needs of local reclamation districts and substantially improve seismic stability to reduce levee slumping and create a more robust flood-fighting platform. Many urban water supply agencies have participated or are currently participating in levee improvement projects along the Old and Middle River corridors.

Assuming that the Banks Pumping Plant would be out of service for six months, DWR could continue making at least some SWP deliveries to all southern California contractors from water stored in San Luis Reservoir. The water available for such deliveries would be dependent on the storage in San Luis Reservoir at the time the outage occurred and could be minimal if it occurred in the late summer or early fall when San Luis Reservoir storage is typically low. In addition to supplies from San Luis Reservoir, water from the East Branch terminal reservoirs would also be available to the East Branch contractors, including SGPWA. SGPWA water stored in groundwater banking programs in the San Joaquin Valley may also be available for withdrawal and delivery to SGPWA.

7.4.2.2 Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley

The 1995 flood event at Arroyo Pasajero demonstrated vulnerabilities of the California Aqueduct (the portion that traverses the San Joaquin Valley from San Luis Reservoir to Edmonston Pumping Plant). Should a similar flood event or an earthquake damage this portion of the aqueduct, deliveries from San Luis Reservoir could be interrupted for a period of time. DWR has informed the SWP contractors that a four-month outage could be expected in such an event. SGPWA's assumption for this Plan is a more conservative six-month outage.

Arroyo Pasajero is located downstream of San Luis Reservoir and upstream of the primary groundwater banking programs in the San Joaquin Valley. Assuming an outage at a location near Arroyo Pasajero that takes the California Aqueduct out of service for six months, supplies from San Luis Reservoir would not be available to those SWP contractors located downstream of that point. It is likely that in such an emergency, water from the East Branch terminal reservoirs would be made available to the East Branch contractors, including SGPWA.

7.4.2.3 Scenario 3: Complete Disruption of the East Branch of the California Aqueduct

The East Branch of the California Aqueduct begins at a bifurcation of the Aqueduct south of Edmonston Pumping Plant, which pumps SWP water through and across the Tehachapi Mountains. From the point of bifurcation, the East Branch is an open canal passing through Alamo Power Plant, Pearblossom Pumping Plant, and on to Silverwood Lake and Lake Perris.

If a major earthquake (an event similar to or greater than the 1994 Northridge earthquake) were to damage a portion of the East Branch, deliveries could be interrupted. The exact location of such damage along the East Branch would be key to determining emergency operations by DWR and the East Branch SWP contractors. For this scenario, it was assumed that the East Branch would suffer a single-location break and deliveries of SWP water from north of the Tehachapi Mountains would not be available. It was also assumed that Lake Perris and Silverwood Lake reservoirs would not be damaged by the event and that water in Lake Perris and Silverwood Lakes would be available to the East Branch SWP contractors, including SGPWA.

In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors, and exchanges among SWP contractors, allowing delivery of one contractor's SWP or other water to another contractor, with that water being returned after the outage was over.

Of these three SWP outage scenarios, the East Branch outage scenario presents the worst-case scenario for the SGPWA service area. In this scenario, the retail water suppliers would rely on local supplies and water available to SGPWA from Lake Perris and Silverwood Lakes. See Section 7.4.2 regarding recommendations for emergency outage storage using cooperative agreements with other East Branch SWP contractors and individual groundwater banking programs.

During such an outage, the local supplies available would consist of native and banked groundwater. It was assumed that local well production would be unimpaired by the outage and that the outage would occur during a year when average/normal supplies would be available. Note that adequate well and aquifer capacity exists to pump at levels higher than those assumed in this assessment, particularly during a temporary period such as an outage.

7.4.3 Regional Power Outage Scenarios

For a major emergency such as an earthquake, Southern California Edison (Edison) has declared that in the event of an outage, power would be restored within a 24 hour period. For example, following the 1994 Northridge earthquake, Edison was able to restore power within 19 hours. Edison experienced extensive damage to several key power stations, yet was still able to recover within a 24-hour timeframe.

SGPWA is committed to providing regular service and meeting the needs of the community during any emergency situation. SGPWA is obligated to respond to emergencies by using all available resources in the most effective way possible. Additionally, the East Branch Phase II Extension includes emergency and operational storage for the region.

7.5 Mandatory Prohibitions During Shortages

SGPWA is not a direct purveyor of retail water supplies and does not have any emergency powers or the authority to implement water shortage plans within its boundaries. It relies instead on efforts of the individual cities and water agencies. However, SGPWA does have an Ordinance No. 10 establishing a water shortage plan that allows the Agency to sell and deliver SWP water to these entities. SGPWA's Ordinance 10 requires customers taking direct delivery of SWP water from SGPWA to maintain a backup supply in the event of outages or shortages in supply from the SWP. SGPWA informs customers under Ordinance 10 that supplies are variable and interruptible, with no guarantee of a specified delivery quantity. Ordinance 10 is SGPWA's only authority to reduce water supplies to its customers during shortages. However, customers under Ordinance 10 represent only a small portion of the overall water

use within the SGPWA service area, with a majority of water users receiving water supply from groundwater production.

7.6 Consumption Reduction Methods During Restrictions

As explained in the previous section, SGPWA does not have the power to implement mandatory prohibitions during water supply shortages, with the exception of customers receiving direct SWP supplies under SGPWA Ordinance No. 10.

SGPWA will however manage water supplies to minimize the social and economic impact of water shortages. The Water Shortage Plan is designed to establish procedures for allocating reduced deliveries of water to Purchasers in the event of single or multiple-dry year and a shortage of water available to meet demands of Purchasers.

7.7 Penalties for Excessive Use

The penalties for excessive water use are stated in the text of the resolutions and ordinances outlined in Table 7-1 for the SGPWA and the regional retail agencies.

7.8 Financial Impacts of Actions During Shortages

During periods of reduced consumption, revenue from water sales will decline. Also, a natural disaster may entail unpredicted expenditures for repairs. Therefore, each retail water agency has plans to address financial challenges of water shortages that include a mix of temporary base rate adjustment, use of reserves, fines for violation of mandatory water use restrictions, and deferring of non-critical maintenance items and filling of some personnel vacancies.

SGPWA has sufficient operating funds to supplement any deficiencies in revenue caused from a water shortage.

7.9 Water Shortage Contingency Resolution

SGPWA has prepared a draft Water Shortage Contingency Plan, which is included in Appendix H.

7.10 Mechanism to Determine Reductions in Water Use

As explained in Section 7.5, SGPWA does not have the power to implement mandatory prohibitions during water supply shortages, with the exception of customers receiving direct SWP supplies under SGPWA Ordinance No. 10.

Section 8: References

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Appendix A: DWR Checklist

Appendix A – UWMP Checklist

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	**1.5.1**
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	**1.5**
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	**1.5.2, 6.1.2, 6.1.3, 6.2, 6.3**
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	**1.6.1, 1.6.2, 1.6.3, 1.6.4**
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	**1.7, 1.8, 1.9**
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	**2.3**
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	**1.8, 1.9, 1.10**
10631(a)	Indicate the current population of the service area.	System Description and Baselines	Sections 3.4 and 5.4	**2.3**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
		and Targets		
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	**2.4, 2.5**
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	**2.4.1**
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	**N/A**
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	**N/A**
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	**N/A**
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	**N/A**
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	**N/A**
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall	Baselines and Targets	Section 5.8.2	**N/A**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
	provide the basis for, and data supporting the adjustment.			
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	**6.3**
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	**N/A**
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	**Table 3-1**
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	**3.4**
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	**3.4**
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	**3.4.2**
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	**3.4, Appendix G**
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or	System Supplies	Section 6.2.3	**3.4**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
	projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.			
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	**3.4**
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	**3.4**
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	**3.3**
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	**3.3, 3.3.2**
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	**3.5**
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	**N/A**
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during	System Supplies	Section 2.5.1	**1.5**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
	various water year types.			
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	**3.4.3**
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	**3.4.3**
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	**3.4.3**
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	**3.4.3**
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	**3.4.3**
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	**3.4.3**
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these	System Supplies (Recycled	Section 6.5.5	**3.4.3**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
	actions in terms of acre-feet of recycled water used per year.	Water)		
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	**3.4.3**
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	**3.3, 5.2.3**
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	**Section 5, 1.9**
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	**5.2.1, 5.2.2, 5.2.3**
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	**3.2.3, 3.2.4, 3.3, 3.3.2**
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	**Section 4**
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	**5.2.1, 5.2.2, 5.2.3**
10632(a) and	Provide an urban water shortage	Water	Section 8.1	**7.2**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10632(a)(1)	contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Shortage Contingency Planning		
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	**7.3**
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	**7.4**
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	**7.5**
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	**7.6**
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	**7.7**
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	**7.8**
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	**7.9, Appendix H**
10632(a)(9)	Indicate a mechanism for	Water	Section 8.5	**7.10**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
	determining actual reductions in water use pursuant to the water shortage contingency analysis.	Shortage Contingency Planning		
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	**N/A**
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	**Section 6**
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	**N/A**
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	**N/A**
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	**1.5, Appendix C**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	**1.5, Appendix C**
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	**N/A**
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	**Appendix C**
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	**Appendix C**
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	**1.5.1, Appendix C**
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	**1.5.1, Appendix C**
10644(a)(1)	Provide supporting documentation that the urban	Plan Adoption,	Section 10.4.4	**1.5.1**

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
	water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Submittal, and Implementation		
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	**N/A**
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	**N/A**

Appendix B: DWR Standard Tables

San Gorgonio Pass Water Agency 2015 Urban Water Management Plan
DWR Standardized Tables

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* *drop down list*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☑	Agency is a wholesaler
☐	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 2-4 Wholesale: Water Supplier Information Exchange (select one)	
☐	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with CWC 10631. Completion of the table below is optional. If not completed include a list of the water suppliers that were informed.
	Provide page number for location of the list.
☑	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with CWC 10631. **Complete the table below.**
Water Supplier Name *(Add additional rows as needed)*	
City of Banning	
Beaumont Cherry Valley Water District	
Yucaipa Valley Water District	
NOTES:	

Table 3-1 Wholesale: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	87,192	96,954	107,809	119,880	133,302	148,226
NOTES: UWMP Table 2-1						

Table 4-1 Wholesale: Demands for Potable and Raw Water - Actual

Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Sales to other agencies	Retail purveyor demand	Drinking Water	3,921
		TOTAL	3,921

NOTES: UWMP Table 2-2

Table 4-2 Wholesale: Demands for Potable and Raw Water - Projected

Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool.*		2020	2025	2030	2035	2040 *(opt)*
Sales to other agencies	retail purveyor demand	13,169	16,544	20,393	24,414	27,696
	TOTAL	13,169	16,544	20,393	24,414	27,696

Notes: UWMP Table 2-4

Table 4-3 Wholesale: Total Water Demands						
	2015	2020	2025	2030	2035	2040*(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	3,921	13,169	16,544	20,393	24,414	27,696
Recycled Water Demand* *From Table 6-4*	0	0	0	0	0	0
TOTAL WATER DEMAND	3,921	13,169	16,544	20,393	24,414	27,696
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES:						

Table 4-4 Wholesale: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	5
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES: UWMP Table 2-3	

Table 6-1 Wholesale: Groundwater Volume Pumped

☑	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type *Drop Down List* *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
	TOTAL	0	0	0	0	0

NOTES:

Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2015

☑	Wholesale supplier neither distributes nor provides supplemental treatment to recycled water. The supplier will not complete the table below.									
							2015 volumes			
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
						Total	0	0	0	0

NOTES:

Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area

☑	Recycled water is not directly treated or distributed by the supplier. The supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 *(opt)*
Add additional rows as needed							
	Total	0	0	0	0	0	0

NOTES:

Table 6-5 Wholesale: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual		
☑	Recycled water was not used or distributed by the supplier in 2010, nor projected for use or distribution in 2015. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2010 Projection for 2015	2015 actual use
Add additional rows as needed		
Total	0	0
NOTES:		

Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☑	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Pg, 3-8 to 3-9 and Sec	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description *(if needed)*	Planned Implementation Year	Planned for Use in Year Type *Drop Down list*	Expected Increase in Water Supply to Agency
	Drop Down Menu	*If Yes, Agency Name*				
Add additional rows as needed						
SBVMWD Purchased Supply	*Yes*	**San Bernardino Valley Municipal Water District**	An average of 2,000 AF is assumed pending a future agreement with SBVMWD	2020	All Year Types	2,000
Other Available Purchases of Supply (SWP)	*Yes*	To be determined	The Agency has a financial plan in place to obtain additional supplies necessary to meet project demands.	2020	All Year Types	1,500
NOTES: See Table 3-1						

Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply		2015		
Drop down list *May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool*	Additional Detail on Water Supply	Total Right or Safe Yield (optional)	Water Quality *Drop Down List*	Actual Volume
Add additional rows as needed				
Purchased or Imported Water	Table A		Drinking Water	10,700
Purchased or Imported Water	Yuba Accord		Drinking Water	300
	Total	0		11,000
NOTES: UWMP Table 3-1				

Table 6-9 Wholesale: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*									
		2020		2025		2030		2035		2040 *(opt)*	
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Purchased or Imported Water	Table A (Existing)	10,700		10,700		10,700		10,700		10,700	
Purchased or Imported Water	Yuba Accord (Existing)	300		300		300		300		300	
Purchased or Imported Water	SBVMWD purchased (planned)	2,000		2,000		2,000		2,000		2,000	
Purchased or Imported Water	Future purchases (planned)	1,500		3,800		7,700		11,700		15,000	
	Total	14,500	0	16,800	0	20,700	0	24,700	0	28,000	0

NOTES: See Table 3-1

Table 7-1 Wholesale: Basis of Water Year Data			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☑ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☐ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Average Year	2003		100%
Single-Dry Year	1977		
Multiple-Dry Years 1st Year	1931		
Multiple-Dry Years 2nd Year	1932		
Multiple-Dry Years 3rd Year	1933		
Multiple-Dry Years 4th Year *Optional*	1934		
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table. Suppliers may create an additional worksheet for the additional tables.			
NOTES: UWMP Section 5.2			

Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	14,500	16,800	20,700	24,700	28,000
Demand totals *(autofill fm Table 4-3)*	13,169	16,544	20,393	24,414	27,696
Difference	1,331	256	307	286	304
NOTES:					

Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	2,600	2,800	3,300	3,700	4,100
Demand totals	1,600	3,300	5,500	7,500	9,200
Difference	1,000	(500)	(2,200)	(3,800)	(5,100)
NOTES: UWMP Table 5-3					

Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	7,200	7,900	9,200	10,500	11,600
	Demand totals	3,200	5,000	7,300	9,600	11,500
	Difference	4,000	2,900	1,900	900	100
Second year	Supply totals	7,200	7,900	9,200	10,500	11,600
	Demand totals	3,200	5,000	7,300	9,600	11,500
	Difference	4,000	2,900	1,900	900	100
Third year	Supply totals	7,200	7,900	9,200	10,500	11,600
	Demand totals	3,200	5,000	7,300	9,600	11,500
	Difference	4,000	2,900	1,900	900	100
Fourth year *(optional)*	Supply totals	7,200	7,900	9,200	10,500	11,600
	Demand totals	3,200	5,000	7,300	9,600	11,500
	Difference	4,000	2,900	1,900	900	100
Fifth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES: UWMP Table 5-4. Supplies and demands assumed to be the same for each year of a multiple dry year period.						

Table 8-1 Wholesale Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Supply Reduction[1]	Water Supply Condition (*Narrative description)*
Add additional rows as needed		
0	0%	Year when at least 62% of contractual SWP Table A imported supplies are available.
1	25%	47%
2	26-45%	46-34%
3	> 45%	Greater than 34%
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES: See Table 7-1		

Table 8-4 Wholesale: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	6,000	6,000	6,000
NOTES: UWMP Table 7-3			

Table 10-1 Wholesale: Notification to Cities and Counties (select one)		
☐	Supplier has notified more than 10 cities or counties in accordance with CWC 10621 (b) and 10642. **Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.**	
	Provide the page or location of this list in the UWMP.	
☑	Supplier has notified 10 or fewer cities or counties. **Complete the table below.**	
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Banning	☑	☑
Beaumont	☑	☑
Calimesa	☑	☑
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Bernardino County	☑	☑
Riverside County	☑	☑
NOTES: See Appendix C.		

Appendix C: Public Outreach

San Gorgonio Pass Water Agency

A California State Water Project Contractor
1210 Beaumont Avenue • Beaumont, CA 92223
Phone (951) 845-2577 • Fax (951) 845-0281

President:
John Jeter

Vice President:
Bill Dickson

Treasurer:
Mary Ann Melleby

Directors:
Blair Ball
Ron Duncan
David Fenn
Leonard Stephenson

General Manager
& Chief Engineer:
Jeff Davis, PE

Legal Counsel:
Jeffry Ferre
Best Best & Krieger

January 29, 2016

Michael Rock, City Manager
City of Banning
99 E. Ramsey Street
Banning, CA 92220

2015 Urban Water Management Plan for the San Gorgonio Pass Water Agency

San Gorgonio Pass Water Agency is undertaking review, update, and revision of its Urban Water Management Plan. San Gorgonio Pass Water Agency is located in Riverside County and serves the residents of the Cities of Calimesa, Beaumont, and Banning, as well as other unincorporated areas such as Cherry Valley, Cabazon, Poppet Flat, and the Banning Bench. The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for San Gorgonio Pass Water Agency to remain eligible for state drought water bank assistance and is a requirement of state grant and loan funding programs.

The 2015 UWMP will include an update of anticipated water demands in the San Gorgonio Pass Water Agency service area. Concurrent with the UWMP Update San Gorgonio Pass Water Agency will revise its Water Shortage Contingency Plan (WSCP). San Gorgonio Pass Water Agency is encouraging participation by land use agencies, water use agencies, and other interested parties in the UWMP and WSCP. San Gorgonio Pass Water Agency would like to extend to your agency an opportunity to meet with us to go over the various elements of the UWMP and WSCP, including assumptions about future population, future water demand, future water supplies, and upcoming water conservation programs.

We anticipate that a draft UWMP and WSCP will be available for public review starting in April 2016 and the Agency will hold a public hearing in June 2016, prior to adoption of the UWMP and WSCP. Hence we would like to solicit your input in the near future.

If your agency would like to learn more about the Urban Water Management Plan and Water Shortage Contingency Plan, please contact Jeff Davis, General Manager, 951/845-2577, JDavis@sgpwa.com, no later than February 29, 2016.

Sincerely,

Jeff Davis

San Gorgonio Pass Water Agency

A California State Water Project Contractor
1210 Beaumont Avenue • Beaumont, CA 92223
Phone (951) 845-2577 • Fax (951) 845-0281

January 29, 2016

Elizabeth Gibbs-Urtiaga, Acting City Manager
City of Beaumont
550 E. Sixth St.
Beaumont, CA 92223

President:
John Jeter

Vice President:
Bill Dickson

Treasurer:
Mary Ann Melleby

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Sincerely,

Jeffrey W Davis

Jeff Davis

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A California State Water Project Contractor
1210 Beaumont Avenue • Beaumont, CA 92223
Phone (951) 845-2577 • Fax (951) 845-0281

President:
John Jeter

Vice President:
Bill Dickson

Treasurer:
Mary Ann Melleby

Directors:
Blair Ball
Ron Duncan
David Fenn
Leonard Stephenson

General Manager
& Chief Engineer:
Jeff Davis, PE

Legal Counsel:
Jeffry Ferre
Best Best & Krieger

January 29, 2016

Bonnie Johnson, City Manager
City of Calimesa
908 Park Avenue
Calimesa, California 92320

2015 Urban Water Management Plan for the San Gorgonio Pass Water Agency

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Sincerely,

Jeff Davis

San Gorgonio Pass Water Agency

A California State Water Project Contractor
1210 Beaumont Avenue • Beaumont, CA 92223
Phone (951) 845-2577 • Fax (951) 845-0281

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January 29, 2016

Steve Weiss, AICP, Planning Director
Riverside Co. Planning Department
P.O. Box 1409
Riverside, CA 92502-1409

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Jeffrey W Davis

Jeff Davis

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Best Best & Krieger

June 28, 2016

Steve Weiss, Director of Planning
Riverside County Planning Department
PO Box 1409
Riverside, CA 92502-1409

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Legal Counsel:
Jeffry Ferre
Best Best & Krieger

June 28, 2016

Art Vela, Public Works Director
City of Banning
PO Box 998
Banning, CA 92220

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Legal Counsel:
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Best Best & Krieger

June 28, 2016

Richard Warne, Interim City Manager
City of Beaumont
550 E. 6th Street
Beaumont, CA 92223

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Jeffry Ferre
Best Best & Krieger

June 28, 2016

Eric Fraser, General Manager
Beaumont Cherry Valley Water District
PO Box 2037
Beaumont, CA 92223

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Jeffry Ferre
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June 28, 2016

Joe Zoba, General Manager
Yucaipa Valley Water District
PO Box 730
Yucaipa, CA 92399

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Jeffry W. Davis

Yucaipa Valley Water District

12770 Second Street • P. O. Box 730 • Yucaipa, California 92399-0730
(909) 797-5117 • Fax: (909) 797-6381 • www.yvwd.dst.ca.us

September 30, 2016

Mr. Jeff Davis, General Manager
San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, California 92223

Subject: Demand Projections by the Yucaipa Valley Water District

Dear Mr. Davis:

I have reviewed your email message dated Wednesday, September 21, 2016 (attached), regarding *Table 12-16, SGPWA Wholesale Supplies - Existing and Planned Sources* contained within the Yucaipa Valley Water District's ("District") Urban Water Management Plan. As shown below, Table 12-16 summarized the projected imported water demands needed by the Yucaipa Valley Water District from the San Gorgonio Pass Water Agency to meet our projected water demands.

Table 12-16. SGPWA Wholesale Supplies – Existing and Planned Sources of Water (AF)

Imported Water Demands	2015	2020	2025	2030	2035	2040
Drinking Water Demands: Yucaipa Valley Water Filtration Facility	454	609	767	962	1,191	1,444
Conjunctive Use Demands: Local Water Banking	0	1,200	1,200	1,200	1,200	1,200
New Development Long-Term Supply Sustainability Program	0	2,504	3,040	3,596	4,344	3,407
Total	454	4,313	5,007	5,758	6,735	6,051

The following explanation should help clarify the imported water demands contained within Table 12-16:

- *Drinking Water Demands: Yucaipa Valley Water Filtration Facility* - This row within Table 12-16 identifies the quantity of imported water needed to be delivered at Yucaipa Valley Turnout No. 1 for the Yucaipa Valley Regional Water Filtration Facility to provide drinking water to area served within the boundary of both Yucaipa Valley Water District and San Gorgonio Pass Water Agency. This quantity of imported water is needed to meet existing water demands that are expected to increase in the future.
- *Conjunctive Use Demands: Local Water Banking* - This row within Table 12-16 identifies the quantity of imported water needed to be delivered to either the Beaumont Avenue

Directors and Officers

KENNETH P. MUÑOZ, Division 1 | BRUCE GRANLUND, Division 2 | JAY BOGH, Division 3 | LONNI GRANLUND, Division 4 | THOMAS SHALHOUB, Division 5 | JOSEPH B. ZOBA, General Manager and Secretary

Recharge Facility or the Beaumont Cherry Valley Water District's Spreading Basins to replenish groundwater that is currently extracted by the Yucaipa Valley Water District within the Beaumont Basin. This is a high priority for the Yucaipa Valley Water District in compliance with the San Gorgonio Pass Water Agency Act, Chapter 101-15.5. This quantity of imported water is needed to meet unfulfilled prior year water demands by the San Gorgonio Pass Water Agency and existing water demands that are expected to provide a baseline of 1,200 acre feet per year of water demands. The Yucaipa Valley Water District will be prepared to recharge this quantity of imported water prior to 2020.

- *New Development Long-Term Supply: Sustainability Program* - This row within Table 12-16 identifies the quantity of imported water needed to be delivered to either the Beaumont Avenue Recharge Facility or the Beaumont Cherry Valley Water District's Spreading Basins to ensure there is sufficient water resources available to sustain new development within the service area of the Yucaipa Valley Water District.

It is my understanding that the Regional Urban Water Management Plan prepared by the San Gorgonio Pass Water Agency will provide the urban water suppliers within your service area with sufficient information to identify and quantify the available imported water supplies assigned to each agency and projected in increments of five years, from 2015 through 2035 and for average, single, and multiple-dry years. In order to facilitate the review of the Regional Urban Water Management Plan, I would appreciate three hardcopies of the Draft San Gorgonio Pass Water Agency Regional Urban Water Management Plan. Please forward the copies to Jennifer Ares, Water Resource Manager at our main office.

Please do not hesitate to contact me if there are any further questions regarding the Yucaipa Valley Water District's Urban Water Management Plan.

Sincerely,

Joseph B. Zoba
General Manager

cc: Jennifer Ares, Water Resource Manager

Wed 09/21/2016 7:29 AM

Jeff Davis <JDavis@sgpwa.com>

UWMP Numbers

To Joseph Zoba

Joe,

Here is a table from your UWMP that gets us to the 4313 AF demand on the Agency in 2020:

Table 12-16. SGPWA Wholesale Supplies – Existing and Planned Sources of Water (AF)

Imported Water Demands	2015	2020	2025	2030	2035	2040
Drinking Water Demands:						
Yucaipa Valley Water Filtration Facility	454	609	767	962	1,191	1,444
Conjunctive Use Demands:						
Local Water Banking	0	1,200	1,200	1,200	1,200	1,200
New Development Long-Term Supply						
Sustainability Program	0	2,504	3,040	3,596	4,344	3,407
Total	454	4,313	5,007	5,758	6,735	6,051

So that I can explain this in my UWMP, can you please give me a better idea of what the 1200 AF is for? I'm not sure we have ever talked about that, or if we have, I forget. That would really help me in putting together our UWMP. I get the other numbers; I think they are pretty clear. The 2504 is for your sustainability program. Any help you can provide would be great.

On a separate but related topic, I have been thinking about our cooperative agreement and the pressure from some developers to move forward immediately. I was thinking that we (you) could make it an option, if they want to be assured of proceeding this year (or, more likely, next year), to add to their fees enough water to buy spot water for their sustainability water. I could probably come up with a rough price for that. That way, if a developer wants assurance of getting water next year, he could get it by paying extra. I would price the spot water at a high rate and if we get it for less money, we would provide a refund to the developer for funds not used. If they didn't want to pay extra, then they would be taking a chance that we would have water available next year over and above annual demands for their sustainability water. If it's a wet year, they would probably get it. If it's a dry or average year, they probably would not. What do you think of providing this as an option?

Jeff Davis
San Gorgonio Pass Water Agency
General Manager
951/845-2577

Appendix D: Climate Change



Appendix G: Climate Change Vulnerability Checklist

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Climate Change Vulnerability Checklist

Changes related to climate change in the IRWM guidelines made between the 2010 and 2012 versions need to be addressed. The new IRWM plan must include a list of prioritized vulnerabilities based on the vulnerability assessment checklist as well as a plan, program, or methodology for further data gathering and analysis of the prioritized vulnerabilities. Below is the vulnerability assessment checklist for the Upper Santa Ana River IRWM planning area.

Water Demand:

Are there major industries that require cooling/processed water in your planning region?

- The Mountain View power plant brings power to more than 685,000 homes. This high energy output requires the plant to utilize municipal effluent as well as ground water for cooling. The facility loses 3,300 gallons of water per minute to evaporation from the cooling towers, but for every pound of water that evaporates approximately 1,000 BTUs of heat are extracted. It also has a water treatment plant on site that recovers 75-80% of water that would normally have been disposed of. This recycling process has kept Redlands waste water fees at some of the lowest levels in the state. Despite the fact that the plant uses thirty percent less energy compared to other plants, it is the highest polluting power plant in the state; producing 1.85 million metric tons of carbon dioxide per year.

Does water use vary by more than 50% seasonally in parts of your region?

- The Inland Empire climate varies greatly from summer to winter, and therefore water demand varies accordingly. There is a greater demand for irrigation needs during the hotter season that drives up the per capita water use.

Are crops in your region climate sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?

- Citrus trees are not tolerable of below freezing temperatures. Colder winters with freezing nights have the potential to cause significant damage to citrus crops. In response to higher temperatures, evapotranspiration rates of the plants may increase, requiring more water to be used on warmer days

Do groundwater supplies in your region lack resiliency after drought events?

- Typically groundwater supplies do not lack resiliency because groundwater is replenished and stored in wet years.

Are water use curtailment measures effective in your region?

- Conservation efforts in the area include The Water Conservation Education Program, Weather Based Irrigation Controllers Program, “climate appropriate” plant promotion with Home Depot stores and other stores and nurseries, and the water conservation demonstration garden at California State University San Bernardino. These programs have begun to address the conservation needs of the area without implementing direct curtailment measures. Commercial, industrial, and institutional water reduction plans are also in place.

Are some in stream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?

- The in stream flows are sufficient to support aquatic life because natural flows are augmented by Publically Owned Treatment Works flows that are highly treated.

Water Supply:

Does a portion of the water supply in your region come from snowmelt?

- The water supply in the region does not come from snowmelt.

Does part of your region rely on water diverted from the Delta, imported from the Colorado River or imported from other climate-sensitive systems outside of your region?

- State Water Project water has been made available to East Valley. The water for the region is currently 57% ground water, 24% State Water Project water, 17% surface water, and 2% recycled water. The region does not rely on any water imported from the Colorado River.

Does part of your region rely of coastal aquifers? Has salt intrusion been a problem in the past?

- The region does not rely on coastal aquifers, but salt intrusion could affect the function of the State Water Project, which could ultimately have an impact on water supplies.

Would your region have difficulty in storing carryover supply surpluses from year to year?

- The region would only have issues storing surplus water in times when the basins are already saturated.

Has your region faced a drought in the past during which it failed to meet local water demands?

- The region has not faced a drought in which it was unable to meet local water demands.

Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?

- The region has two invasive species, the Giant Reed and the Tamarisk Annual Grass. The Giant Reed was introduced in California in the 1820's in an attempt to help control erosion, but has since become an invasive plant. It has increased the fire fuel by 30% in the Santa Ana Basin area and also has the potential to cause major issues during floods. In addition to these issues, the Giant Reed uses 56,200 acre-ft per year in the Santa Ana River, decreasing the amount of water available to the population. Tamarisk was introduced as an ornamental planet, but has become invasive as it absorbs a large amount of water and creates salt deposits. Its seeds are dispersed by wind, have no dormancy requirements, and have a 24 hour germination period, allowing it to spread quickly and easily.

Water Quality:

Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?

- Wildfires are a threat in the region, especially during dry summers.

Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?

- Big Bear Lake has had issues with high nitrogen and nutrient levels that promote algal growth. Although the lake is no longer a main water supply source, its contaminant levels affect recreational activity. The Middle Santa Anna River Watershed has been found to have issues with pathogens and high coliform count.

Are seasonal low flows decreasing for some water bodies in your region? If so, are the reduced flows limiting the water bodies' assimilative capacity?

- Flow levels for the water bodies in the region have been consistent with weather conditions.

Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?

- Big Bear Lake is a popular recreational area for swimming, boating and fishing in the San Bernardino Mountains. It was originally created by Bear Valley Mutual Water Company to serve as a storage reservoir in order to provide agricultural water to the customers downstream. Big Bear Lake faces many water quality issues that have the potential to affect its recreational uses. In 1990 Big Bear Lake was added to California's list of impaired water bodies by the Santa Ana Regional Water Quality Control Board. A Total Maximum Daily Load was implemented in 2007 in order to protect the lake's beneficial uses. Various water bodies in the Middle Santa Ana River Watershed were also added to the list of impaired water bodies in 1994 because the fecal coliform objective was exceeded, ultimately affecting the water contact recreation of the area. The table below lists the pollutants affecting the Big Bear Lake Watershed and the Middle Santa Ana Watershed.

Table 7: Pollutants Effecting Water bodies

Santa Ana Region Pollutants	
Water Body	Pollutants
Big Bear Lake Watershed	
Big Bear Lake	Metals, Noxious aquatic plants and Nutrients, Sedimentation/Siltation, and Mercury
Grout Creek	Metals and Nutrients
Knickerbocker Creek	Metals and Pathogens
Rathbone Creek	Nutrients and Sedimentation/Siltation
Summit Creek	Nutrients
Middle Santa Ana River Watershed	
Chino Creek, Reach 1	Pathogens
Chino Creek, Reach 2	High Coliform Count
Cucamonga Creek, Valley Ranch	High Coliform Count
Mill Creek (Prado Area)	Pathogens
Santa Ana River, Reach 3	Pathogens and Nitrate
Prado Park Lake	Pathogens

Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?

- The region does not observe water quality shifts during rain events that impact water treatment facility operations.

Sea Level Rise:

Has coastal erosion already been observed in your region?

- Coastal erosion has not been observed in the region.

Are there coastal structures, such as levees or breakwaters, in your region?

- There are no coastal structures in the region.

Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation at less than six feet above mean sea level in your region?

- There is no infrastructure less than six feet above mean sea level.

Are there climate-sensitive low-lying coastal habitats in your region?

- There are no climate-sensitive low-lying coastal habitats in the region.

Are there areas in your region that currently flood during extreme high tides or storm surges?

- There are no areas in the region that flood during extreme high tides or storm surges do to coastal waters.

Is there land subsidence in the coastal area of your region?

- There is no land subsidence in the coastal area of the region.

Do tidal gauges along the coastal parts of your region show an increase over the past several decades?

- There are no coastal parts in the region.

Flooding:

Does critical infrastructure in your region lie within the 200-year floodplain?

- The 200-year floodplain is not available at this time, but infrastructure such as Crafton Elementary School lies in the 100 year floodplain provided by FEMA for The Zanja as well as many buildings along the Santa Ana.

Does part of your region lie within the Sacramento-San Joaquin Drainage District?

- The region does not lie within the Sacramento-San Joaquin Drainage District.

Does aging critical flood protection infrastructure exist in your region?

- Flood protection in the area has been in place for several decades, but improvements have been made in the last decade. The federal Santa Ana River Mainstream project includes the Seven Oaks Dam, Prado Dam, and other flood control facilities along the Santa Ana River, which provide flood protection to the residents of San Bernardino, Riverside, and Orange Counties. The Seven Oaks Dam was completed in 1999 and the construction of the SAR project began in 1989.

Have flood control facilities (such as impoundment structures) been insufficient in the past?

- Flood control facilities have failed as recently as December 2010, when several creeks and debris basins overflowed and flooded the City of Highland.

Are wildfires a concern in parts of your region?

- Wildfires have always been a concern for the region. An example would be the Old Fire in 2003, which burned 91,281 acres, destroyed 993 homes, and killed 6 people. During this incident The East Valley Water District advised residents in certain areas to boil water for drinking and eating in order to ensure that the water was safe to drink.

Ecosystem and Habitat Vulnerability:

Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?

- The region does not include inland or coastal aquatic habitats vulnerable to erosion.

Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?

- The region does not include estuarine habitats.

Do climate-sensitive fauna or flora populations live in your region?

- Climate sensitive plants live in the region.

Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?

- Endangered species live in the region.

Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?

- The region does rely on aquatic habitats for recreational purposes, as is the case for Big Bear Lake and Middle Santa Ana.

Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?

- There are rivers in the region with water quality stressors such as Middle Santa Ana.

Do estuaries, coastal dues, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?

- Exposed coastal areas do not exist in the region.

Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change?

- The region does not include any of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change.

Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?

- The region is not aware of fragmented wildlife habitat within the region, or infrastructure projects planned that might preclude species movement.

Hydropower:

Is hydropower a source of electricity in your region?

- The hydropower stations located in the area include the Santa Ana No 1 & 2, Mill Creek No 2 & 3, San Gorgonio, and Lytle Creek. These stations are owned and operated by the Southern California Edison Company and produce 12.63 MW of electricity. Below lists the generating capacity of each location.

Hydropower Station Capacity	
Hydropower Station	**Generating Capacity (MW)**
Santa Ana No 1 & 2	6.3
Mill Creek No 1 & 2	3.23
San Gorgonio	2.63
Lytle Creek	0.45
Devil Canyon	276.46
Fontana Sandhill WTP Hydropower Facility	0.31

Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generating facilities or conditions for hydropower generation in your region?

- There are currently no future plans for more hydropower generation facilities in the region.

The above checklist demonstrates the areas for which the region is most vulnerable.

Appendix E: AWWA Water Loss

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

American Water Works Association.
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? Click to access definition
+ Click to add a comment

Water Audit Report for: San Gorgonio Pass Water Agency (CA3610019)
Reporting Year: 2015 (1/2015 - 12/2015)

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

	Grading	Value		Pcnt:	Value:
Volume from own sources:	10	0.000 acre-ft/yr			acre-ft/yr
Water imported:	7	3,481.000 acre-ft/yr	7		acre-ft/yr
Water exported:	10	0.000 acre-ft/yr			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 3,481.000 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grading	Value	Pcnt:	Value:
Billed metered:	10	3,476.000 acre-ft/yr		
Billed unmetered:	10	0.000 acre-ft/yr		
Unbilled metered:	10	0.000 acre-ft/yr		
Unbilled unmetered:	10	0.000 acre-ft/yr		0.000 acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 3,476.000 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

5.000 acre-ft/yr

Apparent Losses

	Grading	Value	Pcnt:	Value:
Unauthorized consumption:	5	0.000 acre-ft/yr		0.000 acre-ft/yr
Customer metering inaccuracies:	10	3.479 acre-ft/yr	0.10%	acre-ft/yr
Systematic data handling errors:	5	0.000 acre-ft/yr		0.000 acre-ft/yr

Apparent Losses: 3.480 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1.520 acre-ft/yr

WATER LOSSES: 5.000 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 5.000 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grading	Value	
Length of mains:	10	5.4	miles
Number of active AND inactive service connections:	10	1	
Service connection density:		0	conn./mile main
Are customer meters typically located at the curbstop or property line?		No	
Average length of customer service line:	10	0.0	ft
Average operating pressure:	5	100.0	psi

(length of service line, beyond the property boundary, that is the responsibility of the utility)

COST DATA

	Grading	Value	
Total annual cost of operating water system:	10	$13,380,700	$/Year
Customer retail unit cost (applied to Apparent Losses):	8	$12.30	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	8	$157.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 80 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Unauthorized consumption
3: Systematic data handling errors

Appendix F: Yuba Accord

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

AGREEMENT FOR THE SUPPLY AND CONVEYANCE OF WATER BY THE DEPARTMENT OF WATER RESOURCES OF THE STATE OF CALIFORNIA TO THE PARTICIPATING STATE WATER PROJECT CONTRACTORS UNDER THE DRY YEAR WATER PURCHASE PROGRAM SWPAO NO. 08-827

THIS AGREEMENT is entered into as of the _____day of _____, 2014, pursuant to the provisions of the California Water Resources Development Bond Act, the State Central Valley Project Act, and other applicable laws of the State of California, between the Department of Water Resources of the State of California, herein referred to as "DWR," and Mojave Water Agency, a public agency in the State of California, herein referred to as the "AGENCY." DWR and the AGENCY are herein referred to separately as the "Party" and collectively as the "Parties."

RECITALS

A. In 2008 and probably for several years to come, because of hydrologic conditions and/or regulatory constraints, the operation of the State Water Project ("SWP") by DWR and the operation of the Central Valley Project ("CVP") by the United States Bureau of Reclamation ("Reclamation") may result in less water being made available to the south-of-Delta CVP water service contractors and the SWP contractors. In anticipation of such potential conditions, DWR is initiating a dry year water purchase program to acquire water from voluntary sellers to augment the water supplies.

B. The Yuba County Water Agency ("Yuba") is engaged in the Yuba River Accord initiative ("Yuba River Accord") to resolve issues associated with operation of the Yuba Project in a way that protects lower Yuba River fisheries and local water-supply reliability, while providing revenues for local flood control projects, water to use for protection and restoration of Delta fisheries, and improvements in state-wide water supply management.

C. The Yuba River Accord includes three major elements, all of which must be in place for the Yuba River Accord to become effective: (1) the Fisheries Agreement (dated November 3, 2007) to provide higher flows for fish in the lower Yuba River under certain conditions, (2) Conjunctive Use Agreements between Yuba and water districts within Yuba County for implementing a conjunctive use and water use efficiency program; and (3) the "Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources" (dated December 4, 2007) ("Yuba Water Purchase Agreement").

D. DWR and Yuba entered into the Yuba Water Purchase Agreement as part of the Yuba River Accord to purchase specified Components of water for the benefit of the EWA, the SWP contractors, and the member agencies of the San Luis & Delta-Mendota Water Authority ("Authority") to resolve potential conflicts concerning the accounting for water that Yuba will release pursuant to the Fisheries Agreement.

E. Reclamation determined to not be a party to the Yuba Water Purchase Agreement. Yuba and DWR will amend the Yuba Water Purchase Agreement at such time as Reclamation is willing to become a party thereto, subject to Reclamation and DWR

entering into a separate agreement for the allocation of, and payment for, water under the Yuba Water Purchase Agreement.

F. Consistent with the Yuba Water Purchase Agreement, when Yuba makes water available to DWR under the Yuba River Accord for benefit of the SWP contractors and the Authority, DWR intends to offer the water under the dry year water purchase program to the Participating SWP Contractors and to the Authority as set forth herein.

G. The SWP contractors and the Authority invested significant resources to assist DWR and Yuba with the development of the Yuba River Accord, the Yuba Water Purchase Agreement, and supporting documentation.

H. The Parties desire to enter into this water supply and conveyance agreement whereby DWR will purchase water under the Yuba River Accord for the dry year water purchase program to make available for purchase by the SWP contractors, including the AGENCY, and the Authority.

AGREEMENT

Now Therefore, in accordance with the Recitals and in consideration of the terms and conditions herein, the Parties agree to the following:

1. DEFINITIONS

When used in this Agreement, the following definitions will apply:

"**Balanced Conditions**" means the hydrologic condition of the Delta as defined in the November 24, 1986 "Agreement between the United States of America and the State of California for Coordinated Operations of the Central Valley Project and the State Water Project."

"**Banks Pumping Plant**" means a SWP facility in the south Delta owned and operated by DWR.

"CALFED" means the joint federal and California program intended to develop and implement a long-term comprehensive plan that will, among other purposes, restore ecological health of the Bay-Delta System and improve water project management.

"Carriage Water" means the water losses due to increased Delta outflow necessary to maintain baseline Delta salinity conditions as determined by DWR, that are associated with Delivered Transfer Water or Stored Released Transfer Water that is exported by CVP or SWP Delta pumping facilities.

"Component 1 Water" means the water supplies available to DWR pursuant to Section 5 of the Yuba Water Purchase Agreement.

"Component 2 Water" means the water supplies available to DWR pursuant to Section 6 of the Yuba Water Purchase Agreement.

“Component 3 Water” means the water supplies available to DWR pursuant to Section 7 of the Yuba Water Purchase Agreement.

“Component 4 Water” means the water supplies available to DWR pursuant to Section 8 of the Yuba Water Purchase Agreement.

“**Conference Year**” means a Water Year for which the North Yuba Index is less than 500,000 acre-feet, calculated according to the procedures and formulas set forth in Exhibits 4 and 5 of the Fisheries Agreement, and using the latest available forecasts for the Water Year.

“Delivered Transfer Water” means Released Transfer Water from Yuba that is accounted as being exported by the SWP and the CVP, or contributing to exports, as described in Section 5 of Exhibit 1 of the Yuba Water Purchase Agreement.

"EWA" means the Environmental Water Account program described in the CALFED Record of Decision and the EWA Operating Principles Agreement (August 28, 2000, as extended in September 2004), as extended by amendment and supplemental approvals, or a long-term environmental water account program.

“**Fisheries Agreement**” means the agreement among Yuba, the California Department of Fish and Game, and other parties, which is part of the Yuba River

Accord, and under which Yuba operates the Yuba Project to provide higher flows in the lower Yuba River under certain conditions to improve fisheries protection.

“Final Classification” means the year-type classification for the Sacramento River region in the May issue of DWR’s Bulletin 120.

"Management Committee" means the committee, consisting of one representative each from Yuba, DWR, Reclamation, the CALFED fishery agencies on behalf of EWA, SWP contractors, and the Authority, established under Section 14 ("Technical Committee and Management Committee") of the Yuba Water Purchase Agreement.

“Participating SWP Contractors” means all SWP contractors that have executed an **“**Agreement for the Supply and Conveyance of Water By the Department of Water Resources of the State of California to the Participating SWP Contractors Under the Dry Year Water Purchase Program” on or before April 1, 2008.

“**Purchased Water**” means the supply of Component 1 Water that is not used by the EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water that has been delivered by Yuba to DWR that is accounted for as Delivered Transfer Water in the manner set forth in Exhibit 1 (“Scheduling and Accounting Principles”) of the Yuba Water Purchase Agreement

and made available for the dry year water purchase program. Purchased Water includes Carriage Water or water used as Delta outflow when the Export/Inflow ratio is controlling in the time period of July 1 to January 31.

“SWP Long-Term Water Supply Contract” means the long-term water supply contract between the Parties, as amended.

"Technical Committee" means the committee, consisting of technical representatives from Yuba, DWR, Reclamation, the CALFED fishery agencies on behalf of EWA, SWP contractors, and the San Luis & Delta-Mendota Water Authority, established under Section 14 ("Technical Committee and Management Committee") of the Yuba Water Purchase Agreement.

"Water Accounting Year" means the twelve-month period commencing January 1 through December 31.

“**Water Year**” means the twelve-month period from October 1 of one year through September 30 of the following year. For this Agreement, each Water Year will be classified: (1) as "Wet," "Above-Normal," "Below-Normal," "Dry" or "Critical," based on the Sacramento Valley Water Year Hydrologic Classification in Figure 1 on page 188 of the State Water Resources Control Board's March 15, 2000, Revised Water-Right Decision 1641; or (2) as a "Conference Year."

"Yuba Project" means the Yuba River Development Project, including New Bullards Bar Dam and Reservoir on the North Yuba River.

"Yuba River Accord" means Yuba's initiative as described in Recitals B and C of this Agreement.

"Yuba Water Purchase Agreement" means the Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources, which is attached hereto as Exhibit A.

2. TERM OF AGREEMENT

A. This Agreement will become effective upon execution by the Parties and will terminate on December 31, 2025, provided, however, the Parties may terminate this Agreement on December 31, 2015, if the Parties fail to amend this Agreement pursuant to Section 3.B.5 below and as necessary to address amendments made to the Yuba Water Purchase Agreement regarding the quantity and pricing of water pursuant to Section 15 thereof; provided further that this Agreement shall remain in effect beyond the termination dates set forth above to the extent required to enable the parties to satisfy all obligations then existing or outstanding.

3. PURCHASED WATER

A. METHODS FOR ESTABLISHING ALLOCATIONS AND SHARING OF WATER

1. DWR will make available to the Participating SWP Contractors, as a group, fifty percent of the following types of water: Component 1 Water that is not used by the EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water.
2. If the AGENCY does not take some or all of the water made available to it pursuant to Section 3.A.1, then DWR will make the water not taken by the AGENCY available first to the other Participating SWP Contractors pursuant to 3.A.4 and then to the Authority pursuant to Section 3.A.5; provided, that the AGENCY will purchase all Delivered Transfer Water DWR is required to purchase from Yuba and that is made available to the AGENCY pursuant to Sections 3.A.1. through 3.A.4 if said water is not purchased by the Participating SWP Contractors or the Authority.
3. DWR will make available to the Participating SWP Contractors and the Participating SWP Contractors may accept and purchase Component 1 Water that is not used by EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water that is made available to the Authority, if the Authority elects to not take said water.
4. All water made available to the Participating SWP Contractors pursuant to Sections 3.A.1 through 3.A.3 shall be allocated among the Participating SWP Contractors as follows:

a) DWR will allocate to the AGENCY its share of Water that is made available to the Participating SWP Contractors under Sections 3.A.1 through 3.A 3 above based on the AGENCY'S maximum Table A amount in its SWP Long-Term Water Supply Contract as a proportion of the total Table A amounts provided under the Long-Term Water Supply Contracts of the Participating SWP Contractors.

b) If any Participating SWP Contractor does not request some or any of its share of the water made available pursuant to Section 3.A.3.a above, the remaining Participating SWP Contractors will have the first right to that water, and DWR will allocate that water among the remaining Participating SWP Contractors, but excluding from the calculation the maximum Table A amount of the Participating SWP Contractor(s) not requesting their full allocation. This process will repeat until all water made available pursuant to this Section 3.A.3 is allocated or no Participating SWP Contractor requests the remaining water made available.

5. DWR will offer to the Authority any Component 1 Water that is not used by the EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water made available pursuant to this Section and remaining unrequested after completing the allocation processes set forth above in Sections 3.A.4.

B. TYPES AND PRICES OF PURCHASED WATER

The AGENCY shall pay for Delivered Transfer Water made available to and accepted by the AGENCY under section 3.A above in accordance with the following sections:

1. COMPONENT 1 WATER

a) While the EWA is in effect, if the EWA does not use all of the Component 1 Water, Component 1 Water unused by the EWA will be allocated and made available by DWR to the AGENCY pursuant to Section 3.A above. The AGENCY will pay for Component 1 Water that is made available to it and accounted for as Purchased Water at the same price per acre-foot as Component 4 Water.

b) If EWA terminates and Yuba remains obligated to provide Component 1 Water, the Parties agree that Component 1 Water remaining to be delivered under the Yuba Water Purchase Agreement will be managed annually, as follows: (1) Component 1 Water in any year will be used to enhance water supply reliability of the Delta export facilities by off-setting new mandatory restrictions imposed on the CVP and SWP, including those being imposed by the federal court order in *NRDC v. Kempthorne*, or through a subsequent biological opinion for the conservation or protection of fish, and (2) if any Component 1 Water remains after off-setting the restrictions set forth in subsection (1) above, then the remaining Component 1 Water will be used as determined by DWR in

close coordination with the California Department of Fish and Game consistent with the water supply reliability project requirements of the funding source from which this water was purchased (Chapter 7(d) of Proposition 50, California Water Code Section 79550(d)).

2. COMPONENT 2 WATER

   a) For Component 2 Water that is accounted for as Purchased Water and made available in a Water Year that has a Final Classification as Dry, the AGENCY will pay $75.00 per acre-foot.

   b) For Component 2 Water that is accounted for as Purchased Water and made available in a Water Year that has a Final Classification as Critical, the AGENCY will pay $93.75 per acre-foot.

3. COMPONENT 3 WATER

   For Component 3 Water that is accounted for as Purchased Water and made available to the AGENCY, the AGENCY will pay:

   a. $25.00 per acre-foot in a Wet Year;

   b. $50.00 per acre-foot in an Above-Normal Year;

   c. $75.00 per acre-foot in a Below-Normal Year;

   d. $100.00 per acre-foot in a Dry Year;

   e. $125.00 per acre-foot in a Critical Year.

4. COMPONENT 4 WATER

   For Component 4 Water that is accounted for as Purchased Water and made available to the AGENCY, the AGENCY will pay:

a. $25.00 per acre-foot in a Wet Year;

b. $50.00 per acre-foot in an Above-Normal Year;

c. $75.00 per acre-foot in a Below-Normal Year;

d. $100.00 per acre-foot in a Dry Year;

e. $125.00 per acre-foot in a Critical Year.

5. POSSIBLE FUTURE ADJUSTMENTS TO QUANTITIES AND PRICES.

If the provisions of Section 15 of the Yuba Water Purchase Agreement require changes to the quantity or pricing of water available therein, the Parties agree that amendment of this agreement for such purposes will be a condition precedent of any amendment of the Yuba Water Purchase Agreement pursuant to Section 15 thereof. The Parties agree to meet and confer and negotiate in good faith potential changes to this Agreement.

6. UNCOMMITTED WATER

a. If Yuba notifies DWR of the availability of uncommitted Delivered Transfer Water prior to accounting for the water in the Holding Account, as set forth in Section 7.4 of Exhibit 1 (“Scheduling and Accounting Principles”) of the Yuba Water Purchase Agreement, DWR will notify the AGENCY, the Participating SWP Contractors, and the Authority of the availability of such water by September 30 of that year. Such water will be offered to the Participating SWP Contractors and to the Authority consistent with Section 3.A.

i. Within 30 days of such notice, the AGENCY will notify DWR of its request for an amount of the uncommitted water that it will purchase, if any.

ii. The amount of this water actually purchased by the AGENCY, the Participating SWP Contractors, and the Authority will be based on requests for this water by the AGENCY, the Participating SWP Contractors, and the Authority, and will not exceed the amount of water made available by Yuba. The Purchased Water that DWR will allocate to the AGENCY will be the lesser of the amount of water requested by the AGENCY or the amount allocated to the AGENCY in the manner set forth in Section 3.A above.

iii. The AGENCY will pay DWR the applicable purchase price for the water determined by the Water Year in which the water is accounted for as Delivered Transfer Water at prices set forth in Section 3.B above.

b. If Yuba has credited uncommitted Delivered Transfer Water to the Holding Account as set forth in Section 7.4 of Exhibit 1 (“Scheduling and Accounting Principles”) of the Yuba Water Purchase Agreement and the water remains in storage until the subsequent Water Accounting Year, then DWR will offer the water in the Holding Account to the Participating SWP Contractors and the Authority consistent with Section 3.A.

i. In the year that the AGENCY elects to take water from the Holding Account, that water will be credited toward the AGENCY's prorata share of the Component 3 Water with any additional deliveries credited as Component 4 Water that is accounted for as Purchased Water for the AGENCY.

ii. The AGENCY will pay DWR the applicable purchase price for the water determined by the Water Year in which the water was accounted for as Delivered Transfer Water as set forth in Exhibit 1 of the Yuba Water Purchase Agreement and at prices set forth in Section 3.B above.

4. REQUESTS, SCHEDULING AND CONVEYANCE

Scheduling and conveyance is subject to DWR's determination of conveyance capacity in SWP facilities. Scheduling and conveyance will be dependent on releases by Yuba, including the flow schedule for the lower Yuba River as provided for in the Fisheries Agreement, the North Yuba Index or the Yuba River Index, capacity of CVP and SWP facilities, and Bay-Delta conditions. In order to meet the goals of Section 6, the Parties may modify in writing the dates established in this Section 4 without amending this Agreement.

A. Requests and Scheduling

1. On or before April 11 of each Water Accounting Year, DWR will inform the AGENCY of the potential quantity of Component 1 Water if not used by the

EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water that is available to the Agency.

2. On or about April 11 of each Water Accounting Year, or as soon thereafter as practicable, the AGENCY will submit an initial request to DWR for delivery of Component 1 Water if not used by the EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water and an initial monthly schedule for delivery of the requested water. That initial monthly schedule will include the quantity of each component of water the AGENCY would like to purchase from DWR.
3. DWR and the AGENCY will, between April 11 and May 19, confer on the allocation of water under Section 3A.
4. Within 5 business days of notice from DWR that there has been a change in the amount of water available, but no later than May 19, the AGENCY will provide DWR with its modified request for each component of water.
5. No later than May 19, DWR will notify the AGENCY of the quantity of Component 1 Water if not used by the EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water that has been allocated to the Agency and that the AGENCY will schedule pursuant to Section 4.A.7 below.
6. The Parties recognize that no later than May 15 DWR must notify Yuba of the quantity of Component 4 Water that DWR will purchase from Yuba.

7. On or about May 20 of each Water Accounting Year, or as soon thereafter as practicable, the AGENCY and DWR will agree upon a final monthly schedule for delivery of Component 1 Water if not used by the EWA as provided in Section 3.B.1.a, Component 2 Water, Component 3 Water, and Component 4 Water that has been allocated to the Agency. The final schedule will be updated to accommodate any changes that affect the delivery of water as provided in Section 9 ("Scheduling of Water") of the Yuba Water Purchase Agreement. The final monthly schedule will include, pursuant to Section 3.A above, the quantity of each component of Purchased Water the AGENCY will purchase and that the AGENCY requests be delivered each month of the Water Accounting Year.
8. The final monthly schedule may be modified by mutual agreement. The AGENCY will submit copies of any proposed modifications to the final monthly schedule to DWR's State Water Project Analysis Office (SWPAO) Chief of Water Supply and Transfers Branch, and Chief of Water Deliveries Section, both at FAX number (916) 653-9628. SWPAO will coordinate with the DWR Operations Control Office in determining whether the proposed modifications to the final monthly schedule can be accommodated by DWR.
9. After DWR approves the final monthly schedule, during any week when DWR is conveying water for the AGENCY, the AGENCY will submit weekly schedules to the DWR Operations Control Office: one to the Chief, Pre-Scheduling Section, FAX (916) 574-2782, and one to the Chief, Operations

Scheduling Section, FAX (916) 574-2785. The weekly schedules will be consistent with the final monthly schedule.

10. The scheduling of Purchased Water, and any adjustments to the schedule, will be in accordance with the Exhibit 1 ("Scheduling and Accounting Principles") of the Yuba Water Purchase Agreement.

11. DWR's approval of the schedule will be subject to Section 4.B, below.

B. Conveyance

The conveyance of water under this Agreement to the AGENCY's delivery structures from the SWP facilities is subject to the terms and conditions of this Agreement, Article 55 of the AGENCY's Water Supply Contract, and applicable laws. Use of Purchased Water under this Agreement shall be restricted to the service area of the SWP. Delivery priorities shall be determined in accordance with Article 12(f) of the AGENCY's SWP Long-Term Water Supply Contract, with Purchased Water being classified as non-project water.

5. INVOICING AND PAYMENTS

DWR will invoice the AGENCY and the AGENCY will submit payment to DWR based on each invoice as provided below.

A. INVOICING AND PAYMENT OF PURCHASED WATER

1. On or after June 10 (or within 9 days of the date that DWR receives an invoice from Yuba), DWR will invoice the AGENCY for fifty percent of the payment for the estimated amount of water that the AGENCY scheduled as

Purchased Water for that calendar year minus fifty percent of any credits due to the AGENCY as provided in Section 5.C below.

2. On January 17 of the next calendar year (or within 9 days of the date that DWR receives an invoice from Yuba), DWR will invoice the AGENCY for the remaining unpaid cost for Purchased Water, including Purchased Water available pursuant to Section 3.B.6, above, purchased by the AGENCY minus the remaining credits due to the AGENCY as provided in Section 6.C below.
3. Invoices will itemize any prior payments and credits, the total due, less any additional credits.

B. INVOICE FOR CONVEYANCE, DELIVERY, ADMINISTRATIVE COSTS

1. DWR will invoice the AGENCY monthly for conveyance charges in accordance with Article 55 of the SWP Long-Term Water Supply contract. Specifically, the AGENCY shall pay the power resources (including on-aqueduct, off-aqueduct, and any other power) incurred in the conveyance of such water from the Delta for the year in which the Purchased Water is conveyed.
2. Upon execution, DWR will invoice the AGENCY a one-time administrative fee of $3,000 for preparation of this Agreement.

C. PAYMENT FOR FIXED ANNUAL COSTS AND CREDIT AGAINST PURCHASED WATER.

1. On or before February 11, or within 10 days of DWR's receipt of Yuba's invoice, each year DWR will invoice the AGENCY its share of Yuba's fixed annual costs as provided in Section 12.B of the Yuba Water Purchase Agreement. The AGENCY's payment of these fixed annual costs will be its share of up to $125,000 prorated among the Participating SWP Contractors calculated in the manner as provided in Section 3.A of this Agreement.
2. As provided in Section 5.A above, for all payments made by the AGENCY under this Subsection, DWR will provide to the AGENCY a credit against future payments due to DWR for Purchased Water, excluding Component 1 Water. If necessary, DWR will record and accrue these credits from year to year until DWR makes Purchased Water, excluding Component 1 Water, available to the AGENCY, at which time such credits will be applied toward payments due.

D. PAYMENTS FOR YUBA DIESEL CONVERSION OF GROUNDWATER PUMPS.

Within 30 days of DWR's receipt of a reviewed and verified invoice from Yuba of its conversion of pumps from diesel as provided under Section 12.A of the Yuba Water Purchase Agreement, DWR will invoice the AGENCY for up to one-half of the amount of the Yuba invoice. The AGENCY's share of Yuba's total costs for diesel conversion will not be more than its share of $500,000 prorated among the Participating SWP Contractors calculated in the manner as provided in Section 3.A of this Agreement.

E. PAYMENTS FOR ADJUSTMENTS TO GROUNDWATER O&M COSTS.

In accordance with the timing of invoices required by Section 5.A above, DWR will invoice the AGENCY for its share of Yuba's costs for any annual increases above actual 2006 Groundwater O&M Costs, as provided in Section 12.C of the Yuba Water Purchase Agreement. The AGENCY's share of Yuba's costs will be based upon the proportion of the total amount of Purchased Water delivered to the AGENCY to the total amount of water delivered to the Participating SWP Contractors and the Authority in the year that the invoice covers. If no Purchased Water is delivered in the year that the invoice covers, the Participating SWP Contractors and the Authority shall share equally the costs invoiced by Yuba to DWR and AGENCY will pay its share, which share shall be calculated in the manner as provided in Section 3.A of this Agreement.

F. PAYMENTS FOR COSTS ATTRIBUTABLE TO YUBA WATER PURCHASE AGREEMENT

The Parties agree that costs that DWR is obligated to pay to Yuba pursuant to the Yuba Water Purchase Agreement as attached hereto and that have not been identified by this Agreement, will be an obligation of the Participating SWP Contractors and the Authority. If necessary, the Parties will amend this Agreement to provide for invoicing and payment of such costs if not provided for herein.

G. TIMING OF PAYMENTS.

1. The AGENCY will pay DWR within 32 days after the AGENCY's receipt of an invoice from DWR.
2. Payment made after 32 days of receipt of invoice will be considered delinquent and interest will accrue at a rate of one percent per month for all delinquencies from the due date until paid.
3. If the AGENCY disputes a cost on an invoice, the AGENCY will make payment based on the invoice received, but will submit a notice to DWR identifying the disputed cost within 60 days of receipt of the invoice. Within 21 days after DWR receives notice of the disputed cost, the Parties will meet and confer, and if appropriate, obtain assistance from the Technical Committee and Management Committee to resolve the error or discrepancy. If the Parties resolve the dispute in a manner that recognizes a payment by the AGENCY that exceeds what is required under this Agreement, the amount of the excessive payment will be reflected by DWR pursuant to Section 6.A as a credit against future payments due from the AGENCY. DWR will reflect the credit on the next subsequent invoice it provides to the AGENCY. If the Parties cannot resolve the dispute, they will follow the dispute resolution process described in Section 10 below.

6. EFFORTS TO MAXIMIZE THE BENEFICIAL USE OF WATER

DWR will use all reasonable efforts to maximize the amount of Purchased Water available to the Participating SWP Contractors, including the AGENCY, and the

Authority. Those efforts will include, but are not limited to fully exercising its rights and obligations under the Yuba Water Purchase Agreement, coordinating with Reclamation on the operations of the SWP and CVP, and storing water in SWP facilities when Delta pumping is constrained, as provided in Section 4.3 of Exhibit 1 to the Yuba Water Purchase Agreement.

7. MEMBERSHIP ON COMMITTEES

DWR agrees that a representative of the Participating SWP Contractors will be a member of the Management Committee and Technical Committee.

8. CONFERENCE YEAR PRINCIPLES

During any Conference Year, the Parties will meet with Yuba and the other parties to the Fisheries Agreement and the Conjunctive Use Agreements to: (1) determine how to address the circumstances, and (2) discuss the operation of the Yuba Project during that Water Accounting Year. During a Conference Year, if Yuba reduces or does not deliver any Component 2, 3, or 4 Water, the AGENCY's and the Participating SWP Contractors' obligation to schedule or purchase any quantity of Purchased Water will be reduced or eliminated accordingly.

9. LIABILITY

A. DWR will not assert that the AGENCY, its directors, officers, agents or employees, are liable for damages of any nature whatsoever arising out of any

actions or omissions by DWR, its Director, officers, agents or employees, related to DWR's performance of this Agreement, where such liability is caused by an act, error or omission of DWR, its Director, officers, agents or employees.

B. The AGENCY will not assert that DWR, its Director, officers, agents or employees, are liable for damages of any nature whatsoever arising out of any actions or omissions by the AGENCY, its directors, officers, agents or employees, related to the AGENCY's performance of this Agreement, where such liability is caused by an act, error or omission of the AGENCY, its director, officers, agents or employees.

C. To the extent permitted by California law, the AGENCY will indemnify, defend and hold DWR, its Director, officers, agents and its employees safe and harmless from any and all, claims, judgments, damages, penalties, costs, liabilities and losses (including without limitation, sums paid in settlement of claims, actual attorney's fees paralegal fees, consultant fees, engineering fees, expert fees, and any other professional fees) that arise from or are related in any way to the AGENCY's activities or performance under this Agreement that are under the exclusive control of the AGENCY, including but not limited to the release, conveyance, use or distribution of water by the AGENCY for purposes of this Agreement.

D. To the extent permitted by California law, DWR will indemnify, defend and hold the AGENCY, its directors, officers, agents and its employees safe and harmless from any and all, claims, judgments, damages, penalties, costs,

liabilities and losses (including without limitation, sums paid in settlement of claims, actual attorney's fees, paralegal fees, consultant fees, engineering fees, expert fees, and any other professional fees) that arise from or are related in any way to DWR's activities or performance under this Agreement that are under the exclusive control of DWR, including but not limited to the release, conveyance, use or distribution of water by DWR for purposes of this Agreement.

10. DISPUTE RESOLUTION

A. Should any material disputes arise concerning any provision of this Agreement, or the rights and obligations of the Parties hereunder, including those involving possible termination or those that might cause the initiation of any administrative or judicial proceeding to enforce or interpret this Agreement, the Party that believes a dispute exists will notify the other Party, and the Parties will promptly meet and confer to attempt to resolve the perceived dispute.

B. If the Process described in the preceding subsection fails to resolve the dispute within thirty days, the Parties will submit the dispute to a mediator who has experience in water-related disputes. The costs of any such mediation will be borne equally by the Parties. Initiation of this mediation process will be through written notice by one Party to the other Party. The Parties reserve all of their other remedies that may be provided by law or equity in the event that such mediation fails to resolve a dispute. The Parties, in consultation with the

mediator, will use their best efforts to resolve the dispute within thirty days. Under no circumstances, however, will mediation under this Section result in a requirement that diminishes, limits or contravenes the discretion, authority or any delegated authority of the Director of DWR or the AGENCY under State law.

C. If mediation fails to resolve the dispute, and prior to commencing any legal action to resolve the dispute, the Party proposing to commence legal action will provide the other Party thirty days' written notice of such action, provided that such notice will not be required where a delay in commencing an action would prejudice the interests of the Party that intends to file suit. During the thirty-day notice period, the Parties will continue to attempt to resolve the dispute.

11. NOT A PRECEDENT

The terms and conditions set forth in this Agreement are not intended to set a precedent for any future contractual arrangements for conveying non-SWP water by DWR to the AGENCY.

12. PAYMENTS, NOTICES OR OTHER COMMUNICATIONS

The time for providing any payments, notices, or other communications specified in this Agreement may be extended within the term of this Agreement with the consent of the Parties, confirmed in writing, without requiring an amendment to this Agreement. All payments, notices, or other communications required under this

Agreement will be in writing, and will be deemed to have been duly given upon the date of service, if: (a) served personally on the Party to whom notice is to be given; (b) sent by electronic mail, and the Party to whom notice is to be given confirms receipt; or (c) on the third day after mailing, if mailed to the Party to whom payment, notice or other communication is directed, by first-class mail, postage prepaid, and properly addressed to the designated representative(s) of the Party set forth below.

DWR: Mr. Carl A. Torgersen
Chief of State Water Project Operations Office
Department of Water Resources
3310 El Camino Avenue
Post Office Box 219000
Sacramento, California 95821-9000,

And

Mr. Robert Cooke
Chief of State Water Project Analysis Office
Department of Water Resources
1416 Ninth Street, Room 1620
Post Office Box 942836
Sacramento, California 94236-0001

AGENCY:
Mr. Kirby Brill, General Manager
Mojave Water Agency
13846 Conference Center Drive
Apple Valley, California 92307-4377
(760) 946-7000

A Party may notify the other Party in writing of a change in its designated representatives, without requiring an amendment to this Agreement. Unless other timing is specified within this Agreement, DWR will provide to the AGENCY copies of any and all payments, notices or other communications it sends or receives

pursuant to the terms of the Yuba Water Purchase Agreement as soon as possible, but no later than 14 days after DWR receives, or sends, such payments, notices or other communications to Yuba and/or the Authority and/or other Participating SWP Contractors.

13. SIGNATORIES' AUTHORITY

The signatories to this Agreement represent that they have authority to execute this Agreement and to bind the Party on whose behalf they execute this Agreement.

14. COUNTERPARTS OF THIS AGREEMENT

This Agreement may be signed in any number of counterparts by the Parties, each of which will be deemed to be an original, and all of which together will be deemed to one and the same instrument. This Agreement, if executed in counterparts, will be valid and binding on a Party as if fully executed all in one copy.

15. BINDING ON SUCCESSORS/ASSIGNMENT

This Agreement will bind and inure to the benefit of the respective successors and assigns of the Party, except that, none of the obligations of the Parties set forth in this Agreement will be assigned without the prior, written approval of the other Party, which approval will not unreasonably be withheld.

16. NO THIRD-PARTY BENEFICIARIES

This Agreement will not be construed to create any third-party beneficiaries, except as set forth in this section. This Agreement is for the sole benefit of the Parties, their respective successors and assigns, and no other person or entity will be entitled to rely on or receive any benefit from this Agreement or any of its terms.

17. AMENDMENTS

A. This Agreement may be amended or modified only by written agreement approved and executed by the Parties.

B. Prior to any amendment of this Agreement, the Parties will meet and confer with the other Participating SWP Contractors and the Authority. The Parties will not agree to any amendment to this Agreement that would adversely affect the rights and obligations of the Participating SWP Contractors under each of their respective **"**Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the Participating SWP Contractors under the Dry Year Water Purchase Program" or the Authority under its "Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the San Luis & Delta-Mendota Water Authority under the Dry Year Water Purchase Program."

C. Prior to any amendment of any **"**Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the Participating SWP Contractors Under the Dry Year Water Purchase Program",

DWR will meet and confer with the AGENCY. DWR will not agree to any amendments to any **"**Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the Participating SWP Contractors Under the Dry Year Water Purchase Program" or the "Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the San Luis & Delta-Mendota Water Authority under the Dry Year Water Purchase Program" that would adversely affect the rights and obligations under this Agreement.

D. DWR will meet and confer with the AGENCY, the other Participating SWP Contractors and the Authority before agreeing to any proposed changes, amendments, or supplements to the Yuba Water Purchase Agreement. DWR will not agree to any changes, amendments, or supplements to the Yuba Water Purchase Agreement or its Exhibits that would be inconsistent with or adversely affect the Parties' rights and obligations under this Agreement, any other "Agreement for the Supply and Conveyance of Water By the Department of Water Resources of the State of California to the Participating SWP Contractors Under the Dry Year Water Purchase Program" or under the "Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the San Luis & Delta-Mendota Water Authority under the Dry Year Water Purchase Program."

18. OPINIONS AND DETERMINATIONS

Where the terms of this Agreement provide for action to be based upon the opinion, determination, approval or review of either Party, such terms are not intended to be, and will not be construed as permitting such actions to be arbitrary, capricious or unreasonable. Any opinion, determination, approval or review required of a Party under this Agreement will be provided in a timely manner.

19. REASONABLE COOPERATION

The Parties will reasonably cooperate with each other, including the execution of all necessary documents and providing assistance in obtaining approvals and permits from regulatory agencies required to perform the obligations under this Agreement and to carry out the purpose and intent of this Agreement.

20. CONSTRUCTION AND INTERPRETATION

This Agreement is entered into freely and voluntarily. This Agreement has been arrived at through negotiation, and each Party has had a full and fair opportunity to revise the terms of this Agreement. Consequently, the normal rule of construction that any ambiguities are to be resolved against the drafting party will not apply in construing or interpreting this Agreement.

21. COMPLETE CONTRACT

This Agreement constitutes the sole, final, complete, exclusive and integrated expression and statement of the terms of this Agreement among the Parties

concerning the subject matter, and supersedes all prior negotiations, representations or agreement, either oral or written, that may be related to the subject matter of this Agreement, except as to those other agreements that are expressly referred to in this Agreement.

22. **DETERMINATION OF UNENFORCEABLE PROVISIONS**

If any term or provision of this Agreement is deemed invalid or unenforceable by any court of final jurisdiction, the Parties will meet and attempt to address this situation pursuant to the provisions of Section 10 of this Agreement.

23. WAIVER

The waiver at any time by a Party of its rights with respect to a default or other matter arising in connection with this Agreement will not be deemed a waiver with respect to any other default or matter.

24. TIME

Time is of the essence in this Agreement. Any date specified in this Agreement may be changed with the written consent of the Parties.

25. APPLICABLE LAW

This Agreement will be construed under and will be deemed to be governed by the laws of the State of California.

26. VENUE

Any appropriate County under California law will be venue for any state court litigation concerning the enforcement or interpretation of this Agreement.

27. REMEDIES NOT EXCLUSIVE

The remedies provided in this Agreement are cumulative and not exclusive, and are in addition to any other remedies that may be provided by law or equity. The exercise by the Party of any remedy under this Agreement will be without prejudice to the enforcement of any other remedy.

28. OFFICIALS NOT TO BENEFIT

No member or delegate to Congress, Resident Commissioner, or Federal or State official will be admitted to any share or part of this Agreement or to any benefit that may arise therefrom.

29. STANDARD CLAUSES

With respect to the mutual obligations of the Parties under this Agreement, the Parties will comply with the Standard Clauses as shown on Exhibit B ("State of California Standard Clauses") to this Agreement for the State of California, Contracts with Public Entities.

30. EXHIBITS INCORPORATED

Each exhibit to which reference is made is deemed incorporated in this Agreement, whether or not actually attached.

IN WITNESS WHEREOF, the Parties hereto, by their authorized representatives, have executed this Agreement on the last date set forth below.

Approved as to legal form and sufficiency:	STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
_____ Chief Counsel	_____ Mark Cowin, Director
_____ Date	_____ Date
Approved as to legal form and sufficiency:	Mojave Water Agency
_____ General Counsel	_____ General Manager
_____ Date	_____ Date

Attachments:

Exhibit A: Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources (December 4, 2007)

Exhibit B: DWR Standard Clauses

EXHIBIT A

AGREEMENT FOR THE LONG-TERM PURCHASE OF WATER FROM YUBA COUNTY WATER AGENCY BY THE DEPARTMENT OF WATER RESOURCES

EXHIBIT B

DEPARTMENT OF WATER RESOURCES STANDARD CLAUSES
FOR
AGREEMENT FOR THE SUPPLY AND CONVEYANCE OF WATER
BY THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF CALIFORNIA
TO THE AGENCY
UNDER
THE DRY YEAR WATER PURCHASE PROGRAM

Worker's Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employee to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of work under this Agreement.

Nondiscrimination Clause. During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40*),* marital status, and denial of family care leave. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code §12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Agreement.

Compliance with Laws, Regulations, Permit Requirements. Contractor shall at all times comply with, and require its contractors and subcontractors to comply with, all applicable federal and State laws, rules and regulations, permits and all applicable local ordinances, specifically including but not limited to environmental, procurement and safety laws, rules, regulations, permits and ordinances.

Availability of Funds. Work to be performed under this contract is subject to the availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of $10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after the final payment under the contract (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: The address of the AGENCY as shown in Section 12 of this Agreement.

Drug-Free Workplace Certification. By signing this contract, the Contractor or grantee hereby certifies under penalty of perjury under the laws of the State of California that the Contractor or grantee will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.

2. Establish a Drug-Free Awareness Program to inform employees about all of the following:

   a) The dangers of drug abuse in the workplace,

b) The person's or organization's policy of maintaining a drug-free workplace,

c) Any available counseling, rehabilitation, and employee assistance programs; and

d) Penalties that may be imposed upon employees for drug abuse violations.

3. Every employee who works on the proposed contract or grant:

a) Will receive a copy of the company's drug-free policy statement, and

b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or grant.

This contract or grant may be subject to suspension of payments or termination, or both, and the contractor or grantee may be subject to debarment if the Department determines that: 1) the Contractor or grantee has made a false certification, or 2) the Contractor or grantee violates the certification by failing to carry out the requirements noted above.

Americans with Disabilities Act. By signing this contract, Contractor assures the State that it complies with the Americans With Disabilities Act (ADA) of 1990, 942 U.S.C.12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Conflict of Interest. Current State Employees: a) No officer or employee shall engage in any employment activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity or enterprise is required as a condition of regular State employment. b) No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

Former State Employees: a) For the two year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

Child Support Compliance Act. For any agreement in excess of $100,000, the Contractor acknowledges in accordance herewith, that:

1. The Contractor recognizes the importance of child and family support obligations and shall full comply with all applicable State and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earning assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code; and

2. The Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the Employment Development Department.

Air or Water Pollution Violation. Under the State laws, the Contractor shall not be: 1) in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution control district; 2) subject to cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste discharge requirements or discharge prohibitions; or 3) finally determined to be in violation of federal law relating to air or water pollution.

Union Organizing. For all contracts, except fixed price contracts of $50,000 or less, the Contractor acknowledges that: by signing this Agreement the Contractor hereby acknowledges the applicability of Government Code Section 16645 through Section 16649 to this Agreement and agrees to the following:

1. Contractor will not assist, promote or deter union organizing by employees performing work on a State service contract, including a public works contract.

2. No State funds received under this Agreement will be used to assist, promote or deter union organizing.

3. Contractor will not, for any business conducted under this Agreement, use any State property to hold meetings with employees or supervisors, if the purpose of such meetings is to assist, promote or deter union organizing,

unless the State property is equally available to the general public for holding meetings.

4. If Contractor incurs costs or makes expenditures to assist, promote or deter union or organizing, Contractor will maintain records sufficient to show that no reimbursement from State funds has been sought for these costs, and that the Contractor shall provide those records to the Attorney General upon request.

Recycling Certification. Contractor shall certify in writing under penalty of perjury, the maximum, if not exact, percentage of recycled content, both post consumer water and secondary waste as defined in Public Contract Code, Section 12161 and 12200, in materials, goods, or supplies offered or products used in the performance of this Agreement, regardless of whether the product meets the required recycled product percentage as defined in Public Contract Code, Sections 12161 and 12200. Contractor may certify that the product contains zero content. (PCC 10233, 10308.5, 10354)

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

AMENDMENT NO. 1 TO THE AGREEMENT FOR THE SUPPLY AND CONVEYANCE OF WATER BY THE DEPARTMENT OF WATER RESOURCES OF THE STATE OF CALIFORNIA TO THE PARTICIPATING STATE WATER PROJECT CONTRACTORS UNDER THE DRY YEAR WATER PURCHASE PROGRAM SWPAO NO. 09-827

THIS AMENDMENT NO. 1 ("Amendment") to the _____, 2014 "Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California to the Participating State Water Project Contractors under the Dry Year Water Purchase Program" ("Agreement") is entered into as of the _____day of _____, 2014, pursuant to the provisions of the California Water Resources Development Bond Act, the State Central Valley Project Act, and other applicable laws of the State of California, between the Department of Water Resources of the State of California, herein referred to as "DWR," and the Mojave Water Agency, a public agency in the State of California, herein referred to as the "AGENCY." DWR and the AGENCY are herein referred to separately as the "Party" and collectively as the "Parties."

The Parties hereby amend the Agreement as follows:

1. Item no. 9 (at page 55) Section 1 ("General Principles") of Exhibit 2 ("Reservoir Refill Accounting Provisions") of Exhibit A ("Long-Term Purchase of water from Yuba County Water Agency by the Department of water Resources") is revised to read as follows:

"If the Transfer Amount Account is not zero on September 30, then the remaining balance of the account will be carried forward to the subsequent water year and the impact accounting will continue until the outstanding balance is eliminated. Exception: If the difference in storage between the Actual Storage and the maximum baseline storage, on September 30th is less than the remaining balance of the previous year plus the Base Transfer (see item 1 above), then the transfer amount account will be reset to the difference between actual storage and the maximum baseline storage amount."

2. All remaining provisions of the Agreement will remain in full force and effect.

The foregoing is hereby agreed to by the Parties.

IN WITNESS WHEREOF, the Parties hereto, by their authorized representatives, have executed this Agreement on the last date set forth below.

Approved as to legal form and sufficiency:	STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
_____ Cathy Crothers, Chief Counsel	_____ Mark W. Cowin, Director
_____ Date	_____ Date
Approved as to legal form And sufficiency:	Mojave Water Agency
_____	_____ Mr. Kirby Brill, General Manager
_____ Date	_____ Date

Exhibit for Notice to Contractors

Memo Justifying Proposed Change in Exhibit 2 “Reservoir Refill Accounting Provisions”

MEMO

DATE: October 20, 2008

FROM: Technical Committee - Lower Yuba River Accord Water Purchase Agreement

TO: Management Committee - Lower Yuba River Accord Water Purchase Agreement

RE: Proposed Change in Exhibit 2 "Reservoir Refill Accounting Provisions"

The 2008 water transfer is the first year of the long term water transfer between Yuba County Water Agency (YCWA) and the Department of Water Resources (DWR). In 2007 YCWA and DWR completed a transfer to the Environmental Water Account (EWA) under a pilot program. The 2007 transfer resulted in the delivery of 125 TAF of stored water from New Bullards Bar Reservoir to DWR. According to the long term transfer water purchase agreement (Agreement), the storage space in New Bullards Bar Reservoir evacuated as a result of the release of transfer water must be refilled at a time of excess Delta conditions, or an impact is accounted for and the impact volume must be repaid through the release of additional transfer water at a later date. Exhibit 2 of the Agreement contains the accounting steps for determining if a refill impact has occurred. Exhibit 1 of the Agreement contains the procedures for determining the daily transfer flows. According to the refill accounting procedures of Exhibit 2, none of the 125TAF of transfer water from 2007 was refilled in the winter of 2008. As described in more detail below, the accounting of water releases under Exhibit 1 showed that some of the 2007 transfer had actually been refilled. The Technical Committee believes that an additional accounting step is required in Exhibit 2. If Exhibit 2 refill accounting were to remain without the proposed changes of this memo, the accounting in Exhibit 2 would differ from the accounting in Exhibit 1 as of October 1, 2008.

The accounting in Exhibit 1 is accomplished by tracking two sets of daily flows and storage amounts; 1) the actual flows in the Yuba River and storage of New Bullards Bar Reservoir and 2) a determination of the daily flows and resulting storage that would have occurred absent the Agreement and the Lower Yuba River Accord Fisheries Agreement (the Baseline). The primary purpose of Exhibit 1 is to account for the amount of transfer water that is delivered to DWR from the Yuba River. This is accomplished by tracking the actual daily flows and comparing them with computed Baseline daily flows. Since this process must be continuous, it also provides an accounting of the Baseline New Bullards Bar storage and the resulting reduction in flows in the Yuba River due to refilling New Bullards Bar storage in the winter. The determination of transfer flows is tracked through a number of accounting controls to assure DWR that increased releases for transfer are actually occurring. However, in the wintertime, in moderate weather years the ability to determine the exact volume of release that would have occurred under the Baseline is less precise, since this is typically not a transfer time period, and the

ability of DWR to verify these flows is limited, and to a degree affected by YCWA wintertime power production/hydrology risk real-time operations determination. This lack of precision and verification of wintertime operations is the reason Exhibit 2 is in place.

The procedures of Exhibit 2 determine the volume of impact to the Projects due to refill (refill impact) by setting a Target Storage Line that is a "maximum storage operation". If Baseline storage in New Bullards Bar Reservoir, calculated by adding actual storage and unrefilled transfer amount, is above the Target Line, the unrefilled transfer amount is reduced by the volume above the Target Line. And, if the Delta is in balanced conditions, a refill impact of that volume is determined. This system works well as a verifiable method for determining a refill impact for a single year transfer. However, since the reduction of unrefilled transfer volume is only taken when baseline storage is at the Target Line, which is a maximum storage operation, no reduction in the unrefilled transfer volume occurs when New Bullards Bar reservoir is refilling, but baseline storage is below the Target Line. This occurred in the winter of 2008 and is expected to occur in years that are moderately dry. The procedures of Exhibit 2 are to a degree affected by YCWA wintertime power production/hydrology risk real-time operations determination.

As previously stated, Exhibit 1 accounting is computed on a daily basis throughout the year, including a determination of Baseline storage and releases from New Bullards Bar Reservoir. By extension, Exhibit 1 also includes refill of the New Bullards Bar storage, and the effect of that refill on Yuba River flows. The method for refill tracking in Exhibit 2 is different from the method in Exhibit 1, and in dryer year conditions, such as the conditions seen in 2008, results in a difference in the amount of transfer water yet to be refilled between the two accounting methods. The difference results because Exhibit 2 does not have a procedure for adjusting the unfilled amount from a previous year's transfer when the previous year is moderately dry. The Technical Committee has developed a straightforward change to the accounting procedures in Exhibit 2 that would adjust the previous years' remaining refill volume of moderately dry years to be used in the determination of refill impacts.

The Technical Committee has recognized a need to adjust the accounting procedures and had discussed it during several operations-coordination conference calls during the spring and early summer. A meeting at the Joint Operations Center (JOC) was held on June 15th 2008 to review the issue in detail and to come to agreement on a solution. The meeting attendees were John Lehigh and Andy Chu from DWR, Jeff Sandberg from USBR and Steve Grinnell and Jeff Weaver for YCWA. Following a detailed discussion of the issues and possible measures to be added to the accounting, it became clear that the best method was to include a "reset" of the previous years' transfer amount in Exhibit 2. The proposed solution is to modify Exhibit 2 by adding a limit on the amount of previous year transfer volume at the start of the refill period, October 1, to the lesser of; 1) the unrefilled transfer volume from the previous year plus the current year transfer as currently described in Exhibit 2, or 2) the difference in storage between actual storage and baseline storage on September 30.

The proposed change to Exhibit 2 is to change item 9 on page 55 from;

"9) If the Transfer Amount Account is not zero on September 30, then the remaining balance of the account will be carried forward to the subsequent water year and the impact accounting will continue until the outstanding balance is eliminated."

to;

"9) If the Transfer Amount Account is not zero on September 30, then the remaining balance of the account will be carried forward to the subsequent water year and the impact accounting will continue until the outstanding balance is eliminated. *Exception: If the difference in storage between the Actual Storage and the maximum baseline storage, on September 30th is less than the remaining balance of the previous year plus the Base Transfer (see item 1 above), then the transfer amount account will be reset to the difference between actual storage and the maximum baseline storage amount.*

The practical result of this adjustment is that refill accounting under the Agreement will continue to have the static, verifiable refill accounting of Exhibit 2, while recognizing that the accounting of Exhibit 1 is more precise in determining day to day differences in flows and storage between the accounting Baseline and actual flows and storage during moderate conditions for the purpose of accounting the amount of transfer water.

The technical committee, in examining this issue has also recognized that this addition to Exhibit 2 may not cover all circumstances that might arise due to the complexity of YCWA operations and the complexity of the accounting. It was unanimously agreed that although this solution will address the previous year's unrefilled amount in the Exhibit 2 refill accounting, further adjustments might be needed in the future to address unique and rare circumstances.

The Technical Committee requests that the Management Committee review the proposed change and incorporate it into Exhibit 2 of the Water Purchase Agreement.

STATE OF CALIFORNIA

THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

AMENDMENT 5 TO THE AGREEMENT FOR THE SUPPLY AND CONVEYANCE OF WATER BY THE DEPARTMENT OF WATER RESOURCES OF THE STATE OF CALIFORNIA TO THE PARTICIPATING STATE WATER PROJECT CONTRACTORS UNDER THE DRY YEAR WATER PURCHASE PROGRAM SWPAO NO. 14-827

THIS AMENDMENT 5 (Amendment) to the _____, 2014 "Agreement for the Supply and Conveyance of Water by the Department of Water Resources of the State of California Under the Dry Year Water Purchase Program" (Participation Agreement, or Agreement) is entered into as of the _____ day of _____ , 2014 pursuant to the provisions of the California Water Resources Development Bond Act, the State Central Valley Project Act, and other applicable laws of the State of California, between the Department of Water Resources of the State of California, herein referred to as "DWR," and the Mojave Water Agency, a public agency in the State of California, herein referred to as the "AGENCY." DWR and the AGENCY are herein referred to separately as the "Party" and collectively as the "Parties." Unless otherwise provided in this Amendment, the definitions in the Agreement, the Yuba Water Purchase Agreement, and the exhibits to that agreement shall apply to this Amendment.

RECITALS

A. Under the December 4, 2007 "Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources" (Yuba Water Purchase Agreement), Yuba County Water Agency (Yuba) makes surface water available for delivery and purchase by DWR, some of which is made available through substitution of groundwater for surface flows that would otherwise be used by a number of water districts within Yuba County (Member Units).

B. In 2007 and 2008, 21 State Water Project (SWP) Contractors and the San Luis & Delta-Mendota Water Authority ("AUTHORITY") entered into agreements with DWR for the purchase and delivery of the water made available under the Yuba Water Purchase Agreement (cumulatively referred to as the Participation Agreements). The Participating SWP Contractors and the AUTHORITY are jointly referred to as "Participating Contractors".

C. In 2009, the parties to the Yuba Water Purchase Agreement executed the first amendment to the Yuba Water Purchase Agreement to address a technical reservoir refill accounting provision in Section 1 of Exhibit 2. DWR and the Participating Contractors executed conforming amendments (Amendment Number 1) to each of the Participation Agreements. This amendment is still in effect.

D. In 2009 and 2010, the parties to the Yuba Water Purchase Agreement executed the second and third amendments to the Yuba Water Purchase Agreement to make groundwater substitution water available to DWR for purchase as Component 4 Water at mutually agreed upon pricing. DWR and the Participating Contractors executed conforming amendments to each of the Participation Agreements. Both the second and third amendments have since expired.

E. On January 6, 2012, the parties to the Yuba Water Purchase Agreement executed the fourth amendment to the Yuba Water Purchase Agreement providing for annual pricing negotiations for surface flows made available from groundwater substitution. DWR and the Participating Contractors executed conforming amendments (Amendment Number 4) to each of the Participation Agreements. Amendment 4 expires on December 31, 2015.

F. The term of the Yuba Water Purchase Agreement is through December 31, 2025, or when all obligations thereunder have been satisfied, whichever is later, unless it is terminated earlier.

G. Under Section 15 of the Yuba Water Purchase Agreement, a new amendment is needed to establish prices for water made available after September 30, 2015.

H. In accordance with Section 15 of the Yuba Water Purchase Agreement, DWR and Yuba, in coordination with representatives of the Participating Contractors, have negotiated a new pricing agreement that will be incorporated into the Yuba Water Purchase Agreement by the fifth amendment to that agreement. The fifth amendment reflects changes in market conditions since the initial pricing schedule was proposed in 2004, as well as amending other provisions of that agreement.

I. In light of the new pricing agreement reflected in the fifth amendment to the Yuba Water Purchase Agreement, the parties to the Participation Agreements desire to amend their respective Participation Agreements to conform with changes made by that amendment. This fifth amendment to the Participation Agreement shall be referred to in this Amendment as "Amendment 5".

AMENDMENT 5 to the Participation Agreement

Now Therefore, the Parties hereby amend the Participation Agreement as follows:

1. SECTION 1 , "DEFINITIONS", is amended as follows:

(a) By adding at the end the following new definition:

""**Contributing Participating Contractor**" means any Participating Contractor that elects to contribute money towards the $20,000,000 deposit for purchases of Water from Yuba as described in Section 25 of the Yuba Water Purchase Agreement."

(b) By amending the definition of Participating SWP Contractors to read as follows:

""**Participating SWP Contractors**" means all SWP contractors that have executed a Participation Agreement, Amendment 1 conforming the Participation Agreement to the first amendment to the Yuba Water Purchase Agreement, and Amendment 5 conforming the Participation Agreement to the fifth amendment to the Yuba Water Purchase Agreement. However, a contractor that executes this Amendment 5 will not be considered a Participating SWP Contractor beyond December 31, 2020 if that contractor does not agree to amend its Participation Agreement prior to December 31, 2020."

(c) By amending the definition of Yuba Water Purchase Agreement by adding after "Exhibit A": ", and as amended".

2. EFFECTIVE DATE OF AMENDMENT

Amendment 5 to the Participation Agreement shall take effect when all of the following have occurred: (i) execution by the Parties; (ii) execution of the same or substantively similar amendments by DWR and all other Participating Contractors that elect to participate beyond December 31, 2015; and (iii) execution of the fifth amendment to the Yuba Water Purchase Agreement by DWR and Yuba.

3. SECTION 2, "TERM OF THE AGREEMENT", is amended by adding at the end the following new subparagraphs :

"B. Notwithstanding Subparagraph A, the Parties may terminate the Participation Agreement on December 31, 2020, if they fail to amend the Participation Agreement pursuant to Section 3.B.5 and as necessary to address amendments made to the Yuba Water Purchase Agreement regarding the quantity and pricing of Water to be made available by Yuba after September 30, 2020 pursuant to Section 15 of the Yuba Water Purchase Agreement.

C. Notwithstanding Subparagraphs A and B, the Agreement shall remain in effect beyond the termination dates set forth above to the extent required to enable the Parties to satisfy all payment and water delivery obligations then existing or outstanding at the time of termination."

4. CHANGES TO SECTION 3, "PURCHASED WATER"

a. Section 3.B.1.a, "COMPONENT 1 WATER", is amended to read as follows:

"a. For Component 1 Water that is accounted for as Purchased Water and made available to the AGENCY, the AGENCY will pay:

i. $50 per acre-foot in a Wet Year;
ii. $100 per acre-foot in an Above Normal Year;
iii. $150 per acre-foot in a Below Normal Year;
iv. $200 per acre-foot in a Dry Year, except as provided in subsection vi;
v. $300 per acre-foot in a Critical Year, except as provided in subsection vi;
vi. $350 per acre-foot in two or more consecutive Final Classification Dry Years (or a Dry Year following a Critical Year) or in two or more consecutive Final Classification Critical Years.
vii. Notwithstanding subsections i-vi, in any year in which Yuba's Third-Party Transfer of up to 10,000 acre-feet of Storage Component water under

Section 11 of the Yuba Water Purchase Agreement reduces the quantity of Component 2 Water available to the AGENCY, the price for Component 1 Water will reflect the reductions specified in Section 11.F.2 of such agreement."

b. Section 3.B.2, "COMPONENT 2 WATER", is amended to read as follows:

"For Component 2 Water that is accounted for as Purchased Water and made available to the AGENCY, the AGENCY will pay:

a. $160 per acre-foot in a Dry Year, except as provided in subsection c;
b. $200 per acre-foot in a Critical Year, except as provided in subsection c;
c. $280 per acre-foot in two or more consecutive Final Classification Dry Years (or a Dry Year following a Critical Year) or in two or more consecutive Final Classification Critical Years."

c. Section 3.B.3, "COMPONENT 3 WATER", is amended to read as follows:

"For Component 3 Water that is accounted for as Purchased Water and made available to the AGENCY, the AGENCY will pay:

a. $50 per acre-foot in a Wet Year;
b. $100 per acre-foot in an Above Normal Year;
c. $150 per acre-foot in a Below Normal Year;
d. $200 per acre-foot in a Dry Year, except as provided in subsection f;
e. $300 per acre-foot in a Critical Year, except as provided in subsection f;
f. $350 per acre-foot in two or more consecutive Final Classification Dry Years (or a Dry Year following a Critical Year) or in two or more consecutive Final Classification Critical Years."

d. Section 3.B.4, "COMPONENT 4 WATER", is amended to read as follows:

"a. Notwithstanding any other provision to the contrary of the Yuba Water Purchase Agreement, the following provisions shall apply to Groundwater Substitution Component water and Accrued Groundwater Substitution Component water made available by Yuba, through DWR, to the AGENCY beginning on January 1, 2016 and continuing through the term of this Agreement.

b. Component 4 water shall be comprised solely of Groundwater Substitution Component water. All Groundwater Substitution Component water shall be accounted for as Component 4 Water. Except as otherwise provided herein, Groundwater Substitution Component water and Accrued Groundwater Substitution Component water will be accounted for in accordance with the provisions of the Yuba Water Purchase Agreement.

c. In every year within the term of this Agreement when one or more Participating Contractor(s) desire to purchase Accrued Groundwater Substitution Component water from Yuba through DWR, the Management Committee representatives of DWR, Yuba, and the Participating Contractors will convene by February 15 and conclude by March 31 to negotiate the price per acre-foot of Accrued Groundwater Substitution Component water, any provisions for the Delta export priority for such water, and any other terms applicable to the Accrued Groundwater Substitution Component water.

d. In every Water Accounting Year when: (1) one or more Participating Contractor(s) desire to purchase Accrued Groundwater Substitution Component water; (2) the annual negotiations referenced in Section 3.B.4.c have reached a successful conclusion calling for the purchase of such water that year; (3) the Management Committee representatives for Yuba, the AUTHORITY, and the Participating SWP Contractors have agreed as to the terms of, and each of these representatives has recommended in writing said terms and the approval of, a letter agreement between Yuba and DWR establishing the price per acre-foot and any modified terms that will be applicable to the Accrued Groundwater Substitution Component water for that Water Accounting Year; and (4) DWR and Yuba have executed said letter agreement, DWR will offer in writing to the AGENCY the opportunity to purchase Accrued Groundwater Substitution Component water at the price and terms as provided in the letter agreement between DWR and Yuba."

5. CHANGES TO SECTION 4, "REQUESTS, SCHEDULING AND CONVEYANCE"

a. Section 4.A.1 is amended to read as follows:

"1. On or before April 1 of each year during the term of this Agreement DWR will notify the AGENCY of the quantity of Accrued Groundwater Substitution Component water that Yuba will make available during the Water Accounting Year and the terms of such water, including the price per acre-foot, and any other applicable terms. On or before April 11 of each Water Accounting Year, DWR will inform the AGENCY of the potential quantity of Component 1 Water, Component 2 Water, and Component 3 Water that is available to the AGENCY."

b. Section 4.A.2 is amended by striking "if not used by the EWA, as provided in Section 3.B.1a".

c. Section 4.A.3 is amended to read as follows:

"3. DWR and the AGENCY will, between April 11 and May 14, confer on the allocation of water under Section 3A. By April 13, the AGENCY will notify DWR of the quantity of Accrued Groundwater Substitution Component water it commits to purchase based on the price and terms for Groundwater Substitution Component water for that year. The AGENCY may adjust the quantity of water, up or down, on or before May 14, and on May 14 the AGENCY will commit to the final quantity of Accrued Groundwater Substitution Component water to be purchased during the Water Accounting Year, but such amount will not be less than the actual amount of Accrued Groundwater Substitution Component water made available between April 1 and May 15 for Groundwater Substitution Component water in accordance with the accounting provisions for Groundwater Substitution Component water set forth in Exhibit 1 of the Yuba Water Purchase Agreement. This provision is intended to be consistent with, and not modify, provisions of Section 4.A.5. If necessary, the dates herein may be adjusted if approved in writing by Yuba and DWR with written notice to the AGENCY to allow the Yuba Member Units to maximize the quantities of groundwater substitution pumping program water that could be made available during each year**.**"

d. Section 4.A.4 is amended to read as follows:

"4. No later than May 19, DWR will notify the AGENCY of the quantity of Component 1 Water, Component 2 Water, and Component 3 Water that has been allocated to the AGENCY and that the AGENCY will schedule pursuant to Section 4.A.7."

e. Section 4.A.5 is amended to read as follows:

"5. The AGENCY will provide DWR not less than 24 hours notification for suspension or termination of groundwater pumping due to limitations on the ability of the AGENCY to divert the Groundwater Substitution Component water. In the event of such a suspension or termination of Groundwater Substitution Component water, the AGENCY will pay for its allocated share of the quantity of Accrued Groundwater Substitution Component water, up to and including through a 72-hour period commencing after DWR notifies Yuba to suspend or terminate pumping related to the amount of Groundwater Substitution Component water requested by the AGENCY unless another Participating Contractor purchases that Accrued Groundwater Substitution Component water."

f. Section 4.A.6 is amended to read as follows:

"6. Pursuant to the negotiations described in Section 3.B.4.c in which a letter agreement has been executed as provided in Section 3.B.4.d, the AGENCY will comply with Delta conveyance priority, as determined by the Management Committee representatives as provided in Section 3.B.4.c, for any Groundwater Substitution Component water requested under the Agreement, relative to any other transfer water that DWR conveys at the Harvey O. Banks Pumping Plant for the AGENCY, provided that the Groundwater Substitution Component water will not have a higher priority than Storage Component water provided under the Agreement."

g. Section 4.A.7 is amended by striking "if not used by the EWA, as provided in Section 3.B.1.a".

h. Section 4.A. is further amended by adding at the end the following new paragraph 12:

"12. In the event that Yuba notifies DWR on or before September 1 to not back a specified quantity of Released Transfer Water into Project storage after September 30 of a Water Accounting Year, DWR will notify the AGENCY within five business days and provide an opportunity for the AGENCY to guarantee, no later than September 15, purchase of that portion of such water allocated to the AGENCY in accordance with Section 3.A at the current year pricing regardless of whether it becomes Delivered Transfer Water. Such water, when stored in Project storage, will be released in a subsequent year to the AGENCY provided it was stored in Project storage and not spilled by flood control releases before its scheduled release."

6. CHANGES TO SECTION 5, "INVOICING AND PAYMENTS"

a. Section 5.A.1 is amended to read as follows:

"A. Invoicing and Payment of Purchased Water

1. On or about May 22 (or within 9 days of the date that DWR receives an invoice from Yuba), DWR will invoice the AGENCY for fifty percent of the payment for the estimated amount of Storage Component water that the AGENCY scheduled as Purchased Water for that calendar year minus any credits due to the AGENCY as provided in Sections 5.C and 5.D. DWR will simultaneously invoice the AGENCY for 50 percent of the amount of Accrued Groundwater Substitution Component water that the AGENCY has committed to purchase under Section 4.A.3. Within 32 days of the date that

the AGENCY receives an invoice from DWR, the AGENCY will submit payment to DWR."

b. Section 5.A. is amended further by: redesignating Section 5.A.2 as 5.A.3, Section 5.A.3 as 5.A.4, and adding a new Section 5.A.2 as follows:

"2. a. The AGENCY will pay DWR the per acre foot price for the quantity of Accrued Groundwater Substitution Component water that the AGENCY has committed to purchase pursuant to Section 4.A.3, unless this amount is reduced pursuant to Sections 4.A.5 or 5.A.2.b or is reduced because the Yuba Member Units do not pump the requested quantity of groundwater substitution pumping program water for the Groundwater Substitution Component water.

b. The Parties acknowledge that Section 5.1.8 of the Yuba Accord Fisheries Agreement allows the River Management Team to schedule the release of a portion of Groundwater Substitution Component water at a time when it might not be transferable. The AGENCY will not be required to pay for the portion (if any) of Groundwater Substitution Component water that is scheduled for release in accordance with the provisions of Section 5.1.8 of the Yuba Accord Fisheries Agreement to the extent that this quantity of Groundwater Substitution Component water is not transferable under the accounting provisions set forth in Exhibit 1 of the Yuba Water Purchase Agreement.

c. On or about August 30 in each year that the AGENCY has agreed to purchase Accrued Groundwater Substitution Component water, DWR will submit an invoice to the AGENCY for 90 percent of the amount of Accrued Groundwater Substitution Component water the AGENCY has committed to purchase in Section 4.A.3 or that is otherwise payable under this Agreement during the current Water Accounting Year, less the amount of prior invoices for such Accrued Groundwater Substitution Component water during the current Water Accounting Year. Within 32 days of the date that the AGENCY receives an invoice from DWR, the AGENCY will submit payment to DWR.

d. Approximately 30 days after the end of the release of Accrued Groundwater Substitution Component water from New Bullards Bar Reservoir, after confirmation of the amount of Groundwater Substitution Component water released has been completed, after Yuba and DWR have reached agreement on the final accounting, and Yuba has provided to DWR a final invoice that is undisputed and as required under the Yuba Water Purchase Agreement, DWR will invoice the AGENCY for final payment for Accrued Groundwater Substitution Component water

provided under this Amendment. The AGENCY will submit payment to DWR within 32 days of invoicing by DWR.

e. The final payment for Accrued Groundwater Substitution Component water will reflect any adjustments necessary to account for the total quantity of Accrued Groundwater Substitution Component water payable under this Agreement and any adjustments due pursuant to Sections 4.A.5 or 5.A.2.b.

f. The Agreement provides for a Participating Contractor to pay interest on delinquent payments at the rate of 1 percent per month from the due date until paid in full. DWR will assess such interest on the AGENCY if payments to DWR for invoices pursuant to this Agreement are delinquent. The AGENCY agrees to pay such interest, and DWR will pay such interest collected along with the payments on invoices to Yuba."

c. Section 5.A is further amended by adding at the end the following new subsection 5.A.5:

"5. In the event that the AGENCY has guaranteed the purchase of Water allocated in accordance with Section 3.A that Yuba had notified DWR to not back into Project storage, DWR will invoice the AGENCY for the amount of Water the AGENCY has guaranteed in accordance with Section 4.A.12 to purchase at the current year pricing regardless of whether it becomes Delivered Transfer Water."

d. Section 5.C, PAYMENT OF FIXED ANNUAL COSTS AND CREDIT AGAINST PURCHASED WATER, is amended to read as follows:

"C. PAYMENTS AND CREDITS FOR TIME VALUE OF DEPOSIT FUNDS

1. The AGENCY shall make an annual payment to DWR for the purpose of compensating Contributing Participating Contractors for the time value of the money, computed as a compounded interest rate of 2.25 percent on the outstanding balance, that Contributing Participating Contractors contribute by about December 31, 2014 to comprise the $20,000,000 of deposit funds that serve to guarantee the five-year pricing reflected in the fifth amendment to the Yuba Water Purchase Agreement. On or about May 22 each year, DWR will invoice the AGENCY its share of the annual charge to pay the interest costs on the deposit funds provided by Contributing Participating Contractors providing deposit funds as provided in Section 5.E. The AGENCY's payment of these fixed annual costs will be its share of $175,000 prorated among the Participating SWP Contractors calculated in the manner as provided in Section 3.A. This payment may be offset with any applicable credits due the AGENCY under the Agreement. This annual

payment will be discontinued once the total interest charges have been paid to the Contributing Participating Contractors that fund the deposit after the $20,000,000 deposit has been fully credited to Storage Component water purchases by the Participating Contractors. This annual charge may be reduced in the final year(s) of payment to assure complete payment of the interest without overcharging the Participating Contractors.

2. All charges invoiced to the Participating Contractors for interest as provided in Section 5.C.1 shall be credited by DWR to Water purchases in the same Water Accounting Year by the Contributing Participating Contractors, in proportion to the amount of money each Contributing Participating Contractor contributed to the deposit described in Section 5.E. DWR will compute the actual amount of interest due to the AGENCY, if it is a Contributing Participating Contractor, based on the 2.25 percent interest rate and the deposit balances outstanding during the term of this Agreement. DWR shall credit or pay to AGENCY its proportionate share of the interest amount until the full amount of such interest due has been paid."

e. Section 5.E. PAYMENTS FOR ADJUSTMENTS TO GROUNDWATER O&M COSTS is amended to read as follows:

"E. PROVISION OF DEPOSIT FUNDS TO SECURE PRICING GUARANTEE

1. An AGENCY that has elected to be a Contributing Participating Contractor shall deposit money with DWR towards the $20,000,000 deposit for purchases of Water from Yuba.

   a. The AGENCY shall pay a deposit of $0 to DWR within 10 working days of executing Amendment 5 to the Agreement as its share of the $20,000,000 deposit towards all purchases of Storage Component water by all Participating Contractors beginning after September 30, 2015. DWR will remit these deposit funds to Yuba by December 31, 2014 as part of the $20,000,000 deposit as provided in the Yuba Water Purchase Agreement.

   b. As Yuba credits the deposit funds to Storage Component water purchases by all Participating Contractors, if the AGENCY is a Contributing Participating Contractor, DWR will, in turn, credit these deposit credits to all purchases of Water by the AGENCY beginning October 1, 2015 in proportion to the AGENCY's contribution to the deposit until the entire deposit has been credited and the AGENCY has received full credit for or repayment of its deposit amount during the term of the Agreement as provided herein. In the event that the AGENCY's purchases of Water in any Water Accounting Year are less than the credits available to the AGENCY under the Agreement, DWR

will pay such credit amounts to the AGENCY upon receipt of an invoice.

c. By June 10 each year and by January 17 of the following year, DWR will provide the AGENCY with an accounting of all purchases of Water by Participating Contractors setting forth the amount and cost of Storage Component and Groundwater Substitution Component water purchased by the AGENCY, charges for the AGENCY's proportional share of interest payments, credits for the AGENCY's share of interest on the deposit if any, credits for repayment of deposit funds to the AGENCY from purchases of Storage Component water if any, and any other applicable credits and charges provided in this Agreement. If funds are due from DWR to the AGENCY, the AGENCY shall promptly invoice DWR, and DWR will pay the AGENCY within 30 days. DWR will compute the deposit balance attributable to the AGENCY and compute the interest amounts earned and credited or paid, and provide the AGENCY with detailed accounting of these balances. DWR will adjust the deposit balance attributable to the AGENCY's contribution to the deposit accordingly until the deposit is fully credited.

2. In the event that there are AGENCY deposit funds that have not been fully credited for Storage Component water that has been accounted for as Delivered Transfer Water that is made available through September 30, 2020, then these remaining deposit funds will be: (1) applied to future payments due by the AGENCY to DWR for Storage Component Delivered Transfer Water delivered on or after October 1, 2020 under a subsequent amendment between the Parties at the prices provided in Section 26 of the Yuba Water Purchase Agreement; or (2) if there is no such amendment, refunded by DWR to the AGENCY upon receipt of Prepayment funds from Yuba as provided in Section 25.A of the Yuba Water Purchase Agreement."

7. YUBA WATER SALES TO THIRD PARTIES

The Agreement is amended by adding at the end the following new section:

"**31. SALES TO THIRD PARTIES**

Amendment 5 to the Yuba Water Purchase Agreement provides for the sale of water to third parties under the terms outlined in Section 11.F of that agreement. In accordance with Sections 11.F.3 and 4 of the Yuba Water Purchase Agreement, so long as a transfer is carried out consistent with the transfer water accounting provisions of Exhibit 1 for Released Transfer Water during Balanced Conditions, the AGENCY will not object based on the use of the transfer water accounting provisions of Exhibit 1 to such a transfer as not protective of DWR and the AGENCY as legal users of water during the time the AGENCY remains a Participating Contractor. The

AGENCY also agrees that while a Participating Contractor, it will not purchase water from Yuba other than through the Yuba Water Purchase Agreement."

8. NO OTHER CHANGES

All remaining provisions of the Agreement that are not changed by this Amendment will remain in full force and effect.

9. COUNTERPARTS OF THE AGREEMENT

This Amendment may be signed in any number of counterparts by the Parties, each of which will be deemed to be an original, and all of which together will be deemed to one and the same instrument. This Amendment, if executed in counterparts, will be valid and binding on a Party as if fully executed all in one copy.

IN WITNESS WHEREOF, the Parties hereto, by their authorized representatives, have executed this Amendment on the last date set forth below.

Approved as to legal form and sufficiency:	STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
_____	_____
Cathy Crothers Chief Counsel	Mark W. Cowin Director
_____	_____
Date	Date
Approved as to legal form and sufficiency:	Mojave Water Agency
_____	_____
Counsel	Title
_____	_____
Date	Date

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
AND
YUBA COUNTY WATER AGENCY

AGREEMENT FOR THE LONG-TERM PURCHASE OF WATER FROM YUBA COUNTY WATER AGENCY BY THE DEPARTMENT OF WATER RESOURCES

This Agreement is entered into as of December 4, 2007 between the Department of Water Resources of the State of California, pursuant to the provisions of the California Water Resources Development Bond Act, the Central Valley Project Act and other applicable laws of the State of California, and Yuba County Water Agency, pursuant to the Yuba Act (California Statutes 1959, Chapter 788, as amended) and other applicable laws of the State of California. Defined terms are set forth in section 1 of this Agreement.

RECITALS

A. DWR operates and maintains the SWP pursuant to the laws of the State of California, involving the development and conveyance of water supplies to water supply agencies throughout the State of California.

B. Reclamation has constructed and is operating the CVP for the diversion, storage, carriage, and distribution of waters of the State of California for irrigation, municipal, domestic, industrial water supplies, for fish and wildlife mitigation, protection and restoration, and for generation and distribution of electric energy, salinity control, navigation, flood control, recreation and other beneficial uses.

C. Yuba is a public agency created and existing pursuant to the provisions of the Yuba Act. Yuba owns and operates the Yuba River Development Project, including the Yuba Project.

D. Yuba is engaged in the Yuba River Accord initiative to resolve issues associated with operation of the Yuba Project in a way that protects lower Yuba River fisheries and local water-supply reliability, while providing revenues for local flood control projects, water to use for protection and restoration of Delta fisheries, and improvements in state-wide water supply management.

E. The Yuba River Accord includes three major elements, all of which must be in place for the Yuba River Accord to become effective: (1) the Fisheries Agreement, under which Yuba would revise the operations of the Yuba Project to provide higher flows in the lower Yuba River under certain conditions to improve fisheries protection and enhancement; (2) the Conjunctive Use Agreements between Yuba and water districts within Yuba County for implementing a conjunctive use and water use efficiency program; and (3) this Agreement between Yuba and DWR, pursuant to which DWR will have rights to beneficially use water flows made available by Yuba through the Fisheries Agreement, the Conjunctive Use Agreements, and additional water releases from the Yuba Project, which Yuba asserts it would not and could not make available from the Yuba Project in the absence of the Yuba River Accord and without the revenues provided to Yuba under this Agreement.

F. DWR supports the Yuba River Accord, and is willing to enter into this Agreement because it will enable the Yuba River Accord to become effective, thereby improving fishery conditions on the Yuba River and improving water supplies to DWR for: (1) the EWA; (2) the SWP contractors pursuant to DWR's dry-year supplemental water supply programs; and (3) the members of the San Luis & Delta-Mendota Water Authority pursuant to DWR's dry-year supplemental water supply programs.

G. The Parties believe that this Agreement is consistent with: (1) Yuba's commitments to utilize water management tools (such as conjunctive use of groundwater), to create operational efficiencies, and manage water shortage risks in new ways that would benefit the fisheries and augment water supplies for downstream users; and (2) the Projects' need for additional water supplies.

H. Yuba is authorized under the Yuba Act to enter into long-term contracts to sell water for use outside of Yuba County, subject to the provision of Section 5.2 of the Yuba Act. Yuba has determined, after compliance with the procedures set forth in Section 5.2 of the Yuba Act, that the water subject to sale or disposition under this Agreement will not be needed during the term of this Agreement by or for the Member Units of Yuba. Yuba has further determined that Yuba is willing, in exchange for the consideration described in this Agreement, to enter into this Agreement.

I. The Parties, in coordination and consultation with Reclamation, the SWP contractors and the San Luis & Delta-Mendota Water Authority, carried out pilot water transfer programs during the 2006 and 2007 Water Accounting Years, and, based on the success of these pilot programs, desire to move forward with this Agreement, as part of the Yuba River Accord.

J. A portion of the Water delivered under this Agreement will be paid for with funds appropriated pursuant to Chapter 7(d) of Proposition 50, California Water Code Section 79550(d).

K. DWR will enter into separate agreements with the SWP contractors and the San Luis & Delta-Mendota Water Authority for the allocation of, and payment for, the Water to the extent determined necessary by DWR to satisfy payment obligations of this Agreement. Reclamation has

determined to not be a party to this Agreement. Yuba and DWR will amend this Agreement at such time as Reclamation is willing to become a party, subject to Reclamation and DWR entering into a separate agreement for the allocation of, and payment for, Water under this Agreement.

L. The Parties have determined that this Agreement does not conflict with Section 25 of the Short-Term Phase 8 Settlement Agreement.

M. In consideration of potential changes that may occur in SWP and CVP Delta operations and implementation of this Agreement related to orders of the United States District Court in *NRDC v. Kempthorne* (Case no. 05-CV-01207, OWW, E.D. Cal.): (1) Yuba revised the environmental analyses in the Yuba River Accord final environmental impact report/environmental impact statement to consider potential effects of the orders from the United States District Court; and (2) the Parties revised the payment provisions for Component 2 Water in Section 6B1 of this Agreement (to $75 per acre foot in a Water Year that has a Final Classification as Dry, instead of $50 per acre foot, and to $93.75 per acre foot in a Water Year that has a Final Classification as Critical, instead of $62.50 per acre foot).

AGREEMENT

The Parties agree as follows:

1. Definitions.

When used herein, the term:

"Buyer" means DWR.

"CALFED" means the joint federal and California program, intended to develop and implement a long-term comprehensive plan that will, among other purposes, restore ecological health of the Bay-Delta System and improve water project management..

"CEQA" means the California Environmental Quality Act.

"Component 1 Water" means the water supplies described in Section 5 of this Agreement.

"Component 2 Water" means the water supplies described in Section 6 of this Agreement.

"Component 3 Water" means the water supplies described in Section 7 of this Agreement.

"Component 4 Water" means the water supplies described in Section 8 of this Agreement.

"Conference Year" means a Water Year for which the North Yuba Index is less than 500,000 acre-feet, calculated according to the procedures and formulas set forth in Exhibits 4 and 5 of the Fisheries Agreement, and using the latest available forecasts for the Water Year.

"Conjunctive Use Agreements" means those agreements (if any) for implementing a conjunctive use and water use efficiency program between Yuba and a sufficient number of Member Units that Yuba determines is satisfactory for Yuba to meet Yuba's obligations under this Agreement, the Fisheries Agreement, and the Yuba Act.

"CVP" means the Central Valley Project, operated by Reclamation.

"Decision 1644" means Revised Water-Right Decision 1644 of the State Board, adopted on July 16, 2003.

"DWR" means the Department of Water Resources of the State of California.

"Effective Date" means the date that this Agreement will take effect, as provided in Section 3 ("Effective Date").

"ESA" means the federal Endangered Species Act of 1973, as amended (16 U.S.C. sections 1531-1544).

"EWA" means the environmental water account program described in the CALFED Record of Decision and the EWA Operating Principles Agreement (August 28, 2000, as extended in September 2004), as extended by amendment and supplemental approvals, or a long-term environmental water account program.

"Feather River Diversion Facility" means an intake structure, pumping facilities, a fish screen that meets State and Federal fish screen criteria, and related facilities that Yuba may consider constructing at some future time at or below the confluence of the Yuba River and the Feather River for the diversion of water under Yuba's existing water rights for use within Yuba County. Yuba has no current plans to develop or construct the Feather River Diversion facility. If this project were developed, the Feather River Diversion Facility would be added as a point of re-diversion under Yuba's existing water rights. On a real-time basis, diversions by Yuba at the Feather River Diversion Facility: (1) would not exceed the quantity of water that would have been available to Yuba for diversion from Yuba River flows upstream of its confluence with the Feather River; (2) when added to the quantity of water diverted by Yuba at Yuba's Daguerre Point of Diversion, would not exceed the quantities of water under Yuba's water rights that Yuba had diverted to beneficial use under applicable provisions of law (including Chapter 1 of Part 1 of Division 2 of the Water Code)

prior to the initiation of water diversions at the Feather River Diversion Facility; and (3) would not cause adverse impacts to, or interfere with, DWR or Reclamation's operations of the SWP and CVP, or cause DWR or Reclamation to have to modify operations of their respective SWP or CVP facilities.

"FERC" means the Federal Energy Regulatory Commission.

"FERC License" means the license, as amended, issued to Yuba by FERC for the operation of the power facilities of the Yuba Project, the term of which expires on April 30, 2016.

"FERC Annual License" means one or more annual licenses issued to Yuba by FERC for the operation of the power facilities of the Yuba Project following the expiration of the term of the FERC License.

"FERC Long-Term License" means the long-term license issued to Yuba by FERC for the operation of the power facilities of the Yuba Project following the expiration of the term of the FERC License and the last FERC Annual License.

"Final Classification" means the year-type classification for the Sacramento River region in the May issue of DWR's Bulletin 120.

"Fisheries Agreement" means the agreement among Yuba, the California Department of Fish and Game, and other parties, under which Yuba operates the Yuba Project to provide higher flows in the lower Yuba River under certain conditions to improve fisheries protection.

"*Force Majeure* Event" means any: (1) flood; (2) earthquake; (3) failure of the California Aqueduct, the Delta-Mendota Canal, levees, other conveyance facilities, or other major components of the SWP, CVP or the Yuba Project; (4) act of God (other than drought); or (5) any other event (other than a Regulatory Action) beyond the reasonable control of DWR, Reclamation, or Yuba that significantly affects the ability to divert or use Water delivered by Yuba under this Agreement, or that significantly affects Yuba's ability to deliver Water under this Agreement while also meeting its obligations to its Member Units or its obligations under the Fisheries Agreement.

"Groundwater O&M Costs" means the costs related to pumping groundwater as described in Section 12 ("Other Payments to Yuba by Buyers") of this Agreement.

"Groundwater Substitution Transfer Monitoring and Operations Program" means the program, set forth in Exhibit 3 to this Agreement, pursuant to which Yuba will monitor and report groundwater pumping to implement this Agreement.

"Management Committee" means the committee, consisting of one representative each from Yuba, DWR, Reclamation, the CALFED fishery agencies on behalf of EWA, SWP contractors, and the San Luis & Delta-Mendota Water Authority, established under Section 14 ("Technical Committee and Management Committee") of this Agreement.

"Member Units" means a "Member Unit" as defined in Section 2(g) of the Yuba Act.

"NEPA" means the National Environmental Policy Act.

"Parties" means DWR and Yuba.

"PG&E" means Pacific Gas and Electric Company.

"PG&E Power Contract" means the power purchase contract between Yuba and PG&E related to the operation of the Yuba Project for the generation of hydroelectric power, dated May 13, 1966.

"Projects" means the SWP and the CVP.

"Reclamation" means the United States Department of the Interior, Bureau of Reclamation.

"Regulatory Action" means a court order, regulatory action or change in applicable law that significantly affects the Parties' or Reclamation's ability to divert or use Water, or that significantly affects Yuba's ability to deliver Water while also meeting its obligations to its Member Units or its obligations under the Fisheries Agreement.

"Short-Term Phase 8 Settlement Agreement" means the "Short-Term Agreement to Guide Implementation of Short-Term Water Management Actions to Meet Local Water Supply Needs and to Make Water Available to the SWP and CVP to Assist in Meeting the Requirements of the 1995 Water Quality Control Plan and to Resolve Phase 8 Issues" (effective date March 24, 2003).

"State Board" means the California State Water Resources Control Board.

"SWP" means the State Water Project operated by DWR. The SWP is also known as the State Water Facilities, as defined in California Water Code section 12934(d).

"Technical Committee" means the committee, consisting of technical representatives from Yuba, DWR, Reclamation, the CALFED fishery agencies on behalf of EWA,

SWP contractors and the San Luis & Delta-Mendota Water Authority, established under Section 14 ("Technical Committee and Management Committee") of this Agreement.

"Water" means Component 1 Water through Component 4 Water delivered by Yuba in a manner consistent with the provisions of Section 11 ("General Provisions Applicable to Water") of this Agreement.

"Water Accounting Year" means the twelve-month period from January 1 to December 31. The Water Accounting Year will be used to account for Water.

"Water Year" means the twelve-month period from October 1 of one year through September 30 of the following year. For this Agreement, each Water Year will be classified: (1) as "Wet," "Above-Normal," "Below-Normal," "Dry" or "Critical," based on the Sacramento Valley Water Year Hydrologic Classification in Figure 1 on page 188 of the State Board's March 15, 2000, Revised Water-Right Decision 1641; or (2) as a "Conference Year," based on the procedures and formulas set forth in Exhibits 4 and 5 of the Fisheries Agreement, using the latest available forecast for the Water Year.

"Yuba" means the Yuba County Water Agency.

"Yuba Act" means the Yuba County Water Agency Act, California Statutes 1959, Chapter 788, as amended.

"Yuba Project" means the Yuba River Development Project, including New Bullards Bar Dam and Reservoir on the North Yuba River.

"Yuba River Accord" means Yuba's initiative as described in Recitals D and E of this Agreement.

2. Term of Agreement.

This Agreement will terminate on December 31, 2025, or when all obligations under this Agreement have been satisfied, whichever is later, unless this Agreement is terminated earlier as provided herein.

3. Effective Date.

This Agreement will become effective when all of the following have occurred: (1) full execution of this Agreement; (2) full execution of the Fisheries Agreement; (3) full execution of the Conjunctive Use Agreements (if any, unless Yuba provides DWR written notification of Yuba's waiver of this condition); (4) full execution of an agreement between Yuba and PG&E to amend provisions of the PG&E Power Contract, and approval of the California Public Utilities Commission

of such an amendment, if determined necessary by Yuba (unless Yuba provides DWR written notification of Yuba's waiver of this condition); (5) receipt of all State Board approvals that may be necessary to enable the Fisheries Agreement and this Agreement to be fully implemented; and (6) full execution of the agreements between DWR and one or more SWP contractors, and an agreement between DWR and the San Luis & Delta-Mendota Water Authority, referred to in Recital K of this Agreement. The Parties will support the actions described in this section.

4. Actions Taken by Yuba to Make Water Available.

A. In accordance with Section 5.2 of the Yuba Act, all sales of Water are subject to the prior right to the use of such water or Yuba facilities by or for the Member Units. Yuba has taken the following measures to assure that the quantities of Water will be available to DWR during all Water Year types, as provided in this Agreement, for the term of this Agreement:

1. Yuba has entered into the Conjunctive Use Agreements (if any) under which the contracting Member Units have agreed to provide groundwater supplies in substitution for surface water supplies to assist Yuba in implementing this Agreement, to the extent (if any) determined by Yuba to be satisfactory for Yuba to meet Yuba's obligations under this Agreement, the Fisheries Agreement, and the Yuba Act; and

2. Yuba is implementing a groundwater monitoring program within its service area to ensure that the groundwater supply developed pursuant to the Conjunctive Use Agreements (if any) is within the long-term safe yield of the affected aquifer; and

3. The Board of Directors of Yuba has adopted a resolution making findings concerning Yuba's compliance with Section 5.2 of the Yuba Act, and determining that the Water exceeds the needs of its Member Units and that Yuba can and will perform its obligations under this Agreement.

B. In addition, Yuba may consider the installation and operation of the Feather River Diversion Facility at some future time in the event that Yuba determines that operation of the Feather River Diversion Facility would assist Yuba in making water supplies available within Yuba County. Subject to Yuba agreeing to operate this facility in the manner described in the definition of Feather River Diversion Facility, DWR will not oppose the installation and operation of the Feather River Diversion Facility for this purpose, and will not object to Yuba obtaining regulatory permits and approvals for the Feather River Diversion Facility.

5. Component 1 Water

A. Component 1 Water Quantity.

1. In each of the first eight Water Accounting Years of this Agreement (January 1, 2008 through December 31, 2015), Yuba will deliver to the Buyer, for use by the EWA, and the Buyer will pay for, 60,000 acre-feet of Component 1 Water, subject to Section 11 ("General Provisions Applicable to Water") of this Agreement. The total quantity of Component 1 Water that Yuba will deliver to the Buyer during the first eight Water Accounting Years of this Agreement will be 480,000 acre-feet, subject to extending the delivery period beyond the eight years if needed pursuant to subsection 2 below and Section 11G. Unless conditions under Section 23D ("As to Termination of the EWA Program") apply, Component 1 Water will be used to support continued implementation of EWA.

2. In certain years, and pursuant to the accounting principles set forth in Exhibit 1, operational limitations of the Yuba Project, the CVP, and/or the SWP may cause the quantity of Component 1 Water that Yuba can deliver to the Buyer to be reduced below 60,000 acre-feet during a Water Accounting Year. Under those circumstances, unless the Parties agree otherwise, Yuba will deliver the undelivered Component 1 Water so that the remaining quantity of the 480,000 acre-feet will be delivered during subsequent years under the following conditions: (a) during the next Water Accounting Year that is not a Dry or Critical Water Year; (b) when such make-up water can be delivered from Yuba's available surface-water supply; and (c) on a schedule that is acceptable to the Buyer and Yuba that would not impair the ability of Yuba to make Components 2 through Components 4 Water available, as provided in this Agreement.

3. The Buyer and Yuba will schedule Component 1 Water pursuant to Section 9 ("Scheduling of Water") of this Agreement.

4. In all Water Accounting Years that include all or part of the term of any FERC Annual License, Yuba will deliver to the Buyer, and the Buyer will pay for, 60,000 acre-feet of Component 1 Water, subject to Sections 15A(2) and 15B of this Agreement.

5. The quantities of Component 1 Water delivered by Yuba to the Buyer during all Water Accounting Years that include the term of the FERC Long-Term License, and do not include any part of the term of any FERC Annual License, will be subject to Sections 15A(3) and 15C of this Agreement.

B. Component 1 Water Pricing.

1. As full compensation to Yuba for making Component 1 Water in Section 5A available during each of the first eight Water Accounting Years of this Agreement, or in subsequent years under Section 5A2 and 11G, the Buyer will pay Yuba $30,900,000. This payment will be made as described in Section 5C and Section 10 ("Invoicing") of this Agreement.

2. The pricing provisions applicable to additional Component 1 Water delivered by Yuba to the Buyer during all Water Accounting Years after the first eight Water

Accounting Years will be those set forth in Section 15 ("Quantities of and Pricing Provisions for Water During a FERC Annual License and During the FERC Long-Term License") of this Agreement.

C. Component 1 Water Payment Provisions.

In accordance with Section 10 ("Invoicing") of this Agreement, Yuba will, within thirty days of the Effective Date, submit an invoice to DWR for the payment of $30,900,000 for the 480,000 acre-feet Component 1 Water. DWR will make payment to Yuba within sixty days of the date the invoice has been received by both the DWR Contract Manager and the Accounting Office.

6. Component 2 Water.

A. Component 2 Water Quantity.

1. In addition to Component 1, 3, or 4 Water, Yuba will deliver to the Buyer, subject to Section 11 ("General Provisions Applicable to Water") of this Agreement, and the Buyer will pay for:

a. In any Water Year that has a Final Classification as Dry, 15,000 acre-feet of Component 2 Water; and

b. In any Water Year that has a Final Classification as Critical, 30,000 acre-feet of Component 2 Water.

2. The Buyer and Yuba will schedule Component 2 Water pursuant to Section 9 ("Scheduling of Water") of this Agreement.

3. In all Water Accounting Years that include all or part of the term of any FERC Annual License, Yuba will deliver to the Buyer Component 2 Water, subject to Sections 15A(2) and 15B of this Agreement.

4. The quantities of Component 2 Water delivered by Yuba to the Buyer during all Water Accounting Years that include the term of the FERC Long-Term License, and do not include any part of the term of any FERC Annual License, will be subject to Sections 15A(3) and 15C of this Agreement.

B. Component 2 Water Pricing.

1. The Buyer will pay Yuba for Component 2 Water as follows:

a. In any Water Year that has a Final Classification as Dry, $75.00 per acre-foot;

b. In any Water Year that has a Final Classification as Critical, $93.75 per acre-foot; and

c. The payment adjustments (if any) provided for in Section 12C of this Agreement.

2. The Buyer will pay Yuba for Component 2 Water pursuant to Section 6C and Section 10 ("Invoicing") of this Agreement.

3. The pricing provisions applicable to Component 2 Water delivered by Yuba to Buyer during all Water Accounting Years that include all or part of the term of any FERC Annual License or the term of the FERC Long-Term License are set forth in Section 15 ("Quantities of and Pricing Provisions for Water During a FERC Annual License and During the FERC Long-Term License") of this Agreement.

C. Component 2 Payment Provisions.

1. For each Water Year that Component 2 Water is being delivered to the Buyer, Yuba will submit an invoice to the Buyer on or after June 1 for fifty percent of the amount due for Component 2 Water scheduled to be delivered to the Buyer pursuant to this Agreement, adjusted by an amount equal to fifty percent of any credits due from Yuba to the Buyer. By January 7 of the subsequent year, Yuba will submit an invoice to the Buyer for the remaining fifty percent of the amount due for Component 2 Water scheduled to be delivered to the Buyer pursuant to this Agreement, less the remaining amount of any credits due the Buyer. The invoices will contain all of the information and be transmitted to Buyer as set forth in Section 10 ("Invoicing") of this Agreement.

2. DWR will pay Yuba within sixty days of the date that both the DWR Contract Manager and the Accounting Office receive invoices containing all of the information required by Section 10(B) of this Agreement. With respect to the first invoice from Yuba, the Buyer will pay Yuba an amount equal to fifty percent of the price for the Component 2 Water that has been scheduled for delivery during the current Water Accounting Year in accordance with Section 9 ("Scheduling of Water") of this Agreement, minus fifty percent of any credit due from Yuba to the Buyer pursuant to Section 12 ("Payments for Fixed Annual Costs") of this Agreement. With respect to the second invoice from Yuba, the Buyer will pay the remaining amount due to Yuba for Component 2 Water, based on an accounting of actual Water deliveries in the previous Water Accounting Year, less the remaining amount of any credit due the Buyer pursuant to Section 12 ("Payments for Fixed Annual Costs") of this Agreement. With respect to both invoices from Yuba, DWR will pay Yuba within sixty days of the date both the DWR Contract Manager and the

Accounting Office have received the appropriate invoices containing all of the information required by Section 10(B) of this Agreement.

7. Component 3 Water.

A. Component 3 Water Quantity.

1. In addition to Component 1, 2, or 4 Water, and subject to Section 11 ("General Provisions Applicable to Water") of this Agreement:

a. When the allocations as of April 21:

(i) For CVP South of Delta agricultural contractors are at or below thirty-five percent of their CVP contractual entitlements, and for SWP contractors are at or below forty percent of their SWP water supply contract Table A Amounts, Yuba will deliver to the Buyer, and the Buyer will pay for, 40,000 acre-feet of Component 3 Water; or

(ii) For CVP South of Delta agricultural contractors are at or below forty-five percent and above thirty-five percent of their CVP contractual entitlements, or for SWP contractors are at or below sixty percent and above forty percent of their SWP water supply contract Table A Amounts the Buyer, on or before April 21, the Buyer may request that Yuba deliver up to 40,000 acre-feet of Component 3 Water, and Yuba will deliver to Buyer the quantity of Component 3 Water requested.

2. The Buyer and Yuba will schedule Component 3 Water pursuant to Section 9 ("Scheduling of Water") of this Agreement. In addition:

a. If after April 21, but prior to May 21, allocations to CVP South of Delta agricultural contractors or SWP contractors decrease, then:

(i) if section 7A(1)(a)(ii) of this Agreement remains applicable notwithstanding the decreased allocation(s), the Buyer will have the right to call for Component 3 Water or additional Component 3 Water up to the maximum amount authorized by section 7A(1)(a)(ii); provided, however, that the quantity or increased quantity of Component 3 Water Yuba is required to deliver will be reduced to reflect any reduction in the amount of groundwater pumping availability between April 21 and May 21.

(ii) if section 7A(1)(a)(i) of this Agreement becomes applicable due to the decreased allocations, and the Buyer had opted to have less than 40,000 acre feet of Component 3 Water delivered, Yuba will deliver to the Buyer, and the Buyer will pay for 40,000 acre feet of Component 3 Water reduced by an amount that reflects any reduction in the amount of groundwater pumping availability between April 21 and May 21.

b. If after April 21, but prior to May 21, allocations to CVP South of Delta agricultural contractors or SWP contractors increase, then the Buyer may, on or before May 21, reduce their request for Component 3 Water to the greater of zero or the quantity of water already delivered by Yuba plus the quantity of water already stored by Yuba through the substitution of groundwater for surface water in anticipation of Component 3 Water deliveries originally requested by the Buyer. This section will not apply to circumstances where, notwithstanding an increase in the Buyer' May water supply allocations, Section 7(A)(1)(a)(i) of this Agreement remains applicable.

3. In all Water Accounting Years that include all or part of the term of any FERC Annual License, Yuba will deliver to the Buyer, and the Buyer will pay for, Component 3 Water, subject to Section 15B of this Agreement.

4. The quantities of Component 3 Water delivered by Yuba to the Buyer during Water Accounting Years that include the term of the FERC Long-Term License, and do not include any part of the term of any FERC Annual License, will be subject to Section 15C of this Agreement.

B. Component 3 Water Pricing.

1. The Buyer will pay Yuba for Component 3 Water as follows:

a. In any Water Year that has a Final Classification as Wet, $25.00 per acre-foot;

b. In any Water Year that has a Final Classification as Above-Normal, $50.00 per acre-foot;

c. In any Water Year that has a Final Classification as Below-Normal, $75.00 per acre-foot;

d. In any Water Year that has a Final Classification as Dry, $100.00 per acre-foot;

e. In any Water Year that has a Final Classification as Critical, $125.00 per acre-foot; and

f. The payment adjustments (if any) provided for in Section 12C ("Payments for Adjustments in Groundwater O&M Costs) of this Agreement.

2. The Buyer will pay Yuba for Component 3 Water pursuant to Section 7C and Section 10 ("Invoicing") of this Agreement.

3. The pricing provisions applicable to Component 3 Water delivered by Yuba to Buyer during all Water Accounting Years that include all or part of the term of any FERC Annual License or the term of the FERC Long-Term License are set forth in Sections 15B and C of this Agreement.

C. Component 3 Payment Provisions

1. In accordance with Section 10 ("Invoicing") of this Agreement, Yuba will submit an invoice to the Buyer on or after June 1 each Water Accounting Year for fifty percent of the amount due for Component 3 Water scheduled to be delivered to the Buyer pursuant to this Agreement, adjusted by an amount equal to fifty percent of any credits due from Yuba to the Buyer. By January 7 of the subsequent year, Yuba will submit an invoice to the Buyer for the remaining fifty percent of the amount due for Component 3 Water scheduled to be delivered to the Buyer pursuant to this Agreement, less the remaining amount of any credits due the Buyer.

2. In accordance with Section 10 ("Invoicing") of this Agreement, DWR will pay Yuba within sixty days of the date that both the DWR Contract Manager and the Accounting Office receive the appropriate invoices and verification that the amount of Component 3 Water specified therein has been scheduled in accordance with Section 9 ("Scheduling of Water") of this Agreement. The Buyer will pay Yuba an amount equal to fifty percent of the price for the Component 3 Water that has been scheduled for delivery during the current Water Accounting Year in accordance with Section 9 ("Scheduling of Water") of this Agreement, minus fifty percent of any credit due from Yuba to the Buyer pursuant to Section 12 ("Payments for Fixed Annual Costs") of this Agreement. On or before March 7 of the subsequent year, the Buyer will pay the remaining amount due to Yuba for Component 3 Water, based on an accounting of actual Water deliveries in the previous Water Accounting Year, less the remaining amount of any credit due the Buyer pursuant to Section 12 ("Payments for Fixed Annual Costs") of this Agreement.

8. Component 4 Water.

A. Component 4 Water Quantity.

1. In addition to Component 1, 2, or 3 Water, Yuba will provide to the Buyer, subject to Section 11 ("General Provisions Applicable to Water") of this Agreement, Component 4 Water as follows:

a. On or before April 10 of each year, Yuba will inform the Buyer of the quantity of Component 4 Water that Yuba could make available from Yuba's available surface and groundwater that Water Accounting Year.

b. By May 15 the Buyer will notify Yuba if it will take delivery of any or all of the Component 4 Water that Yuba informed the Buyer that Yuba will make available.

2. The Buyer and Yuba will schedule Component 4 Water pursuant to Section 9 ("Scheduling of Water") of this Agreement.

3. In all Water Accounting Years that include all or a part of the term of any FERC Annual License, Yuba will deliver to the Buyer, and the Buyer will pay for, Component 4 Water pursuant to Section 15B of this Agreement.

4. The quantities of Component 4 Water delivered by Yuba to the Buyer during all Water Accounting Years that include the term of the FERC Long-Term License, and do not include any part of the term of any FERC Annual License, will be subject to Section 15C of this Agreement.

B. Component 4 Water Pricing.

1. The Buyer will pay Yuba for Component 4 Water as follows:

a. In any Water Year that has a Final Classification as Wet, $25.00 per acre-foot;

b. In any Water Year that has a Final Classification as Above-Normal, $50.00 per acre-foot;

c. In any Water Year that has a Final Classification as Below-Normal, $75.00 per acre-foot;

d. In any Water Year that has a Final Classification as Dry, $100.00 per acre-foot;

e. In any Water Year that has a Final Classification as Critical, $125.00 per acre-foot

f. The payment adjustments (if any) provided for in Section 12C ("Payments for Adjustments in Groundwater O&M Costs") of this Agreement.

2. The Buyer will pay Yuba for Component 4 Water pursuant to the payment and invoicing provisions of this Section.

3. The pricing provisions applicable to Component 4 Water delivered by Yuba to Buyer during all Water Accounting Years that include all or part of the term of any FERC

Annual License or the term of the FERC Long-Term License are set forth in Sections 15B and C of this Agreement.

C. Component 4 Payment Provisions.

1. In accordance with Section 10 ("Invoicing") of this Agreement, Yuba will submit an invoice to the Buyer on or after June 1 each Water Accounting Year for fifty percent of the amount due for Component 4 Water scheduled to be delivered to the Buyer pursuant to this Agreement, adjusted by an amount equal to fifty percent of any credits due from Yuba to the Buyer. By January 7 of the subsequent year, Yuba will submit an invoice to the Buyer for the remaining fifty percent of the amount due for Component 4 Water scheduled to be delivered to the Buyer pursuant to this Agreement, less the remaining amount of any credits due the Buyer.

2. In accordance with Section 10 ("Invoicing") of this Agreement, DWR will pay Yuba within sixty days of the date that both the DWR Contract Manager and the Accounting Office receive the appropriate invoices and verification that the amount of Component 4 Water specified therein has been scheduled in accordance with Section 9 ("Scheduling of Water") of this Agreement. The Buyer will pay Yuba an amount equal to fifty percent of the price for the Component 4 Water that has been scheduled for delivery during the current Water Accounting Year in accordance with Section 9 ("Scheduling of Water") of this Agreement, minus fifty percent of any credit due from Yuba to the Buyer pursuant to Section 12 ("Payments for Fixed Annual Costs") of this Agreement. On or before March 7 of the subsequent year, the Buyer will pay the remaining amount due to Yuba for Component 4 Water, based on an accounting of actual Water deliveries in the previous Water Accounting Year, less the remaining amount of any credit due the Buyer pursuant to Section 12 ("Payments for Fixed Annual Costs") of this Agreement.

9. Scheduling of Water.

On or about April 10 of each Water Accounting Year, or as soon thereafter as practicable, the Parties will agree on a proposed delivery schedule for Component 1, 2, 3 and 4 Water. The proposed schedule may be revised periodically thereafter, and the Parties will agree on a final schedule no later than May 21. The final schedule will be updated to accommodate any changes in the North Yuba Index or the Yuba River Index and may be adjusted to account for changes in Bay-Delta conditions, including hydrologic or regulatory conditions, that affect the delivery of Water, and for changes in the flow schedule for the lower Yuba River as provided for in the Fisheries Agreement. The proposed and final schedules will also show the scheduling of water delivered by Yuba under the Short-Term Phase 8 Settlement Agreement. The scheduling of Water, and any adjustments to the schedule, will be in accordance with the water scheduling and accounting provisions set forth in Exhibit 1 ("Scheduling and Accounting Principles") of this Agreement.

10. Invoicing.

A. Reserved.

B. Yuba's invoices to DWR will contain the following information:

i) Federal and State Agreement numbers;
ii) Yuba's Taxpayer Identification Number;
iii) remittance address;
iv) point of contact;
v) for estimated payments, verification that the Water has been scheduled in accordance with Section 9 ("Scheduling of Water") of this Agreement; and
vi) for year-end payments, certification that the Water has been delivered.

C. Yuba will submit, at the same time, two copies of each invoice to DWR State Water Project Analysis Office and one copy to DWR Accounting office at the following addresses:

Department of Water Resources
Chief, State Water Project Analysis Office
1416 Ninth Street
Post Office Box 942836
Sacramento, California 94236-0001

Department of Water Resources
Accounting Office, Contracts Payable Unit
Post Office Box 942836
Sacramento, California 94236-0001

11. General Provisions Applicable to Water.

A. Accounting for Water.

Water delivered by Yuba to the Buyer will be accounted for in the manner set forth in Exhibit 1 ("Scheduling and Accounting Principles") of this Agreement. To the extent a conflict exists between the provisions of this Agreement and Exhibit 1, the provisions of this Agreement will control. Notwithstanding any other provision of this Agreement, the Buyer will only pay for water delivered by Yuba to the Buyer that is accounted for as Delivered Transfer Water pursuant to Exhibit 1.

B. Reservoir Refill Impact Accounting.

Yuba will provide assurance to the Buyer and Reclamation that the refilling of reservoir storage in the Yuba Project resulting from the delivery of Water under this Agreement will not adversely impact the Projects. Yuba will avoid adverse impacts to the Projects by complying with the

provisions of Exhibit 2 ("Reservoir Refill Accounting Provisions") of this Agreement. The provisions of Exhibit 2 will not apply to Water made available as a result of Yuba delivering groundwater instead of surface water to its Member Units to implement this Agreement.

C. Yuba's Conjunctive Use Program.

To the extent that Yuba delivers groundwater instead of surface water to its Member Units in order to deliver Water to the Buyer pursuant to this Agreement, Yuba will comply with the provisions of Exhibit 3 ("Groundwater Substitution Transfer Monitoring and Operations Program") of this Agreement.

D. Conference Year Principles.

During any Conference Year, the Parties will meet (along with the parties to the Fisheries Agreement and the Conjunctive Use Agreements) to determine how to address the circumstances, and to discuss the operation of the Yuba Project during that Water Accounting Year. During a Conference Year: (1) Yuba will have no obligation to deliver any quantity of Components 1 through 4 Water; (2) Yuba will not have to refund any part of the payment received for Component 1 Water; and (3) Yuba will deliver in a subsequent Water Accounting Year on a schedule that is acceptable to the Buyer and Yuba the quantity of Component 1 Water that was not delivered during the Conference Year.

E. Efforts to Maximize the Beneficial Use of Water.

Yuba will optimize to the extent feasible the operation of the Yuba Project to meet Yuba's obligations to supply Water under this Agreement. DWR will coordinate with Reclamation in the operation of the Projects to maximize the beneficial use of Water released by Yuba under this Agreement, including without limitation using all reasonable efforts to store water in Project facilities when Delta pumping is constrained and to avoid spills of water stored as result of the release of Water.

F. Sale to Third Parties.

To the extent the Water is otherwise transferable under California law, in those years when Yuba offers Components 3 or 4 Water, but the Buyer decline to take all of the Water offered, Yuba may sell the Water not taken by Buyer to a third party, provided that such sale to the third party will not impair Yuba's ability to meet its obligations to deliver Components 1 through 4 Water in the current or any future Water Accounting Year. In addition, to the extent the water is otherwise transferable under California law, Yuba may sell to a third party any quantity of Components 1, 3 or 4 Water released by Yuba that would have been accounted for as Water except for the inability of the Buyer to take delivery (e.g., during times when the Bay-Delta was out of balance). Yuba will provide the Buyer ten days' advance notice of a sale to a third party under this section.

G. Periodic Accounting of Water Delivered by Yuba.

After the first eight years of operations under this Agreement, and as appropriate thereafter, the Parties, with the assistance of the Technical Committee and the Management Committee, will develop a comprehensive accounting of all Water delivered under this Agreement. If it is determined that less than the quantities of Water required to be delivered during the first eight years have been delivered, and the Buyer has paid for quantities of Water that have not been delivered, then Yuba will deliver supplies of Water to the Buyer to make up for such deficiencies, on a schedule that is acceptable to the Buyer and Yuba that would not impair the ability of Yuba to make other deliveries of Water under this Agreement.

12. Other Payments to Yuba by the Buyer.

A. Diesel Conversions.

In furtherance of the mitigation of potential impacts to air quality from implementation of the Accord, Yuba has implemented a program to convert certain pumps used to pump groundwater from diesel to electric, or to other forms of energy that reduce air quality impacts. Conversion of pumps to electricity or other forms of energy that reduce air quality impacts has been and will be performed by Yuba for purposes of this Agreement. Prior to submitting invoices under this section to the Buyer under Section 10 ("Invoicing") of this Agreement, Yuba will: (1) submit to the Technical Committee for review documentation of the diesel conversion work performed and costs incurred from and after September 1, 2004 for purposes of this Agreement and the Accord; and (2) confirm to the Management Committee that the work performed and costs incurred were in furtherance of mitigation of potential impacts on air quality from implementation of the Accord. Subject to receipt of such information and concurrence by the Management Committee, the Buyer will pay Yuba the amount of such invoices, but not more than a total of $1,000,000.00.

B. Payments for Fixed Annual Costs and for Environmental Compliance.

1. During the term of this Agreement, on or before April 1 each year, the Buyer will pay to Yuba up to $250,000.00 to pay a portion of Yuba's annual costs for implementing the Yuba River Accord. On or before February 1, Yuba will submit to DWR invoices with documentation of costs incurred by Yuba to implement the Yuba River Accord, up to $250,000 per year. The Buyer will pay Yuba the amount of such invoice, but not more than $250,000 per year, pursuant to this Section and Section 10 ("Invoicing") of this Agreement. Yuba will provide to the Buyer, for payments made under this subsection, a credit against future payments due for Components 2, 3 and 4 Water. Yuba will record and accrue these credits from year to year until Yuba makes Component 2, 3 or 4 Water available, in which time such credits will be applied toward payments due.

2. Under separate agreements among them, Yuba, DWR and Reclamation have paid the costs of environmental compliance for implementing the Yuba River Accord, which is referred to in Section 16 ("Environmental Compliance") of this Agreement.

C. Payments for Adjustments in Groundwater O&M Costs.

During the term of this Agreement, the Buyer will pay Yuba, based on itemized invoices of work done and costs incurred, an amount to compensate for any annual increases above actual 2006 Groundwater O&M Costs using the Consumer Price Index, including those costs necessary for upkeep, power, and operation of those fixed assets that are dedicated to making Water available to the Buyer under this Agreement from groundwater sources, and recurring costs or payments required to obtain consents necessary to make Water available under this Agreement from groundwater sources. Groundwater O&M Costs will exclude general district overhead charges. Yuba will submit to the Technical Committee for a thirty-day review the documentation of work done and costs incurred prior to submitting invoices to the Buyer in accordance with the payment and invoicing provisions for Components 2, 3, or 4 Water under this Agreement. The Technical Committee will review invoices to ensure that payments made under the payment and invoicing provisions for Components 1 through 4 Water do not duplicate payments made under this subsection. Annual increases above the 2006 baseline will be computed based on the Consumer Price Increase as provided by the United States Department of Labor, Bureau of Labor Statistics.

13. Certain Payments Contingent on Appropriation or Allotment of Funds.

A. General.

In consideration of Yuba's eight-year commitment to deliver Component 1 Water, the Buyer confirm that the funds required to pay Yuba for Component 1 Water during that period have been appropriated, and DWR will encumber the funds to pay Yuba for Component 1 Water during that period on the schedule provided for in Section 5C1 of this Agreement. The Buyer intend that the payments due to Yuba under this Agreement for Components 2, 3, and 4 Water that is made available to the SWP and the San Luis & Delta-Mendota Water Authority will be paid from DWR funds received from the SWP and/or the San Luis & Delta-Mendota Water Authority. The Buyer will make contractual arrangements with the SWP and the San Luis & Delta-Mendota Water Authority under which the SWP and the San Luis & Delta-Mendota Water Authority would have an opportunity to make payments due to Yuba under this Agreement, in the event that the Buyer fails to make such payments when due, in order to avoid an interruption in Yuba making Water available to the Buyer under this Agreement. To the extent that the Buyer defaults in making the payments due to Yuba under this Agreement, then: (1) Yuba's obligation to make Water available to the Buyer under this Agreement will be excused to the extent and for the duration of the Buyer' default; (2) Yuba may attempt to mitigate its damages by selling Component 3 and Component 4 Water made available under this Agreement to other parties to the extent and for the duration of the Buyer'

default; and (3) the Buyer will be obligated to pay Yuba to the extent that Yuba is unable to mitigate Yuba's damages resulting from the Buyer' default.

B. State Funding Contingency.

Except to the extent that DWR uses funds from sources that do not require legislative budgetary appropriation, DWR's payment obligations under this Agreement are contingent on appropriation or allotment of funds through the State Budget process.

14. Technical Committee and Management Committee

A. Technical Committee.

The Technical Committee will: (1) collect, review and analyze information relevant to accounting for Water consistent with Exhibits 1 through 3, and information related to advances, payments and cost adjustments; (2) identify and attempt to resolve technical implementation issues; (3) periodically report to the Management Committee on the information gathered and any technical implementation issues identified; and (4) make recommendations to the Management Committee for resolution of any policy issues that arise or for any required factual determinations. If the Technical Committee is unable to agree on a recommendation to the Management Committee, the Technical Committee will cooperate to provide a balanced presentation of the facts, opinions and other information underlying the various positions on the issue to be determined.

B. Management Committee.

The Management Committee will: (1) provide policy guidance in implementing this Agreement; (2) make any factual determinations required to implement this Agreement; (3) consider information provided by the Technical Committee, if applicable, when making decisions; and (4) identify and resolve any policy-related implementation issues. If agreement among the representatives to the Management Committee cannot be reached on any issue necessary to the ongoing implementation of the Agreement, the Buyer and Yuba will meet and confer in a good faith effort to reach agreement. In the event that agreement cannot be reached among the Buyer and Yuba on an issue, that issue will be subject to Section 22 ("Remedies and Dispute Resolution") of this Agreement.

C. Interaction with River Management Team.

DWR will designate a representative to actively participate in the River Management Team established under the Fisheries Agreement. Reclamation may also designate a representative to participate in the River Management Team established under the Fisheries Agreement.

15. Quantities of and Pricing Provisions for Water During a FERC Annual License and During the FERC Long-Term License.

A. Intent of the Parties.

1. Yuba expects that, upon the expiration of the term of the FERC License, FERC will issue to Yuba one or more FERC Annual Licenses, before it issues to Yuba the FERC Long-Term License.

2. The Parties desire that Yuba continue to deliver, and the Buyer continue to pay for, additional quantities of Components 1 through 4 Water in accordance with Section 11 ("General Provisions Applicable to Water") of this Agreement during any Water Year beginning after September 30, 2015 for which either the FERC License or a FERC Annual License is in effect, if: (a) these quantities of Water can be delivered by Yuba consistent with the terms of the FERC License or any FERC Annual License; and (b) subject to a pricing agreement between the Parties. The Parties further intend that, other than the pricing provisions, there will be no change in the other provisions of this Agreement (including the provisions regarding the annual quantities of Components 1 through 4 Water delivered by Yuba, and paid for by the Buyer) during any Water Year beginning after September 30, 2015 that includes all or part of the term of any FERC Annual License, if the terms of the FERC Annual License do not significantly affect Yuba's ability to make these water supplies available.

3. The Parties desire that Yuba continue to deliver, and the Buyer continue to pay for, additional quantities of Components 1 through 4 Water in accordance with Section 11 ("General Provisions Applicable to Water") of this Agreement during any Water Year that is within the term of a FERC Long-Term License, and not within the term of any FERC Annual License, if these quantities of Water can be delivered by Yuba consistent with: (a) the terms of the FERC Long-Term License; (b) the water supply needs within the service area of Yuba; and (c) the ability of the Buyer and Yuba to agree to pricing provisions. The Buyer and Yuba further intend that, other than the quantity and pricing provisions, there will be no change in the other provisions of this Agreement during any Water Year that is within the term of a FERC Long-Term License.

B. Quantities of Water and Pricing Provisions Applicable During the Term of the FERC Annual Licenses.

During any Water Accounting Year beginning after December 31, 2015 during which either the FERC License or any FERC Annual License is in effect, Yuba will deliver, and the Buyer will pay for, additional quantities of Components 1 through 4 Water, in accordance with Section 11 ("General Provisions Applicable to Water") of this Agreement, subject to the following: (1) Yuba may adjust the quantities of Water that Yuba will deliver to the Buyer (but the quantity will not be less than 20,000 acre-feet of Water in each such Water Accounting Year, other than a Conference

Year), but only to the extent needed to reflect the ability of Yuba to deliver these quantities of Water consistent with the terms of the FERC Annual License; and (2) the Buyer and Yuba intend to negotiate in good faith the quantity and pricing provisions applicable to Components 1 though 4 during such Water Accounting Years, but under no circumstance will the price for the Water be less than the pricing provisions applicable to Components 1 through 4 Water, as set forth in Sections 5 through 8 of this Agreement.

C. Quantities of Water and Pricing Provisions Applicable During the Term of the FERC Long-Term License.

During any Water Accounting Year that is within the term of the FERC Long-Term License, and for which no part of the Water Accounting Year is within the term of any FERC Annual License, Yuba will deliver, and the Buyer will pay for, additional quantities of Components 1 through 4 Water, in accordance with Section 11 ("General Provisions Applicable to Water") of this Agreement, subject to the following: the Buyer and Yuba reach agreement as to the quantities of Components 1 through 4 Water that Yuba will deliver to the Buyer (but which quantities will not be less than 20,000 acre-feet of Water in any Water Accounting Year through December 31, 2025, other than during a Conference Year), to reflect the ability of Yuba to deliver these quantities of Water consistent with: (a) the terms of the FERC Long-Term License; (b) the water supply needs within the service area of Yuba; and (c) the Buyer and Yuba's intent to negotiate in good faith the quantity and pricing provisions applicable to Components 1 through 4 Water during the term of the FERC Long-Term License.

16. Environmental Compliance.

Yuba, as lead agency under CEQA has approved and filed a notice of determination concerning the implementation of the Yuba River Accord and its environmental effects. DWR as a responsible agency under CEQA will file a notice of determination concerning its responsibilities as to environmental effects of implementing this Agreement for the Yuba River Accord.

17. Approvals and Conditions Precedent to Performance of this Agreement.

A. Section 5.2 of the Yuba Act.

Yuba represents that Yuba has complied with the provisions of Section 5.2 of the Yuba Act, which requires that, prior to entering into this Agreement, the Board of Directors of Yuba to: (1) determine that water to be purchased under this Agreement would be surplus to the amount of water available to meet the contractual requirements of Member Units; (2) hold a public hearing to receive and consider comments on and objections to this Agreement; (3) confirm that a majority in number of registered voters residing within Yuba County have not filed written protests against this Agreement; and (4) find that the long-term purchase of water under this Agreement may be carried

out without injuring any legal user of water, without unreasonably affecting fish, wildlife or other instream beneficial uses, and without unreasonably affecting the overall economy of Yuba County.

B. Compliance with Water Code Section 1745.10.

Yuba represents that Yuba has complied with the provisions of Water Code Section 1745.10.

C. Other Approvals by Yuba.

Yuba will be responsible for obtaining approval of the State Board as necessary to enable this Agreement to be fully implemented, and for obtaining any other permits and approvals necessary for Yuba to make Water available for diversion by the Buyer under this Agreement. Pursuant to Section 24H of this Agreement, the Buyer will provide reasonable assistance to Yuba in Yuba's actions to obtain any permits or approvals that may be necessary for Yuba to make Water available for diversion by the Buyer under this Agreement.

D. Other Approvals by Buyer.

Except as otherwise addressed in this Agreement, the Buyer will be responsible for complying with State and Federal laws necessary for the Buyer to divert and use the Water made available under this Agreement. Pursuant to Section 24H of this Agreement, Yuba will provide reasonable assistance to the Buyer in the Buyer's actions to obtain any permits or approvals that may be necessary for the Buyer to divert and use Water that Yuba will make available under this Agreement.

18. Place of Use of Water.

Water made available under this Agreement will be not used outside of the place of use specified in the State Board order approving this delivery of Water from Yuba to the Buyer, without the written consent of Yuba.

19. Hold Harmless.

A. DWR will not assert that Yuba, its officers, agents or employees, are liable for damages of any nature whatsoever arising out of any actions or omissions by DWR, its officers, agents or employees, related to DWR's performance of this Agreement, where such liability is caused by an act, error or omission of DWR, its officers, agents or employees.

B. Yuba will not assert that DWR, its officers, agents or employees, are liable for damages of any nature whatsoever arising out of any actions or omissions by Yuba, its officers,

agents or employees, related to Yuba's performance of this Agreement, where such liability is caused by an act, error or omission of Yuba, its officers, agents or employees.

C. To the extent permitted by California law, Yuba will indemnify, defend and hold DWR and its officers, agents and employees safe and harmless from any and all claims, judgments, damages, penalties, costs, liabilities and losses (including without limitation, sums paid in settlement of claims, actual attorney's fees, paralegal fees, consultant fees, engineering fees, expert fees and any other professional fees) that arise from or are related in any way to Yuba's activities under this Agreement that are under the exclusive control of Yuba, including but not limited to the release, conveyance, use or distribution of water released by Yuba from the Yuba Project for purposes of this Agreement.

D. To the extent permitted by California law, DWR will indemnify, defend and hold Yuba and its officers, agents and employees safe and harmless from any and all claims, judgments, damages, penalties, costs, liabilities and losses (including without limitation, sums paid in settlement of claims, actual attorney's fees, paralegal fees, consultant fees, engineering fees, expert fees and any other professional fees) that arise from or are related in any way to DWR's activities under this Agreement that are under the exclusive control of DWR, including but not limited to the conveyance, use or distribution of water made available by Yuba from the Yuba Project for purposes of this Agreement.

E. Yuba and its officers, agents, employees and insurers will not be responsible for the quality of water made available by Yuba from the Yuba Project for purposes of this Agreement.

20. *Force Majeure Event.*

A. A *Force Majeure* Event will excuse or suspend performance as provided in this section for the duration of the *Force Majeure* Event. To the extent that *Force Majeure* Event prevents the Buyer from using the Water delivered by Yuba, then: (a) the Buyer will be excused from paying for Components 2 through 4 Water during the duration of the *Force Majeure* Event; and (b) Yuba will retain the payments received for Component 1 Water with no obligation to deliver this Component 1 Water again at some later time.

B. To the extent that a *Force Majeure* Event prevents Yuba from providing Components 1 through 4 Water, then: (a) Yuba's performance will be excused during the duration of the *Force Majeure* Event; (b) Yuba will not be required to refund payments for Component 1 Water; and (c) Yuba will deliver this Component 1 Water supply at some later time on a schedule that is acceptable to the Buyer and Yuba.

C. During a *Force Majeure* Event, each of the Parties will, to the extent practicable, take actions to minimize the impacts of the *Force Majeure* Event on the other Parties.

21. Regulatory Action.

In the event of a Regulatory Action during the term of this Agreement: (a) the affected Party will promptly notify the other Parties of the Regulatory Action and the manner in which it affects performance under this Agreement; and (b) the Parties will proceed under the process provided for in Section 22 ("Remedies and Dispute Resolution"), to the extent applicable. This section does not affect the other rights and remedies of the parties under this Agreement.

22. Remedies and Dispute Resolution.

A. Should any material disputes arise concerning any provision of this Agreement, or the rights and obligations of the Parties thereunder, including those involving possible termination or those that might cause the initiation of any administrative or judicial proceeding to enforce or interpret this Agreement, the Parties will present the issue to the Management Committee (which may request assistance from the Technical Committee) for a recommendation for resolving the dispute.

B. If the Process described in the preceding subsection fails to resolve the dispute within thirty days, the Parties will submit the dispute to a mediator who has experience in water-related disputes. The costs of any such mediation will be borne one-third each by the Parties. Initiation of this mediation process will be through written notice by one Party to the other Parties. The Parties reserve all of their other remedies that may be provided by law or equity in the event that such mediation fails to resolve a dispute. The Parties, in consultation with the mediator, will use their best efforts to resolve the dispute within thirty days. Under no circumstances, however, will mediation under this Section 22 result in a requirement that diminishes, limits or contravenes the discretion, authority or any delegated authority of the Director of DWR under State law.

C. If mediation fails to resolve the dispute, and prior to commencing any legal action to resolve the dispute, the Party proposing to commence legal action will provide the other Party thirty days' written notice of such action, provided that such notice will not be required where a delay in commencing an action would prejudice the interests of the Party that intends to file suit. During the thirty-day notice period, the Parties will continue to attempt to resolve the dispute.

23. Effect of this Agreement on other Matters.

A. As a Precedent.

Nothing in this Agreement is intended or will be construed as a precedent or other basis for any argument that the Parties have waived or compromised their rights that may be available under State or federal law, except as to matters addressed in this Agreement.

B. As to Water Rights.

The only rights granted to the Parties as a result of this Agreement are those expressly set forth in this Agreement. The providing of water by Yuba under this Agreement will not confer any appropriative, public trust or other right to water on any person or entity. Nothing in this Agreement is intended or will be construed to act as a forfeiture, diminution or impairment of any water right of Yuba. Consistent with the provisions of California Water Code sections 109, 475, 1011, 1014 through 1017, 1244 and 11961, the delivery of water under this Agreement will not be evidence of or used to demonstrate either the existence of surplus water after this Agreement expires, or the lack of beneficial use of the water supplies referred to in this Agreement, and the Parties will not contend otherwise. In accordance with Water Code section 1016, and other applicable provisions of California law, at the conclusion of the term of the water transfers provided for under this Agreement, all rights in, and the use of, the water supplies referred to in this Agreement will revert back to Yuba, and DWR or any beneficiary of this Agreement, will not do either of the following: (1) bring any claim for continuation of the water supply made available by this Agreement; or (2) claim any right to a continued supply of water made available under this Agreement, based on reliance, estoppel, intervening public use, prescription, water shortage emergency, or unforeseen or unforeseeable increases in demand, or any other cause.

C. As to the Phase 8 Settlement

Nothing contained in this Agreement affects the Parties' respective rights and obligations under the Short-Term Phase 8 Agreement. The Parties agree that water provided by Yuba under the Short-term Phase 8 Agreement will be accounted for and delivered on a higher priority than water delivered under this Agreement.

D. As to Termination of the EWA Program

1. DWR intends that Component 1 Water will be dedicated to the EWA, and that in the future, upon completion of environmental documentation for a long-term EWA, the EWA would be sized sufficiently to accommodate the proposed South Delta Improvement Program, including the proposal to increase the maximum diversion rate into Clifton Court Forebay for the SWP Bank's Pumping Plant. If the EWA terminates, DWR agrees that Component 1 Water remaining to be delivered under this Agreement will be managed annually, as follows: (a) Component 1 Water in any year will be used to enhance water supply reliability of the Delta export facilities by off-setting new mandatory restrictions imposed on the CVP and SWP, including those imposed by the federal court order in *NRDC v. Kempthorne,* or through a subsequent biological opinion for conservation or protection of fish, and (b) if any Component 1 Water remains after off-setting the restrictions set forth in subsection (a) above, then the remaining Component 1 Water will be used as determined by DWR in close coordination with the California Department of Fish and Game and consistent with the water supply reliability project requirements of the funding source

from which this water was purchased (Chapter 7(d) of Proposition 50, California Water Code Section 79550(d)).

2. Except as provided in the previous subsection, none of the rights and obligations of the Parties under this Agreement will be affected in the event that the EWA program terminates prior to the expiration of the term of this Agreement.

E. As to the Fisheries Agreement.

None of the rights and obligations of the Parties under this Agreement will be affected in the event that the Fisheries Agreement terminates prior to the expiration of the term of this Agreement.

F. As to the Application of Section 27 of the Federal Power Act.

Section 27 of the Federal Power Act limits the licensing authority of FERC with respect to a law regarding the control, appropriation, use or distribution of water used in irrigation or for municipal or other uses. The Parties, and the SWP and the San Luis & Delta-Mendota Water Authority, will not contend or bring any claim that any provision of this Agreement is a law regarding the control, appropriation, use or distribution of water used in irrigation or for municipal or industrial uses, as these terms are used in Section 27 of the Federal Power Act.

24. General Contracting Provisions.

A. Notices.

The time for providing any notices specified in this Agreement may be extended within the term of this Agreement with the consent of the Parties, confirmed in writing, without requiring an amendment to this Agreement. All notices and other communications required under this Agreement will be in writing, and will be deemed to have been duly given upon the date of service, if: (a) served personally on the Party to whom notice is to be given; (b) sent by electronic mail, and the Party to whom notice is to be given confirms receipt; or (c) on the third day after mailing, if mailed to the Party to whom notice is to be given by first-class mail, postage prepaid, and properly addressed to the designated representatives of the Parties set forth below. A Party may notify the other Parties in writing of a change in its designated representatives, without requiring an amendment to this Agreement.

DWR: Director
Department of Water Resources
1416 Ninth Street, Room 1115-1
P.O. Box 942836
Sacramento, CA 94236-0001

With Copy to:
Chief, State Water Project Analysis Office
1416 Ninth Street, Room 1620-A
P.O. Box 942836
Sacramento, CA 94236-0001

Yuba: General Manager
Yuba County Water Agency
1402 D Street
Marysville, CA 95901

B. Signatories' Authority.

The signatories to this Agreement represent that they have authority to execute this Agreement and to bind the Party on whose behalf they execute this Agreement. Yuba will provide to DWR a copy of a resolution or minute order authorizing execution of this Agreement.

C. Counterparts of this Agreement.

This Agreement may be signed in any number of counterparts by the Parties, each of which will be deemed to be an original, and all of which together will be deemed to one and the same instrument. This Agreement, if executed in counterparts, will be valid and binding on a party as if fully executed all in one copy.

D. Binding on Successors/Assignment.

This Agreement will bind and inure to the benefit of the respective successors and assigns of the Parties, except that, none of the obligations of the Parties set forth in this Agreement will be assigned without the prior, written approval of the other Parties, which approval will not unreasonably be withheld.

E. No Third-Party Beneficiaries, Except as Expressly Provided.

This Agreement will not be construed to create any third-party beneficiaries, except as set forth in this section. This Agreement is for the sole benefit of the Parties, their respective successors and assigns, and no other person or entity will be entitled to rely on or receive any benefit from this Agreement or any of its terms.

F. Amendments.

This Agreement may be amended or modified only by a subsequent written agreement

approved and executed by the Parties.

G. Opinions and Determinations.

Where the terms of this Agreement provide for action to be based upon the opinion, determination, approval or review of either Party, such terms are not intended to be, and will not be construed as permitting such actions to be arbitrary, capricious or unreasonable. Any opinion, determination, approval or review required of a Party under this Agreement will be provided in a timely manner.

H. Reasonable Cooperation.

The Parties will reasonably cooperate with each other, including the execution of all necessary documents and providing assistance in obtaining approvals and permits from regulatory agencies required to perform the obligations under this Agreement and to carry out the purpose and intent of this Agreement.

I. Construction and Interpretation.

This Agreement is entered into freely and voluntarily. This Agreement has been arrived at through negotiation, and each Party has had a full and fair opportunity to revise the terms of this Agreement. Consequently, the normal rule of construction that any ambiguities are to be resolved against the drafting party will not apply in construing or interpreting this Agreement.

J. Complete Contract.

This Agreement constitutes the sole, final, complete, exclusive and integrated expression and statement of the terms of this Agreement among the Parties concerning the subject matter, and supersedes all prior negotiations, representations or agreement, either oral or written, that may be related to the subject matter of this Agreement, except as to those other agreements that are expressly referred to in this Agreement.

K. Determination of Unenforceable Provisions.

If any term or provision of this Agreement is deemed invalid or unenforceable by any court of final jurisdiction, the Parties will meet and attempt to address this situation pursuant to the provisions of Section 22 ("Remedies and Dispute Resolution") of this Agreement.

L. Waiver.

The waiver at any time by a Party of its rights with respect to a default or other matter arising in connection with this Agreement will not be deemed a waiver with respect to any other

default or matter.

M. Time.

Time is of the essence in this Agreement. Any date specified in this Agreement may be changed with the written consent of the Parties.

N. Applicable Law.

This Agreement will be construed under and will be deemed to be governed by the laws of the United States and the State of California.

O. Venue.

Any appropriate County under California law will be venue for any state court litigation concerning the enforcement or interpretation of this Agreement.

P. Remedies Not Exclusive.

The remedies provided in this Agreement are cumulative and not exclusive, and are in addition to any other remedies that may be provided by law or equity. The exercise by the Party of any remedy under this Agreement will be without prejudice to the enforcement of any other remedy.

Q. Officials Not To Benefit.

No member or delegate to Congress, Resident Commissioner, or Federal or State official will be admitted to any share or part of this Agreement or to any benefit that may arise therefrom.

R. Standard Clauses.

Yuba will comply with the State of California, Department of Water Resources, Standard Clauses as shown on Exhibit 4 ("State of California, Department of Water Resources, Standard Clauses") to this Agreement.

S. Exhibits Incorporated.

Each exhibit to which reference is made is deemed incorporated in this Agreement, whether or not actually attached.

The foregoing is hereby agreed to by the Parties.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the date first written above.

Approved as to legal form
and sufficiency:

Chief Counsel
Department of Water Resources

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Director
Department of Water Resources

YUBA COUNTY WATER AGENCY
A Political Subdivision of the
State of California

Attest:

Secretary
Yuba County Water Agency

By:
Chairman of the Board

List of Exhibits

Exhibit 1 **Scheduling and Accounting Principles**

Exhibit 2 **Reservoir Refill Accounting Provisions**

Exhibit 3 **Groundwater Substitution Transfer Monitoring and Operations**

Program

Exhibit 4 **State of California, Department of Water Resources, Standard Clauses**

EXHIBIT 1

Scheduling and Accounting Principles

OVERVIEW

Monitoring, measuring, and accounting of the water that will be transferred under the this Agreement can be generally described as consisting of two fundamental parts: (1) measuring the flows at the Marysville Gage resulting from increased releases from storage in New Bullards Bar Reservoir that are greater than the baseline, without-transfer flows; and (2) measuring the ability of the Projects and the EWA to apply these flows to beneficial uses. The amounts of increased releases will be determined by measuring the outflow of the Yuba River at the Marysville Gage, and by measuring groundwater substitution pumping associated with this Agreement. The Projects' ability to use the water will be determined by the ability of the Projects to export the water at the Projects' Delta pumping facilities or to put the water to other beneficial uses. That is, water accounted for as transfer water under this Exhibit will include Released Transfer Water that is deemed to be Delivered Transfer Water, as those terms are defined in this Exhibit.

1. DEFINITIONS

Terms used in this Exhibit have the same definitions as the definitions listed in Section 1 of this Agreement. When used in this Exhibit, the following terms have the following definitions:

"Accord Flows" mean the schedule of instream flows listed in Exhibit 1 of the Fisheries Agreement.
"**Accounting Year**" means January 1 to December 31.
"Agreement" means the "Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources."
"Balanced Conditions" mean the hydrologic condition of the Delta as defined in the November 24, 1986 "Agreement between the United States of America and the State of California for Coordinated Operations of the Central Valley Project and the State Water Project." ("COA")
"Baseline Conditions" mean the conditions deemed under this Exhibit to represent the conditions that would have occurred without implementation of this Agreement or the Fisheries Agreement. "Baseline Conditions" define the without-transfer conditions and would result in the Baseline Flows.
"Baseline Diversions" mean the diversions that are defined in section 2.3.1.1 of this exhibit.
"Baseline Flows" mean the flows that would have been present at the Marysville Gage under the Decision 1644 interim instream flow requirements and all other Baseline Conditions, without implementation of the Yuba River Accord.

"Baseline Storage" means the amount of water that would have been stored in New Bullards Bar Reservoir under Baseline Conditions.

"Baseline Storage Target" means the storage targets that are defined in section 2.4 of this exhibit.

"Carriage Water" means the water losses due to increased Delta outflow necessary to maintain baseline Delta salinity conditions as determined by DWR, that are associated with Delivered Transfer Water or Stored Released Transfer Water that is exported at the Projects' Delta pumping facilities.

"Delivered Transfer Water" means Released Transfer Water that is accounted as being exported by the Projects, or contributing to exports, as described in Section 5 of this exhibit.

"**Delta Export Facilities**" means the Banks and Jones pumping facilities as determined to be available for export by the Projects

"Flow Fluctuation Operations" means operations driven by flow fluctuation criteria rather than minimum flow requirements or storage operations.

"Groundwater Substitution Component" means the quantity of Released Transfer Water that Yuba makes available from releases from New Bullards Bar Reservoir as a result of Yuba's groundwater substitution pumping program, and that is not related to releases for the Storage Component of Released Transfer Water. Groundwater Substitution Component water will be made available under the Conjunctive Use Agreements by Member Units forgoing surface water deliveries and instead pumping groundwater as a replacement water supply for local irrigation needs.

"Marysville Gage" refers to USGS Gaging Station No. 11421000, Yuba River near Marysville.

"Minimum Flows" is the required minimum instream flows specified in Decision 1644 page 176 table titled "Interim Instream Flow Requirements"

"Negative Transfer Flows" means the additional amount of flows above the Accord Flows that would have been released as part of a Baseline Flows when the Baseline Conditions Decision 1644 interim instream flow requirement is greater than the Accord Flows. "Negative Transfer Flows" are further defined in Section 4.4 of this exhibit.

"North Yuba Index" means the index used to determine the applicable Fisheries Agreement flow schedule for the Lower Yuba River. This index is defined in Exhibit 4 of the Fisheries Agreement.

"Percent Inflow Diversion Loss" means the amount of Released Transfer Water that is lost due to the restrictions imposed by the "maximum percent of Delta inflow diverted" standard as described in the SWRCB Revised Decision 1641 when that standard is generally 35% from February 1 to April 30.

"Projects" mean the CVP and the SWP.

"Refill" is a condition of reduced releases from New Bullards Bar Reservoir as compared with the releases that would occur under Baseline Conditions. These reduced releases could result from diversions to storage to fill storage space evacuated as a result of releases that created the Storage Component of Released Transfer Water.

"Released Transfer Water" means the average daily flows measured at the Marysville Gage that are greater than the Baseline Flows. "Released Transfer Water" is further described in Section 4.2 of this exhibit.

"Section" refers to sections of this Exhibit, unless otherwise stated.

"**Smartville Gage**" refers to USGS Gaging Station No. 11418000, Yuba River below Englebright Dam, near Smartville

"Storage Component" means the quantity of Released Transfer Water that Yuba makes available from storage releases from New Bullards Bar Reservoir, and which storage is not a result of storage releases resulting from Groundwater Substitution Component operations.

"Stored Released Transfer Water" means the stored water in Project upstream reservoirs. "Stored Released Transfer Water" is further defined in Section 4.3 of this Exhibit.

"Total Uncontrolled Flows" mean the total amount of flows entering Englebright Reservoir, other than from releases from the New Colgate Powerhouse, plus flows from Deer Creek and Dry Creek into the lower Yuba River downstream of Englebright Reservoir.

2. BASELINE CONDITIONS

Baseline Conditions are the controlling constraints and criteria for operation of the Yuba Project that determine Baseline Flows for the accounting of Released Transfer Water during the term of this Agreement. Baseline Conditions include the following:

2.1. **Regulatory Instream Flow Requirements:**

2.1.1. Decision 1644 interim instream flow requirements.

2.1.2. FERC License 2246 instream flow requirement of 400 cfs at the Marysville Gage (below Daguerre Point Dam) for the period of October 1-14, including the dry year reductions of this flow requirement that are authorized in the License.

2.1.3. Flow reduction restrictions required by FERC License 2246.

2.1.4. Flow fluctuation restrictions specified in the November 22, 2005 FERC Order Modifying and Approving Amendment of License (at page 11 of that order).

2.2. **Operational Agreements:**

2.2.1. The PG&E Power Contract, as modified by the July 16, 2002 Agreement Concerning Power Purchase Contract of 1966 and Consolidated Operations of the Narrows I and

Narrows II Powerhouses. The 2002 Agreement removed the generation quota terms of the PG&E Power Contract for the months of January to June.

2.3. **Water Supply Agreements:**

2.3.1. Water supply agreements between Yuba and the following Member Units: Browns Valley Irrigation District, Hallwood Irrigation Company, Cordua Irrigation District, Ramirez Water District, Brophy Water District, South Yuba Water District, Dry Creek Mutual Water Company and Wheatland Water District.

2.3.1.1. Baseline Diversions that are made under the agreements listed in Section 2.3.1 are the measured diversions as reported by Yuba, including any reduced diversions that are made to provide water for the Groundwater Substitution Component, and including other reduced diversions that are implemented as part of defined water efficiency or conservation programs or projects.

2.4. **Baseline Storage Target Line** is a graphical line of the maximum storage levels during the year at which Yuba would normally operate New Bullards Bar Reservoir under Baseline Conditions.

2.4.1. These levels are:

- September 30: 705,000 acre-ft;
- October 1 to October 31: linearly ramped from 705,000 acre-ft to 700,000 acre-ft;
- November 1 to February 15: 700,000 acre-ft;
- February 16 through March 31: linearly ramped from 700,000 acre-feet to 796,000 acre-feet;
- April 1 through April 30: linearly ramped from 796,000 acre-feet to 896,000 acre-feet;
- May 1 through May 31: linearly ramped from 896,000 acre-feet to 966,000 acre-feet; and
- June 1 through June 30: 966,000 acre-feet.
- July 1 to September 29: no fixed Baseline Storage Target amounts are provided for this period, because the maximum storage levels during this period at which Yuba would normally operate New Bullards Bar Reservoir under Baseline Conditions are governed by the runoff hydrology conditions of the Yuba River.

3. BASELINE FLOWS DETERMINATION

3.1. Baseline Flows will be determined as mean daily flows in cubic feet per second (cfs), with a separate determination for each day of the accounting period. Baseline operations will be

characterized by four categories of operation, each of which are governed by the overriding operational constraint for the applicable time period. The four categories of operation are: (1) Operation to Minimum Flows; (2) Operation to Baseline Storage Target release; (3) Transitional Operations; and (4) Flow Fluctuation Restricted Operations. The four categories and the calculation to determine the Baseline Flows under each category of operation as well as a general description of when each category will occur are described below. Once one of the four categories of operation has been determined to be in effect, the procedures of this section will be used to determine the resulting Baseline Flows that would have occurred at the Marysville Gage. Yuba will prepare a guideline description of baseline operations that can be used by the Parties and others to understand the operations of the Yuba Project that would occur under Baseline Conditions.

3.2. Due to the complex nature of the controlling operational criteria for the Yuba Project and the hydrology of the Yuba River watershed, there may be periods when conditions will not allow for use of the accounting procedures listed for any of these four categories of operations to determine the Baseline Flows. Technical representatives from each Party will work together to attempt to resolve the transfer accounting for such periods. If the Parties cannot agree upon the accounting for such periods, then the dispute resolution process of section 10.2 of this exhibit will be followed.

3.3. **Operation to Minimum Flows** is the controlling category of operation when releases under Baseline Conditions would have been made to maintain the minimum required flows at the Marysville Gage or at the Smartville Gage, whichever is the controlling location. The flow requirements listed in the table titled "Interim Instream Flow Requirements" on page 176 of Decision 1644 are the regulatory minimum required flows under Baseline Conditions and are the Baseline Flows that would occur when this category of operation is controlling.

3.3.1. **Determination of When Operation to Minimum Flows Would Occur -**

3.3.1.1. Beginning October 1, operations under Baseline Conditions will be considered to be at Minimum Flows unless or until there is a need to increase releases to manage storage levels at or below the Baseline Storage Targets. In the late winter and spring, forecasted runoff and resulting New Bullards Bar Reservoir storage govern when releases would exceed the minimum flows. For the winter and spring, if storage in New Bullards Bar Reservoir would have been at or above the Baseline Storage Targets with continued operations to minimum flows then a transition to releases above the minimum flow requirements would occur.

3.3.1.2. For the months of March through September, if, with releases from New Bullards Bar Reservoir to meet the Decision 1644 Interim Instream Flow Requirements and

Baseline Diversions, the end-of-September Baseline Storage Target in New Bullards Bar Reservoir would have been at or below 705,000 acre-feet, then the Baseline Flows for this period will be the Decision 1644 Interim Instream Flow Requirements.

3.3.2. **Calculation of Baseline Flow under Operations to Minimum Flows.** If operations to minimum flows has been determined to occur as described in Section 3.3 then Baseline Flows will be calculated as follows:

3.3.2.1. Calculate the River Balance – The River Balance includes intervening accretions or depletions of the Yuba River between the Smartville Gage and the Marysville Gage. The River Balance equals the measured flow at the Marysville Gage plus the measured Yuba diversions minus the measured flow at the Smartville Gage

3.3.2.2. Calculate the Baseline Flow – The Baseline Flows equal the greater of the required Decision 1644 Interim Instream Flow Requirement at the Smartville Gage minus the sum of the measured Yuba diversion plus the River Balance or the required Decision 1644 Interim Instream Flow Requirement at the Marysville Gage plus any adjustments for Total Uncontrolled Flows that would not have been offset by a reduction in releases from Englebright Reservoir. The adjustment of Total Uncontrolled Flows will include short-duration increases in releases from the Narrows II Powerhouse due to short-term increases in power demands, power outages resulting in loss of control of releases from Englebright Dam and short duration uncontrolled runoff downstream of Englebright Dam that occurs when there is no Decision 1644 Interim Instream Flow Requirement at the Smartville Gage.

3.4. Operations to Target Storage Release

3.4.1. For all times of the year, Operations to Target Storage Release is the controlling category of operation if operation to Minimum Flows would result in New Bullards Bar Reservoir storage above the Baseline Storage Target. If Operations to Target Storage Release would have occurred, then the Baseline Flow is the rate of release that would have been needed to meet the monthly Baseline Storage Target amount in New Bullards Bar Reservoir.

3.4.2. In the months of December through March, forecasts of future inflow and actual inflow are used to develop release decisions. During these months, operations are to

manage storage to meet the springtime Baseline Storage Target, while avoiding spills of water from New Bullards Bar Reservoir.

3.4.3. If the end-of-September storage in New Bullards Bar Reservoir under Baseline Conditions would have been above 705,000 acre-feet with releases from New Bullards Bar Reservoir minimized to meet the Decision 1644 Interim Instream Flow Requirements and diversions, then the Baseline Flows will be the flow rate schedule that would have been needed to release sufficient water from New Bullards Bar Reservoir to meet an end-of-September storage of 705,000 acre-feet.

3.4.4. The accounting in wetter years in the summer period is based on reaching storage in New Bullards Bar Reservoir on September 30 as described in and subject to the provisions above. The water storage volume in New Bullards Bar Reservoir is affected by natural inflow, and the scheduled release of water from New Bullards Bar Reservoir is predicated on an estimate of this inflow. Because the release of water to achieve the target storage is relatively fixed as of mid-summer, Yuba and the Projects may revise the target storage volume in New Bullards Bar Reservoir if mutual agreement is reached.

3.5. **Transition Operations** would have occurred when Baseline Releases would have previously been governed by either Operation to Minimum Flows or Operation to Target Storage Release and the operational constraint would have shifted to the other type of operation. Under this condition, a period of transition would have occurred and flows would have been based on the specific conditions at that time, including actual runoff, forecasts of runoff, and planned operations. Because each circumstance of Transition Operations would have been different, Yuba will prepare forecasted Baseline Flows for the transition time period and provide supporting data to show why the Baseline Flows would have been expected to have occurred. Maximum hourly and daily rates of flow change are prescribed in FERC License 2246 and the "November 22, 2005 FERC Order Modifying and Approving Amendment of License" for the Baseline Flows operations.

3.6. **Flow Fluctuation Operations** would have occurred when the FERC License 2246 restriction on flow reductions in the months of October to March, or the restriction on flow reductions in the November 22, 2005 FERC Order Modifying and Approving Amendment of License would have required flows to be maintained above the minimum flows. Flow Fluctuation Operations would have been managed the same as Operations for Minimum Flows except that the minimum instream flow requirement would be prescribed by the flow reduction restrictions in FERC License 2246 or the flow fluctuation restrictions in the November 22, 2005 FERC Order Modifying and Approving Amendment of License, rather

than the Decision 1644 Interim Instream Flow Requirements. As early as practical, Yuba will provide the minimum allowable flows for flow fluctuation operations as the Baseline Flows to DWR, along with an explanation of the determination of these Baseline Flows.

3.7. **Fishery Study Flows** - The Fishery Agreement calls for the development of fishery studies. Some of the studies to be conducted could involve fluctuation of flows during some periods. If a defined flow release schedule is planned as part of a fishery study administered by Yuba or the River Management Team (a group defined in the Fisheries Agreement) under the Fisheries Agreement, then these flows in this schedule will not be part of Baseline Flows and, if all other aspects of this exhibit are satisfied, then the amounts of these flows that exceed Baseline Flows will be accounted as Released Transfer Water. Any reduced releases as part of a fishery study will be accounted as a Negative Transfer Flow if the conditions of Section 4.4 of this exhibit Negative Transfer Flow are met. At a minimum of 14 days prior to the start of any such study, and as early as possible, Yuba will provide notice of any Fishery Study Flows to DWR.

3.8. **Baseline Storage** -Yuba will use the Baseline Flow amounts to determine the daily storage in New Bullards Bar Reservoir that would have occurred under Baseline Conditions. The calculation of Baseline Storage will use the actual inflows into New Bullards Bar Reservoir and Total Uncontrolled Flows into the lower Yuba River, along with a daily calculation of the releases from New Bullards Bar Reservoir that would have been made to meet the Baseline Flows, to determine the daily Baseline Storage amount. The Baseline Storage amount will be used to calculate the Base Transfer amount for Refill accounting in **Exhibit 2** of this Agreement.

4. TRANSFER WATER DELIVERY AND FLOW MEASUREMENT

4.1. **Point of Measurement and Delivery** - The point of delivery and the point of measurement of Released Transfer Water, and the point for determination of Baseline Flows, all will be at the Marysville Gage. The flows used for calculating Released Transfer Water and Baseline Flows will be mean-daily flows in cfs.

4.2. **Released Transfer Water** will be the amount of the actual mean-daily flow that has been measured at the Marysville Gage minus the mean daily Baseline Flows for the same day. The mean daily Baseline Flow will be determined according to the methods described in Section 3 of this exhibit.

4.3. **Stored Released Transfer Water** is water that has been accounted for as Released Transfer Water and that results in increased storage in an upstream Project reservoir (that is, water that is "backed into storage"). Released Transfer water will be deemed to have been stored

in an upstream Project reservoir when the Delta is in Balanced Conditions, there is no available pumping capacity at Project Delta pumping facilities, and releases from Project storage reservoirs would have been greater in the absence of Released Transfer Water. The incrementally greater Project release necessary under Baseline Conditions will be accounted for as Stored Released Transfer Water in Project storage. This accounting of Stored Released Transfer Water will be kept to determine whether Stored Released Transfer Water can subsequently be released from Project storage and exported by the Projects under Section 5.5 of this exhibit, and thus be accounted for as Delivered Transfer Water. Every effort will be made to account for Stored Released Transfer Water as backing into Oroville Reservoir as a first preference. This will necessitate an adjustment in the COA between the two Projects.

4.4. **Negative Transfer Flows** – During certain periods, the amount of the actual measured flow under Section 4.1 of this exhibit may be lower than the applicable Decision 1644 Interim Instream Flow Requirement. During these periods, the Baseline Flows will be the applicable Decision 1644 Interim Instream Flow Requirement. During these periods, the amount of the applicable Decision 1644 Interim Instream Flow Requirement minus the measured flow under Section 4.1 of this exhibit will be accounted for as a Negative Transfer Flow. If a Negative Transfer Flow occurs on a day when all or a portion of the Negative Transfer Flow amount could have been accounted for as Delivered Transfer Water as described in Section 5.5 of this exhibit, then this amount will be deducted from the total Delivered Transfer Water for the Water Accounting Year in which the Negative Transfer Flow occurred.

4.5. **Groundwater Substitution Component Flow** – Released Transfer Water may be fully or partially derived from Groundwater Substitution Component water. **Exhibit 3** of this Agreement describes the process that will be used to determine the planned amount of Groundwater Substitution Component water that will be provided each year and the monitoring and reporting that will be conducted by Yuba and participating Member Units for Groundwater Substitution Component operations.

4.5.1. Delivery and Measurement – Groundwater Substitution Component water will be delivered at the Marysville Gage, and measured as Released Transfer Water under Section 4.2 of this exhibit.

4.5.2. Water released as Groundwater Substitution Component water will not be included in the transfer amount for Refill accounting in **Exhibit 2** of this Agreement.

4.5.3. The total amount of Released Transfer Water that will be designated as Groundwater Substitution Component water will be limited to the amount of groundwater pumping that is measured by the procedures described in **Exhibit 3** of this Agreement.

5. DETERMINATION OF DELIVERED TRANSFER WATER

5.1. Delivered Transfer Water may only occur when the Delta is determined by DWR to be in Balanced Conditions.

5.2. For this Agreement, it is assumed that Released Transfer Water measured at the Marysville Gage will reach the Projects' Delta export pumps two days after the date of measurement at the Marysville Gage.

5.3. For this Agreement, Released Transfer Water used as Carriage Water or used as Delta outflow when the E/I ratio is controlling in the time period of July 1 to January 31 by the Projects will be accounted as Delivered Transfer Water as described in Section 5.11 of this exhibit. For this Agreement, Percent Inflow Diversion Loss will not be accounted as Delivered Transfer Water.

5.4. For this Agreement, it is assumed that there will be no conveyance losses between the Marysville Gage and the Projects' Delta pumping facilities.

5.5. For each day that Released Transfer Water is accounted for under Section 4.2 of this exhibit, Stored Released Transfer Water accounted for under Section 4.3 of this exhibit is released from Project storage, a determination will be made, utilizing information provided by DWR that is described in Section 5.11 of this exhibit, regarding whether or not there was capacity available at the Projects' Delta export facilities.

5.6. Stored Released Transfer Water will be released from Project storage only if capacity at the Projects' Delta pumping facilities is available unless the water "spills" from Project storage before such export capacity becomes available and therefore will not be accounted for as Delivered Transfer Water.

5.7. The lesser of the following two amounts will be accounted for as Delivered Transfer Water if DWR has determined that capacity is available at the Delta export facilities as described in Section 5.11.

5.7.1. The Released Transfer Water amount determined under Section 4.2 of this exhibit, or

5.7.2. The incremental increase in exports that occurs as a result of Released Transfer Water during a period when Percent Inflow Diversion Loss is occurring.

5.8. For each day that there are Negative Transfer Flows as accounted for under Section 4.4 of this exhibit, a determination will be made regarding the amount of reduced Delta exports or

increased Project releases that resulted from the Negative Transfer Flow. A Negative Transfer Flow will be accounted for as a debit to the total amount of Stored Released Transfer Water if the effect of the Negative Transfer Flow is that it causes an increase in Project releases or reduces Delta exports.

5.9. Some or all of the Stored Released Transfer Water will be deemed to have been spilled from Project reservoir storage and will be debited from the account described in Section 4.3 of this exhibit, if the Project reservoir in which the Stored Released Transfer Water is stored makes flood control releases. The debit amount will equal the actual amount of Stored Released Transfer Water spilled, or the total amount of Stored Released Transfer Water, whichever is less.

5.10. Along with the accounting of Delivered Transfer Water, Yuba will maintain an accounting of the Base Transfer amount for Refill accounting. The Base Transfer amount for refill accounting will be calculated as the difference in volume of actual New Bullards Bar Reservoir storage and the Baseline Storage that is directly attributable to the release of Delivered Transfer Water from New Bullards Bar Reservoir storage.

5.11. DWR will make every effort to export Released Transfer Water and Stored Yuba Water based on the available export capacity at the Projects' Delta pumping facilities, as determined by DWR, which includes a determination of capacity available after delivery of SWP water and water for regulatory, water right and contractual obligations.

6. PROCEDURES FOR ACCOUNTING OF BASELINE FLOWS AND TRANSFER AMOUNTS

6.1. The Water Accounting Year and provisions of this Agreement pertaining to notice and invoicing for Delivered Transfer Water will govern the timing of transfer accounting.

6.2. **Calculation of Forecasted Baseline Flows.** Yuba will calculate a preliminary forecast of Baseline Flows, as described in Section 3 of this exhibit on a monthly basis unless more frequent forecasted Baseline Flows are requested by DWR or provided by Yuba. The forecasted Baseline Flows along with forecasted flows will be used by DWR to plan Project operations to export Released Transfer Water. The preliminary forecast of the Baseline Flows will be made using forecasted hydrologic conditions for the month, based on Yuba River unimpaired flows forecasted in the most-recent DWR Bulletin 120 and any updates. Within 14 days after the end of the month, Yuba will provide DWR with its draft calculations of Baseline Flows.

6.2.1. Yuba will provide preliminary and draft final calculations of Baseline Flows to DWR for its review and concurrence. The calculation of preliminary Baseline Flows will be

used to predict the amount and timing of Released Transfer Water that will be generated for the upcoming period. During that period, Yuba may update the preliminary calculation of Baseline Flows as changes in hydrologic conditions affect the accuracy of the calculation. Yuba will provide to DWR all requested backup information and calculations, excluding any models that were the bases of the calculation of Baseline Flows, so that DWR may verify the calculation. If DWR concurs with the preliminary calculation of Baseline Flows, then such preliminary Baseline Flows will be used in coordinating operations and for any initial allocation of Released Transfer Water to Components 1, 2, 3 and 4 Water as described in Section 7 of this exhibit. Yuba will also provide a calculation of Baseline Storage for Refill accounting (**Exhibit 2**) and comparison with the Baseline Storage Target Line.

6.2.2. Due to the delayed release of final USGS reporting of flows at the Marysville Gage, Yuba's transfer accounting will use the mean-daily flows as reported by Yuba to the USGS. DWR will be given timely notice if this information subsequently changes due to re-rating or shifts in the Marysville Gage, as reported by Yuba to the USGS.

6.3. **Calculation of Final Baseline Flows and Delivered Transfer Water Amount.** At the time that Yuba develops a preliminary estimate of Baseline Flows and provides it to DWR, Yuba also will develop and provide to DWR a preliminary release schedule and forecast of daily Released Transfer Water. Yuba will update the release schedule and resulting forecast of daily Released Transfer Water no less than once per month, unless an alternative time period is agreed to by the Parties. Within fourteen days after the end of each month or within 14 days of an export period, Yuba will calculate a draft final Transfer Accounting under Section 6.3.5 of this exhibit. Section 11 of this exhibit describes the scheduling and coordination of sharing operational information.

6.3.1. Because of the variability of hydrologic conditions, and because of the uncertainty regarding whether or not DWR will call for option water in some periods, Yuba will prepare a matrix of one or more forecasted Baseline Flows, one or more release schedules and the resulting estimated quantities of Released Transfer Water. Yuba will provide indications of the relative probability of each Baseline Flows scenario that is provided in the matrix.

6.3.2. DWR will notify Yuba periodically, as information is available, when Project conditions are such that any of the forecasted Released Transfer Water may not be exported.

6.3.3. Calculation of the amount of Released Transfer Water will utilize the determination of export capacity and the Percent Inflow Diversion Loss provided to Yuba by DWR no

later than 14 days after the end of the assumed export period. An export period ends following a verifiable point in time at which Baseline Flows can be verified against the Baseline Storage Target Line as described in Section 3 of this exhibit.

6.3.4. If DWR concurs with Yuba's draft final calculation of Baseline Flows, then it will become the final Baseline Flows, and will be used for all final transfer accounting for the corresponding period.

6.3.5. Along with the calculation of the draft final Baseline Flows, Yuba will also calculate and submit to DWR a draft final accounting of the amounts of Components 1, 2, 3 and 4 Water that were Delivered Transfer Water during the accounting period. This draft final accounting will include entries for the following:

(a) Mean daily flow at the Marysville Gage, as measured according to Section 4 of this exhibit;

(b) Daily schedule of resulting Released Transfer Water according to Section 4.2 of this exhibit and accounting for Negative Transfer Flows under Section 4.4 of this exhibit;

(c) Calculation of Delivered Transfer Water under Section 5 of this exhibit, including any necessary reductions for Negative Transfer Flows and an accountings of Stored Released Transfer Water delivered and Stored Released Transfer Water remaining in storage, using the export capacities submitted DWR;

(d) Calculation of the amounts of Components 1, 2, 3 and 4 Water that were Delivered Transfer Water, as calculated under Section 7 of this exhibit; and

(e) A breakdown of the Storage Component and the Groundwater Substitution Component of the Delivered Transfer Water for the period.

(f) A calculation of the amount of reduced storage in New Bullards Bar Reservoir that resulted from releases of Storage Component Delivered Transfer Water. The resulting amount of reduced storage calculated at the start of the Refill Period will be the Base Transfer amount used for Refill accounting as described in **Exhibit 2.**

7. ACCOUNTING FOR COMPONENTS OF TRANSFER WATER

7.1. Water that has been determined to be Delivered Transfer Water will be credited towards one of four components of Water: Component 1, Component 2, Component 3, or Component 4.

7.2. Delivered Transfer Water will be credited to one of these four components of Water in the following priorities:

7.2.1. The first 60,000 acre-ft of Delivered Transfer Water that also is Storage Component water in each Water Accounting Year will be credited to Component 1 Water.

7.2.2. In Dry and Critical Water Years, the first 60,000 acre-ft of Storage Component water will be credited to Component 1 Water, and the next 15,000 acre-ft in Dry Water Years,[1] and 30,000 acre-ft in Critical Water Years, of Storage Component water will be credited to Component 2 Water. If the total amount of Delivered Transfer Water that also is Storage Component water in any Water Accounting Year is less than the total commitment for Component 1 Water (i.e., 60,000 acre-ft), Yuba will not be obligated to provide Groundwater Substitution Water to complete delivery of the 60,000 acre-feet. If the total amount of Delivered Transfer Water from the Storage Component water in a Water Accounting Year is less than the total commitment for Component 2 Water (i.e., 15,000 acre-ft in Dry Water Years and 30,000 acre-ft in Critical Water Years), then Yuba will provide Groundwater Substitution Component water, but subject to the provisions of **Exhibit 3** of this Agreement, to complete the balance of Yuba's commitment for Component 2 Water.

7.2.3. In years when Yuba has a commitment to provide 40,000 acre-ft of Component 3 Water, after Component 1 Water and Component 2 Water (if any is required) is fully accounted for, any remaining Storage Component water will be credited as Component 3 Water, and then any remaining unfulfilled commitment for Component 3 Water will be provided and accounted from Groundwater Substitution Component water, but subject to the provisions of **Exhibit 3** of this Agreement.

7.2.4. Any remaining balance of Storage Component water, and then Groundwater Substitution Component water, will be credited as Component 4 Water after all other commitments of Water have been credited from the total Delivered Transfer Water for the Water Accounting Year.

7.3. In years when there is no commitment for Component 2 or Component 3 Water, any Delivered Transfer Water that also is Storage Component water, and that exceeds the 60,000 acre-ft of the Component 1 Water obligation, will first be credited to repay any accrued deficit in Component 1 Water deliveries and then to repay any accrued deficit in Component 2 and Component 3 Water deliveries and finally accounted as Component 4 Water, subject to the provisions of Section 5A2 of this Agreement.

7.4. **Holding Account.** If Delivered Transfer Water Storage Component has been credited as Component 4 Water under Section 7.2.4 or Section 7.3 of this exhibit, and if DWR has not

[1] These water-year types are defined by the Sacramento Valley Index in SWRCB Decision 1641.

committed to pay for some or all of the credited Component 4 Water under the option provisions of this Agreement, then the uncommitted portion of Component 4 Water will be addressed in the following manner:

7.4.1. By September 30 of any year where there is Delivered Transfer Water that is uncommitted to one of the four Components of water, Yuba will notify DWR of the availability of the uncommitted Delivered Transfer Water for purchase as Component 3 or Component 4 water prior to accounting for the water in the Holding Account.

7.4.2. Water credited to the Holding Account will be available first as the following year's Component 3 or 4 Water and second as a credit to the following year's Component 1 Water, provided that the Holding Account water is not spilled from San Luis reservoir. The applicable purchase price for the water will be determined by the Water Year in which the water is accounted for as Delivered Transfer Water, even if the credit is applied in a subsequent year.

7.5. **Component 1 Water Accounting Deficit**. There are two conditions under which an account deficit of Component 1 Water can occur: (1) in very wet years, Yuba may release sufficient Released Transfer Water to provide the full required amount of Component 1 Water, but due to Delta conditions, some or all of this Released Transfer Water may not be able to be accounted for as Delivered Transfer Water under Section 5 of this exhibit. In such years, the amount of Delivered Transfer Water will be less than Yuba's obligation to provide Component 1 during that Water Accounting Year; and (2) in addition, under section 7.2.2 of this exhibit, there may be years in which there are less than 60,000 acre-feet of Storage Component Water available to meet Yuba's Component 1 obligation. In both of these cases, the amount of outstanding Component 1 Water will be noted as a Component 1 Water account deficit for that Water Accounting Year, and Yuba will be obligated to provide the remaining amount of Component 1 Water in a subsequent Water Accounting Year, subject to the provisions of Section 5A2 of this Agreement.

7.6 **Component 1 Water Makeup Provisions.** Yuba will apply Storage Component water in excess of the 60,000 acre-foot amount of Component 1 Water to be delivered during the current Water Accounting Year to any deficit in the Component 1 Water account from a previous year, as long as the current Water Year type is not a Dry or Critical Water Year. If the current Water Year type is a Dry or Critical Water Year, then Storage Component water may be applied to a deficit in the Component 1 Water account at Yuba's discretion, subject to the provisions of Section 5A2 of this Agreement.

7.7 **Components 2 and 3 Water Accounting Deficit and Makeup Provisions.** A deficit in providing Component 2 and/or Component 3 Water could occur if there is not enough Storage Component water accounted for as Delivered Transfer Water to meet the total obligations to provide Components 1, 2 and 3 Water, and due to the provisions of **Exhibit 3** for determining the amount of Groundwater Substitution Component water that may be provided, the amount of Groundwater Substitution Component water is not sufficient to make up the entire remainder of the commitment to provide Components 1, 2 and 3 Water. If there is a deficit in Component 2 or Component 3 Water the Parties will meet and confer under Section 22 ("Remedies and Dispute Resolution") of this Agreement to determine what actions should be taken.

8. CONFERENCE YEAR ACCOUNTING

8.1. No Negative Transfer Flows amounts will be accounted for in a Conference Year if there is no Delivered Transfer Water.

8.2. In a Conference Year, the obligation to provide Component 1 Water may be suspended by Yuba, and instead Yuba will incur a deficit in its obligation to provide Component 1 Water Delivered Transfer Water that must be repaid in a non-Conference Year as provided in this Agreement.

8.3. There will be no obligation to provide Component 2 or Component 3 Water in a Conference Year.

8.4. Makeup provisions and repayment of Refill provisions of the accounting will be suspended during a Conference Year. Any amounts of water in Holding Accounts or repayment amounts will be carried forward to the next year non-Conference Year following a Conference Year.

8.5. If Yuba and DWR agree to transfer some amount of Water in a Conference Year, then the Conference Year Baseline Conditions will be agreed to by Yuba and DWR.

8.6. Transfer of Component 4 Water may occur in a Conference Year only if Negative Transfer Flows and Refill impacts are accounted for and, in the case of Refill impacts, repaid first.

9. GROUNDWATER SUBSTITUTION COMPONENT WATER

9.1. Yuba, at Yuba's sole discretion, may decide to enter into agreements with participating Member Units under which the participating Member Units will arrange for their respective water users to reduce their use of surface water diversions by amounts to be determined by Yuba and the participating Member Units during the Water Accounting Year, and to pump equivalent amounts of groundwater from approved wells as replacement supplies for the

Groundwater Substitution Component of Released Transfer Water. Yuba will provide DWR with one or more lists of the locations of the wells that may be pumped for the Groundwater Substitution Component. In no case will groundwater pumping commence from a well for the Groundwater Substitution Component before approval of the well by DWR. Wells that are located within two miles of the Yuba River or the Feather River will be subject to review and approval by DWR. All other listed wells will be approved by DWR upon demonstration by Yuba that all required local permits for these wells have been obtained. DWR will review the list of wells, their locations and any other pertinent information provided by Yuba and the participating Member Units, and will notify Yuba and the participating Member Units within ten working days after the submittal of a list by Yuba of any well that DWR reasonably determines is not acceptable for pumping under this Agreement, and will inform Yuba and the Member Unit in which the well is located of the basis for the determination by DWR. Upon receipt of supplemental information from Yuba or the Member Unit in which the well is located, DWR may reconsider its refusal to allow the well to provide Groundwater Substitution Component water and reverse its determination. Groundwater pumped for the Groundwater Substitution Component must be put to reasonable use for irrigation on lands that otherwise would have been served with surface water within the participating Member Unit's service area between March 1 and December 31.

9.2. Yuba will comply with the Groundwater Monitoring, Reporting and Operations Program, which is **Exhibit 3** to this Agreement.

9.3. Yuba will ensure that flow-measuring devices are acquired, installed and maintained to measure the quantities of groundwater actually being pumped for the Groundwater Substitution Component from wells identified in Section 9.1 of this exhibit. Yuba and the participating Member Units will be responsible for the distribution of water pumped under this Agreement within each participating Member Unit's boundaries. The Projects will not be responsible for any costs of installing, operating or maintaining groundwater pumping facilities or flow-measuring devices, or for any costs of conveying groundwater pumped to places of use within the participating Member Units' service areas pursuant to this Agreement. By the fifteenth day of every other month, Yuba will provide a report to DWR of the quantities of groundwater pumped from each well for the Groundwater Substitution Component during the previous reporting period under this Agreement.

9.4. Yuba will make arrangements for DWR and its representatives to have access to facilities and records of Yuba and its participating Member Units to the extent reasonably necessary to verify that the groundwater pumping, the management of such pumping and the

implementation of the Groundwater Monitoring and Reporting Program for the Groundwater Substitution Component meet the requirements of Section 9 of this exhibit.

10. ACCOUNTING PREPARATION AND NOTIFICATIONS

10.1. **Accounting preparation for invoicing** - Yuba will prepare a draft accounting of the quantities of Released Transfer Water and the Delivered Transfer Water, utilizing information provided by DWR, as described in Section 6 of this exhibit, and Yuba will submit these calculations in a standard form to be developed by the Parties for review by the Technical Committee according to the schedules set forth in this Agreement. The Technical Committee will provide written notification to Yuba and DWR within 20 days of receipt of the Transfer Accounting from Yuba whether it agrees with the accounting. If the Technical Committee agrees with the accounting, or if there has been no written notification by the 20th day, then Yuba will submit invoices to DWR as provided in this Agreement.

10.2. **Disputes on accounting amounts** – If there is a dispute between the Parties regarding accounting, then the Technical Committee will first meet and attempt to resolve the dispute, and submit the disputed accounting for final resolution by the Management Committee. For accounting disputes only, if the dispute cannot be resolved by the Management Committee, then the Parties will resolve the accounting dispute as provided in Section 22 ("Remedies and Dispute Resolution") of this Agreement.

10.3. **Maintaining Records of Accounting and Accounts** – Yuba will maintain a set of records for all accountings, and all back-up materials used to prepare the accountings, at Yuba's offices, and Yuba will make these records available to DWR upon request during normal business hours. DWR will maintain records of DWR's determination of Delta conditions and Project export capacity as described in Section 6.3.2, and make these records available to Yuba upon request during normal business hours.

11. FORECASTING AND EXCHANGE OF INFORMATION FOR TRANSFER

11.1. Yuba and DWR will exchange operations forecasts and other data deemed useful for purposes of enhancing the usefulness of the water to be made available under this Agreement. The forecasts will identify and substantiate the quantities and timing of forecasted transfer flows over a range of possible hydrologic conditions, and identify forecasted periods of Balanced Conditions and water allocations for the CVP and SWP. Additionally, the operations forecasts to be provided will assist the CVP and SWP to

efficiently integrate the Yuba flows in their operations plans, and will assist EWA in planning asset acquisition and management.

11.2. Yuba will provide the following:

- Updated forecasts of operations, monthly from February through June.
- Updated forecasts as necessary, but not less than monthly, depending on changing conditions, from July through January.
- The operations forecast should extend through the end of the current Water Year classification through January 31.
- Initially, each Water Year, separate operations forecasts will be provided based on hydrologic probability of exceedence levels of 90%, 10%, and 50%. Some forecasts may be deleted as the Water Year progresses, depending on need. Likewise, other forecasts may be added, if needed.
- Each Yuba forecast will include:
    1. Forecasted flows at Marysville Gage (daily for the first 30 days of forecasted flows and then monthly, or for a partial month if the dates of flow change within month are known)
    2. Forecasted Baseline Flows (daily for the first 30 day of forecasted flows and then monthly, or for a partial month if the dates of flow change within month are known)
    3. Forecasted New Bullards Bar reservoir storage
    4. New Bullards Bar forecasted inflow, outflow, diversions, evaporation
    5. Yuba River Index and Water Year classification
    6. North Yuba Index and computation details, North Yuba Year classification
    7. Forecasted transfer water quantities (monthly)
    8. Identification of any "make-up" flows or other flows planned.
    9. Amounts and timing of groundwater pumping contributing to availability of transfer flows.

DWR will provide to Yuba before the 1st of each month from February through June, and from July through January if updated Yuba forecasts are needed, the following information:

- Details of CVP and SWP forecasted reservoir and export operations through the end of the current calendar year.

- Forecasted periods of balanced conditions though the end of the current calendar year.

12. TECHNICAL COMMITTEE AND MANAGEMENT COMMITTEE

12.1. Technical Committee

The Technical Committee will: (1) collect, review and analyze information relevant to accounting of water consistent with **Exhibits 1, 2 and 3** of this Agreement, and information related to advances, payments and cost adjustments; (2) identify and attempt to resolve technical implementation issues; (3) periodically report to the Management Committee on the information gathered and any technical implementation issues identified; and (4) make recommendations to the Management Committee for resolution of any policy issues that arise or for any required factual determinations. If the Technical Committee is unable to agree on a recommendation to the Management Committee, then the Technical Committee will cooperate to provide a balanced presentation of the facts, opinions and other information underlying the various positions on the issue to be determined.

12.2. Management Committee.

The Management Committee will: (1) provide policy guidance in implementing this Agreement; (2) make any factual determinations required to implement this Agreement; (3) consider information provided by the Technical Committee, if applicable, when making decisions; and (4) identify and resolve any policy-related implementation issues.

EXHIBIT 2

Reservoir Refill Accounting Provisions

SECTION 1: GENERAL PRINCIPLES

DWR must be assured that the refilling of New Bullards Bar Reservoir resulting from purchase of water from Yuba by DWR will not impact the Projects. Such impacts could occur (according to DWR) if storage vacated by the transfer is refilled during Balanced Conditions in the Delta. Yuba agrees that if there is an outstanding account of impacts after the Water Year reservoir refill period, then Yuba will release additional water during subsequent Balanced Conditions in excess of normal operating requirements to compensate for refill impacts. The following procedures for determining refill impacts and conditions for additional releases will be used in accounting for refill. DWR will work with Reclamation to allocate the impact account between the Projects. This exhibit includes the definitions set forth in **Exhibit 1** to this Agreement. In addition, when used in this exhibit, the following terms have the following definitions:

1. "Base Transfer" is the amount of Delivered Transfer Water released from New Bullards Bar Reservoir, as determined by the accounting rules in **Exhibit 1** to this Agreement, and which results in a storage amount in New Bullards Bar Reservoir that is lower than the storage that would have occurred under Baseline Conditions. Calculation of this amount is described in Section 5 of **Exhibit 1** to this Agreement.

2. "Impact Account" is the amount of water DWR would have obtained from the Yuba River in the absence of the transfer releases, but which DWR did not receive due to refilling of New Bullards Bar Reservoir. The amount of Impact Account water will be computed daily during the Refill Period based on Balanced Conditions.

3. "Refill Period" is from October 1 through September 30.

4. "Target Storage" is the maximum storage volume during the Refill Period at which Yuba would normally operate New Bullards Bar Reservoir without a water transfer. The Target Storage levels are as follows:

   (a) October 1 through October 31: linearly ramped from 705,000 acre-feet to 700,000 acre- feet
   (b) November 1 through February 15: 700,000 acre-feet.

   (c) February 16 through March 31: linearly ramped from 700,000 acre-feet to 796,000 acre-feet.

   (d) April 1 through April 30: linearly ramped from 796,000 acre-feet to 896,000 acre-feet.

(e) May 1 through May 31: linearly ramped from 896,000 acre-feet to 966,000 acre-feet.

(f) June 1 through June 30: 966,000 acre-feet. This Target storage amount of 966,000 acre-ft may be slightly reduced because this amount is the top of conservation storage in New Bullards Bar Reservoir and releases may be made to avoid exceeding this storage amount. The Target Storage reduction will be made when releases from New Bullards Bar Reservoir are increased as storage reaches 996,000 acre-ft which demonstrates filling of the Reservoir.

(g) During July 1 through September 29, Target Storage must be determined on a case by case basis as described in **Exhibit 1** to this Agreement.

5. "Actual Storage" is the amount of water physically in storage in New Bullards Bar Reservoir at any time.

6. "Theoretical Storage" is the sum of: (1) Actual Storage on the day specified; and (2) Transfer Account Amount.

7. When Actual Storage exceeds the Target Storage during the Refill Period, there will be no further refill impacts.

8. The accounting procedure in Section 2 of this exhibit will be used to calculate the Impact Account. The general principles in Section 2 of this exhibit will be applied in accounting for any unusual operational conditions not set forth in the application example described below.

9. If the Transfer Amount Account is not zero on September 30, then the remaining balance of the account will be carried forward to the subsequent water year and the impact accounting will continue until the outstanding balance is eliminated.

10. If there is an Impact Account balance on September 30, then Yuba will release water during Balanced Conditions on a schedule that is agreed to by the Parties at a time when such releases will not create or affect deficiencies in local deliveries or instream flows, and these releases will be coordinated with releases for other (if any) water transfers of Yuba. The water released to offset refill impacts will be delivered as Delivered Transfer Water by Yuba and the accounting provisions and refill conditions of this section will apply to those quantities.

11. By July 31 of each year, the Parties will complete an accounting of the Impact Account.

12. If Project operations effectively reduce or eliminate a refill impact, the Impact Account balance may be adjusted to reflect that reduction or elimination subject to approval by the Projects.

SECTION 2: ACCOUNTING PROCEDURES FOR DETERMINING NEW BULLARDS BAR REFILL IMPACTS ON THE PROJECTS

The following columnar description sets forth the format, criteria, and procedures to be used for the determination of combined impacts to the Projects due to changes in refilling New Bullards Bar Reservoir caused by the transfer to DWR. An example of the application is attached.

COLUMNAR DESCRIPTION

Column 1 - Date

Column 2 - New Bullards Bar Reservoir Actual Storage at 2400 hours.

Column 3 - Transfer Amount Account (Base Transfer for the year) lists transfer water for which impact accounting is yet to be made. It is the previous day's amount minus the previous day's impact volume. Column 3_i = Column 3_{i-1} - Column 6_{i-1} any transfer amount account remaining after September 30 will be the initial (October 1) amount used in the subsequent water year.

Column 4 - Theoretical Storage indicates the operation of storage as it might have occurred in the absence of the transfer. It is the actual storage plus the Transfer Amount Account. Column 4_i = Column 2_i + Column 3_i

Column 5 - Target Storage is a postulated level of storage, which New Bullards Bar Reservoir might not normally exceed. When Column 5 exceeds this level, it is postulated that the storage would be reduced to the Target Storage amount. The Target Storage is defined as follows: October 1 (705,000); October 2-October 31 (ramped linearly to 700,000) November 1-February 15 (700,000); February 16-March 31 (ramped linearly to 796,000); April 1-30 (ramped linearly to 896,000); May 1-31 (ramped linearly to 966,000); June 1-30 (966,000); July 1-September 29 – determined by hydrology.

Column 6 - Impact Volume indicates daily amounts of water that would be released to achieve the Column 5 Target Storage. Column 6_i = (Column 4_i - Column 5_i) but not less than zero, and not greater than Column 3i.

Column 7 - Delta Conditions are determined jointly by DWR and Reclamation in accordance with the COA. A "1" is listed if the Delta is declared to be in Balanced Conditions three days after the daily amounts are calculated, a zero or null "-"is listed when the Delta is declared to be in excess conditions three days after the daily amounts are calculated. The amount of Theoretical Storage above the Target Storage on December 31, if any (Column 4 - Column 5), is deducted from the Transfer Amount Account (Column 3) on January 1.

Column 8 - Net Daily Impact is the daily impact volumes when the Delta is in Balanced Conditions as indicated in Column 7. Column 8_i = Column 6_i x Column 7.

Column 9 - Impact Account is the accumulation of Net Daily Impacts.
Column 9_i = Column 9_{i-1} + Column 8_i

WATER TRANSFER REFILL ACCOUNTING EXAMPLE

(all units are acre-feet)

Yuba County Water Agency-DWR

Transfer Amount	
30-Sep-01	102,912

1 Date	2 Actual Storage	3 Transfer Amount Account	4 Theoretical Storage	5 Target Storage	6 Impact Volume	7 Delta Condition (Balanced = 1)	8 Net Daily Impact	9 Impact Account
Previous Year Balances	-	102,912	-	-	-	-	-	
1-Jan-02	597,293	102,912	700,205	700,000	205	1	205	205
2-Jan-02	605,353	102,707	708,060	700,000	8,060	1	8,060	8,265
3-Jan-02	618,678	94,647	713,325	700,000	13,325	1	13,325	21,590
4-Jan-02	625,781	81,322	707,103	700,000	7,103	1	7,103	28,693
5-Jan-02	630,711	74,219	704,930	700,000	4,930	-	-	28,693
6-Jan-02	639,084	69,289	708,373	700,000	8,373	-	-	28,693
7-Jan-02	644,927	60,916	705,843	700,000	5,843	-	-	28,693
8-Jan-02	651,145	55,073	706,218	700,000	6,218	-	-	28,693
9-Jan-02	657,360	48,855	706,215	700,000	6,215	-	-	28,693
10-Jan-02	660,890	42,640	703,530	700,000	3,530	-	-	28,693
11-Jan-02	662,008	39,110	701,118	700,000	1,118	-	-	28,693
12-Jan-02	664,488	37,992	702,480	700,000	2,480	-	-	28,693
13-Jan-02	666,069	35,512	701,581	700,000	1,581	-	-	28,693
14-Jan-02	667,476	33,931	701,407	700,000	1,407	-	-	28,693
15-Jan-02	667,628	32,524	700,152	700,000	152	-	-	28,693
16-Jan-02	665,268	32,372	697,640	700,000	-	-	-	28,693
17-Jan-02	664,036	32,372	696,408	700,000	-	-	-	28,693
18-Jan-02	661,451	32,372	693,823	700,000	-	-	-	28,693
19-Jan-02	660,292	32,372	692,664	700,000	-	-	-	28,693
20-Jan-02	659,197	32,372	691,569	700,000	-	-	-	28,693
21-Jan-02	658,299	32,372	690,671	700,000	-	-	-	28,693
22-Jan-02	658,635	32,372	691,007	700,000	-	-	-	28,693
23-Jan-02	658,686	32,372	691,058	700,000	-	-	-	28,693
24-Jan-02	658,238	32,372	690,610	700,000	-	-	-	28,693
25-Jan-02	658,187	32,372	690,559	700,000	-	-	-	28,693
26-Jan-02	659,197	32,372	691,569	700,000	-	-	-	28,693
27-Jan-02	660,882	32,372	693,254	700,000	-	-	-	28,693
28-Jan-02	661,600	32,372	693,972	700,000	-	-	-	28,693
29-Jan-02	661,304	32,372	693,676	700,000	-	-	-	28,693
30-Jan-02	660,508	32,372	692,880	700,000	-	-	-	28,693
31-Jan-02	659,758	32,372	692,130	700,000	-	-	-	28,693
1-Feb-02	658,985	32,372	691,357	700,000	-	-	-	28,693
2-Feb-02	658,455	32,372	690,827	700,000	-	-	-	28,693
3-Feb-02	657,940	32,372	690,312	700,000	-	-	-	28,693
4-Feb-02	656,783	32,372	689,155	700,000	-	-	-	28,693
5-Feb-02	654,026	32,372	686,398	700,000	-	-	-	28,693
6-Feb-02	652,128	32,372	684,500	700,000	-	-	-	28,693
7-Feb-02	651,570	32,372	683,942	700,000	-	-	-	28,693
8-Feb-02	652,128	32,372	684,500	700,000	-	-	-	28,693
9-Feb-02	652,128	32,372	684,500	700,000	-	-	-	28,693
10-Feb-02	652,259	32,372	684,631	700,000	-	-	-	28,693
11-Feb-02	651,591	32,372	683,963	700,000	-	-	-	28,693
12-Feb-02	650,922	32,372	683,294	700,000	-	-	-	28,693
13-Feb-02	650,232	32,372	682,604	700,000	-	-	-	28,693
14-Feb-02	649,824	32,372	682,196	700,000	-	-	-	28,693
15-Feb-02	649,624	32,372	681,996	700,000	-	-	-	28,693
16-Feb-02	650,032	32,372	682,404	702,182	-	-	-	28,693
17-Feb-02	651,405	32,372	683,777	704,364	-	-	-	28,693
18-Feb-02	652,575	32,372	684,947	706,545	-	-	-	28,693
19-Feb-02	653,281	32,372	685,653	708,727	-	-	-	28,693
20-Feb-02	658,598	32,372	690,970	710,909	-	-	-	28,693
21-Feb-02	666,786	32,372	699,158	713,091	-	-	-	28,693
22-Feb-02	674,144	32,372	706,516	715,273	-	-	-	28,693
23-Feb-02	680,727	32,372	713,099	717,455	-	-	-	28,693
24-Feb-02	685,322	32,372	717,694	719,636	-	-	-	28,693
25-Feb-02	687,811	32,372	720,183	721,818	-	-	-	28,693
26-Feb-02	691,643	32,372	724,015	724,000	15	-	-	28,693
27-Feb-02	694,386	32,357	726,743	726,182	561	-	-	28,693
28-Feb-02	698,917	31,796	730,713	728,364	2,349	-	-	28,693
1-Mar-02	703,159	29,447	732,606	730,545	2,060	-	-	28,693
2-Mar-02	707,155	27,386	734,541	732,727	1,814	-	-	28,693
3-Mar-02	710,373	25,572	735,945	734,909	1,036	-	-	28,693
4-Mar-02	711,120	24,536	735,656	737,091	-	-	-	28,693
5-Mar-02	710,805	24,536	735,341	739,273	-	-	-	28,693
6-Mar-02	721,130	24,536	745,666	741,455	4,212	-	-	28,693
7-Mar-02	722,717	20,325	743,042	743,636	-	-	-	28,693

WATER TRANSFER REFILL ACCOUNTING EXAMPLE

(all units are acre-feet)

Yuba County Water Agency-DWR

Transfer Amount	
30-Sep-01	102,912

1 Date	2 Actual Storage	3 Transfer Amount Account	4 Theoretical Storage	5 Target Storage	6 Impact Volume	7 Delta Condition (Balanced = 1)	8 Net Daily Impact	9 Impact Account
8-Mar-02	723,313	20,325	743,638	745,818	-	-	-	28,693
9-Mar-02	723,035	20,325	743,360	748,000	-	-	-	28,693
10-Mar-02	725,630	20,325	745,955	750,182	-	-	-	28,693
11-Mar-02	726,907	20,325	747,232	752,364	-	-	-	28,693
12-Mar-02	727,985	20,325	748,310	754,545	-	-	-	28,693
13-Mar-02	729,862	20,325	750,187	756,727	-	-	-	28,693
14-Mar-02	731,902	20,325	752,227	758,909	-	-	-	28,693
15-Mar-02	732,645	20,325	752,970	761,091	-	-	-	28,693
16-Mar-02	734,698	20,325	755,023	763,273	-	-	-	28,693
17-Mar-02	737,672	20,325	757,997	765,455	-	-	-	28,693
18-Mar-02	738,065	20,325	758,390	767,636	-	-	-	28,693
19-Mar-02	737,191	20,325	757,516	769,818	-	-	-	28,693
20-Mar-02	736,268	20,325	756,593	772,000	-	-	-	28,693
21-Mar-02	735,412	20,325	755,737	774,182	-	-	-	28,693
22-Mar-02	734,609	20,325	754,934	776,364	-	-	-	28,693
23-Mar-02	736,697	20,325	757,022	778,545	-	-	-	28,693
24-Mar-02	741,329	20,325	761,654	780,727	-	-	-	28,693
25-Mar-02	743,517	20,325	763,842	782,909	-	-	-	28,693
26-Mar-02	744,612	20,325	764,937	785,091	-	-	-	28,693
27-Mar-02	745,737	20,325	766,062	787,273	-	-	-	28,693
28-Mar-02	747,115	20,325	767,440	789,455	-	-	-	28,693
29-Mar-02	748,429	20,325	768,754	791,636	-	-	-	28,693
30-Mar-02	751,766	20,325	772,091	793,818	-	-	-	28,693
31-Mar-02	755,597	20,325	775,922	796,000	-	-	-	28,693
1-Apr-02	758,292	20,325	778,617	799,333	-	-	-	28,693
2-Apr-02	760,868	20,325	781,193	802,667	-	-	-	28,693
3-Apr-02	763,749	20,325	784,074	806,000	-	-	-	28,693
4-Apr-02	766,970	20,325	787,295	809,333	-	-	-	28,693
5-Apr-02	770,692	20,325	791,017	812,667	-	-	-	28,693
6-Apr-02	774,878	20,325	795,203	816,000	-	-	-	28,693
7-Apr-02	778,783	20,325	799,108	819,333	-	-	-	28,693
8-Apr-02	780,904	20,325	801,229	822,667	-	-	-	28,693
9-Apr-02	783,327	20,325	803,652	826,000	-	-	-	28,693
10-Apr-02	786,643	20,325	806,968	829,333	-	-	-	28,693
11-Apr-02	790,090	20,325	810,415	832,667	-	-	-	28,693
12-Apr-02	792,364	20,325	812,689	836,000	-	-	-	28,693
13-Apr-02	795,653	20,325	815,978	839,333	-	-	-	28,693
14-Apr-02	799,624	20,325	819,949	842,667	-	-	-	28,693
15-Apr-02	804,117	20,325	824,442	846,000	-	-	-	28,693
16-Apr-02	805,951	20,325	826,276	849,333	-	-	-	28,693
17-Apr-02	806,933	20,325	827,258	852,667	-	-	-	28,693
18-Apr-02	807,617	20,325	827,942	856,000	-	-	-	28,693
19-Apr-02	807,959	20,325	828,284	859,333	-	-	-	28,693
20-Apr-02	809,284	20,325	829,609	862,667	-	-	-	28,693
21-Apr-02	809,626	20,325	829,951	866,000	-	-	-	28,693
22-Apr-02	809,953	20,325	830,278	869,333	-	-	-	28,693
23-Apr-02	809,868	20,325	830,193	872,667	-	-	-	28,693
24-Apr-02	809,626	20,325	829,951	876,000	-	-	-	28,693
25-Apr-02	808,942	20,325	829,267	879,333	-	-	-	28,693
26-Apr-02	809,441	20,325	829,766	882,667	-	-	-	28,693
27-Apr-02	810,850	20,325	831,175	886,000	-	-	-	28,693
28-Apr-02	812,604	20,325	832,929	889,333	-	-	-	28,693
29-Apr-02	813,135	20,325	833,460	892,667	-	-	-	28,693
30-Apr-02	812,793	20,325	833,118	896,000	-	-	-	28,693
1-May-02	811,021	20,325	831,346	898,258	-	-	-	28,693
2-May-02	809,996	20,325	830,321	900,516	-	-	-	28,693
3-May-02	809,996	20,325	830,321	902,774	-	-	-	28,693
4-May-02	808,771	20,325	829,096	905,032	-	-	-	28,693
5-May-02	810,781	20,325	831,106	907,290	-	-	-	28,693
6-May-02	810,952	20,325	831,277	909,548	-	-	-	28,693
7-May-02	811,294	20,325	831,619	911,806	-	-	-	28,693
8-May-02	810,781	20,325	831,106	914,065	-	-	-	28,693
9-May-02	810,781	20,325	831,106	916,323	-	-	-	28,693
10-May-02	809,284	20,325	829,609	918,581	-	-	-	28,693
11-May-02	808,771	20,325	829,096	920,839	-	-	-	28,693
12-May-02	808,087	20,325	828,412	923,097	-	-	-	28,693

ACCOUNTING TO CONTINUE UNTIL SEPTEMBER 30 OR UNTIL REFILL IS NO LONGER POSSIBLE

EXHIBIT 3

GROUNDWATER MONITORING AND REPORTING PROGRAM

1. Groundwater Monitoring

In cooperation with DWR, Yuba has monitored Yuba County groundwater conditions for many years, and many aspects of the groundwater resources are well known. Yuba and DWR have worked cooperatively to develop a groundwater transfer monitoring and reporting program specific to Yuba County for past groundwater substitution water transfers. Yuba has also developed a Groundwater Management Plan ("GMP"), which was adopted on March 1, 2005 pursuant to Water Code Sections 10750 *et seq*. The GMP formalizes a monitoring program that includes measuring water levels in wells that are part of a dedicated monitoring well network, a plan to expand the network, annual reporting provisions and other groundwater monitoring activities. Since 2005, Yuba has constructed eight additional groundwater monitoring wells for this program. (See DWR, Memorandum Report, "Monitoring Well Construction Technical Assistance," April 2007.) Information gathered from the activities specified in the GMP, along with the activities described in this exhibit, will be used to assess effects of groundwater pumping on groundwater resources, and to provide reasonable assurances that any water pumped and accounted for as part of any groundwater substitution is in lieu of surface water delivered by Yuba to its Member Units. Yuba will continue to work with DWR and the Member Units to identify and resolve any new groundwater monitoring issues.

a. The water levels in selected production wells geographically dispersed throughout each Member Unit participating in the groundwater substitution program will be measured by the Member Unit prior to the initial pumping for each year during which a groundwater substitution transfer will take place. Selection of these wells will be by mutual agreement by DWR and Yuba, in consultation with the Member Unit. Upon termination of pumping for the year, the water levels will be measured by the Member Units, and such measurements will continue on a monthly basis until water levels have recovered to the pre-pumping levels, or have stabilized. In no case will water-level measurements be required following spring high water levels in the year following the year of the groundwater substitution pumping. The Member Units will provide the water-level readings to Yuba within 15 days of each reading.

b. To supplement the GMP-specified monitoring program, water levels in each monitoring well in the Yuba network will be measured at least every two months by Yuba in each year during which a groundwater substitution transfer is to take place, commencing no later than April. Upon termination of pumping, the monitoring well water levels will be measured, and such measurements will continue on a monthly basis until water levels have recovered to the pre-pumping levels, or have stabilized. In no case will water-level measurements be required following spring high water levels in the year following the year of the groundwater substitution pumping. DWR and Yuba will cooperate in obtaining these measurements.

c. Readings of flow meters on the discharges of the wells will be recorded every month during the pumping period by Member Units for each production well. In addition, electric meter readings and fuel consumption for diesel pumps will be recorded by the Member Units, and made available to Yuba upon request. The quantities of water pumped between successive readings will be calculated by Member Units and reported to Yuba.

d. Electrical Conductivity ("EC") will be measured for water pumped from selected production wells at the initiation of pumping (or as soon thereafter as practicable), two months after the initial EC measurements and at the termination of pumping.

e. For selected production wells (to be identified before the monitoring plan is finalized) near Yuba monitoring wells, drawdown analyses (of distance and time) will be completed, and comparisons made to monitoring well water levels.

All monitoring data will be reported on a semi-monthly basis, and in an annual final summary report prepared by Yuba that will evaluate the impacts of the groundwater substitution pumping transfer program for that year. The final report will include water-level contour maps for the groundwater basin showing initial water levels and final, recovered water levels.

2. Groundwater Pumping Operations Plan

This Agreement sets forth the procedures by which the total amount of water to be transferred will be determined. These amounts include Components 1, 2, 3 and 4 water. A portion of the Water will be from surface water and a portion may be provided through groundwater substitution pumping. Yuba will base the determination of the amount of water to be provided through groundwater substitution pumping (in consultation with the Member Units) by: (a) estimating the amount of surface water that will be transferred for the year by operation to the flow schedules in the Fisheries Agreement and the September 30 target New Bullards Bar Reservoir storage level; (b) determining the amount of water from groundwater substitution pumping that Member Units can make available through wells of farmers who are willing to participate in the program and whose farms are located within a participating Member Unit; and (c) determining the amount of water that can be pumped within the safe yield of the basin without contributing to long-term overdraft and without resulting in significant unmitigated impacts to other groundwater users in the basin.

This section sets forth the procedure that will be used to determine the amount of water that can be pumped within the safe yield of the basin without contributing to long-term overdraft, and without resulting in any significant unmitigated third-party ("Third Party" or "Third Parties") impacts to other groundwater users in the basin. Section 1 of this Exhibit describes the monitoring plan that will be used to obtain information from which the determination will be made of the condition of the groundwater basin in the spring of the year during which groundwater substitution pumping is planned. Based on this condition,

Yuba will determine the expected response of the basin to the proposed pumping for that year and the resulting condition of the basin at the conclusion of the pumping. Determination of the expected condition at the conclusion of the pumping will be made by examining the historic response of the basin during previous years when pumping occurred and by examining the recovery of the basin during pumping years and successive years, and by comparing these basin responses with the planned pumping. Analysis of the historical responses of the basin to pumping will be used to develop empirical relationships between pumping and basin drawdown and recovery. These empirically derived relationships will be the formulas that will be used to determine basin response to the proposed pumping.

The determination of basin response to the proposed pumping will result in an estimated basin condition at the end of pumping and an estimated condition for the spring of the next year. This estimated condition will be compared to historical groundwater levels in the basin. In 1991, Yuba and the Member Units completed a groundwater substitution transfer to provide water to other parts of California under the Governor's Emergency Drought Water Bank in response to a severe statewide drought. The groundwater levels that occurred in the fall of 1991 at the end of pumping did not result in any overdraft of the groundwater basin or any significant unmitigated Third-Party impacts. Groundwater levels had been lower than these levels during the 1980's, but the extent of effects of these lower levels on groundwater users in the basin is not well known. Therefore, the fall 1991 groundwater levels will be used for comparison with the estimated condition of the basin that will result from the proposed groundwater pumping under this Agreement and the Yuba River Accord.

If the estimated levels are above the fall 1991 levels, then significant unmitigated Third- Party impacts will not be expected. If the estimated levels are below the fall 1991 levels, then further examination of potential impacts and consultation with the Member Units and the GMP Water Advisory Group (discussed below) will be required. The GMP Water Advisory Group is a group that was formed under the GMP to provide input and guidance on groundwater issues. The GMP Water Advisory Group comprises representatives from local groundwater users, including municipal water purveyors, Member Units, reclamation districts and others. Groundwater substitution pumping that would result in levels near the fall 1991 levels will occur only if the Member Units agree to allow such pumping. Even if the determination is that estimated levels resulting from proposed pumping will be above the fall 1991 levels, the Member Units still will be consulted, and each Member Unit must individually approve the proposed pumping in its area or such pumping will not occur. If the amount of proposed pumping that will not cause fall groundwater levels to drop below 1991 levels cannot be confirmed using the procedures described above, then a lower amount of pumping that satisfies the conditions of this section will be determined using these procedures. The Yuba Board reserves the right to restrict the maximum amount of groundwater substitution pumping and the right to resolve any disputes in the Water Advisory Group regarding maximum amount of groundwater pumping.

If for any year the total amount of groundwater pumping that is determined to be acceptable under this section is less than the total amount of Components 1, 2 and 3 water

that is provided for in the Agreement, minus the amount of surface water to be transferred, then Yuba may either: (a) use additional surface water through supplemental surface water transfers to provide Components 1, 2 and 3 water; or (b) advise DWR that the total unmet amount of Components 1, 2 and 3 water will not be provided during the present year and instead will be owed to the Buyer and repaid in a manner detailed in **Exhibit 1** of this Agreement

3. Third-Party Impacts Action Plan

The purpose of this Third-Party impacts action plan is to describe actions that will be undertaken by Yuba and Member Units to respond to impacts to Third Parties that occur because of groundwater substitution pumping for transfers under this Agreement. Third Parties include local groundwater users that could be affected by fluctuations in groundwater levels because of the pumping of such groundwater substitution water. Yuba and the Member Units agree that prompt responses to and mitigation of potential impacts to Third Parties are an important requirement for Yuba's present and future groundwater substitution transfers.

This action plan includes a series of steps that will be taken to ensure that the groundwater substitution component of this Agreement and the Yuba River Accord does not cause significant, unmitigated impacts to Third Parties. Under this action plan, groundwater substitution pumping must not produce significant unmitigated impacts on Third Parties, impacts must be identified and mitigated as quickly as possible, and there must be ongoing, open communications with affected Third Parties. Because not all potential impacts can be known in advance, this plan provides a process for responding to concerns expressed by local groundwater users who believe that their water-production facilities are being or will be impacted by groundwater substitution pumping under this Agreement and the Yuba River Accord.

As a contractual condition of a Member Unit participating in the groundwater substitution component of this Agreement and the Yuba River Accord, the Member Unit will identify a contact person or persons who will be responsible for initially responding to a notification of a potential Third-Party impact, and take the other action specified in this section. The contact person for a Member Unit will be the person designated by the Member Unit. The responsibilities of Yuba under this action plan will be carried out by the General Manager, or by a person designated by the General Manager. The contact persons for the Member Units will also serve on a Yuba Groundwater Substitution Program Advisory Group ("Advisory Group") for either the area north of the Yuba River or the area south of the Yuba River.

Upon either Yuba or the Member Unit receiving notification of a potential Third-Party impact, Yuba or the Member Unit will immediately notify the other party of the nature of the potential impact. The Member Unit will promptly (within one day) contact the Third Party and obtain all available information regarding the nature and extent of the potential

impact, and provide that information to Yuba. The Member Unit also will regularly update Yuba on the status of the Member Unit's response.

If the Third Party is not within the boundaries of any Member Unit of Yuba, then Yuba will either: (a) determine if it is evident that the Third Party is in close proximity to the groundwater-production facilities within a Member Unit that are involved in the groundwater substitution program, and designate the Member Unit or Member Units responsible for responding to the potential impact; or (b) consult with the Advisory Group concerning which Member Unit or Member Units should be designated for responding to the potential impact.

After the Third Party has been contacted and the relevant information regarding the potential impact has been received, the Member Unit will develop an approach (subject to approval by Yuba) to: (a) determine whether the Third Party has actually been impacted by groundwater pumping by the Member Unit, and, if so; (b) mitigate for the impact. Yuba will be available to provide assistance to the Member Unit in developing the foregoing approach. Yuba and the Member Unit will consult with the applicable Advisory Group in developing the approach referred to in this section.

Yuba will resolve any dispute concerning implementation of this action plan, including which Member Unit will be responsible for mitigating a potential impact, whether it is reasonably likely that there was a Third-Party impact, and the measures to be taken by the Member Unit to mitigate the impact. If a Member Unit fails to carry out its responsibilities under this action plan, then Yuba will be authorized (but not required) to perform the responsibilities of the Member Unit and recover its reasonable costs in doing so from the Member Unit, including deducting these costs from payments due the Member Unit for the groundwater substitution transfer. Yuba will consult with the applicable Advisory Group in carrying out its responsibilities under this section.

It is the intention of this action plan that: (a) any Third-Party impact that is reasonably likely to have been caused by implementation of the groundwater substitution program will be promptly and substantially mitigated; (b) as to any Third-Party impact that is not reasonably likely to have been caused by implementation of the groundwater substitution program, the Third Party will be provided information to reasonably demonstrate the reasons that there were no impacts; and (c) Yuba, the Member Units and the Advisory Group will be involved in the implementation of this action plan. Actions that will be taken to mitigate an impact include, but are not limited to, deepening of the impacted Third Party's well or lowering of pump bowls, cessation of pumping in the area of the impacted well, and providing a temporary or permanent alternative water supply to the Third Party.

EXHIBIT 4

State of California – Department of Water Resources

Agreement for the Long-term Purchase of Water from Yuba County Water Agency by the Department of Water Resources

STANDARD CLAUSES

Worker's Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employee to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of work under this Agreement.

Nondiscrimination Clause. During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, and denial of family care leave. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code §12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Agreement.

Compliance with Laws, Regulations, Permit Requirements. Contractor shall at all times comply with, and require its contractors and subcontractors to comply with, all applicable federal and State laws, rules and regulations, permits and all applicable local ordinances, specifically including but not limited to environmental, procurement and safety laws, rules, regulations, permits and ordinances.

Availability of Funds. Work to be performed under this contract is subject to the availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of $10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after the final payment under the contract (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: 1402 D Street, Marysville, California 95901-4226.

Drug-Free Workplace Certification. By signing this contract, the Contractor or grantee hereby certifies under penalty of perjury under the laws of the State of California that the Contractor or grantee will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.

2. Establish a Drug-Free Awareness Program to inform employees about all of the following:

   (a) The dangers of drug abuse in the workplace,

   (b) The person's or organization's policy of maintaining a drug-free workplace,

   (c) Any available counseling, rehabilitation, and employee assistance programs; and

   (d) Penalties that may be imposed upon employees for drug abuse violations.

3. Every employee who works on the proposed contract or grant:

   (a) Will receive a copy of the company's drug-free policy statement, and

   (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or grant.

This contract or grant may be subject to suspension of payments or termination, or both, and the contractor or grantee may be subject to debarment if the Department determines that: 1) the Contractor or grantee has made a false certification, or 2) the Contractor or grantee violates the certification by failing to carry out the requirements noted above.

Americans with Disabilities Act. By signing this contract, Contractor assures the State that it complies with the Americans With Disabilities Act (ADA) of 1990, 942 U.S.C.12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Conflict of Interest. Current State Employees: a) No officer or employee shall engage in any employment activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity or enterprise is required as a condition of regular State employment. b) No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

Former State Employees: a) For the two year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

Child Support Compliance Act. For any agreement in excess of $100,000, the Contractor acknowledges in accordance herewith, that:

1. The Contractor recognizes the importance of child and family support obligations and shall full comply with all applicable State and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earning assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code; and

2. The Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the Employment Development Department.

Air or Water Pollution Violation. Under the State laws, the Contractor shall not be: 1) in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution control district; 2) subject to cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste

discharge requirements or discharge prohibitions; or 3) finally determined to be in violation of federal law relating to air or water pollution.

Union Organizing. For all contracts, except fixed price contracts of $50,000 or less, the Contractor acknowledges that: by signing this Agreement the Contractor hereby acknowledges the applicability of Government Code Section 16645 through Section 16649 to this Agreement and agrees to the following:

(a) Contractor will not assist, promote or deter union organizing by employees performing work on a State service contract, including a public works contract.

(b) No State funds received under this Agreement will be used to assist, promote or deter union organizing.

(c) Contractor will not, for any business conducted under this Agreement, use any State property to hold meetings with employees or supervisors, if the purpose of such meetings is to assist, promote or deter union organizing, unless the State property is equally available to the general public for holding meetings.

(d) If Contractor incurs costs or makes expenditures to assist, promote or deter union or organizing, Contractor will maintain records sufficient to show that no reimbursement from State funds has been sought for these costs, and that the Contractor shall provide those records to the Attorney General upon request.

Recycling Certification. Contractor shall certify in writing under penalty of perjury, the maximum, if not exact, percentage of recycled content, both post consumer water and secondary waste as defined in Public Contract Code, Section 12161 and 12200, in materials, goods, or supplies offered or products used in the performance of this Agreement, regardless of whether the product meets the required recycled product percentage as defined in Public Contract Code, Sections 12161 and 12200. Contractor may certify that the product contains zero content. (PCC 10233, 10308.5, 10354)

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
AND
YUBA COUNTY WATER AGENCY

AMENDMENT NO. 5 TO THE AGREEMENT FOR THE LONG-TERM PURCHASE OF WATER FROM YUBA COUNTY WATER AGENCY BY THE DEPARTMENT OF WATER RESOURCES SWPAO NO. 14-851

This Amendment No. 5 (Amendment) to the December 4, 2007 Agreement for the Long-Term Purchase of Water from Yuba County Water Agency by the Department of Water Resources, as amended from time to time (Agreement), is entered into as of _____, 2014, between the Department of Water Resources of the State of California (DWR), pursuant to the provisions of the California Water Resources Development Bond Act, the Central Valley Project Act, and other applicable laws of the State of California, and Yuba County Water Agency (Yuba), pursuant to the Yuba Act (California Statutes 1959, Chapter 788, as amended), and other applicable laws of the State of California. Except as provided for in this Amendment, defined terms in the Agreement will have the same meaning in this Amendment.

The Parties hereby amend the Agreement as follows:

1. **Recitals.** The Recitals Section of the Agreement is amended by adding the following new recitals:

"**N**. The Parties amended the Agreement in 2009 (Amendment No. 1 and Amendment No. 2), 2010 (Amendment No. 3) and 2012 (Amendment No. 4).

O. Under Section 15 of the Agreement, the pricing provisions for Water that is made available after September 30, 2015 will be subject to a new pricing agreement among the Parties. Amendment 5 memorializes the agreement of the Parties under Section 15 of the Agreement, as well as amending other provisions of the Agreement.

P. On June 9, 2014, the State Board approved Yuba's petition to change water right permit 15026 to add a point of rediversion at the point of diversion for the Freeport Regional Water Project. The State Board's order determined that the ordering conditions satisfied the State Board's public trust responsibility, relying on the Yuba Accord Environmental Impact Report and an addendum to the Yuba Accord Environmental Impact Report that was prepared by Yuba."

2. **Definitions.** Section 1 of the Agreement is amended by inserting in proper alphabetical order, the following new defined terms:

A. "Accrued Groundwater Substitution Component" water means the amount of surface water in New Bullards Bar Reservoir that results from Yuba's groundwater substitution pumping program established by Yuba and its Member Units under their Conjunctive Use Agreements for making available Groundwater Substitution Component water."

B. "Freeport POD" means the point of diversion for the Freeport Regional Water Project, as described in the June 9, 2014 order of the State Board that approved the Freeport POD as an authorized point of rediversion for Yuba transfer water."

C. "Participating Contractors" means all SWP contractors and CVP contractors who have executed an agreement with DWR to be entitled to receive water supplies under the Agreement."

D. "State Board Order" means State Board Corrected Order WR 2008-0014, which amended Yuba's Water Right Permits 15026, 15027 and 15030 to include, with some modifications, the streamflow requirements in the Fisheries Agreement and by adding, through December 31, 2025, the SWP and CVP Delta diversion facilities as points of rediversion, and the SWP and CVP service areas to the place of use, under Permit 15026."

3. Section 5.A.2. Section 5.A.2. of the Agreement is amended to read as follows:

"2. In certain years, and pursuant to the accounting principles set forth in Exhibit 1 to the Agreement, operational limitations of the Yuba Project, the CVP, and/or the SWP may cause the quantity of Component 1 Water that Yuba can deliver to the Buyer to be reduced below 60,000 acre-feet during a Water Accounting Year. Under those circumstances, unless the Parties agree otherwise, Yuba will deliver the undelivered Component 1 Water from the 2011 Water Accounting Year and the quantity (if any) of undelivered Component 1 Water from the 2015 Water Accounting Year during subsequent years under the following conditions: (a) during the next Water Accounting Year that is not a Dry or Critical Water Year; (b) when such make-up water can be

delivered from Yuba's available surface-water supply; (c) notwithstanding any other provision of the Agreement, as the first Delivered Transfer Water provided in the first Water Accounting Year after 2015 that has a Final Classification either as Wet, Above Normal, or Below Normal at the rate of 60,000 acre-feet per year until fully repaid; and (d) on a schedule that is acceptable to the Buyer and Yuba. Yuba will not be required to provide a makeup supply for an account deficit of Component 1 Water that was incurred on or after January 1, 2016. In any year starting in the 2016 Water Accounting Year that Yuba provides a makeup supply of Component 1 Water, Yuba will not be obligated to also provide the quantity of Component 1 Water that is provided for in section 25.C.1 of the Agreement."

4. **Section 5.A.4.** Section 5.A.4. of the Agreement (Component 1 Water Quantity during the term of an FERC Annual License) is deleted as of October 1, 2015.

5. **Section 5.C.** Section 5.C. of the Agreement is amended to read as follows:

"**C. Invoicing**. Yuba will invoice DWR for Component 1 Water made available starting January 1, 2016 in the same manner that Yuba invoices DWR for Component 2 Water and Component 3 Water except that, in those years when Yuba is delivering the remaining undelivered quantity of the 480,000 acre-feet of Component 1 Water, Yuba will reduce its invoice for current year Component 1 deliveries by the amount of water being delivered to repay the remaining undelivered quantity of the 480,000 acre-feet of Component 1 Water."

6. **Section 6.A.** Section 6.A. of the Agreement is amended by adding at the end the following new paragraph:

> **"5.** Yuba will not be required to provide a makeup supply for an account deficit of Component 2 Water that existed before or after the effective date of Amendment 5 to the Agreement."

7. **Section 6.C.1** Section 6.C.1. of the Agreement is amended by changing the date of June 1 to the date of May 22.

8. **Section 7.A.** Section 7.A. of the Agreement is deleted.

9. **Section 7.B.1.** Section 7.B.1. of the Agreement is amended by deleting subpart f.

10. **Section 7.C.1.** Section 7.C.1. of the Agreement is amended by changing the date of June 1 to the date of May 22.

11. **Section 7.C.** Section 7.C. of the Agreement is amended by adding at the end the following new paragraph:

> "3. Yuba will not be required to provide a makeup supply for an account deficit of Component 3 Water that existed before or after the effective date of Amendment 5 to the Agreement."

12. **Section 8.B.** Section 8.B. of the Agreement is amended to read as follows:

"**B.** Provisions Applicable to Groundwater Substitution Component Water as of the Effective Date of Amendment 5 to the Agreement. Notwithstanding any other provision of the Agreement (including Amendment 4 to the Agreement), the following provisions will apply to Groundwater Substitution Component Water that is made available by Yuba after January 1, 2016:

1. Yuba is not required to provide Groundwater Substitution Component water for any purpose under the Agreement except upon pricing and other terms that are agreed to by Yuba and the Member Units, which are also agreed to by DWR and the Participating Contractors.

2. Yuba is not required to provide Groundwater Substitution Component water for delivery of Component 1 Water, Component 2 Water or Component 3 Water. Sections 7.2.2, 7.2.3 and 7.2.4 of Exhibit 1 of the Agreement are inapplicable to Groundwater Substitution Component water.

3. Groundwater Substitution Component water will be the only water that comprises Component 4.

4. Yuba will notify DWR by April 1 of each year during the term of this Agreement of the amount of Accrued Groundwater Substitution Component water that Yuba will make available during the Water Accounting Year. By April 15, DWR will notify Yuba of the amount of Accrued Groundwater Substitution Component water it commits to purchase based on requests by Participating

Contractors. DWR may adjust this amount, up or down, on or before May 15, and on May 15 DWR will commit to the final quantity of Accrued Groundwater Substitution Component water to be purchased during the Water Accounting Year, but such amount will not be less than the actual amount of Accrued Groundwater Substitution Component water made available between April 1 and May 15 for Groundwater Substitution Component water in accordance with the accounting provisions for Groundwater Substitution Component water set forth in Exhibit 1 of the Agreement. The dates herein may be adjusted if approved in writing by Yuba and DWR to allow the Member Units to maximize the quantities of groundwater substitution pumping program water that could be made available during each year.

5. In every year that DWR desires to purchase Accrued Groundwater Substitution Component water, representatives of DWR, Yuba, the Member Units and the Participating Contractors will convene by February 15 and conclude by March 31 as the Management Committee to negotiate the price per acre-foot of Accrued Groundwater Substitution Component water, any provisions for the Delta export priority for such water and any other terms applicable to the Accrued Groundwater Substitution Component water. The 30,000 acre-feet of Groundwater Substitution Component water that Yuba is required to provide in a Schedule 6 Year under term 1a of the State Board Order will be Accrued Groundwater Substitution Component water for all purposes under the Agreement, except that, the Member Units will not be involved in the negotiation of the price for this water supply.

6. In every Water Accounting Year when: (1) one or more Participating Contractor(s) desire to purchase Accrued

Groundwater Substitution Component water; (2) the annual negotiations referenced in Paragraph 5 above have reached a successful conclusion calling for the purchase of such water in that year; (3) the Management Committee representatives for Yuba, the Authority, and the State Water Contractors have agreed as to the terms of, and each of these representatives has recommended in writing said terms and the approval of, a letter agreement between Yuba and DWR establishing the price per acre-foot and any other modified terms that will be applicable to the Accrued Groundwater Substitution Component water for that Water Accounting Year; and (4) DWR and Yuba have executed said letter agreement, DWR will offer in writing to Participating Contractors the opportunity to purchase Accrued Groundwater Substitution Component water at the price and terms as provided in the letter agreement between DWR and Yuba.

7. Yuba will confirm on a monthly basis the quantities of the Accrued Groundwater Substitution Component water and the quantities of Groundwater Substitution Component water released as Released Transfer Water, in accordance with the accounting provisions for Groundwater Substitution Component water set forth in Exhibit 1 of the Agreement.

8. DWR will provide Yuba not less than 72 hours' notification for suspension or termination of groundwater pumping due to limitations on the ability of DWR to divert and use the Groundwater Substitution Component water. In the event of such a suspension or termination of Groundwater Substitution Component water, DWR will pay for the quantity of Accrued Groundwater Substitution Component water up to and including through the 72-hour notification of suspension or termination (i.e., DWR will pay

for the quantity of Accrued Groundwater Substitution Component water through the notice period irrespective of whether DWR was able to divert and use the Accrued Groundwater Substitution Component water).

9. Pursuant to the negotiations described in Paragraph 5 above, if the Management Committee so determines, DWR will require any Participating Contractor requesting Groundwater Substitution Component water to schedule this water with the Delta conveyance priority in relation to any other transfer water that DWR conveys at the Harvey O. Banks Pumping Plant for these same Participating Contractors that has been agreed to by the Management Committee, provided that the Groundwater Substitution Component water will not have a higher priority than Storage Component water provided under the Agreement.

10. Pursuant to the negotiations described in Paragraph 5 above, if the Management Committee so determines, DWR will require that the Authority schedule Groundwater Substitution Component water with the Delta conveyance priority in relation to any other transfer water that the Authority schedules for conveyance at the Harvey O. Banks Pumping Plant or at the C.W. Jones pumping plant for the members of the Authority that will receive water pursuant to this Amendment that has been agreed to by the Management Committee, provided that the Groundwater Substitution Component water will not have a higher priority than Storage Component water provided under the Agreement.

11. Except as otherwise provided herein, Groundwater Substitution Component water and Accrued Groundwater

Substitution Component water will be accounted for in accordance with the provisions of the Agreement.

12. Consistent with the water accounting principles set forth in Exhibit 1 to the Agreement, Yuba agrees that making the Groundwater Substitution Component water available in any Water Accounting Year will not affect the quantity of Storage Component water that Yuba makes available in that year or thereafter."

13. Section 8.C. Section 8.C. of the Agreement is amended to read as follows:

"C. Groundwater Substitution Payment Provisions

1. DWR will pay Yuba the per acre foot price for the amount of Accrued Groundwater Substitution Component that DWR has committed to purchase in the letter agreement described in this Section, unless this amount is reduced as provided for under Section 8.B.8 or is reduced because the Yuba Member Units do not pump the requested quantity of groundwater substitution pumping program water for the Groundwater Substitution Component water.

2. The Parties acknowledge that Section 5.1.8 of the Yuba Accord Fisheries Agreement allows the River Management Team to schedule the release of a portion of Groundwater Substitution Component water at a time when it might not be transferable. DWR will not be required to pay for the portion (if any) of Groundwater Substitution Component water that is scheduled for release in accordance with the provisions of Section 5.1.8 of the Yuba Accord Fisheries Agreement to the extent that this quantity of Groundwater Substitution Component water is not transferable

under the accounting provisions set forth in Exhibit 1 of the Agreement."

14. Section 8. Section 8 of the Agreement is amended by adding at the end the following new subparagraph:

"D. Groundwater Substitution Water Invoicing

1. On or about May 22 in each year that DWR has agreed to purchase Accrued Groundwater Substitution Component water, Yuba will submit an invoice to DWR for 50 percent of the amount of Accrued Groundwater Substitution Component water that DWR has committed to purchase in the letter agreement described in this section during the current Water Accounting Year.

2. On or about August 30 in each year that DWR has agreed to purchase Accrued Groundwater Substitution Component water, Yuba will submit an invoice to DWR for 100 percent of the amount of Accrued Groundwater Substitution Component water DWR has committed to purchase in the letter agreement described in this section or that is otherwise payable under Section 8 during the current Water Accounting Year, less the amount of prior invoices for such Accrued Groundwater Substitution Component water during the current Water Accounting Year.

3. Within 60 days of the date that DWR receives an invoice from Yuba, DWR will submit payment to Yuba. DWR's payment will be reduced by 10 percent to allow accounting adjustments (if necessary) in the final payment to Yuba for the Accrued Groundwater Substitution Component water.

4. Approximately 30 days after the end of the release of groundwater substitution transfer water from New Bullards Bar Reservoir, after confirmation of the amount of groundwater substitution transfer water has been completed, and after Yuba and DWR have reached agreement on the final accounting, Yuba will provide to DWR in a final invoice that is undisputed and as required under the Agreement, an amount for final payment for Accrued Groundwater Substitution Component water provided under Section 8. The final payment for Accrued Groundwater Substitution Component water will reflect any adjustments necessary to account for the total quantity of Accrued Groundwater Substitution Component water payable under Section 8 and any adjustments provided for under Section 8.B.8.

5. If payments from any contractors to DWR for Accrued Groundwater Substitution Component water are delinquent, DWR will make partial payments to Yuba by the invoice due dates by remitting the amounts received pursuant to the invoice as of the due date. DWR will pay any delinquent portion to Yuba as soon as DWR receives the delinquent payments.

6. The agreements between DWR and the Participating Contractors provide for a Participating Contractor to pay interest on delinquent payments at the rate of 1 percent per month from the due date until paid in full. DWR will assess and use reasonable efforts to collect such interest from Participating Contractors who are delinquent in making payments to DWR for invoices under the Agreement, and DWR will pay such interest collected along with the payments on invoices to Yuba."

15. Section 11.F. Section 11.F. of the Agreement is amended to read as follows:

"F. Reservation of the Right of Yuba to Transfer Certain Quantities of Water to a Third Party.

1. As provided in Section 25.B. of the Agreement, DWR will purchase all Storage Component water that is accounted for as Delivered Transfer Water. The Parties will estimate as expeditiously as possible during each year whether Storage Component water is likely to be accounted for as Delivered Transfer Water in that Water Accounting Year. Yuba may transfer any quantity of Released Transfer Water that DWR determines will not be accounted for as Delivered Transfer Water to a "Third Party." A Third Party as defined in this Section 11 includes an agency, entity or individual that is other than: (a) DWR; (b) a Participating Contractor; or (c) a member unit, customer, landowner or any other entity within the boundaries of a Participating Contractor. This type of water transfer is referred to as the "First Type of Third-Party Transfer." Yuba may transfer the First Type of Third-Party Transfer water for diversion at any diversion facility that is a current or future authorized point of rediversion for Yuba transfer water, except that, the First Type of Third-Party Transfer can be diverted at diversion facilities for Contra Costa Water District, if authorized, and if the diversion does not adversely affect the operation of the Projects during Balanced Conditions or at any other time that such diversion would directly or indirectly require the Projects to release water from storage or to reduce their diversion or rediversion of water from the Delta to provide or assure flow in the Delta required to meet any applicable provision of state or federal law. In order to implement the First Type of Third-Party Transfer, Yuba reserves the right to notify DWR on or before September 1 to not back a specified quantity of Released Transfer Water into Project storage

after September 30 of a Water Accounting Year. DWR reserves the right on or before September 15 to notify Yuba that DWR will purchase the specified quantity of water at current year pricing.

2. Notwithstanding Paragraph 1, beginning in the 2016 Water Accounting Year, Yuba may transfer up to 10,000 acre-feet per year of Released Transfer Water to a Third Party that would otherwise have been made available to DWR and the Participating Contractors as Component 2 Water or Component 3 Water under the Agreement (referred to as the "Second Type of Third-Party Transfer"), subject to the following: (a) The Second Type of Third-Party Transfer can be diverted: (i) at the Freeport POD; (ii) at a point of diversion North of the Freeport POD, if authorized; (iii) at diversion facilities for Contra Costa Water District, if authorized, and if the diversion does not adversely affect the operation of the Projects during Balanced Conditions or at any other time that such diversion would directly or indirectly require the Projects to release water from storage or to reduce their diversion or rediversion of water from the Delta to provide or assure flow in the Delta required to meet any applicable provision of state or federal law; (b) Yuba will use reasonable efforts to transfer the Second Type of Third-Party Transfer during times when Yuba Storage Component water could not otherwise be accounted for as Delivered Transfer Water, as a way of minimizing to the extent feasible reductions in the quantities of Component 2 Water and Component 3 Water that Yuba makes available to DWR and the Participating Contractors; and (c) To the extent needed to preserve the benefit of the 80% payment for Component 2 Water (as provided in Section 26) that DWR and the Participating Contractors would have received that year but for a Second Type of Third-Party Transfer, Yuba will adjust the invoice for payments for Component 1 water at 80% for the

quantity of the Second Type of Third-Party Transfer. The following hypothetical example illustrates this provision (c) to preserve benefits of Component 2 pricing: if in a Critical Year, there would have been 90,000 acre-feet of Delivered Transfer Water (which would have been allocated 60,000 acre-feet for Component 1 and 30,000 acre-feet for Component 2), and Yuba carries out a Second Type of Third-Party Transfer in the amount of 10,000 acre-feet that was transferred during times when Yuba Storage Component water would have been accounted for as Delivered Transfer Water, then the payment for 50,000 acre-feet of Component 1 Water would be at $300 per acre foot, the payment for 10,000 acre-feet of Component 1 Water would be at $240 per acre foot (reflecting the 80% Component 2 Water) and the payment for 20,000 acre-feet of Component 2 Water would be at $240 per acre foot.

3. So long as a First Type of Third-Party Transfer or a Second Type of Third-Party Transfer is carried out consistent with the transfer water accounting provisions of Exhibit 1 for Released Transfer Water during Balanced Conditions, DWR and the Participating Contractors will not object based on the use of the transfer water accounting provisions of Exhibit 1 to such a transfer as not protective of DWR and the Participating Contractors as legal users of water. Except as provided in Section 11.F.2 above, Yuba may conduct Third-Party transfers provided that such transfers will not impair Yuba's ability to meet its obligations under this Agreement. Any agreement between DWR and a Participating Contractor to implement Amendment 5 will contain provisions that are consistent with this subsection. Yuba will provide DWR with ten days' advance notice of a Yuba water transfer to a Third Party. Yuba may transfer Storage Component water to a Third Party only in accordance with this Section 11.F.

4. So long as a transfer of Accrued Groundwater Storage Component water is carried out consistent with the transfer water accounting provisions of Exhibit 1 for Released Transfer Water during Balanced Conditions, Yuba may sell to a Third-Party any quantity of Accrued Groundwater Substitution Component water for which there is no agreement for DWR and the Participating Contractors to purchase pursuant to the negotiations described in Paragraphs 5 and 6 of Section 8.B. and DWR and the Participating Contractors will not object based on the use of the transfer water accounting provisions of Exhibit 1 to such a transfer as not protective of DWR and the Participating Contractors as legal users of water. Any agreement between DWR and the Participating Contractors to implement Amendment 5 will contain provisions that are consistent with this subsection. Yuba will provide DWR with ten days' advance notice of a Yuba water transfer to a Third-Party. Yuba may transfer Accrued Groundwater Component water to a Third Party only in accordance with this Section 11.F."

16. Section 11. Section 11 of the Agreement is further amended by adding at the end the following new subparagraphs:

"H. The Water Scheduling and Accounting Principles (Exhibit 1) of the Agreement: (a) are intended to provide long-term protection of legal users of water (including without limitation, DWR, Participating Contractors, the SWP and the CVP) from injury from Yuba water transfers; (b) apply throughout the term of the Agreement to Yuba water transfers made available under the Agreement; and (c) are not subject to adjustment due to any regulatory actions (including actions regarding instream flows) that

concern Yuba's water rights permits or licenses, a FERC Annual License, the FERC Long-Term License or a Water Quality Certification issued by the State Board in relation thereto. If there is a regulatory action that requires a change in the operation of the Yuba Project, then Yuba will promptly notify DWR and discuss with DWR and the Participating Contractors the extent to which such action would affect the ability of Yuba to deliver Storage Component or Groundwater Substitution Component water under this Agreement.

I. Yuba has no obligation to make available Storage Component or Groundwater Substitution Component water after September 30, 2020, and DWR and the Participating Contractors have no obligation to pay for such water, unless and until the Parties have entered into an amendment to the Agreement for that purpose."

17. Section 12. Section 12 of the Agreement is amended by deleting Subparagraph B. (Payments for Fixed Annual Costs and for Environmental Compliance) and Subparagraph C. (Payments for Adjustments in Groundwater O&M Costs).

18. New Sections 25 and 26. The Agreement is amended by adding at the end the following new sections:

"**25. Storage Component Water.** Notwithstanding any other provision of the Agreement, the following provisions will apply to Storage Component water that is made available by Yuba:

A. Following the effective date of Amendment 5 to the Agreement, Yuba will provide an invoice for payment by DWR to Yuba of $20,000,000 (Prepayment) by wire transfer instructions provided by Yuba. Payment of this invoice will be due no later than December 31, 2014. Yuba understands that DWR will make arrangements for Participating Contractors to provide the funding for this purpose to DWR. After DWR has obtained contractual commitments from Participating Contractors to fund the Prepayment, then DWR will process one or more wire transfers to Yuba of partial funding of the Prepayment as funds are received by DWR from the Participating Contractors until the full amount of the Prepayment has been made. The Prepayment will be credited by Yuba toward payments due on invoices for Storage Component water that has been accounted for as Delivered Transfer Water that is made available starting October 1, 2015. In the event that there are Prepayment funds that have not been fully credited for Storage Component water that has been accounted for as Delivered Transfer Water that is made available through September 30, 2020, then these remaining funds will be: (1) applied to future payments due by DWR to Yuba for Storage Component Delivered Transfer Water delivered on or after October 1, 2020 under a subsequent amendment between the Parties at the prices provided in Section

26 of the Agreement, (as added by Amendment 5); or (2) if there is no such amendment, refunded by Yuba to DWR.

B. DWR will purchase under the terms set forth in Amendment 5 to the Agreement, all Storage Component water that Yuba makes available from October 1, 2015 through September 30, 2020 that is accounted for as Delivered Transfer Water under the accounting rules set forth in Exhibit 1 to the Agreement, except that DWR is not required to pay for Storage Component water that Yuba transfers to a Third-Party as provided in Section 11.F. of the Agreement, as amended. The Parties expect that DWR will enter into agreements with the Participating Contractors to provide funding for such payments.

C. Subject to the provisions of Section 11 of the Agreement, as amended, Yuba will make the following quantities of Storage Component water available in each Water Accounting Year from January 1, 2016 through December 31, 2020.

1. Component 1. 60,000 acre-feet per year of Component 1 Water.

2. Component 2. 15,000 acre-feet in a Final Classification Dry Year and 30,000 acre-feet in a Final Classification Critical Year of Component 2 Water.

3. Component 3. Any quantity of Storage Component water in excess of the amount of Component 1 and Component 2 Water will be considered Component 3 Water. Yuba will optimize to the extent feasible the operation of the

Yuba Project to make Component 1, 2 and 3 Water available.

26. Payments. In accordance with Section 15 of the Agreement, the Parties have met, conferred and agreed upon the following pricing for Storage Component Water made available from October 1, 2015 through September 30, 2020. DWR will make the following payments to Yuba for Storage Component water made available during this time period, except that, the payment for Component 2 Water will be 80% of these amounts:

A. Wet Year. $50 per acre foot in a Final Classification Wet Water Year.

B. Above-Normal Year. $100 per acre foot in a Final Classification Above-Normal Water Year.

C. Below-Normal Year. $150 per acre foot in a Final Classification Below-Normal Water Year.

D. Dry-Year. $200 per acre foot in a Final Classification Dry Water Year (except as provided in subsection 6, below).

E. Critical Year. $300 per acre foot in a Final Classification Critical Water Year (except as provided in subsection 6, below).

F. Consecutive Dry or Critical Years. $350 per acre foot in two or more consecutive Final Classification Dry Water Years (or a Dry Year following a Critical Year) or in two or more consecutive Final Classification Critical Water Years."

19. **DWR Agreements with Participating Contractors.** Nothing in the terms of an agreement between DWR and the Participating Contractors that implements this Amendment will be inconsistent with DWR's or Yuba's obligations under this Amendment.

20. **Effective Date of this Amendment.** Section 25.A. of the Agreement (Prepayment) will become effective upon execution by the Parties of this Amendment. Section 26 of the Agreement (Payments) will become effective October 1, 2015. The remaining terms of the Amendment will become effective January 1, 2015.

21. **Effect of this Amendment.** All of the remaining provisions of the Agreement that are not changed by this Amendment will remain in full force and effect. Nothing in this Amendment affects the current term of the Agreement, which is through December 31, 2025.

22. **Environmental Compliance.** On October 23, 2007, Yuba's Board of Directors adopted Resolution No. 2007-23 and, as the lead agency under CEQA, certified the Final Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord (State Clearinghouse #2005062111) (Final EIR). DWR approved the Final EIR as a responsible agency under CEQA. Yuba will be responsible for complying with CEQA to the extent required for Yuba to transfer water to a Third Party under this Agreement.

The foregoing is hereby agreed to by the Parties.

Approved as to legal form and sufficiency:

STATE OF CALIFORNIA
DEPARTMENT OF WATER
RESOURCES

_____
Cathy Crothers, Chief Counsel

_____
Mark W. Cowin, Director

_____, 2014

_____, 2014

Approved as to legal form and sufficiency:

YUBA COUNTY WATER AGENCY
A Political Subdivision of the
State of California

_____
Paul M Bartkiewicz,
General Legal Counsel

_____
Chairman of the Board of Directors

_____, 2014

_____, 2014

Attest:

_____
Secretary

_____, 2014

Appendix G: Beaumont Basin Judgment

ORIGINAL COPY

JOSEPH S. AKLUFI (Bar No. 68619)
AKLUFI AND WYSOCKI
3403 Tenth Street, Suite 610
Riverside, California 92501
(909)682-5480 Office
(909)682-2619 Fax

NO FILING FEE REQUIRED PER GOVERNMENT CODE, SEC. 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB - 4 2004

Attorneys for Plaintiff, SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF RIVERSIDE, RIVERSIDE COURT

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY, a public agency,

Plaintiff,

vs.

CITY OF BANNING, a municipal corporation; BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district; YUCAIPA VALLEY WATER DISTRICT, a county water district; PLANTATION ON THE LAKE LLC, a California limited liability company; SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association; SOUTH MESA MUTUAL WATER COMPANY, a mutual water company; CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company; OAK VALLEY PARTNERS LP, a Texas limited partnership; SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation; SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation; MANHEIM, MANHEIM & BERMAN, a California General Partnership; WALTER M. BECKMAN, individually and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990; THE ROMAN CATHOLIC BISHOP of San Bernardino,

CASE NO. RIC 389197

JUDGMENT PURSUANT TO STIPULATION ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN

LAW OFFICES
AKLUFI / WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

a California corporation; MERLIN PROPERTIES, LLC; LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991; and DOES 1 through 500, inclusive,

Defendants.

I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction

The complaint herein was filed on February 20, 2003, seeking an adjudication of water rights, injunctive relief and the imposition of a physical solution. The defaults of certain defendants have been entered, and certain other defendants dismissed. Other than defendants who have been dismissed or whose defaults have been entered, all defendants have appeared herein. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation for Judgment

Stipulation for Entry of Judgment has been filed by and on behalf of all defendants who have appeared herein.

3. Definitions

As used in this Judgment, these terms shall have the following meanings:

A. Appropriator or Appropriator Parties: the pumpers identified in Exhibit "C" attached hereto.

B. Appropriator's Production Right: consists of an Appropriator's share of Operating Yield, plus (1) any water acquired by an Appropriator from an Overlying Producer or other Appropriator pursuant to this Judgment, (2) any water

LAW OFFICES
AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

withdrawn from the Appropriator's storage account, (3) and New Yield created by the Appropriator.

C. Appropriative Water: the amount of Safe Yield remaining after satisfaction of Overlying Water Rights.

D. Appropriative Water Right: each Appropriator's share of Appropriative Water, such share expressed as a percentage as shown on Exhibit "C".

E. Beaumont Basin or Beaumont Storage Unit: the area situated within the boundaries shown on Exhibit "A" attached hereto.

F. Conjunctive Use: the storage of water in a Groundwater Basin for use at a later time.

G. Groundwater: water beneath the surface of the ground within the zone below the water table in which soil is saturated with water.

H. Groundwater Basin: an area underlain by one or more permeable formations capable of furnishing a substantial water supply.

I. Groundwater Storage Agreement: a standard form of written agreement between the Watermaster and any Person requesting the storage of Supplemental Water.

J. Groundwater Storage Capacity: the space available in a Groundwater Basin that is not utilized for storage or regulation of Safe Yield and is reasonably available for Stored Water and Conjunctive Use.

K. Minimal Producer: any Producer who pumps 10 or fewer acre feet of Groundwater from the Beaumont Basin per year.

LAW OFFICES
AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

L. New Yield: increases in yield in quantities greater than historical amounts from sources of supply including, but not limited to, capture of available storm flow, by means of projects constructed after February 20, 2003, as determined by the Watermaster.

M. Operating Yield: the maximum quantity of water which can be produced annually by the Appropriators from the Beaumont Basin, which quantity consists of Appropriative Water plus Temporary Surplus.

N. Overdraft: a condition wherein the total annual production from a Groundwater Basin exceeds the Safe Yield thereof.

O. Overlying Parties: the Persons listed on Exhibit "B", who are owners of land which overlies the Beaumont Basin and have exercised Overlying Water Rights to pump therefrom. Overlying Parties include successors in interest and assignees.

P. Overlying Water Rights: the quantities decreed to Overlying Parties in Column 4 of Exhibit "B" to this Judgment.

Q. Overproduction: by an Appropriator, measured by an amount equal to the Appropriator's actual annual production minus the Appropriator's Production Right. By a new overlying producer, an amount equal to what the overlying producer pumped during the year.

R. Party (Parties): any Person(s) named in this action, or who has intervened, or has become subject to this Judgment either through stipulation, trial or otherwise

LAW OFFICES
AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

S. Person: any individual, partnership, association, corporation, governmental entity or agency, or other organization.

T. Physical Solution: the physical solution set forth in Part V of this Judgment.

U. Produce, Producing, Production, Pump or Pumping: the extraction of groundwater.

V. Producer or Pumper: any Person who extracts groundwater.

W. Recycled Water: has the meaning provided in Water Code Section 13050(n) and includes other nonpotable water for purposes of this Judgment.

X. Safe Yield: the maximum quantity of water which can be produced annually from a Groundwater Basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage. The Safe Yield of the Beaumont Basin is 8650 acre feet per year in each of the ten (10) years following entry of this Judgment.

Y. San Timoteo Watershed Management Authority: a joint powers public agency whose members are the Beaumont-Cherry Valley Water District, the City of Beaumont, the South Mesa Mutual Water Company and the Yucaipa Valley Water District.

Z. Stored Water: Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

AA. Supplemental Water: water imported into the

LAW OFFICES
AKLUFI / WYSOCKI
3403 TENTH ST., SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

Beaumont Basin from outside the Beaumont Basin including, without limitation, water diverted from creeks upstream and tributary to Beaumont Basin and water which is recycled and useable within the Beaumont Basin.

BB. Temporary Surplus: the amount of groundwater that can be pumped annually in excess of Safe Yield from a Groundwater Basin necessary to create enough additional storage capacity to prevent the waste of water.

CC. Watermaster: the Person appointed by the Court to administer and enforce the Physical Solution.

4. List of Exhibits

The following exhibits are attached to this Judgment and made a part hereof:

Exhibit "A" -- "Location Map of Beaumont Basin"
Exhibit "B" -- "Overlying Owners and Their Water Rights"
Exhibit "C" -- "Appropriators and Their Water Rights"
Exhibit "D" -- "Legal Description of Lands of the Overlying Parties"
Exhibit "E" -- "Location of Overlying Producer Parcels and Boundary of the Beaumont Basin"

II. INJUNCTIONS

1. Injunction Against Unauthorized Production of Beaumont Basin Water

Each party herein is enjoined, as follows:

A. Overlying Parties: Each defendant who is an Overlying Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any five-year period hereafter in excess of five times the share of the Safe Yield assigned to the Overlying Parties as set

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forth in Column 4 of Exhibit "B", as more fully described in the Physical Solution.

B. Appropriator Parties: Each defendant who is an Appropriator Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any year hereafter in excess of such party's Appropriator's Production Right, except as additional annual Production may be authorized by the provisions of the Physical Solution.

2. Injunction Against Unauthorized Storage or Withdrawal of Stored Water

Each and every Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from storing Supplemental Water in the Beaumont Basin for withdrawal, or causing withdrawal of water stored by that Party, except pursuant to the terms of a written Groundwater Storage Agreement with the Watermaster and in accordance with Watermaster Rules and Regulations. Any Supplemental Water stored in the Beaumont Basin, except pursuant to a Groundwater Storage Agreement, shall be deemed abandoned and not classified as Stored Water.

III. DECLARATION AND ADJUSTMENT OF RIGHTS

1. Overlying Rights

The Overlying Parties are currently exercising Overlying Water Rights in the Beaumont Basin. As shown on Exhibit "B", the aggregate Projected Maximum Production of water from the Beaumont Basin pursuant to Overlying Water Rights is 8650 acre feet and the Overlying Water Rights are individually decreed, in Column 4 of Exhibit "B", for each Overlying Party. The Overlying Parties

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shall continue to have the right to exercise their respective Overlying Water Right as set forth in Column 4 of Exhibit "B" except to the extent their respective properties receive water service from an Appropriator Party, as contemplated by Paragraph III.3 of this Judgment.

2. Appropriator's Share of Operating Yield

Each Appropriator Party's share of Operating Yield is shown on Exhibit "C". Notwithstanding any other provision of this Judgment, each Appropriator Party may use its Appropriator's Production Right anywhere within its service area.

3. Adjustment of Rights

A. The Overlying Parties shall have the right to exercise their respective Overlying Water Rights except as provided in this Paragraph 3.

B. To the extent any Overlying Party requests, and uses its Exhibit "B", Column 4 water to obtain water service from an Appropriator Party, an equivalent volume of potable groundwater shall be earmarked by the Appropriator Party which will serve the Overlying Party, up to the volume of the Overlying Water Right as reflected in Column 4 of Exhibit "B" attached hereto, for the purpose of serving the Overlying Party. The intent of this provision is to ensure that the Overlying Party is given credit towards satisfying the water availability assessment provisions of Government Code, Section 66473.7 et seq. and Water Code, Section 10910 et seq. or other similar provisions of law, equal to the amount of groundwater earmarked hereunder.

C. When an Overlying Party receives water service as

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provided for in subparagraph III.3.B the Overlying Party shall forebear the use of that volume of the Overlying Water Right earmarked by the Appropriator Party. The Appropriator Party providing such service shall have the right to produce the volume of water foregone by the Overlying Party, in addition to other rights otherwise allocated to the Appropriator Party.

D. Should the volume of the Overlying Water Right equal or exceed the volume of potable groundwater earmarked as provided in subparagraph 3.B, the Appropriator Party which will serve the Overlying Party shall (i) impose potable water charges and assessments upon the Overlying Party and its successors in interest at the rates charged to the then-existing regular customers of the Appropriator Party, and (ii) not collect from such Overlying Party any development charge that may be related to the importation of water into the Beaumont Basin. The Appropriator Party which will serve the Overlying Party pursuant to Subparagraph III.3.B shall also consider, and negotiate in good faith regarding, the provision of a meaningful credit for any pipelines, pump stations, wells or other facilities that may exist on the property to be served.

E. In the event an Overlying Party receives Recycled Water from an Appropriator Party to serve an overlying use served with groundwater, the Overlying Water Right of the Overlying Party shall not be diminished by the receipt and use of such Recycled Water. Recycled Water provided by an Appropriator Party to an Overlying Party shall satisfy the

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criteria set forth in the California Water Code including, without limitation, the criteria set forth in Water Code Sections 13550 and 13551. The Appropriator Party which will serve the Recycled Water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of Recycled Water service pursuant to the terms of this subparagraph; provided, however, that such right of use by the Appropriator Party shall no longer be valid if the Recycled Water, provided by the Appropriator Party to the Overlying Party, does not satisfy the requirements of Sections 13550 and 13551 and the Overlying Party ceases taking delivery of such Recycled Water.

F. Nothing in this Judgment is intended to impair or adversely affect the ability of an Overlying Party to enter into annexation or development agreements with any Appropriator Party.

G. Oak Valley Partners LP ("Oak Valley") is developing its property pursuant to Specific Plans 216 and 216A adopted by the County of Riverside ("County") in May 1990, and Specific Plan 318 adopted by the County in August, 2001, (Specific Plans 216, 216A and 318 are collectively referred to as the "Specific Plans"). The future water supply needs at build-out of the Specific Plans will greatly exceed Oak Valley's Projected Maximum Production, as reflected in Exhibit "B" to the Judgment, and may be as much as 12,811 acre feet per year. Oak Valley has annexed the portion of its property now within the City of Beaumont into the Beaumont-Cherry Valley Water District ("BCVWD"), and is in

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the process of annexing the remainder portion of its property into the Yucaipa Valley Water District ("YVWD"), in order to obtain retail water service for the development of the Oak Valley property pursuant to the Specific Plans (for purposes of this subparagraph BCVWD and YVWD are collectively referred to as the "Water Districts", and individually as a "Water District"). YVWD covenants to use its best efforts to finalize the annexation of the Oak Valley property within the Calimesa City limits. Oak Valley, for itself and its successors and assigns, hereby agrees, by this stipulation and upon final annexation of its property by YVWD, to forbear from claiming any future, unexercised, overlying rights in excess of the Projected Maximum Production of Exhibit "B" of 1806 acre feet per year. As consideration for the forbearance, the Water Districts agree to amend their respective Urban Water Management Plans ("UWMP") in 2005 as follows: BCVWD agrees that 2,400 acre feet per year of projected water demand shall be included for the portion of Oak Valley to be served by BCVWD in its UWMP, and YVWD agrees to include 8,000 acre feet per year of projected water demand as a projected demand for the portion of Oak Valley to be served by YVWD in its UWMP by 2025. The Water Districts agree to use their best judgment to accurately revise this estimate to reflect the projected water demands for the UWMP prepared in 2010. Furthermore, the Water Districts further agree that, in providing water availability assessments prior to 2010, as required by Water Code §10910 and water supply verifications as required by Government Code §§66455.3 and

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66473.7, or any similar statute, and in maintaining their respective UWMP, each shall consider the foregoing respective projected water demand figures for Oak Valley as proposed water demands. The intent of the foregoing requirements is to ensure that Oak Valley is credited for the forbearance of its overlying water rights and is fully accounted for in each Water District's UWMP and overall water planning. The Water Districts' actions in performance of the foregoing planning obligations shall not create any right or entitlement to, or priority or allocation in, any particular water supply source, capacity or facility, or any right to receive water service other than by satisfying the applicable Water District's reasonable requirements relating to application for service. Nothing in this subparagraph G is intended to affect or impair the provision of earmarked water to Overlying Parties who request and obtain water service from Appropriator Parties, as set forth in subparagraph III.3.B, above.

H. Persons who would otherwise qualify as Overlying Producers based on an interest in land lying within the City of Banning's service area shall not have the rights described in this Paragraph III.3.

4. Exemption for Minimal Producers

Unless otherwise ordered by the Court, Minimal Producers are exempt from the provisions of this Judgment.

IV. CONTINUING JURISDICTION

Full jurisdiction, power and authority is retained and reserved to the Court for purposes of enabling the Court, upon

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application of any Party, by a motion noticed for at least a 30-day period (or consistent with the review procedures of Paragraph VII.6 herein, if applicable), to make such further or supplemental order or directions as may be necessary or appropriate for interim operation of the Beaumont Basin before the Physical Solution is fully operative, or for interpretation, or enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to the provisions hereof consistent with the rights herein decreed; except that the Court's jurisdiction does not extend to the redetermination of (a) Safe Yield during the first ten years of operation of the Physical Solution, and (b) the fraction of the share of Appropriative Water of each Appropriator.

V. THE PHYSICAL SOLUTION

1. Purpose and Objective

In accordance with the mandate of Section 2 of Article X of the California Constitution, the Court hereby adopts, and orders the parties to comply with, a Physical Solution. The purpose of the Physical Solution is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Beaumont Basin, to facilitate conjunctive utilization of surface, ground and Supplemental Waters, and to satisfy the requirements of water users having rights in, or who are dependent upon, the Beaumont Basin. Such Physical Solution requires the definition of the individual rights of all Parties within the Beaumont Basin in a manner which will fairly allocate the native water supplies and which will provide for equitable sharing of costs of Supplemental Water.

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2. Need for Flexibility

The Physical Solution must provide maximum flexibility and adaptability in order that the Watermaster and the Court may be free to use existing and future technological, social, institutional and economic options. To that end, the Court's retained jurisdiction shall be utilized, where appropriate, to supplement the discretion granted herein to the Watermaster.

3. Production and Storage in Accordance With Judgment

This Judgment, and the Physical Solution decreed herein, address all Production and Storage within the Beaumont Basin. Because the Beaumont Basin is at or near a condition of Overdraft, any Production outside the framework of this Judgment and Physical Solution will potentially damage the Beaumont Basin, injure the rights of all Parties, result in the waste of water and interfere with the Physical Solution. The Watermaster shall bring an action or a motion to enjoin any Production that is not in accordance with the terms of this Judgment.

4. General Pattern of Operation

One fundamental premise of the adjudication is that all Producers shall be allowed to pump sufficient water from the Beaumont Basin to meet their respective requirements. Another fundamental premise of the adjudication is that Overlying Parties who pump no more than the amount of their Overlying Water Right as shown on Column 4 of Exhibit "B" hereto, shall not be charged for the replenishment of the Beaumont Basin. To the extent that pumping exceeds five (5) times the share of the Safe Yield assigned to an Overlying Party (Column 4 of Exhibit "B") in any five (5) consecutive years, or the share of Operating Yield

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Right of each Appropriator Party, each such Party shall provide funds to enable the Watermaster to replace such Overproduction.

5. Use of Available Groundwater Storage Capacity

A. There exists in the Beaumont Basin a substantial amount of available Groundwater Storage Capacity. Such Capacity can be reasonably used for Stored Water and Conjunctive Use and may be used subject to Watermaster regulation to prevent injury to existing Overlying and Appropriative water rights, to prevent the waste of water, and to protect the right to the use of Supplemental Water in storage and Safe Yield of the Beaumont Basin.

B. There shall be reserved for Conjunctive Use a minimum of 200,000 acre feet of Groundwater Storage Capacity in the Beaumont Basin provided that such amount may be reduced as necessary to prevent injury to existing water rights or existing uses of water within the Basin, and to prevent the waste of water. Any Person may make reasonable beneficial use of the Groundwater Storage Capacity for storage of Supplemental Water; provided, however, that no such use shall be made except pursuant to a written Groundwater Storage Agreement with the Watermaster. The allocation and use of Groundwater Storage Capacity shall have priority and preference for Producers within the Beaumont Basin over storage for export. The Watermaster may, from time-to-time, redetermine the available Groundwater Storage Capacity.

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VI. ADMINISTRATION

1. Administration and Enforcement by Watermaster

The Watermaster shall administer and enforce the provisions of this Judgment and any subsequent order or instructions of the Court.

2. Watermaster Control

The Watermaster is hereby granted discretionary powers to develop and implement a groundwater management plan and program for the Beaumont Basin, which plan shall be filed with and shall be subject to review and approval by, the Court, and which may include water quantity and quality considerations and shall reflect the provisions of this Judgment. Except for the exercise by Overlying Parties of their respective Rights described in Column 4 of Exhibit "B" hereto in accordance with the provisions of the Physical Solution, groundwater extractions and the replenishment thereof, and the storage of Supplemental Water, shall be subject to procedures established and administered by the Watermaster. Such procedures shall be subject to review by the Court upon motion by any Party.

3. Watermaster Standard of Performance

The Watermaster shall, in carrying out its duties and responsibilities herein, act in an impartial manner without favor or prejudice to any Party or purpose of use.

4. Watermaster Appointment

The Watermaster shall consist of a committee composed of persons nominated by the City of Banning, the City of Beaumont, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company and the Yucaipa Valley Water District, each of

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which shall have the right to nominate one representative to the Watermaster committee who shall be an employee of or consultant to the nominating agency. Each such nomination shall be made in writing, served upon the other parties to this Judgment and filed with the Court, which shall approve or reject such nomination. Each Watermaster representative shall serve until a replacement nominee is approved by the Court. The nominating agency shall have the right to nominate that representative's successor.

5. Powers and Duties of the Watermaster

Subject to the continuing supervision and control of the Court, the Watermaster shall have and may exercise the following express powers, and shall perform the following duties, together with any specific powers, authority, and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the Court in the exercise of its continuing jurisdiction:

A. Rules and Regulations: The adoption of appropriate rules and regulations for the conduct of Watermaster affairs, copies of which shall be provided to all interested parties.

B. Wellhead Protection and Recharge: The identification and management of wellhead protection areas and recharge areas.

C. Well Abandonment: The administration of a well abandonment and well destruction program.

D. Well Construction: The development of minimum well construction specifications and the permitting of new wells.

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E. Mitigation of Overdraft: The mitigation of conditions of uncontrolled overdraft.

F. Replenishment: The acquisition and recharge of Supplemental Water.

G. Monitoring: The monitoring of groundwater levels, ground levels, storage, and water quality.

H. Conjunctive Use: The development and management of conjunctive-use programs.

I. Local Projects: The coordination of construction and operation, by local agencies, of recharge, storage, conservation, water recycling, extraction projects and any water resource management activity within or impacting the Beaumont Basin.

J. Land Use Plans: The review of land use plans and coordination with land use planning agencies to mitigate or eliminate activities that create a reasonable risk of groundwater contamination.

K. Acquisition of Facilities: The purchase, lease and acquisition of all necessary real and personal property, including facilities and equipment.

L. Employment of Experts and Agents: The employment or retention of such technical, clerical, administrative, engineering, accounting, legal or other specialized personnel and consultants as may be deemed appropriate. The Watermaster shall maintain records allocating the cost of such services as well as all other expenses of Watermaster administration.

M. Measuring Devices: Except as otherwise provided

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by agreement the Watermaster shall install and maintain in good operating condition, at the cost of the Watermaster, such necessary measuring devices or meters as Watermaster may deem appropriate. Such devices shall be inspected and tested as deemed necessary by the Watermaster and the cost thereof borne by the Watermaster. Meter repair and retesting will be a Producer expense.

N. Assessments: The Watermaster is empowered to levy and collect the following assessments:

(1) Annual Replenishment Assessments

The Watermaster shall levy and collect assessments in each year, in amounts sufficient to purchase replenishment water to replace Overproduction by any Party.

(2) Annual Administrative Assessments

a. Watermaster Expenses: The expenses of administration of the Physical Solution shall be categorized as either "General Watermaster Administration Expenses", or "Special Project Expenses".

i. General Watermaster Administration Expenses: shall include office rent, labor, supplies, office equipment, incidental expenses and general overhead. General Watermaster Administration Expenses shall be assessed by the Watermaster equally against the Appropriators who have appointed representatives to the Watermaster.

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ii. Special Project Expenses: shall include special engineering, economic or other studies, litigation expenses, meter testing or other major operating expenses. Each such project shall be assigned a task order number and shall be separately budgeted and accounted for. Special Project Expenses shall be allocated to the Appropriators, or portion thereof, on the basis of benefit.

O. Investment of Funds; Borrowing: The Watermaster may hold and invest Watermaster funds as authorized by law, and may borrow, from time-to-time, amounts not exceeding annual receipts.

P. Contracts: The Watermaster may enter into contracts for the performance of any of its powers.

Q. Cooperation With Other Agencies: The Watermaster may act jointly or cooperate with other local, state and federal agencies.

R. Studies: The Watermaster may undertake relevant studies of hydrologic conditions and operating aspects of the management program for the Beaumont Basin.

S. Groundwater Storage Agreements: The Watermaster shall adopt uniform rules and a standard form of agreement for the storage of Supplemental Water, provided that the activities undertaken pursuant to such agreements do not injure any Party.

T. Administration of Groundwater Storage Capacity: Except for the exercise by the Overlying Parties of their

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respective Overlying Water Rights described in Part III, above, in accordance with the provisions of the Physical Solution, all Groundwater Storage Capacity in the Beaumont Basin shall be subject to the Watermaster's rules and regulations, which regulations shall ensure that sufficient storage capacity shall be reserved for local projects. Any Person or entity may apply to the Watermaster to store water in the Beaumont Basin.

U. Accounting for Stored Water: The Watermaster shall calculate additions, extractions and losses and maintain an annual account of all stored water in the Beaumont Basin, and any losses of water supplies or Safe Yield resulting from such stored water.

V. Accounting for New Yield: Recharge of the Beaumont Basin with New Yield water shall be credited to the Party that creates the New Yield. The Watermaster shall make an independent scientific assessment of the estimated New Yield created by each proposed project. New Yield will be allocated on an annual basis, based upon monitoring data and review by the Watermaster.

W. Accounting for Acquisitions of Water Rights: The Watermaster shall maintain an accounting of acquisitions by Appropriators of water otherwise subject to Overlying Water Rights as the result of the provision of water service thereto by an Appropriator.

X. Annual Administrative Budget: The Watermaster shall prepare an annual administrative budget for public review, and shall hold a public hearing on each such budget

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prior to adoption. The budget shall be prepared in sufficient detail so as to make a proper allocation of the expenses and receipts. Expenditures within budgeted items may thereafter be made by the Watermaster as a matter of course.

Y. Redetermining the Safe Yield: The Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of this Judgment.

6. Reports and Accounting

(a) Production Reports: Each Pumper shall periodically file, pursuant to Watermaster rules and regulations, a report showing the total production of such Pumper from each well during the preceding report period, and such additional information as the Watermaster may reasonably require.

(b) Watermaster Report and Accounting: The Watermaster shall prepare an annual report of the preceding year's operations, which shall include an audit of all assessments and Watermaster expenditures.

7. Replenishment

Supplemental Water may be obtained by the Watermaster from any source. The Watermaster shall seek the best available quality of Supplemental Water at the most reasonable cost for recharge in the Basin. Sources may include, but are not limited to:

(a) Recycled Water;

(b) State Water Project Water;

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(c) Other imported water.

Replenishment may be accomplished by any reasonable method including:

(a) Spreading and percolation, or injection of water in existing or new facilities; and/or

(b) In-lieu deliveries for direct surface use, in lieu of groundwater extraction.

VII. MISCELLANEOUS PROVISIONS

1. Designation of Address for Notice and Service

Each Party shall designate, in writing to the plaintiff, the name and address to be used for purposes of all subsequent notices and service herein, such designation to be delivered to the plaintiff within 30 days after the Judgment has been entered. The plaintiff shall, within 45 days after judgment has been entered, file the list of designees with the Court and serve the same on the Watermaster and all Parties. Such designation may be changed from time-to-time by filing a written notice of such change with the Watermaster. Any Party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by the Watermaster. The Watermaster shall maintain, at all times, a current list of Parties to whom notices are to be sent and their addresses for purposes of service. The Watermaster shall also maintain a full current list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall be available to any Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (i) the Party's attorney of record; or (ii) if the Party does not have an

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3403 TENTH [illegible], SUITE 610
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attorney of record, the Party itself at the address on the Watermaster list.

2. Intervention After Judgment

Any Person who is neither a Party to this Judgment nor a successor or assignee of a Party to this Judgment may seek to become a party to this Judgment by filing a petition in intervention.

3. Interference with Pumping

Nothing in this judgment shall be deemed to prevent any party from seeking judicial relief against any other party whose pumping activities constitute an unreasonable interference with the complaining party's ability to extract groundwater.

4. Successors and Assigns

This Judgment and all provisions herein shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto.

5. Severability

The provisions of this Judgment are severable. If any provision of this Judgment is held by the Court to be illegal, invalid or unenforceable, that provision shall be excised from the Judgment. The remainder of the terms of the Judgment shall remain in full force and effect and shall in no way be affected, impaired or invalidated by such excision. This Judgment shall be reformed to add, in lieu of the excised provision, a provision as similar in terms to the excised provision as may be possible and be legal, valid and enforceable.

6. Review Procedures

Any action, decision, rule or procedure of the Watermaster

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pursuant to this Judgment shall be subject to review by the Court on its own motion or on timely motion by any Party, as follows:

A. Effective Date of Watermaster Action: Any order, decision or action of the Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

B. Notice of Motion: Any Party may, by a regularly-noticed motion, petition the Court for review of the Watermaster's action or decision pursuant to this Judgment. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to the Watermaster, together with the service fee established by the Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. The Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by the Watermaster according to Part VII, paragraph 1, above. A Party's obligation to serve the notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

C. Time for Motion: A motion to review any Watermaster action or decision shall be filed within 90 days after such Watermaster action or decision, except that motions to review Watermaster assessments hereunder shall be filed within 30 days of mailing of notice of the assessment.

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D. De Novo Nature of Proceeding: Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

E. Decision: The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon the Watermaster and the Parties.

Dated: FEB - 4 2004

GARY TRANBARGER

JUDGE OF THE SUPERIOR COURT

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AKLUFI & WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

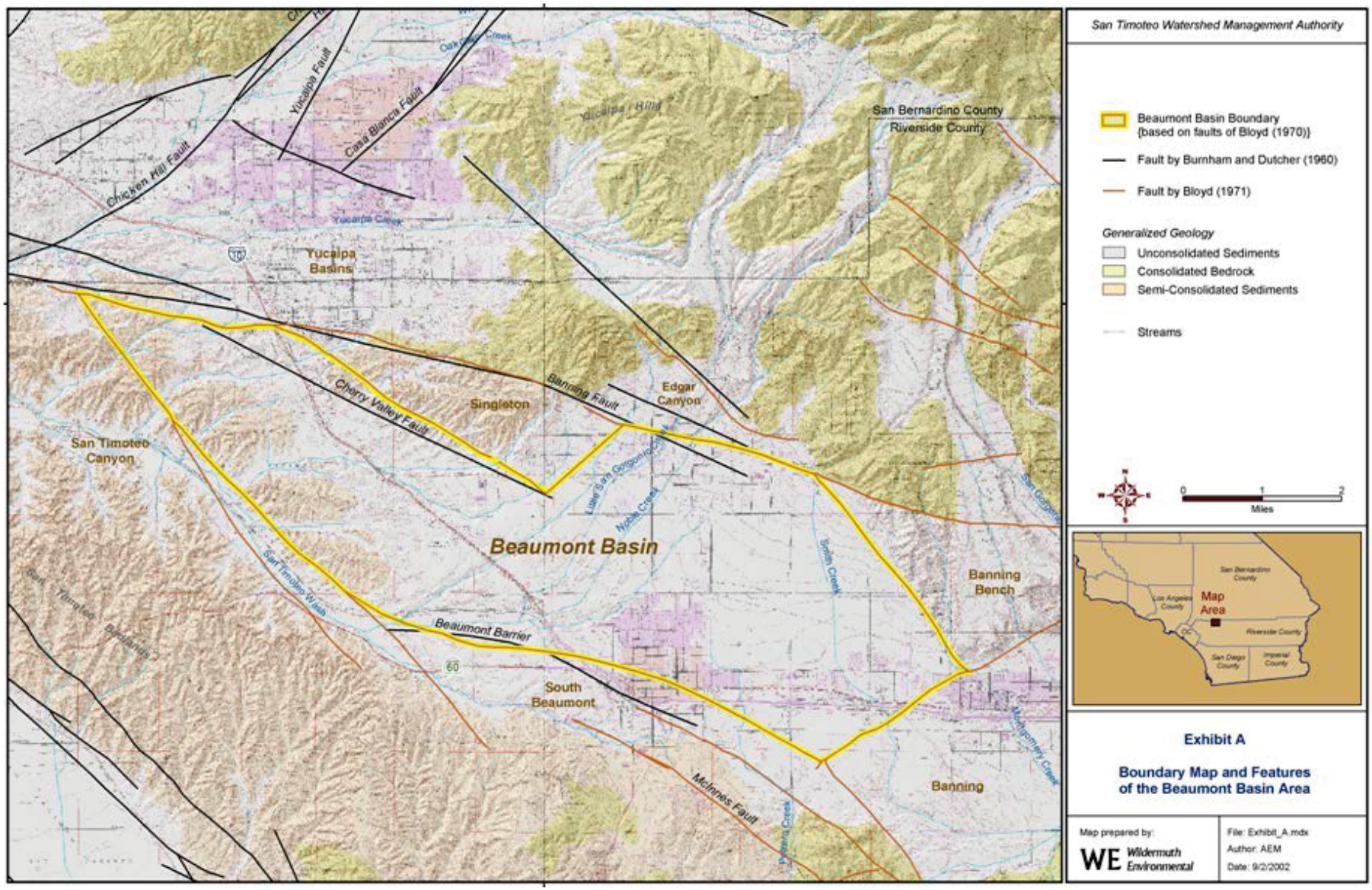
San Timoteo Watershed Management Authority
Beaumont Basin Boundary
(based on faults of Bloyd (1970))
Fault by Burnham and Dutcher (1960)
Fault by Bloyd (1971)
Generalized Geology
Unconsolidated Sediments
Consolidated Bedrock
Semi-Consolidated Sediments
Streams
0
1
2
Miles
Map Area
San Bernardino County
Riverside County
Los Angeles County
San Diego County
Imperial County
Exhibit A
Boundary Map and Features of the Beaumont Basin Area
Map prepared by:
Wildermuth Environmental
File: Exhibit_A.mdx
Author: AEM
Date: 9/2/2002
Yucaipa Fault
Casa Blanca Fault
Chicken Hill Fault
Yucaipa Hills
San Bernardino County
Riverside County
Yucaipa Creek
Yucaipa Basins
Cherry Valley Fault
Banning Fault
Singleton
Edgar Canyon
San Timoteo Canyon
Lower San Gorgonio Creek
Noble Creek
Beaumont Basin
San Timoteo Wash
Smith Creek
Banning Bench
Beaumont Barrier
South Beaumont
Montgomery Creek
McInnes Fault
Potrero Creek
Banning

Exhibit B
Overlying Producers and Their Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Exercised Rights[1] (acre-ft/yr)	(4) Projected Maximum Production (acre-ft/yr)
Beckman, Walt	0	0	75
Roman Catholic Bishop of San Bernardino	104	114	154
Rancho Calimesa Mobile Home Park	60	150	150
Merlin Properties, LLC.	540	550	550
Sunny-Cal Egg and Poultry Company[2]	1,340	1,340	1,439.5
Sunny-Cal North - Manheim, Manheim & Berman[2]			300
Nick Nikodinov[3]			20
Ronald L. McAmis[4]			5
Nicolas and Amalia Aldama[5]			7
Hector Gutierrez, Luis Gutierrez and Sebastian Monroy[6]			10
Boris and Miriam Darmont[7]			2.5
California Oak Valley Golf and Resort LLC	692	950	950
Leonard Stearn	0	0	200
Oak Valley Partners	510	553	1,806
So. California Professional Golf Association	680	1,688	2,200
Sharondale Mesa Owners Association	184	200	200
Plantation on the Lake	271	300	581
Totals	4,381	5,845	8,650

Note 1 -- Maximum Reported Production during 1997-2001

Note 2 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 300 af of the aggregate right to MMB aka Sunny-Cal North on February 7, 2006.*

Note 3 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 20 af of aggregate right to Nick Nikodinov on April 17, 2006.*

Note 4 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 5 af of aggregate right to Ronald L. McAmis on June 13, 2006.*

Note 5 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 7 af of aggregate right to Nicolas and Amalia Aldama on June 13, 2006.*

Note 6 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 10 af of aggregate right to Hector Gutierrez, Luis Gutierrez and Sebastian Monroy on June 13, 2006.*

Note 7 -- The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 2.50 af of aggregate right to Boris and Miriam Dermont on June 13, 2006.*

Exhibit C
Appropriators and Their Water Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Share of Safe Yield Allocated to Appropriators	(4) Initial Estimate of Appropriate Rights[1] (acre-ft/yr)	(5) Controlled Overdraft and Supplemental Water Recharge Allocation [2] (acre-ft/yr)	(6) Operating Yield (acre-ft/yr)
Banning, City of	2,170	31.43%	882	5,029	5,910
City of Beaumont	0	0.00%	0	0	0
Beaumont Cherry Valley Water District	2,936	42.51%	1,193	6,802	7,995
South Mesa Water Company	862	12.48%	350	1,996	2,346
Yucaipa Valley Water District	938	13.58%	381	2,173	2,554
Totals	6,906	100.00%	2,805	16,000	18,805

Note 1 – Based on a 8,650 acre-ft/yr safe yield

Note 2-- Controlled overdraft will not exceed 160,000 acre-ft during for first ten years of operation under the physical solution.

Exhibit D

Overlying Producers and the Parcels Upon Which Their Overlying Rights are Exercised[1]

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Beckman, Walt	405250004	19.04
	405250005	19.00
Total Area		38.04
California Oak Valley Golf and Resort	406070041	209.71
Total Area		209.71
Manheim, Manheim & Berman[2]	407200009	20.35
	407200011	20.00
	407200012	20.04
	407210001	45.41
	407210002	12.04
	407210004	4.16
Total Area		122.00
Roman Catholic Bishop of San Bernardino	413280016	16.78
	413280030	2.06
	413280036	12.42
Total Area		31.26
Oak Valley Partners	406060010	115.82
	406060015	4.00
	406060017	19.03
	406230020	4.26
	411210003	2.40
	411210005	105.41
	411210010	15.14
	411210016	9.77
	411210017	8.94
	413030011	315.30
	413040001	493.40
	413040002	137.00
	413040003	74.48
	413040004	6.50
	413040005	80.02
	413040006	75.54
	413040007	76.22

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Oak Valley Partners (cont'd)	413040008	144.48
	413040009	10.00
	413040010	78.22
	413060003	1.70
	413160003	80.00
	413160004	106.92
	413160005	53.08
	413160006	64.47
	413160007	15.53
	413170020	40.26
	413170021	27.62
	413170023	12.38
	413170027	14.19
	413170028	4.11
	413170029	2.35
	413170030	20.28
	413170031	66.63
	413170033	2.79
	413170035	11.74
	413180017	556.91
	413180019	9.77
	413190001	111.31
	413190003	5.64
	413190005	10.35
	413190008	12.40
	413190011	138.92
	413200002	0.23
	413200003	0.15
	413200010	5.94
	413200014	10.61
	413200015	11.36
	413200020	5.00
	413200023	14.47
	413200024	5.00
	413200026	32.86
	413200027	42.90
	413200028	116.62
	413200029	6.39
	413200030	19.01
	413200034	2.18
	413200035	10.99
	413200036	10.42
	413200037	4.95
	413270021	0.31
	413280034	2.37
	413280039	13.61
	413280040	1.91

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Oak Valley Partners (cont'd)	413280041	2.24
	413280042	6.86
	413290003	510.57
	413290004	16.08
	413290006	8.40
	413290007	103.68
	413450019	74.85
	413450020	169.96
	413450021	146.99
	413450024	48.25
	413450025	50.83
	413450026	122.59
	413450029	108.92
	413460036	199.12
	413460037	23.51
	413460038	19.58
	413460039	45.23
	413460039	45.23
	414090005	1.59
	414090007	1.38
	414090013	31.60
	414090017	20.00
	414090018	4.50
	414100002	42.13
	414100003	65.00
Total Area		5,331.65
Plantation on the Lake	407230031	12.36
	407230010	1.25
	406050018	156.85
	406050002	5.12
	406050003	1.81
Total Area		177.39
Rancho Calimesa Mobile Home Park	413270001	29.66
Total Area		29.66
Merlin Properties, LLC.	407230014	48.52
Total Area		48.52
Sharondale Mesa Owners Association	413330014	1.55
	413330015	2.14
	413331022	0.48
	413331035	0.22
	413340021	0.04
	413340022	0.04
	413340023	1.53
	413340024	2.52
	413341033	0.29

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Sharondale Mesa Owners Association (cont'd)	413341034	0.81
	413341036	0.35
	413342004	0.35
	413350011	1.04
	413350012	1.44
	413351018	17.08
	413351019	0.16
	413360032	1.92
	413360033	2.30
	413360035	0.90
	413361001	0.14
	413361008	0.12
	413361010	0.18
	413370027	0.39
	413370028	5.34
	413370030	0.69
	413371018	2.07
	413372019	1.39
Total Area		45.48
So. California Professional Golf Association	406060011	146.59
	406060013	2.83
	406060014	4.58
	406060016	10.35
	413450016	99.66
	413450022	95.15
	413450023	2.89
	413450027	91.53
Total Area		453.58
Stearns, Leonard	413221001	0.25
	413221002	0.34
	413260018	49.33
	413260025	0.37
	413270007	10.58
	413280010	1.27
	413280018	9.37
	413280021	4.26
	413280027	3.80
	413280037	14.32
Total Area		93.89
Sunny-Cal Egg and Poultry Company[2]	406080013	0.07
	407190016	4.95
	407190017	31.32
	407230022	20.03
	407230023	20.03
	407230024	20.03
	407230025	21.99

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Sunny-Cal Egg and Poultry Company[2] (cont'd)	407230026	25.94
	407230027	21.63
	407230028	21.56
Total Area		187.55
Nikodinov, Nick[4]	407180004	9.35
Total Area		9.35
McAmis, Ronald L.[5]	407190018	0.93
Total Area		0.93
Aldama, Nicolas and Amalia[6]	407190015	1.35
Total Area		1.35
Hector Gutierrez, Luis Gutierrez and Sebastian Monroy[7]	407190013	2.01
Total Area		2.01
Darmont, Boris and Miriam[8]	407190014	0.50
Total Area		0.50
Total Area for All Overlying Producers[3]		**6,782.87**

Note 1 -- Parcels as of June 1, 2003; updated to include Nick Nikodinov per April 17, 2006 Watermaster action; updated to include Ronald L. McAmis, Nicolas and Amalia Aldama, Hector Gutierrez, Luis Guiterrez, and Sebastian Monroy, and Boris and Miriam Darmont per June 13, 2006 Watermaster actions.

Note 2 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to MMB on February 7, 2006.

Note 3 -- The Watermaster shall recognize adjustments in parcel boundaries that result in de minimus changes in water use

Note 4 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Nick Nikodinov on Aprin 17, 2006.

Note 5 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Ronald L. McAmis on June 13, 2006.

Note 6 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Nicolas and Amalia Aldama on June 13, 2006.

Note 7 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Hector Gutierrez, Luis Gutierrez and Sebastian Monroy on June 13, 2006.

Note 8 -- Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Boris and Miriam Durmont on June 13, 2006.

Appendix H: Water Shortage Contingency Plan Ordinance

SAN GORGONIO PASS WATER AGENCY

ORDINANCE NO. XX

ORDINANCE ADOPTING A WHOLESALE WATER SHORTAGE CONTINGENCY PLAN FOR PURPOSES OF THE URBAN WATER MANAGEMENT PLANNING ACT

WHEREAS, the San Gorgonio Pass Water Agency ("Agency") is a public water agency organized and operating pursuant to the San Gorgonio Pass Water Agency Law, California Water Code Appendix 101-1 et seq., and is authorized to, among other things, supply water on a wholesale basis to retail water suppliers and other entities within the San Gorgonio Pass area; and

WHEREAS, the Agency is an urban wholesale water supplier for purposes of the Urban Water Management Planning Act (Water Code section 10610 et seq.) and the Water Conservation Act of 2009 (Water Code Section 10608 et seq.), commonly referred to as SBX7-7, and as such the Agency is required to provide a water shortage contingency analysis as part of its Urban Water Management Plan, which must include, among other things, a final or draft water shortage contingency resolution or ordinance that includes stages of action to be undertaken by the Agency in response to water supply shortages, including up to a 50 percent reduction in water supply; and

WHEREAS, the Agency is a State Water Project ("SWP") Contractor and has rights and access to multiple sources of water that it may supply on a wholesale basis to retail water agencies and other entities in the San Gorgonio Pass area, which sources of water include, but are not limited to, annual contractual supplies from the SWP, and surplus water from the Yuba County Water Agency; and

WHEREAS, the State of California recently experienced record multiple dry-year conditions and many portions of the state continue to face ongoing drought conditions, wherein such conditions have affected the availability and reliability of the Agency's wholesale water supplies and water supplies throughout the San Gorgonio Pass area, and wherein future drought conditions will continue to affect the availability and reliability of water supplies available to the Agency; and

WHEREAS, in addition to being subject to drought conditions, water supplies available to the Agency are subject to environmental, regulatory, legal, and other constraints, and are further subject to shortages and reductions caused by catastrophic conditions such as regional power outages, earthquakes, or other disasters; and

WHEREAS, in response to California's recurring drought conditions, Governor Jerry Brown and the prior Governor have issued various emergency drought declarations requiring

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immediate actions by state agencies and calling upon local agencies and all Californians to take aggressive and immediate actions to reduce water consumption statewide, regionally, and locally, and to prevent the waste of water; and

WHEREAS, the Agency is authorized by law, including but not limited to, Water Code section 350 et seq., Water Code section 375 et seq., and the San Gorgonio Pass Water Agency Law, to take various actions in response to reductions in water supply, including but not limited to: declaring a water shortage emergency; adopting regulations and restrictions regarding the delivery, distribution and allocation of water; and adopting, implementing, and enforcing a wholesale water conservation program; and

WHEREAS, on July 21, 2014, the Agency adopted Ordinance No. 10 which established a Water Shortage Plan which sets forth a policy regarding how the Agency will allocate wholesale water supplies available for purchase by the Agency during a Water Shortage Year(s); and

WHEREAS, in accordance with the requirements of the Urban Water Management Planning Act, the Agency desires to enact this Water Shortage Contingency Ordinance for purposes of its 2015 Urban Water Management Plan to include stages of action to be undertaken by the Agency in response to shortages in wholesale water supplies available for purchase by the Agency, including up to a 50 percent reduction in those supplies, and to provide an outline of the specific water supply conditions that are applicable to each stage of action by reference to the allocation scenarios established in Agency Ordinance No. 10.

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of the San Gorgonio Pass Water Agency as follows:

1. Incorporation of Recitals. The Recitals set forth above are incorporated herein and made an operative part of this Resolution.

2. Purpose and Scope. This Water Shortage Contingency Ordinance is adopted pursuant to the authorities of the Agency under the San Gorgonio Pass Water Agency Law and in accordance with the Urban Water Management Planning Act to include stages of action to be undertaken by the Agency in response to shortages in wholesale water supplies available for purchase by the Agency, including up to a 50 percent reduction in those supplies, and to provide an outline of the specific water supply conditions that are applicable to each stage of action by reference to the allocation scenarios established in Agency Ordinance No. 10. As such, implementation of this Ordinance shall be carried out in conjunction with Ordinance No. 10.

3. Notice and Public Hearing. The Agency's Board of Directors has conducted a noticed public hearing on _____ to allow public agencies, members of the public, and other interested stakeholders to review, submit comments, and have an opportunity to be heard on or protest this Ordinance prior to it being adopted by the Board of Directors. Notice of the

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public hearing was published on _____ in the _____, a newspaper of general circulation within the Agency.

4. Water Shortage Contingency Principles. In addition to the scope and purpose of this Water Shortage Contingency Ordinance as described in Section 2, above, a guiding principle of this Ordinance is to assist in managing the Agency's water resources and water supply planning efforts to minimize the effects of water shortages or water supply reductions. Additional supporting principles include:

- Encourage and promote efficient water use throughout the San Gorgonio Pass area;
- Coordinate the Agency's water supply planning efforts and water supply operations with retail water supply agencies and other entities in the San Gorgonio Pass area to the greatest extent practicable;
- Pursue innovative programs to secure additional imported water supplies for use in dry years and during water shortage conditions;
- Prepare for potential catastrophic interruption of water supplies, including, but not limited to, a regional power outage, earthquake, or other disaster scenario; and
- Increase public awareness about water supply issues.

5. Implementation. On an ongoing basis, the Agency evaluates its water supply conditions to determine the appropriate stage of action under this Ordinance. Each stage is associated with specific water resource management considerations designed to: (1) avoid shortages to the maximum extent practicable; and (2) coordinate with retail agencies and others to minimize the effects of reductions in water supply or water shortage conditions.

6. Stage 0 Water Supply Condition.

a. A Stage 0 Water Supply Condition may be declared in the Agency's sole discretion in any calendar year or portion thereof when the Agency determines that (1) at least 62 percent of its contractual SWP Table A imported water supplies ("Average SWP Supplies") are available for purchase by the Agency, and (2) that amount exceeds the total amount of imported water needed to satisfy all First, Second, Third, and Fourth Priority Water Deliveries as set forth by Agency Ordinance No. 10. When the Agency determines in its sole discretion that the foregoing conditions exist, the Agency is considered to be in a Stage 0 Water Supply Condition, and extraordinary water supply management actions are not required. Notwithstanding a Stage 0 Water Supply Condition, the following actions may continue to be undertaken by the Agency:

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i. Coordination. Meet and coordinate with retail water agencies and other entities in the San Gorgonio Pass area regarding current and projected water supplies and demands.
ii. Public Messaging. Encourage the public to avoid water waste and increase water use efficiency.
iii. Manage Water Supplies in Excess of Demands. Pursue programs and projects to manage water supplies in excess of demands, including, but not limited to, placing such water in storage or water banking or exchange programs.

7. Stage 1 Water Supply Condition

a. A Stage 1 Water Supply Condition may be declared in the Agency's sole discretion in any calendar year or portion thereof when the Agency determines that due to drought, regulatory, legal, catastrophic, or other conditions, the amount of the Agency's Average SWP Supplies will be reduced by up to 25 percent. The Agency's declaration of a Stage 1 Water Supply Condition will trigger the following water management actions by the Agency:
i. Water Shortage Plan. The Agency will determine whether a Water Shortage Year exists in accordance with Ordinance 10 and the extent to which imported water supplies available for purchase by the Agency will need to be allocated in accordance with Ordinance No. 10.
ii. Coordination. Meet and coordinate with retail water agencies and other entities in the San Gorgonio Pass area regarding current and projected water supplies and demands, and the extent to which other agencies may implement the appropriate stages and actions under their respective water shortage contingency plans.
iii. Continue to undertake other applicable actions identified above under a Stage 0 Water Supply Condition.

8. Stage 2 Water Supply Condition

a. A Stage 2 Water Supply Condition may be declared in the Agency's sole discretion in any calendar year or portion thereof when the Agency determines that due to drought, regulatory, legal, catastrophic, or other conditions, the amount of the Agency's Average SWP Supplies will be reduced by between 26 and 45 percent. The Agency's declaration of a Stage 2 Water Supply Condition will trigger the following water management actions by the Agency:
i. Water Shortage Plan. The Agency will determine whether a Water Shortage Year exists in accordance with Ordinance 10 and the extent

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to which imported water supplies available for purchase by the Agency will need to be allocated in accordance with Ordinance No. 10.

ii. Shift and Increase in Public Messaging. The Agency will utilize its own website and other local media and communication efforts to educate the public on the shortage and to encourage greater conservation on the part of individuals, businesses, and institutions.

iii. Dry Year Supplies. Determine from its customers if they desire additional dry-year supplies at an additional cost and, if so, to make reasonable and practicable attempts to obtain and deliver such supplies to customers who request and ensure payment for them.

iv. Continue to undertake other applicable actions identified above under Stage 0 and Stage 1 Water Supply Conditions.

9. Stage 3 Water Supply Condition

a. A Stage 3 Water Supply Condition may be declared in the Agency's sole discretion in any calendar year or portion thereof when the Agency determines that due to drought, regulatory, legal, catastrophic, or other conditions, the amount of the Agency's Average SWP Supplies will be reduced by more than 45 percent. The Agency's declaration of a Stage 3 Water Supply Condition will trigger the following water management actions by the Agency:

i. Water Shortage Plan. The Agency will determine whether a Water Shortage Year exists in accordance with Ordinance 10 and the extent to which imported water supplies available for purchase by the Agency will need to be allocated in accordance with Ordinance No. 10.

ii. Shift and Increase in Public Messaging. The Agency will utilize its own website and other local media and communication efforts to educate the public on the shortage and to encourage greater conservation on the part of individuals, businesses, and institutions.

iii. Dry-Year Supplies. Determine from its customers if they desire additional dry-year supplies at an additional cost and, if so, to make reasonable and practicable attempts to obtain and deliver such supplies to customers who request and ensure payment for them.

iv. Transfers. Evaluate and solicit input from its customers whether the Agency should pursue any transfers to augment supplies during the Stage 3 Condition, including related considerations of potential impacts to future water supplies.

v. Continue to undertake other applicable actions identified above under Stage 0, Stage 1, and Stage 2 Water Supply Conditions.

10. Exemption from the California Environmental Quality Act (CEQA). The Board of Directors determines that the adoption of this Ordinance, for the purposes of addressing

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potential reductions in water supply or water supply shortages, is exempt from the requirements for the California Environmental Quality Act in accordance with applicable law, including, but not limited to, Sections 15378(b)(2) and (b)(5) of the State CEQA Guidelines, and Section 10652 of the Urban Water Management Planning Act.

11. Effective Date. This Ordinance shall be effective immediately upon adoption and shall be presumed to continue in effect unless or until a contrary finding is made by applicable action by the Board of Directors. Within ten (10) days after adoption of this Ordinance No. __, a copy of this Ordinance shall be published one time in a newspaper of general circulation with the names of the Directors voting for and against this Ordinance.

12. Severability. If any section, subsection, clause or phrase in this Ordinance No. __ is for any reason held invalid, the validity of the remainder of this Ordinance shall not be affected thereby.

ADOPTED AND APPROVED this ____th day of _____, [Year].

_____

President, Board of Directors

San Gorgonio Pass Water Agency

ATTEST:

_____

Secretary, Board of Directors

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ORIGINAL COPY

JOSEPH S. AKLUFI (Bar No. 68619)
AKLUFI AND WYSOCKI
3403 Tenth Street, Suite 610
Riverside, California 92501
(909)682-5480 Office
(909)682-2619 Fax

Attorneys for Plaintiff, SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

NO FILING FEE REQUIRED PER GOVERNMENT CODE, SEC. 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB - 4 2004

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF RIVERSIDE, RIVERSIDE COURT

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY, a public agency,

Plaintiff,

vs.

CITY OF BANNING, a municipal corporation; BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district; YUCAIPA VALLEY WATER DISTRICT, a county water district; PLANTATION ON THE LAKE LLC, a California limited liability company; SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association; SOUTH MESA MUTUAL WATER COMPANY, a mutual water company; CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company; OAK VALLEY PARTNERS LP, a Texas limited partnership; SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation; SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation; MANHEIM, MANHEIM & BERMAN, a California General Partnership; WALTER M. BECKMAN, individually and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990; THE ROMAN CATHOLIC BISHOP of San Bernardino,

CASE NO. RIC 389197

STIPULATION FOR ENTRY OF JUDGMENT ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN

AKLUFI AND WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

a California corporation; MERLIN PROPERTIES, LLC; LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991; and DOES 1 through 500, inclusive,

Defendants.

I. STIPULATING PARTIES IDENTIFIED

The following parties, and each of them, agree to the terms of this Stipulation:

Plaintiff:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Overlying Defendants:

1. SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association
2. CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company
3. OAK VALLEY PARTNERS LP, a Texas limited partnership
4. SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation
5. SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation
6. MANHEIM, MANHEIM & BERMAN, a California general partnership
7. WALTER M. BECKMAN, individually, and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990
8. THE ROMAN CATHOLIC BISHOP of San Bernardino, a California corporation
9. MERLIN PROPERTIES, LLC
10. LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991
11. PLANTATION ON THE LAKE LLC, a California limited liability company

Appropriating Defendants:

1. CITY OF BANNING, a municipal corporation
2. BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district
3. SOUTH MESA MUTUAL WATER COMPANY, a mutual water company
4. YUCAIPA VALLEY WATER DISTRICT, a county water district

///

AKLUFI AND WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

II. RECITALS

WHEREAS, plaintiff is a joint powers public agency, formed in 2001 for the purpose, among others, of preparing and implementing a Water Resources Management Plan for the San Timoteo Watershed and the waters tributary thereto, including the Beaumont Basin, in order to conserve local water supplies, improve surface and subsurface water quality and quantity, and to protect and enhance groundwater storage, for the benefit of the public;

WHEREAS, the Beaumont Basin, also known as the Beaumont Storage Unit, is the common source of water supply for appropriative water uses within the communities of Banning, Beaumont, Cherry Valley and Calimesa, and for various overlying uses including, but not limited to, golf courses and related facilities and agricultural production, including egg production and related agricultural irrigation uses;

WHEREAS, the maximum quantity of water which can be produced from the Beaumont Basin, at safe yield, is currently estimated to be 8650 acre feet per year, and the total groundwater production from the Beaumont Basin has exceeded and continues to exceed its safe yield;

WHEREAS, much of the land area within and adjacent to the Beaumont Basin is proposed to be intensively developed with residential, commercial and industrial uses, which will place additional demands on local water resources;

WHEREAS, it is estimated that the Beaumont Basin has the capability of storing more than 200,000 acre feet of water for overlying and appropriative use by water users within and

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adjacent to the Beaumont Basin;

WHEREAS, the plaintiff proposes to invest substantial public funds to construct facilities that will enable the storage of water within the Beaumont Basin, in addition to the storage that occurs naturally;

WHEREAS, the Overlying and Appropriating Defendants wish to secure the provision and availability of a reliable, affordable, long-term water supply for the area within plaintiff's jurisdiction, making reasonable and beneficial use of the native groundwater in the Beaumont Basin, and other local water resources, promoting the importation of water into the area, and storage of such water, and local surface waters, in the Beaumont Basin;

WHEREAS, the Overlying Defendants believe that it is in their best interest to enter into this Stipulation and be subject to the attached Judgment, rather than continue to litigate the safe yield of the Beaumont Basin, the quantity of their overlying rights, both historical and unexercised, the rights they may have to use the storage volume existing beneath their respective lands, and other issues;

WHEREAS, in order to protect existing overlying and appropriative uses and to justify and protect the public investment necessary to utilize the available groundwater storage capacity in the Beaumont Basin, it is necessary to adjudicate the Beaumont Basin and to define the respective water rights of the overlying and appropriative producers of groundwater.

NOW, THEREFORE, the undersigned parties, and each of them, hereby agree to the following Stipulated Terms.

AKLUFI & WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

III. STIPULATED TERMS

1. Form of Judgment: Judgment may be filed and entered in the form attached hereto as Exhibit "1" and made a part hereof.

2. Fees and Costs: Each party shall bear its own costs, attorneys fees and litigation expenses arising out of this adjudication.

3. Waiver: Notice of entry of judgment, the right to trial, stay of execution and appeal, is hereby waived, except as expressly set forth in the Judgment.

4. Binding Effect: This Stipulation and all obligations herein, shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto.

5. Construction and Interpretation: No adverse construction or interpretation of this Stipulation shall be made under the Civil Code simply because the parties drafted or participated in the drafting of this Stipulation. The terms of the Judgment shall be interpreted to further the purposes of this Stipulation.

6. Jurisdiction and Venue: The Superior Court of California in and for the County of Riverside shall have jurisdiction of this matter. In the event of any litigation arising out of this Stipulation, venue shall conclusively be deemed to lie in the County of Riverside.

7. Advice of Counsel: The undersigned each have had the opportunity to consult with or have consulted with their own legal counsel regarding this Stipulation and all matters set forth herein, or have knowingly waived the right to do so.

RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: 1/6/04

By _____
President, Board of Directors

CITY OF BANNING

Dated: 12/23/03

By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____

By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____

By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____

By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____

By _____
President, Board of Directors

ARLUFI AND WYSOCKI
3403 TEN... REET, SUITE 610
RIVERSIDE, ...LIFORNIA 92501
(909) 682-3480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: July 3, 2003 By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____ By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____ By _____
President, Board of Directors

RIVERSIDE, FORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: 10/1/03 By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____ By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____ By _____
President, Board of Directors

AKLUFI AND WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: 7/30/03 By James H Krueger
~~President, Board of Directors~~
Manager of Meadows Management Company LLC, Manager

SHARONDALE MESA OWNERS ASSOCIATION

Dated: _____ By _____
President, Board of Directors

RIVERSIDE, C. ORNIA 92501
(909) 682-5480

8. Authority: Each person executing this Stipulation on behalf of any of the undersigned has been fully empowered to execute this Stipulation and that all necessary action for the execution of this Stipulation has been taken.

IT IS SO STIPULATED:

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

Dated: _____ By _____
President, Board of Directors

CITY OF BANNING

Dated: _____ By _____
Mayor

BEAUMONT-CHERRY VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

YUCAIPA VALLEY WATER DISTRICT

Dated: _____ By _____
President, Board of Directors

PLANTATION ON THE LAKE LLC

Dated: _____ By _____
President, Board of Directors

SHARONDALE MESA OWNERS ASSOCIATION

Dated: June 27, 2003 By Lenardo Alexander
President, Board of Directors

ARLUFI AND WYSOCKI
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: 6-27-03

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____

By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: 7-31-2003

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____

By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

...SOFF AND WYSOCKI
3403 TENTH ...T, SUITE 610
RIVERSIDE, C... ORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____

By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____

By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____

By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____

By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: July 8, 2003

By Thomas C. Gustafson
~~President~~, ~~Board of Directors~~
CHIEF Executive Officer

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____

By _____
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____

By _____

3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

SOUTH MESA MUTUAL WATER COMPANY

Dated: _____ By _____
President, Board of Directors

CALIFORNIA OAK VALLEY GOLF AND RESORT LLC

Dated: _____ By _____
President, Board of Directors

OAK VALLEY PARTNERS LP,
A Texas Limited Partnership

By: Oak Valley-Hunt, Inc.
a Texas Corporation
Managing General Partner

Dated: _____ By _____
D. CRAIG MARTIN

Its: President

SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA

Dated: _____ By _____
President, Board of Directors

SUNNY-CAL EGG AND POULTRY COMPANY

Dated: _____ By Michael Marboim
President, Board of Directors

MANHEIM, MANHEIM & BERMAN

Dated: _____ By Dottie Berman

Dated: 7-23-03

Walter M. Beckman

WALTER M. BECKMAN

Dated: 7-23-03

Walter M. Beckman

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

Dated: _____

_____

CECIL MERLE MURRAY

MERLIN PROPERTIES, LLC

Dated: _____

By _____

Dated: _____

_____

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: _____

_____

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

3403 TENTH ST, SUITE 610
RIVERSIDE, CA 92501
(909) 682-5480

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: _____

_____

JUDGE OF THE SUPERIOR COURT

Dated: _____

WALTER M. BECKMAN

Dated: _____

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

THE ROMAN CATHOLIC BISHOP of San Bernardino, a California corporation

Dated: 9/18/03

By Msgr. Gerald M. Fogg

MERLIN PROPERTIES, LLC

Dated: _____

By _____

Dated: _____

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: _____

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: _____

_____

JUDGE OF THE SUPERIOR COURT

Dated: _____

WALTER M. BECKMAN

Dated: _____

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

THE ROMAN CATHOLIC BISHOP of San Bernardino, a California corporation

Dated: _____

By _____

MERLIN PROPERTIES, LLC

Dated: July 31, 2003

By Paul L Rushmer

Dated: _____

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: _____

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

3403 TENTH ST[illegible], SUITE 610
RIVERSIDE, C[illegible]IA 92501
(909) [illegible]-5480

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: _____

JUDGE OF THE SUPERIOR COURT

Dated: _____

WALTER M. BECKMAN

Dated: _____

WALTER M. BECKMAN, Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990

Dated: _____

CECIL MERLE MURRAY

MERLIN PROPERTIES, LLC

Dated: _____ By _____

Dated: 7-23-03

Leonard M. Stearns

LEONARD M. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

Dated: 7-23-03

Dorothy D. Stearns

DOROTHY D. STEARNS, individually and as Trustee of the LEONARD M. STEARNS FAMILY TRUST OF 1991

APPROVAL AND ORDER

The foregoing Stipulation is hereby approved and is so ordered.

Dated: FEB - 4 2004

GARY TRANBARGER

JUDGE OF THE SUPERIOR COURT

ORIGINAL COPY

JOSEPH S. AKLUFI (Bar No. 68619)
AKLUFI AND WYSOCKI
3403 Tenth Street, Suite 610
Riverside, California 92501
(909)682-5480 Office
(909)682-2619 Fax

Attorneys for Plaintiff, SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY

NO FILING FEE REQUIRED PER GOVERNMENT CODE, SEC. 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB - 4 2004

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF RIVERSIDE, RIVERSIDE COURT

SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY, a public agency,

Plaintiff,

vs.

CITY OF BANNING, a municipal corporation; BEAUMONT-CHERRY VALLEY WATER DISTRICT, an irrigation district; YUCAIPA VALLEY WATER DISTRICT, a county water district; PLANTATION ON THE LAKE LLC, a California limited liability company; SHARONDALE MESA OWNERS ASSOCIATION, an unincorporated association; SOUTH MESA MUTUAL WATER COMPANY, a mutual water company; CALIFORNIA OAK VALLEY GOLF AND RESORT LLC, a California limited liability company; OAK VALLEY PARTNERS LP, a Texas limited partnership; SOUTHERN CALIFORNIA SECTION OF THE PROFESSIONAL GOLFERS ASSOCIATION OF AMERICA, a California corporation; SUNNY-CAL EGG AND POULTRY COMPANY, a California corporation; MANHEIM, MANHEIM & BERMAN, a California General Partnership; WALTER M. BECKMAN, individually and as Trustee of the BECKMAN FAMILY TRUST dated December 11, 1990; THE ROMAN CATHOLIC BISHOP of San Bernardino,

CASE NO. RIC 389197

JUDGMENT PURSUANT TO STIPULATION ADJUDICATING GROUNDWATER RIGHTS IN THE BEAUMONT BASIN

AKLUFI AND WYSOCKI
3403 TENTH STREET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

a California corporation; MERLIN PROPERTIES, LLC; LEONARD M. STEARNS and DOROTHY D. STEARNS, individually and as Trustees of the LEONARD M. STEARNS FAMILY TRUST OF 1991; and DOES 1 through 500, inclusive,

Defendants.

I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction

The complaint herein was filed on February 20, 2003, seeking an adjudication of water rights, injunctive relief and the imposition of a physical solution. The defaults of certain defendants have been entered, and certain other defendants dismissed. Other than defendants who have been dismissed or whose defaults have been entered, all defendants have appeared herein. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation for Judgment

Stipulation for Entry of Judgment has been filed by and on behalf of all defendants who have appeared herein.

3. Definitions

As used in this Judgment, these terms shall have the following meanings:

A. Appropriator or Appropriator Parties: the pumpers identified in Exhibit "C" attached hereto.

B. Appropriator's Production Right: consists of an Appropriator's share of Operating Yield, plus (1) any water acquired by an Appropriator from an Overlying Producer or other Appropriator pursuant to this Judgment, (2) any water

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RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

withdrawn from the Appropriator's storage account, (3) and New Yield created by the Appropriator.

C. Appropriative Water: the amount of Safe Yield remaining after satisfaction of Overlying Water Rights.

D. Appropriative Water Right: each Appropriator's share of Appropriative Water, such share expressed as a percentage as shown on Exhibit "C".

E. Beaumont Basin or Beaumont Storage Unit: the area situated within the boundaries shown on Exhibit "A" attached hereto.

F. Conjunctive Use: the storage of water in a Groundwater Basin for use at a later time.

G. Groundwater: water beneath the surface of the ground within the zone below the water table in which soil is saturated with water.

H. Groundwater Basin: an area underlain by one or more permeable formations capable of furnishing a substantial water supply.

I. Groundwater Storage Agreement: a standard form of written agreement between the Watermaster and any Person requesting the storage of Supplemental Water.

J. Groundwater Storage Capacity: the space available in a Groundwater Basin that is not utilized for storage or regulation of Safe Yield and is reasonably available for Stored Water and Conjunctive Use.

K. Minimal Producer: any Producer who pumps 10 or fewer acre feet of Groundwater from the Beaumont Basin per year.

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3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

L. New Yield: increases in yield in quantities greater than historical amounts from sources of supply including, but not limited to, capture of available storm flow, by means of projects constructed after February 20, 2003, as determined by the Watermaster.

M. Operating Yield: the maximum quantity of water which can be produced annually by the Appropriators from the Beaumont Basin, which quantity consists of Appropriative Water plus Temporary Surplus.

N. Overdraft: a condition wherein the total annual production from a Groundwater Basin exceeds the Safe Yield thereof.

O. Overlying Parties: the Persons listed on Exhibit "B", who are owners of land which overlies the Beaumont Basin and have exercised Overlying Water Rights to pump therefrom. Overlying Parties include successors in interest and assignees.

P. Overlying Water Rights: the quantities decreed to Overlying Parties in Column 4 of Exhibit "B" to this Judgment.

Q. Overproduction: by an Appropriator, measured by an amount equal to the Appropriator's actual annual production minus the Appropriator's Production Right. By a new overlying producer, an amount equal to what the overlying producer pumped during the year.

R. Party (Parties): any Person(s) named in this action, or who has intervened, or has become subject to this Judgment either through stipulation, trial or otherwise

LAW OFFICES
3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

S. Person: any individual, partnership, association, corporation, governmental entity or agency, or other organization.

T. Physical Solution: the physical solution set forth in Part V of this Judgment.

U. Produce, Producing, Production, Pump or Pumping: the extraction of groundwater.

V. Producer or Pumper: any Person who extracts groundwater.

W. Recycled Water: has the meaning provided in Water Code Section 13050(n) and includes other nonpotable water for purposes of this Judgment.

X. Safe Yield: the maximum quantity of water which can be produced annually from a Groundwater Basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage. The Safe Yield of the Beaumont Basin is 8650 acre feet per year in each of the ten (10) years following entry of this Judgment.

Y. San Timoteo Watershed Management Authority: a joint powers public agency whose members are the Beaumont-Cherry Valley Water District, the City of Beaumont, the South Mesa Mutual Water Company and the Yucaipa Valley Water District.

Z. Stored Water: Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

AA. Supplemental Water: water imported into the

AKLUFI & WYSOCKI
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RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

Beaumont Basin from outside the Beaumont Basin including, without limitation, water diverted from creeks upstream and tributary to Beaumont Basin and water which is recycled and useable within the Beaumont Basin.

BB. Temporary Surplus: the amount of groundwater that can be pumped annually in excess of Safe Yield from a Groundwater Basin necessary to create enough additional storage capacity to prevent the waste of water.

CC. Watermaster: the Person appointed by the Court to administer and enforce the Physical Solution.

4. List of Exhibits

The following exhibits are attached to this Judgment and made a part hereof:

Exhibit "A" -- "Location Map of Beaumont Basin"
Exhibit "B" -- "Overlying Owners and Their Water Rights"
Exhibit "C" -- "Appropriators and Their Water Rights"
Exhibit "D" -- "Legal Description of Lands of the Overlying Parties"
Exhibit "E" -- "Location of Overlying Producer Parcels and Boundary of the Beaumont Basin"

II. INJUNCTIONS

1. Injunction Against Unauthorized Production of Beaumont Basin Water

Each party herein is enjoined, as follows:

A. Overlying Parties: Each defendant who is an Overlying Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any five-year period hereafter in excess of five times the share of the Safe Yield assigned to the Overlying Parties as set

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RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

forth in Column 4 of Exhibit "B", as more fully described in the Physical Solution.

B. Appropriator Parties: Each defendant who is an Appropriator Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from producing groundwater from the Beaumont Basin in any year hereafter in excess of such party's Appropriator's Production Right, except as additional annual Production may be authorized by the provisions of the Physical Solution.

2. Injunction Against Unauthorized Storage or Withdrawal of Stored Water

Each and every Party, and its officers, agents, employees, successors and assigns, is hereby enjoined and restrained from storing Supplemental Water in the Beaumont Basin for withdrawal, or causing withdrawal of water stored by that Party, except pursuant to the terms of a written Groundwater Storage Agreement with the Watermaster and in accordance with Watermaster Rules and Regulations. Any Supplemental Water stored in the Beaumont Basin, except pursuant to a Groundwater Storage Agreement, shall be deemed abandoned and not classified as Stored Water.

III. DECLARATION AND ADJUSTMENT OF RIGHTS

1. Overlying Rights

The Overlying Parties are currently exercising Overlying Water Rights in the Beaumont Basin. As shown on Exhibit "B", the aggregate Projected Maximum Production of water from the Beaumont Basin pursuant to Overlying Water Rights is 8610 acre feet and the Overlying Water Rights are individually decreed, in Column 4 of Exhibit "B", for each Overlying Party. The Overlying Parties

8650

AKLUFI & WYSOCKI
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RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

shall continue to have the right to exercise their respective Overlying Water Right as set forth in Column 4 of Exhibit "B" except to the extent their respective properties receive water service from an Appropriator Party, as contemplated by Paragraph III.3 of this Judgment.

2. Appropriator's Share of Operating Yield

Each Appropriator Party's share of Operating Yield is shown on Exhibit "C". Notwithstanding any other provision of this Judgment, each Appropriator Party may use its Appropriator's Production Right anywhere within its service area.

3. Adjustment of Rights

A. The Overlying Parties shall have the right to exercise their respective Overlying Water Rights except as provided in this Paragraph 3.

B. To the extent any Overlying Party requests, and uses its Exhibit "B", Column 4 water to obtain water service from an Appropriator Party, an equivalent volume of potable groundwater shall be earmarked by the Appropriator Party which will serve the Overlying Party, up to the volume of the Overlying Water Right as reflected in Column 4 of Exhibit "B" attached hereto, for the purpose of serving the Overlying Party. The intent of this provision is to ensure that the Overlying Party is given credit towards satisfying the water availability assessment provisions of Government Code, Section 66473.7 et seq. and Water Code, Section 10910 et seq. or other similar provisions of law, equal to the amount of groundwater earmarked hereunder.

C. When an Overlying Party receives water service as

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...03 VENT... ...EET, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

provided for in subparagraph III.3.B the Overlying Party shall forebear the use of that volume of the Overlying Water Right earmarked by the Appropriator Party. The Appropriator Party providing such service shall have the right to produce the volume of water foregone by the Overlying Party, in addition to other rights otherwise allocated to the Appropriator Party.

D. Should the volume of the Overlying Water Right equal or exceed the volume of potable groundwater earmarked as provided in subparagraph 3.B, the Appropriator Party which will serve the Overlying Party shall (i) impose potable water charges and assessments upon the Overlying Party and its successors in interest at the rates charged to the then-existing regular customers of the Appropriator Party, and (ii) not collect from such Overlying Party any development charge that may be related to the importation of water into the Beaumont Basin. The Appropriator Party which will serve the Overlying Party pursuant to Subparagraph III.3.B shall also consider, and negotiate in good faith regarding, the provision of a meaningful credit for any pipelines, pump stations, wells or other facilities that may exist on the property to be served.

E. In the event an Overlying Party receives Recycled Water from an Appropriator Party to serve an overlying use served with groundwater, the Overlying Water Right of the Overlying Party shall not be diminished by the receipt and use of such Recycled Water. Recycled Water provided by an Appropriator Party to an Overlying Party shall satisfy the

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3403 TENTH ST, SUITE 610
RIVERSIDE, CALIFORNIA 92501
(909) 682-5480

criteria set forth in the California Water Code including, without limitation, the criteria set forth in Water Code Sections 13550 and 13551. The Appropriator Party which will serve the Recycled Water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of Recycled Water service pursuant to the terms of this subparagraph; provided, however, that such right of use by the Appropriator Party shall no longer be valid if the Recycled Water, provided by the Appropriator Party to the Overlying Party, does not satisfy the requirements of Sections 13550 and 13551 and the Overlying Party ceases taking delivery of such Recycled Water.

F. Nothing in this Judgment is intended to impair or adversely affect the ability of an Overlying Party to enter into annexation or development agreements with any Appropriator Party.

G. Oak Valley Partners LP ("Oak Valley") is developing its property pursuant to Specific Plans 216 and 216A adopted by the County of Riverside ("County") in May 1990, and Specific Plan 318 adopted by the County in August, 2001, (Specific Plans 216, 216A and 318 are collectively referred to as the "Specific Plans"). The future water supply needs at build-out of the Specific Plans will greatly exceed Oak Valley's Projected Maximum Production, as reflected in Exhibit "B" to the Judgment, and may be as much as 12,811 acre feet per year. Oak Valley has annexed the portion of its property now within the City of Beaumont into the Beaumont-Cherry Valley Water District ("BCVWD"), and is in

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the process of annexing the remainder portion of its property into the Yucaipa Valley Water District ("YVWD"), in order to obtain retail water service for the development of the Oak Valley property pursuant to the Specific Plans (for purposes of this subparagraph BCVWD and YVWD are collectively referred to as the "Water Districts", and individually as a "Water District"). YVWD covenants to use its best efforts to finalize the annexation of the Oak Valley property within the Calimesa City limits. Oak Valley, for itself and its successors and assigns, hereby agrees, by this stipulation and upon final annexation of its property by YVWD, to forbear from claiming any future, unexercised, overlying rights in excess of the Projected Maximum Production of Exhibit "B" of 1806 acre feet per year. As consideration for the forbearance, the Water Districts agree to amend their respective Urban Water Management Plans ("UWMP") in 2005 as follows: BCVWD agrees that 2,400 acre feet per year of projected water demand shall be included for the portion of Oak Valley to be served by BCVWD in its UWMP, and YVWD agrees to include 8,000 acre feet per year of projected water demand as a projected demand for the portion of Oak Valley to be served by YVWD in its UWMP by 2025. The Water Districts agree to use their best judgment to accurately revise this estimate to reflect the projected water demands for the UWMP prepared in 2010. Furthermore, the Water Districts further agree that, in providing water availability assessments prior to 2010, as required by Water Code §10910 and water supply verifications as required by Government Code §§66455.3 and

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66473.7, or any similar statute, and in maintaining their respective UWMP, each shall consider the foregoing respective projected water demand figures for Oak Valley as proposed water demands. The intent of the foregoing requirements is to ensure that Oak Valley is credited for the forbearance of its overlying water rights and is fully accounted for in each Water District's UWMP and overall water planning. The Water Districts' actions in performance of the foregoing planning obligations shall not create any right or entitlement to, or priority or allocation in, any particular water supply source, capacity or facility, or any right to receive water service other than by satisfying the applicable Water District's reasonable requirements relating to application for service. Nothing in this subparagraph G is intended to affect or impair the provision of earmarked water to Overlying Parties who request and obtain water service from Appropriator Parties, as set forth in subparagraph III.3.B, above.

H. Persons who would otherwise qualify as Overlying Producers based on an interest in land lying within the City of Banning's service area shall not have the rights described in this Paragraph III.3.

4. Exemption for Minimal Producers

Unless otherwise ordered by the Court, Minimal Producers are exempt from the provisions of this Judgment.

IV. CONTINUING JURISDICTION

Full jurisdiction, power and authority is retained and reserved to the Court for purposes of enabling the Court, upon

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application of any Party, by a motion noticed for at least a 30-day period (or consistent with the review procedures of Paragraph VII.6 herein, if applicable), to make such further or supplemental order or directions as may be necessary or appropriate for interim operation of the Beaumont Basin before the Physical Solution is fully operative, or for interpretation, or enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to the provisions hereof consistent with the rights herein decreed; except that the Court's jurisdiction does not extend to the redetermination of (a) Safe Yield during the first ten years of operation of the Physical Solution, and (b) the fraction of the share of Appropriative Water of each Appropriator.

V. THE PHYSICAL SOLUTION

1. Purpose and Objective

In accordance with the mandate of Section 2 of Article X of the California Constitution, the Court hereby adopts, and orders the parties to comply with, a Physical Solution. The purpose of the Physical Solution is to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Beaumont Basin, to facilitate conjunctive utilization of surface, ground and Supplemental Waters, and to satisfy the requirements of water users having rights in, or who are dependent upon, the Beaumont Basin. Such Physical Solution requires the definition of the individual rights of all Parties within the Beaumont Basin in a manner which will fairly allocate the native water supplies and which will provide for equitable sharing of costs of Supplemental Water.

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2. Need for Flexibility

The Physical Solution must provide maximum flexibility and adaptability in order that the Watermaster and the Court may be free to use existing and future technological, social, institutional and economic options. To that end, the Court's retained jurisdiction shall be utilized, where appropriate, to supplement the discretion granted herein to the Watermaster.

3. Production and Storage in Accordance With Judgment

This Judgment, and the Physical Solution decreed herein, address all Production and Storage within the Beaumont Basin. Because the Beaumont Basin is at or near a condition of Overdraft, any Production outside the framework of this Judgment and Physical Solution will potentially damage the Beaumont Basin, injure the rights of all Parties, result in the waste of water and interfere with the Physical Solution. The Watermaster shall bring an action or a motion to enjoin any Production that is not in accordance with the terms of this Judgment.

4. General Pattern of Operation

One fundamental premise of the adjudication is that all Producers shall be allowed to pump sufficient water from the Beaumont Basin to meet their respective requirements. Another fundamental premise of the adjudication is that Overlying Parties who pump no more than the amount of their Overlying Water Right as shown on Column 4 of Exhibit "B" hereto, shall not be charged for the replenishment of the Beaumont Basin. To the extent that pumping exceeds five (5) times the share of the Safe Yield assigned to an Overlying Party (Column 4 of Exhibit "B") in any five (5) consecutive years, or the share of Operating Yield

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Right of each Appropriator Party, each such Party shall provide funds to enable the Watermaster to replace such Overproduction.

5. Use of Available Groundwater Storage Capacity

A. There exists in the Beaumont Basin a substantial amount of available Groundwater Storage Capacity. Such Capacity can be reasonably used for Stored Water and Conjunctive Use and may be used subject to Watermaster regulation to prevent injury to existing Overlying and Appropriative water rights, to prevent the waste of water, and to protect the right to the use of Supplemental Water in storage and Safe Yield of the Beaumont Basin.

B. There shall be reserved for Conjunctive Use a minimum of 200,000 acre feet of Groundwater Storage Capacity in the Beaumont Basin provided that such amount may be reduced as necessary to prevent injury to existing water rights or existing uses of water within the Basin, and to prevent the waste of water. Any Person may make reasonable beneficial use of the Groundwater Storage Capacity for storage of Supplemental Water; provided, however, that no such use shall be made except pursuant to a written Groundwater Storage Agreement with the Watermaster. The allocation and use of Groundwater Storage Capacity shall have priority and preference for Producers within the Beaumont Basin over storage for export. The Watermaster may, from time-to-time, redetermine the available Groundwater Storage Capacity.

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VI. ADMINISTRATION

1. Administration and Enforcement by Watermaster

The Watermaster shall administer and enforce the provisions of this Judgment and any subsequent order or instructions of the Court.

2. Watermaster Control

The Watermaster is hereby granted discretionary powers to develop and implement a groundwater management plan and program for the Beaumont Basin, which plan shall be filed with and shall be subject to review and approval by, the Court, and which may include water quantity and quality considerations and shall reflect the provisions of this Judgment. Except for the exercise by Overlying Parties of their respective Rights described in Column 4 of Exhibit "B" hereto in accordance with the provisions of the Physical Solution, groundwater extractions and the replenishment thereof, and the storage of Supplemental Water, shall be subject to procedures established and administered by the Watermaster. Such procedures shall be subject to review by the Court upon motion by any Party.

3. Watermaster Standard of Performance

The Watermaster shall, in carrying out its duties and responsibilities herein, act in an impartial manner without favor or prejudice to any Party or purpose of use.

4. Watermaster Appointment

The Watermaster shall consist of a committee composed of persons nominated by the City of Banning, the City of Beaumont, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company and the Yucaipa Valley Water District, each of

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which shall have the right to nominate one representative to the Watermaster committee who shall be an employee of or consultant to the nominating agency. Each such nomination shall be made in writing, served upon the other parties to this Judgment and filed with the Court, which shall approve or reject such nomination. Each Watermaster representative shall serve until a replacement nominee is approved by the Court. The nominating agency shall have the right to nominate that representative's successor.

5. Powers and Duties of the Watermaster

Subject to the continuing supervision and control of the Court, the Watermaster shall have and may exercise the following express powers, and shall perform the following duties, together with any specific powers, authority, and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the Court in the exercise of its continuing jurisdiction:

A. Rules and Regulations: The adoption of appropriate rules and regulations for the conduct of Watermaster affairs, copies of which shall be provided to all interested parties.

B. Wellhead Protection and Recharge: The identification and management of wellhead protection areas and recharge areas.

C. Well Abandonment: The administration of a well abandonment and well destruction program.

D. Well Construction: The development of minimum well construction specifications and the permitting of new wells.

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E. Mitigation of Overdraft: The mitigation of conditions of uncontrolled overdraft.

F. Replenishment: The acquisition and recharge of Supplemental Water.

G. Monitoring: The monitoring of groundwater levels, ground levels, storage, and water quality.

H. Conjunctive Use: The development and management of conjunctive-use programs.

I. Local Projects: The coordination of construction and operation, by local agencies, of recharge, storage, conservation, water recycling, extraction projects and any water resource management activity within or impacting the Beaumont Basin.

J. Land Use Plans: The review of land use plans and coordination with land use planning agencies to mitigate or eliminate activities that create a reasonable risk of groundwater contamination.

K. Acquisition of Facilities: The purchase, lease and acquisition of all necessary real and personal property, including facilities and equipment.

L. Employment of Experts and Agents: The employment or retention of such technical, clerical, administrative, engineering, accounting, legal or other specialized personnel and consultants as may be deemed appropriate. The Watermaster shall maintain records allocating the cost of such services as well as all other expenses of Watermaster administration.

M. Measuring Devices: Except as otherwise provided

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by agreement the Watermaster shall install and maintain in good operating condition, at the cost of the Watermaster, such necessary measuring devices or meters as Watermaster may deem appropriate. Such devices shall be inspected and tested as deemed necessary by the Watermaster and the cost thereof borne by the Watermaster. Meter repair and retesting will be a Producer expense.

N. Assessments: The Watermaster is empowered to levy and collect the following assessments:

(1) Annual Replenishment Assessments

The Watermaster shall levy and collect assessments in each year, in amounts sufficient to purchase replenishment water to replace Overproduction by any Party.

(2) Annual Administrative Assessments

a. Watermaster Expenses: The expenses of administration of the Physical Solution shall be categorized as either "General Watermaster Administration Expenses", or "Special Project Expenses".

i. General Watermaster Administration Expenses: shall include office rent, labor, supplies, office equipment, incidental expenses and general overhead. General Watermaster Administration Expenses shall be assessed by the Watermaster equally against the Appropriators who have appointed representatives to the Watermaster.

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ii. Special Project Expenses: shall include special engineering, economic or other studies, litigation expenses, meter testing or other major operating expenses. Each such project shall be assigned a task order number and shall be separately budgeted and accounted for. Special Project Expenses shall be allocated to the Appropriators, or portion thereof, on the basis of benefit.

O. Investment of Funds; Borrowing: The Watermaster may hold and invest Watermaster funds as authorized by law, and may borrow, from time-to-time, amounts not exceeding annual receipts.

P. Contracts: The Watermaster may enter into contracts for the performance of any of its powers.

Q. Cooperation With Other Agencies: The Watermaster may act jointly or cooperate with other local, state and federal agencies.

R. Studies: The Watermaster may undertake relevant studies of hydrologic conditions and operating aspects of the management program for the Beaumont Basin.

S. Groundwater Storage Agreements: The Watermaster shall adopt uniform rules and a standard form of agreement for the storage of Supplemental Water, provided that the activities undertaken pursuant to such agreements do not injure any Party.

T. Administration of Groundwater Storage Capacity: Except for the exercise by the Overlying Parties of their

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respective Overlying Water Rights described in Part III, above, in accordance with the provisions of the Physical Solution, all Groundwater Storage Capacity in the Beaumont Basin shall be subject to the Watermaster's rules and regulations, which regulations shall ensure that sufficient storage capacity shall be reserved for local projects. Any Person or entity may apply to the Watermaster to store water in the Beaumont Basin.

U. Accounting for Stored Water: The Watermaster shall calculate additions, extractions and losses and maintain an annual account of all stored water in the Beaumont Basin, and any losses of water supplies or Safe Yield resulting from such stored water.

V. Accounting for New Yield: Recharge of the Beaumont Basin with New Yield water shall be credited to the Party that creates the New Yield. The Watermaster shall make an independent scientific assessment of the estimated New Yield created by each proposed project. New Yield will be allocated on an annual basis, based upon monitoring data and review by the Watermaster.

W. Accounting for Acquisitions of Water Rights: The Watermaster shall maintain an accounting of acquisitions by Appropriators of water otherwise subject to Overlying Water Rights as the result of the provision of water service thereto by an Appropriator.

X. Annual Administrative Budget: The Watermaster shall prepare an annual administrative budget for public review, and shall hold a public hearing on each such budget

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prior to adoption. The budget shall be prepared in sufficient detail so as to make a proper allocation of the expenses and receipts. Expenditures within budgeted items may thereafter be made by the Watermaster as a matter of course.

Y. Redetermining the Safe Yield: The Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of this Judgment.

6. Reports and Accounting

(a) Production Reports: Each Pumper shall periodically file, pursuant to Watermaster rules and regulations, a report showing the total production of such Pumper from each well during the preceding report period, and such additional information as the Watermaster may reasonably require.

(b) Watermaster Report and Accounting: The Watermaster shall prepare an annual report of the preceding year's operations, which shall include an audit of all assessments and Watermaster expenditures.

7. Replenishment

Supplemental Water may be obtained by the Watermaster from any source. The Watermaster shall seek the best available quality of Supplemental Water at the most reasonable cost for recharge in the Basin. Sources may include, but are not limited to:

(a) Recycled Water;

(b) State Water Project Water;

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(c) Other imported water.

Replenishment may be accomplished by any reasonable method including:

(a) Spreading and percolation, or injection of water in existing or new facilities; and/or

(b) In-lieu deliveries for direct surface use, in lieu of groundwater extraction.

VII. MISCELLANEOUS PROVISIONS

1. Designation of Address for Notice and Service

Each Party shall designate, in writing to the plaintiff, the name and address to be used for purposes of all subsequent notices and service herein, such designation to be delivered to the plaintiff within 30 days after the Judgment has been entered. The plaintiff shall, within 45 days after judgment has been entered, file the list of designees with the Court and serve the same on the Watermaster and all Parties. Such designation may be changed from time-to-time by filing a written notice of such change with the Watermaster. Any Party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by the Watermaster. The Watermaster shall maintain, at all times, a current list of Parties to whom notices are to be sent and their addresses for purposes of service. The Watermaster shall also maintain a full current list of names and addresses of all Parties or their successors, as filed herein. Copies of such lists shall be available to any Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (i) the Party's attorney of record; or (ii) if the Party does not have an

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attorney of record, the Party itself at the address on the Watermaster list.

2. Intervention After Judgment

Any Person who is neither a Party to this Judgment nor a successor or assignee of a Party to this Judgment may seek to become a party to this Judgment by filing a petition in intervention.

3. Interference with Pumping

Nothing in this judgment shall be deemed to prevent any party from seeking judicial relief against any other party whose pumping activities constitute an unreasonable interference with the complaining party's ability to extract groundwater.

4. Successors and Assigns

This Judgment and all provisions herein shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of the parties hereto.

5. Severability

The provisions of this Judgment are severable. If any provision of this Judgment is held by the Court to be illegal, invalid or unenforceable, that provision shall be excised from the Judgment. The remainder of the terms of the Judgment shall remain in full force and effect and shall in no way be affected, impaired or invalidated by such excision. This Judgment shall be reformed to add, in lieu of the excised provision, a provision as similar in terms to the excised provision as may be possible and be legal, valid and enforceable.

6. Review Procedures

Any action, decision, rule or procedure of the Watermaster

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pursuant to this Judgment shall be subject to review by the Court on its own motion or on timely motion by any Party, as follows:

A. Effective Date of Watermaster Action: Any order, decision or action of the Watermaster pursuant to this Judgment on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

B. Notice of Motion: Any Party may, by a regularly-noticed motion, petition the Court for review of the Watermaster's action or decision pursuant to this Judgment. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to the Watermaster, together with the service fee established by the Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. The Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by the Watermaster according to Part VII, paragraph 1, above. A Party's obligation to serve the notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

C. Time for Motion: A motion to review any Watermaster action or decision shall be filed within 90 days after such Watermaster action or decision, except that motions to review Watermaster assessments hereunder shall be filed within 30 days of mailing of notice of the assessment.

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D. De Novo Nature of Proceeding: Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

E. Decision: The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon the Watermaster and the Parties.

Dated: FEB - 4 2004

GARY TRANBARGER

JUDGE OF THE SUPERIOR COURT

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(909) 682-5480

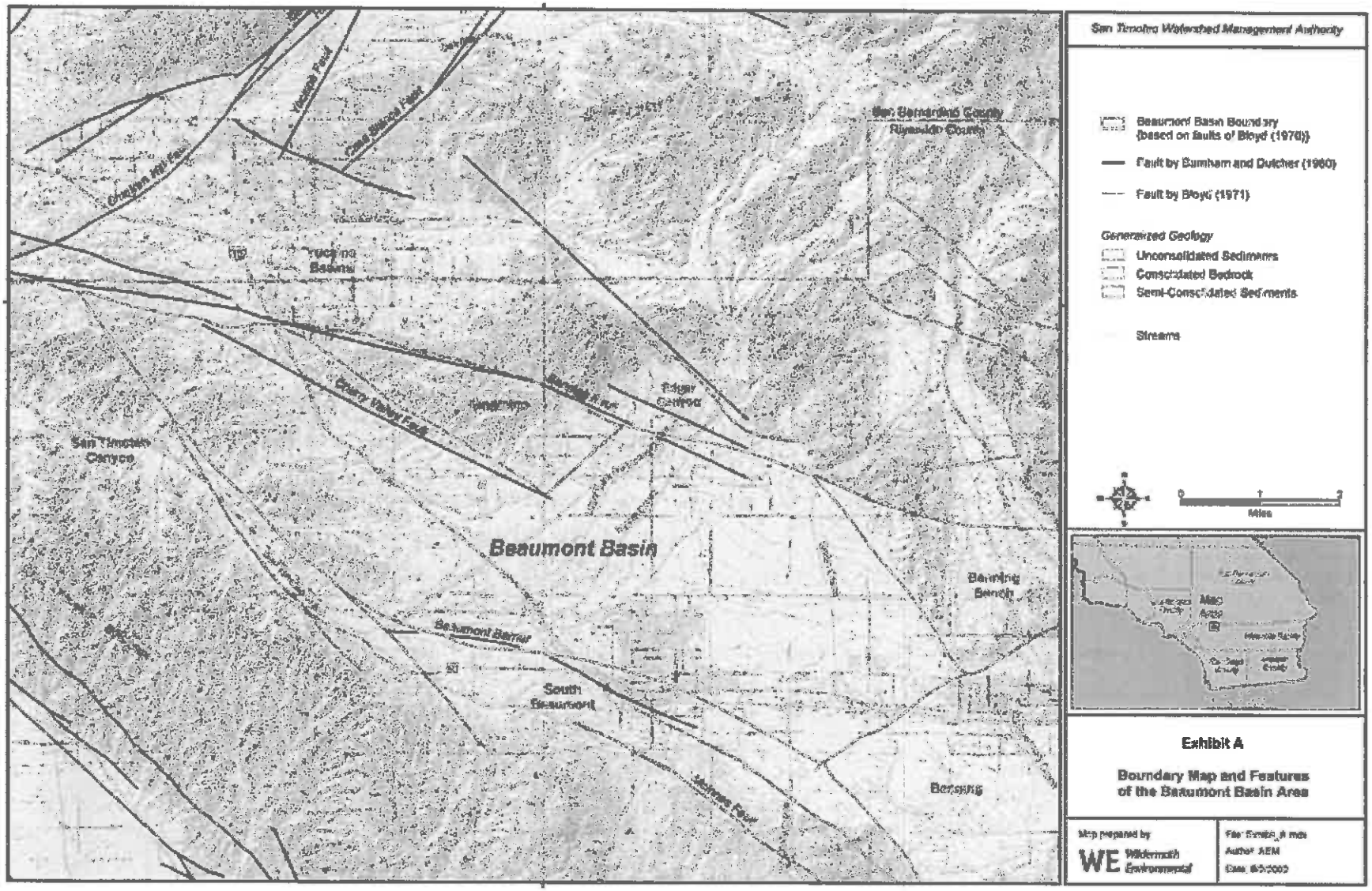
San Timoteo Watershed Management Authority
Beaumont Basin Boundary (based on faults of Bloyd (1970))
Fault by Burnham and Dutcher (1960)
Fault by Bloyd (1971)
Generalized Geology
Unconsolidated Sediments
Consolidated Bedrock
Semi-Consolidated Sediments
Streams
Miles
Beaumont Basin
San Timoteo Canyon
Yucaipa Fault
Cherry Valley Fault
Edgar Canyon
Banning Bench
Beaumont Barrier
South Beaumont
Banning
Map Area
Exhibit A
Boundary Map and Features of the Beaumont Basin Area
Map prepared by
WE Wildermuth Environmental
Author: AEM

Exhibit B
Overlying Producers and Their Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Exercised Rights[1] (acre-ft/yr)	(4) Projected Maximum Production (acre-ft/yr)
Beckman, Walt	0	0	75
Roman Catholic Bishop of San Bernardino	104	114	154
Rancho Calimesa Mobile Home Park	60	150	150
Merlin Properties, LLC.	540	550	550
Sunny-Cal Egg and Poultry Company[2]	1,340	1,340	1,439.5
Sunny-Cal North - Manheim, Manheim & Berman[2]			300
Nick Nikodinov[3]			20
Ronald L. McAmis[4]			5
Nicolas and Amalia Aldama[5]			7
Hector Gutierrez, Luis Gutierrez and Sebastian Monroy[6]			10
Boris and Miriam Darmont[7]			2.5
California Oak Valley Golf and Resort LLC	692	950	950
Leonard Stearn	0	0	200
Oak Valley Partners	510	553	1,806
So. California Professional Golf Association	680	1,688	2,200
Sharondale Mesa Owners Association	184	200	200
Plantation on the Lake	271	300	581
Totals	4,381	5,845	8,650

Note 1 – Maximum Reported Production during 1997-2001

Note 2 – The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 300 af of the aggregate right to MMB aka Sunny-Cal North on February 7, 2006.*

Note 3 – The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 20 af of aggregate right to Nick Nikodinov on April 17, 2006.*

Note 4 – The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 5 af of aggregate right to Ronald L. McAmis on June 13, 2006.*

Note 5 – The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 7 af of aggregate right to Nicolas and Amalia Aldama on June 13, 2006.*

Note 6 – The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 10 af of aggregate right to Hector Gutierrez, Luis Gutierrez and Sebastian Monroy on June 13, 2006.*

Note 7 – The *Exercised Right* and *Projected Maximum Production* were an aggregate right for defendents *Sunny-Cal Egg and Poultry* , and *Manheim, Manheim and Berman(MMB). As requested, Watermaster action designated 2.50 af of aggregate right to Boris and Miriam Dermont on June 13, 2006.*

Exhibit C
Appropriators and Their Water Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Share of Safe Yield Allocated to Appropriators	(4) Initial Estimate of Appropriate Rights[1] (acre-ft/yr)	(5) Controlled Overdraft and Supplemental Water Recharge Allocation[2] (acre-ft/yr)	(6) Operating Yield (acre-ft/yr)
Banning, City of	2,170	31.43%	882	5,029	5,910
City of Beaumont	0	0.00%	0	0	0
Beaumont Cherry Valley Water District	2,936	42.51%	1,193	6,802	7,995
South Mesa Water Company	862	12.48%	350	1,996	2,346
Yucaipa Valley Water District	938	13.58%	381	2,173	2,554
Totals	6,906	100.00%	2,805	16,000	18,805

Note 1 – Based on a 8,650 acre-ft/yr safe yield

Note 2– Controlled overdraft will not exceed 160,000 acre-ft during for first ten years of operation under the physical solution.

Exhibit D

Overlying Producers and the Parcels Upon Which Their Overlying Rights are Exercised[1]

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Beckman, Walt	405250004	19.04
	405250005	19.00
Total Area		38.04
California Oak Valley Golf and Resort	406070041	209.71
Total Area		209.71
Manheim, Manheim & Berman[2]	407200009	20.35
	407200011	20.00
	407200012	20.04
	407210001	45.41
	407210002	12.04
	407210004	4.16
Total Area		122.00
Roman Catholic Bishop of San Bernardino	413280016	16.78
	413280030	2.06
	413280036	12.42
Total Area		31.26
Oak Valley Partners	406060010	115.82
	406060015	4.00
	406060017	19.03
	406230020	4.26
	411210003	2.40
	411210005	105.41
	411210010	15.14
	411210016	9.77
	411210017	8.94
	413030011	315.30
	413040001	493.40
	413040002	137.00
	413040003	74.48
	413040004	6.50
	413040005	80.02
	413040006	75.54
	413040007	76.22

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Oak Valley Partners (cont'd)	413040008	144.48
	413040009	10.00
	413040010	78.22
	413060003	1.70
	413160003	80.00
	413160004	106.92
	413160005	53.08
	413160006	64.47
	413160007	15.53
	413170020	40.26
	413170021	27.62
	413170023	12.38
	413170027	14.19
	413170028	4.11
	413170029	2.35
	413170030	20.28
	413170031	66.63
	413170033	2.79
	413170035	11.74
	413180017	556.91
	413180019	9.77
	413190001	111.31
	413190003	5.64
	413190005	10.35
	413190008	12.40
	413190011	138.92
	413200002	0.23
	413200003	0.15
	413200010	5.94
	413200014	10.61
	413200015	11.36
	413200020	5.00
	413200023	14.47
	413200024	5.00
	413200026	32.86
	413200027	42.90
	413200028	116.62
	413200029	6.39
	413200030	19.01
	413200034	2.18
	413200035	10.99
	413200036	10.42
	413200037	4.95
	413270021	0.31
	413280034	2.37
	413280039	13.61
	413280040	1.91

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Oak Valley Partners (cont'd)	413280041	2.24
	413280042	6.86
	413290003	510.57
	413290004	16.08
	413290006	8.40
	413290007	103.68
	413450019	74.85
	413450020	169.96
	413450021	146.99
	413450024	48.25
	413450025	50.83
	413450026	122.59
	413450029	108.92
	413460036	199.12
	413460037	23.51
	413460038	19.58
	413460039	45.23
	413460039	45.23
	414090005	1.59
	414090007	1.38
	414090013	31.60
	414090017	20.00
	414090018	4.50
	414100002	42.13
	414100003	65.00
Total Area		5,331.65
Plantation on the Lake	407230031	12.36
	407230010	1.25
	406050018	156.85
	406050002	5.12
	406050003	1.81
Total Area		177.39
Rancho Calimesa Mobile Home Park	413270001	29.66
Total Area		29.66
Merlin Properties, LLC.	407230014	48.52
Total Area		48.52
Sharondale Mesa Owners Association	413330014	1.55
	413330015	2.14
	413331022	0.48
	413331035	0.22
	413340021	0.04
	413340022	0.04
	413340023	1.53
	413340024	2.52
	413341033	0.29

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Sharondale Mesa Owners Association (cont'd)	413341034	0.81
	413341036	0.35
	413342004	0.35
	413350011	1.04
	413350012	1.44
	413351018	17.08
	413351019	0.16
	413360032	1.92
	413360033	2.30
	413360035	0.90
	413361001	0.14
	413361008	0.12
	413361010	0.18
	413370027	0.39
	413370028	5.34
	413370030	0.69
	413371018	2.07
	413372019	1.39
Total Area		45.48
So. California Professional Golf Association	406060011	146.59
	406060013	2.83
	406060014	4.58
	406060016	10.35
	413450016	99.66
	413450022	95.15
	413450023	2.89
	413450027	91.53
Total Area		453.58
Stearns, Leonard	413221001	0.25
	413221002	0.34
	413260018	49.33
	413260025	0.37
	413270007	10.58
	413280010	1.27
	413280018	9.37
	413280021	4.26
	413280027	3.80
	413280037	14.32
Total Area		93.89
Sunny-Cal Egg and Poultry Company[2]	406080013	0.07
	407190016	4.95
	407190017	31.32
	407230022	20.03
	407230023	20.03
	407230024	20.03
	407230025	21.99

(1) Overlying Producer	(3) Assessors Parcel Number(s)	(4) Area (Acres)
Sunny-Cal Egg and Poultry Company[2] (cont'd)	407230026	25.94
	407230027	21.63
	407230028	21.56
Total Area		187.55
Nikodinov, Nick[4]	407180004	9.35
Total Area		9.35
McAmis, Ronald L.[5]	407190018	0.93
Total Area		0.93
Aldama, Nicolas and Amalia[6]	407190015	1.35
Total Area		1.35
Hector Gutierrez, Luis Gutierrez and Sebastian Monroy[7]	407190013	2.01
Total Area		2.01
Darmont, Boris and Miriam[8]	407190014	0.50
Total Area		0.50
Total Area for All Overlying Producers[3]		**6,782.87**

Note 1 – Parcels as of June 1, 2003; updated to include Nick Nikodinov per April 17, 2006 Watermaster action; updated to include Ronald L. McAmis, Nicolas and Amalia Aldama, Hector Gutierrez, Luis Gutierrez, and Sebastian Monroy, and Boris and Miriam Darmont per June 13, 2006 Watermaster actions.

Note 2 – Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to MMB on February 7, 2006.

Note 3 – The Watermaster shall recognize adjustments in parcel boundaries that result in de minimus changes in water use

Note 4 – Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Nick Nikodinov on Aprin 17, 2006.

Note 5 – Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Ronald L. McAmis on June 13, 2006.

Note 6 – Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Nicolas and Amalia Aldama on June 13, 2006.

Note 7 – Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Hector Gutierrez, Luis Gutierrez and Sebastian Monroy on June 13, 2006.

Note 8 – Parcels owned by Sunny-Cal Egg & Poultry Company include the overlying water rights of Manheim, Manheim and Berman (MMB) and is aggregated as shown in Column 4 of Exhibit B as attributable to Sunny-Cal Egg & Poultry Company. As requested, Watermaster designated a portion of these aggregated rights to Boris and Miriam Durmont on June 13, 2006.

CAL-PW-06
1928

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RIGHTS
HAROLD CONKLING, Chief of Division

WHITEWATER RIVER ADJUDICATION PROCEEDINGS

ORDER DETERMINING AND ESTABLISHING THE SEVERAL RIGHTS BY APPROPRIATION TO THE USE OF THE WATERS OF THE

WHITEWATER RIVER STREAM SYSTEM

SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA

Order entered April 23, 1928, in Book 1 of Orders of Determination, page 426



58985

BEFORE THE DIVISION OF WATER RIGHTS

Department of Public Works

STATE OF CALIFORNIA

IN THE MATTER OF THE DETERMINATION OF THE RELATIVE RIGHTS, BASED UPON PRIOR APPROPRIATION, OF THE VARIOUS CLAIMANTS TO THE WATERS OF WHITEWATER RIVER AND ITS TRIBUTARIES, IN SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA.

ORDER DETERMINING AND ESTABLISHING THE SEVERAL RIGHTS BY APPROPRIATION IN AND TO THE USE OF THE WATERS OF SAID STREAM SYSTEM.

This matter coming before the Division of Water Rights of the Department of Public Works of the State of California pursuant to the petition of the Coachella Valley County Water District, filed herein on June 29, 1922, all notices having been given and all proceedings having been taken as provided by law, and the said Division of Water Rights being fully advised in the premises,

It is hereby ordered, that the several rights by appropriation in and to the use of the waters of Whitewater River and its tributaries, in San Bernardino and Riverside counties, California, as of October 31, 1924, the date on which the extended period for filing proofs of appropriation in the above entitled matter expired, be and hereby are determined and established as hereinafter set forth:

GENERAL PROVISIONS AND DEFINITIONS

1. All allotments of water hereinafter provided for direct application to beneficial use are expressed in terms of continuous flow, but it is recognized that irrigation does not, in general, require a continuous use of water upon a specific parcel of land, and nothing herein contained shall be construed as limiting or restricting the rights of any parties to rotate in the use of water, or the right of any party to divert for limited periods of time convenient "irrigation heads" and thus apply water to his lands at a greater rate than indicated by his continuous flow allowance; *provided*, that such practice of rotation or such use of "irrigation heads" shall not result in the use by any party of a total quantity of water during any thirty-day period in excess of the equivalent of his continuous flow allotment for thirty days; *and provided, further*, that such practice of rotation or such use of "irrigation heads" shall not impair or infringe any other vested water rights.

2. The points of measurement of all allotments of water hereinafter provided shall be at the respective points of diversion from the stream system.

3. The term "directly apply to beneficial use" as herein used shall be construed to designate the direct conveyance and application of water diverted to beneficial use, without intermediate storage, except such regulatory storage as may be practiced for the purpose of equalizing the flow of water diverted to a convenient "irrigation head."

4. The term "natural flow" as herein used shall be construed to designate such surface and subsurface flow as will naturally occur at any given point in a stream from the run-off of the watershed which it drains, from springs which naturally contribute to the stream, from seepage, and from waste and return flow from dams, conduits and irrigated lands; as distinguished from released stored water and from "foreign water" directly conveyed to the stream from another watershed.

5. The "Division of Water Rights Map" herein referred to is the map prepared by the Division of Water Rights of the Department of Public Works of the State of California from its 1923 survey, which map is entitled "Map of Whitewater River Watershed Showing Diversion Systems and Irrigated Areas, San Bernardino and Riverside Counties, California," and is dated 1923.

DEFINITION OF VARIOUS WATER RIGHTS

Subject to the foregoing general provisions and definitions, the several owners of rights in and to the use of the waters of said stream system are entitled to divert and use such water as follows:

6. Stuart D. Allen

is entitled to divert from the natural flow of Blaisdell Creek, through the Allen Blaisdell Pipe Line,

0.025 cubic foot per second—priority July 2, 1924,

or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Blaisdell Creek at a point situated approximately 2000 feet south from the northwest corner of Sec. 36, T. 3 S., R. 3 E., S. B. B. and M., being within the SW¼ NW¼ of said Sec. 36, and said water to be used for domestic purposes within the

SW¼ NW¼, Sec. 30, T. 3 S., R. 4 E., S. B. B. and M.

7. Stuart D. Allen

will be entitled to divert from the natural flow of Whitewater River, through the Allen Whitewater Conduit,

0.50 cubic foot per second—priority June 19, 1922,

or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River at a point situated approximately 4000 feet north of the southeast corner of Sec. 24, T. 3 S., R. 3 E., S. B. B. and M., being within the SE¼ NE¼ of said Sec. 24, and said water to be used for the irrigation of the following described lands:

25.0 acres in NE¼ NW¼, Sec. 30, T. 3 S., R. 4 E., S. B. B. and M.
15.0 acres in SE¼ NW¼, Sec. 30, T. 3 S., R. 4 E., S. B. B. and M.

40.0 acres—Total.

provided, that prior to December 1, 1929, said Stuart D. Allen shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 1723, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

8. R. E. Bailiff

will be entitled to divert from the natural flow of the stream flowing in Water Canyon, through the Bailiff Water Canyon Pipe Line,

(a) during the period between March first and November first of each year,

0.37 cubic foot per second—priority March 12, 1924,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

45 acre-feet per season—priority March 12, 1924,

or as much thereof as he impounds in the proposed Bailiff Storage Reservoir to be constructed in the SW¼ SW¼ of Sec. 18, T. 3 S., R. 2 E., S. B. B. and M., and thereafter withdraws from said reservoir and applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

all of said water to be diverted from said stream at a point which bears approximately N. 77° 00′ W., approximately 310 feet distant from the southwest corner of Sec. 18, T. 3 S., R. 2 E., S. B. B. and M., being within the SE¼ SE¼ of Sec. 13,

T. 3 S., R. 1 E., S. B. B and M., and all of said water to be used upon the following described lands:

25.0 acres in NW¼ SE¼, Sec. 18, T. 3 S., R. 2 E., S. B. B. and M.
5.0 acres in NE¼ SW¼, Sec. 18, T. 3 S., R. 2 E., S. B. B. and M.

30.0 acres—Total.

provided, that prior to December 1, 1929, said R. E. Bailiff shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 1855, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

9. R. E. Bailiff

will be entitled to divert from the natural or developed flow of two unnamed springs; the upper (Spring No. 1) being situated approximately S. 13° 30′ W., approximately 3960 feet distant from the northeast corner of Sec. 23, T. 3 S., R. 1 E., S. B. B. and M., being within the NE¼ SE¼ of said Sec. 23; and the lower (Spring No. 2) being situated approximately S. 77° 00′ W., approximately 310 feet distant from the southwest corner of Sec. 18, T. 3 S., R. 2 E., S. B. B. and M., being within the SE¼ SE¼ of Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.; through the Bailiff West Spring Pipe Line,

(a) during the period between March first and November first of each year,

0.11 cubic foot per second—priority March 14, 1924,

from Spring No. 1, and

0.02 cubic foot per second—priority March 14, 1924,

from Spring No. 2,
or as much of said amounts as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year, a total of

0.025 cubic foot per second—priority March 14, 1924,

from either, or in part from each of said springs, or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes;

(c) during the period between November first of each year and March first of the succeeding year, a total of

6 acre-feet per season—priority March 14, 1924,

from either, or in part from each of said springs, or as much thereof as he impounds in the proposed Bailiff Storage Reservoir to be constructed in the SW¼ SW¼ of Sec. 18, T. 3 S., R. 2 E., S. B. B. and M., and thereafter withdraws from said reservoir and applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described:

all of said water to be diverted at the above described springs and used upon the following described lands:

8.0 acres in NE¼ SW¼, Sec. 18, T. 3 S., R. 2 E., S. B. B. and M.
2.0 acres in SW¼ SW¼, Sec. 18, T. 3 S., R. 2 E., S. B. B. and M.

10.0 acres—Total.

provided, that prior to December 1, 1929, said R. E. Bailiff shall have completed the above appropriation and applied said water to beneficial use in accordance with the

terms of Division of Water Rights Permit 1856, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

10. R. E. Bailiff

is entitled to divert from the natural or developed flow of an unnamed spring situated approximately N. 70° 00′ W., approximately 2330 feet distant from the southeast corner of Sec. 19, T. 3 S., R. 2 E., S. B. B. and M., being within the NE¼ SE¼ of said Sec. 19, through the Bailiff East Spring Pipe Line,

(a) during the period between March first and November first of each year,

0.05 cubic foot per second—priority April 24, 1924,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second—priority April 24, 1924,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes:

all of said water to be diverted at said spring and to be used upon the following described land:

7.0 acres in NE¼ NE¼, Sec. 19, T. 3 S., R. 2 E., S. B. B. and M.

11. The Banning Heights Mutual Water Company, the Banning Water Company and the San Gorgonio Power Company,

jointly, are entitled to divert from the natural flow of the South Fork of Whitewater River, through the Consolidated Reservoir and Power Company Canal, a total of

13.26 cubic feet per second—priority October 31, 1906,

or as much thereof as they apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said total quantity of water to be diverted from said South Fork of Whitewater River, all or in part, at any of the following described points:

(1) At a point on the East Branch of said South Fork of Whitewater River (designated on Division of Water Rights Map as Diversion 1) which bears approximately N. 26° 45′ E., approximately 11,709 feet distant from the northeast corner of Sec. 1, T. 2 S., R. 1 E., S. B. B. and M., being within the SE¼ SE¼ of Sec. 19, T. 1 S., R. 2 E., S. B. B. and M.

(2) At a point on the West Branch of said South Fork of Whitewater River (designated on Division of Water Rights Map as Diversion 2) which bears approximately N. 11° 48′ E., approximately 10,351 feet distant from the northeast corner of Sec. 1, T. 2 S., R. 1 E., S. B. B. and M., being within the NE¼ NW¼ of Sec. 30, T. 1 S., R. 2 E., S. B. B. and M.

(3) At a point on the Blackwheel Canyon Branch of the West Branch of said South Fork of Whitewater River (designated on Division of Water Rights Map as Diversion 3) which bears N. 12° 19½′ E., approximately 9882 feet distant from the northeast corner of Sec. 1, T. 2 S., R. 1 E., S. B. B. and M., being within the NE¼ NW¼ of Sec. 30, T. 1 S., R. 2 E., S. B. B. and M.:

and said water to be used first by said San Gorgonio Power Company for the purpose of generating electric energy at two power plants, the upper of said plants being situated in the SW¼ NW¼ of Sec. 2, T. 2 S., R. 1 E., S. B. B. and M., and the lower of said plants being situated in the NE¼ NE¼ of Sec. 8, T. 2 S., R. 1 E.,

S. B. B. and M.: and said water to be used thereafter by said Banning Heights Mutual Water Company and by said Banning Water Company for the purpose of supplying water for domestic, stock watering and irrigation uses within the respective territories served by said companies as hereinafter described. During the winter months, at times when the entire quantity of water available under this right may not be required for direct application to use for domestic, stock watering and irrigation purposes as hereinabove provided for, the Banning Water Company is entitled to spread and store underground in San Gorgonio Canyon, above the mouth of said canyon in the SE¼ SE¼ of Sec. 33, T. 2 S., R. 1 E., S. B. B. and M., all surplus water available over and above the quantity required for direct application to use for domestic, stock watering and irrigation purposes:

provided, that all water so spread and stored is subsequently withdrawn from said underground storage and applied to beneficial use by said Banning Water Company as hereinafter provided in paragraph 13. The joint diversion and use of water under this right by said Banning Heights Mutual Water Company, said Banning Water Company, and said San Gorgonio Power Company, is subject to the provisions of the following agreements and deeds:

(a) Agreement dated January 10, 1913, between the Consolidated Reservoir and Power Company and the Banning Water Company, recorded October 14, 1913, in Book No. 380 of Deeds, page 337 *et seq.*, records of Riverside County, California.

(b) Instrument dated December 30, 1913, between the Consolidated Reservoir and Power Company and the Banning Heights Mutual Water Company, recorded December 14, 1922, in Book No. 561 of Deeds, page 543 *et seq.*, records of Riverside County, California.

(c) Deed dated August 7, 1922, between the Consolidated Reservoir and Power Company and the San Gorgonio Power Company, recorded February 1, 1923, in Book No. 564 of Deeds, page 383 *et seq.*, records of Riverside County, California.

The territory served by said Banning Heights Mutual Water Company includes approximately 1500 acres of land, situated within the following described parcels:

All of lots 1, 2, 3, 4, 5, 6, 7, 7A, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 55A, 55B, 56, 57, 57A, 58, 58A, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89 and 90 of the Banning Heights Subdivision, situate in Riverside County, California, as said lots are delineated on the "Map of Banning Heights" recorded in the office of the county recorder of Riverside County, California, in Book 9 of Maps, at pages 37 to 51 thereof.

60.0 acres in block 1 of the Ginzell-Montgomery Tract, situate in Riverside County, California, as said block is delineated on the map of said Ginzell-Montgomery Tract recorded in the office of the county recorder of Riverside County, California, in Book 8 of Maps, at page 64 thereof.

48.0 acres in S½ S½, Sec. 5, T. 3 S., R. 1 E., S. B. B. and M.
10.0 acres in S½ NW¼, Sec. 5, T. 3 S., R. 1 E., S. B. B. and M.
65.0 acres in S½ S½, Sec. 6, T. 3 S., R. 1 E., S. B. B. and M.

The territory served by said Banning Water Company includes approximately 3745 acres of land, situated within the following described parcels:

All of blocks 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 25½, 27, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 125, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184; 2.1 acres in block 2; 0.7 acre in block 26½; 0.8 acre in block 28½; 0.7 acre in block 31½; 2.0 acres in block 32; 1.0 acre in block 32½; 3.3 acres in block 90; 8.0 acres in block 91; 6.5 acres in block 92; 7.1 acres in block 93; 8.7 acres in block 94; 8.5 acres in block 95; 8.4 acres in block 96; 4.8 acres in block 101; 4.3 acres in block 102; 3.0 acres in block 103; 2.9 acres in block 104; E½ of block 124; and W½ of block 126; all within the Banning Colony Subdivision, situate in Riverside County, California, as said blocks are delineated on the map entitled

"Map of Part of Banning Colony Lands" recorded in the office of the county recorder of Riverside County, California, in Book 5 of Maps, at page 186 thereof.

All of blocks 1 to 20, both inclusive, of the San Jose Tract, situate in Riverside County, California, as said blocks are delineated on the map of said San Jose Tract recorded in the office of the county recorder of San Diego County, California, in Book 1 of Maps, at page 55 thereof.

All of blocks 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19; and 4.6 acres in block 6; all within the Waverly Tract, situate in Riverside County, California, as said blocks are delineated on the map of said Waverly Tract recorded in the office of the county recorder of Riverside County, California, in Book 8 of Maps, at page 44 thereof.

All of blocks A, B, C, D, E, F, G, H, I, J, K, L; 6.0 acres in block M; and 5.1 acres in block N; all within the North Side Tract, situate in Riverside County, California, as said blocks are delineated on the map of said North Side Tract recorded in the office of the county recorder of Riverside County, California, in Book 1 of Maps, at page 28 thereof.

All of blocks 202, 214, 226, 242, 243, 245, 248, 249, 252, 254, 255, 256, 261, 262, 263, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284 and 285; 1.7 acres in block 207; 6.4 acres in block 208; 1.0 acre in block 209; 2.6 acres in block 225; 0.9 acre in block 227; W½ of block 236; N½ of block 238; W½ of block 240; W½ of block 241; 4.0 acres in block 260; and 5.15 acres in block 264; all within the town of Banning, Riverside County, California, as said blocks are delineated on the "Amended Map of Banning Land Company" recorded in the office of the county recorder of San Bernardino County, California, in Book 9 of Maps, at page 44 thereof.

All of blocks 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 311, 312, 313, 314, 317 and 318; 5.0 acres in block 310; 6.6 acres in block 315; and 7.1 acres in block 316; all within the "Subdivision of Lands Adjoining Banning on the Southwest," situate in Riverside County, California, as said blocks are delineated on the map of said subdivision recorded in the office of the county recorder of San Diego County, California, in Book 14 of Maps, at page 662 thereof.

All of blocks 1 to 10, both inclusive, of "C. O. Barker's Subdivision of a Portion of Section 8." situate in Riverside County, California, as said blocks are delineated on the map of said subdivision recorded in the office of the county recorder of Riverside County, California, in Book 6 of Maps, at page 14 thereof.

All of blocks 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 31, 32, 35 and 36 of "C. O. Barker's Subdivision of a Portion of Sections 8 and 17," situate in Riverside County, California, as said blocks are delineated on the map of said subdivision recorded in the office of the county recorder of Riverside County, California, in Book 7 of Maps, at page 21 thereof.

All of blocks 50 to 71, both inclusive, of the Almcot Tract, situate in Riverside County, California, as said blocks are delineated on the map of said Almcot Tract recorded in the office of the county recorder of Riverside County, California, in Book 4 of Record of Surveys, at page 15 thereof.

All of blocks 5, 6, 7, 8, 9, 11, 12, 13, 14, 15 and 16; 18.0 acres in block 3; 1.2 acres in block 4; and 1.0 acre in block 17; all within the Ginzell-Montgomery Tract, situate in Riverside County, California, as said blocks are delineated on the map of said Ginzell-Montgomery Tract recorded in the office of the county recorder of Riverside County, California, in Book 8 of Maps, at page 64 thereof.

All of blocks 1 to 5, both inclusive, of the Beverly Tract, situate in Riverside County, California, as said blocks are delineated on the map of said Beverly Tract recorded in the office of the county recorder of Riverside County, California, in Book 9 of Maps, at page 55 thereof.

50.0 acres in Sec. 29, T. 2 S., R. 1 E., S. B. B. and M.
60.0 acres in Sec. 33, T. 2 S., R. 1 E., S. B. B. and M.
18.5 acres in E½ NE¼, Sec. 4, T. 3 S., R. 1 E., S. B. B. and M.
72.6 acres in S½ SW¼, Sec. 4, T. 3 S., R. 1 E., S. B. B. and M.
233.3 acres in N½ Sec. 8, T. 3 S., R. 1 E., S. B. B. and M.
3.8 acres in NE¼ SW¼, Sec. 8, T. 3 S., R. 1 E., S. B. B. and M.
40.0 acres in SW¼ SW¼, Sec. 11, T. 3 S., R. 1 E., S. B. B. and M.

258.0 acres in	$W\frac{1}{2}$	Sec. 16, T. 3 S., R. 1 E., S. B. B. and M.
89.4 acres in	$NE\frac{1}{4}$	Sec. 16, T. 3 S., R. 1 E., S. B. B. and M.
25.5 acres in	$NE\frac{1}{4}$ $SE\frac{1}{4}$,	Sec. 16, T. 3 S., R. 1 E., S. B. B. and M.
10.5 acres in	$NE\frac{1}{4}$ $NE\frac{1}{4}$,	Sec. 18, T. 3 S., R. 1 E., S. B. B. and M.

12. The Banning Water Company

is entitled to divert from the natural flow of San Gorgonio River and its tributaries, through its system of spreading ditches shown as diversion ditches numbered 1 to 7, both inclusive, on the "Map Showing System of the Banning Water Company in San Gorgonia Canyon," prepared by J. F. Davidson, Civil Engineer, and dated January, 1923.

20,000 acre-feet per annum—priority January 1, 1887,

or as much thereof as it spreads and stores underground in San Gorgonio Canyon; said quantity of water to be so diverted, spread and stored during the period from January first to December thirty-first of each year, both dates inclusive:

provided, that said water is subsequently withdrawn from said underground storage and applied to beneficial use by said Banning Water Company as hereinafter provided in paragraph 13.

13. The Banning Water Company

is entitled to divert from the natural flow of San Gorgonio River, or from its underground storage in San Gorgonia Canyon as hereinabove provided for in paragraphs 11 and 12, or in part from both of said sources, through the Main Stone Lined Conduit of said Banning Water Company's System, and through the various ditches and pipe lines leading thereto hereinafter mentioned, a total of

14,000 acre-feet per annum—priority March 17, 1875,

or as much thereof as it directly applies to beneficial use for the purpose of supplying water for domestic, stock watering and irrigation uses within the territory served by said company as hereinabove described in paragraph 11, for the purpose of supplying water for domestic and municipal uses within the city of Banning, Riverside County, California, and for the purpose of driving water wheels connected with pumps at three pumping plants operated by said company, located as follows:

(1) In the $NE\frac{1}{4}$ $SW\frac{1}{4}$ of Sec. 17, T. 2 S., R. 1 E., S. B. B. and M.,
(2) In the $SE\frac{1}{4}$ $NE\frac{1}{4}$ of Sec. 29, T. 2 S., R. 1 E., S. B. B. and M.,
(3) In the $NE\frac{1}{4}$ $SE\frac{1}{4}$ of Sec. 33, T. 2 S., R. 1 E., S. B. B. and M.;

said total quantity of water to be diverted from said sources, all or in part, at any of the following described points:

(a) At the upper intake of said Stone Lined Conduit situated at a point which bears approximately N. 35° 10′ E., approximately 720 feet distant from the southwest corner of Sec. 4, T. 2 S., R. 1 E., S. B. B. and M., being within the $SW\frac{1}{4}$ $SW\frac{1}{4}$ of said Sec. 4,

(b) At the intake of a ditch leading to said Stone Lined Conduit and known as Diversion Ditch No. 11, situated at a point which bears approximately N. 51° 24′ E., approximately 1424 feet distant from the southwest corner of Sec. 17, T. 2 S., R. 1 E., S. B. B. and M., being within the $SW\frac{1}{4}$ $SW\frac{1}{4}$ of said Sec. 17,

(c) At the lower intake of said Stone Lined Conduit situated at a point which bears approximately S. 86° 03′ E., approximately 1232 feet distant from the northwest corner of Sec. 20, T. 2 S., R. 1 E., S. B. B. and M., being within the $NW\frac{1}{4}$ $NW\frac{1}{4}$ of said Sec. 20,

(d) At the intake of a twenty-inch pipe line leading to said Stone Lined Conduit, situated at a point which bears approximately N. 15° 34′ W., approximately 3200 feet distant from the southeast corner of Sec. 29, T. 2 S., R. 1 E., S. B. B. and M., being within the $SE\frac{1}{4}$ $NE\frac{1}{4}$ of said Sec. 29,

(e) At the intake of a twelve-inch pipe line leading to said twenty-inch pipe line, situated at a point which bears approximately N. 11° 30′ W., approximately 3188 feet distant from the southeast corner of Sec. 29, T. 2 S., R. 1 E., S. B. B. and M., being within the $SE\frac{1}{4}$ $NE\frac{1}{4}$ of said Sec. 29,

(f) At the intake of a ten-inch pipe line leading to said Stone Lined Conduit, situated at a point which bears approximately N. 45° 45′ W.,

approximately 2538 feet distant from the southeast corner of Sec. 33, T. 2 S., R. 1 E., S. B. B. and M., being within the NW¼ SE¼ of said Sec. 33,

(g) At the intake of an iron flume leading to said Stone Lined Conduit, situated at a point which bears approximately N. 8° 05′ W., approximately 1165 feet distant from the southeast corner of Sec. 33, T. 2 S., R. 1 E., S. B. B. and M., being within the SE¼ SE¼ of said Sec. 33,

(h) At the intake of a short stone lined ditch leading to said iron flume, situated at a point which bears approximately N. 15° 49′ W., approximately 1659 feet distant from the southeast corner of Sec. 33, T. 2 S., R. 1 E., S. B. B. and M., being within the NE¼ SE¼ of said Sec. 33;

and said total quantity of water to be diverted at such times and at such rates throughout the year as may be necessary in order that said Banning Water Company may adequately supply the requirements of water for domestic, stock watering and irrigation purposes within the territory which it serves as hereinabove described in paragraph 11, and the requirements of water for domestic and municipal purposes within the city of Banning.

14. Donald M. Bedwell

will be entitled to divert from the natural or developed flow of Thousand Palms Canyon Creek, through the Bedwell and Richey Ditch and Pipe Line,

1.00 cubic foot per second—priority January 31, 1913,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Thousand Palms Canyon Creek at a point (designated on Division of Water Rights Map as Diversion 63) which bears approximately S. 77° 11′ E., approximately 2345 feet distant from the west quarter corner of Sec. 12, T. 4 S., R. 6 E., S. B. B. and M., being within the NE¼ SW¼ of said Sec. 12, and said water to be used for domestic and stock watering purposes and for the irrigation of at least 80 acres of land in the N½ of Sec. 22, T. 4 S., R. 6 E., S. B. B. and M.;

provided, that prior to December 1, 1929, said Donald M. Bedwell shall have completed the above appropriation and applied said water to the beneficial use above specified, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

15. The Cabazon Water Company

is entitled to divert from the natural flow of Millard Creek, through the Cabazon Water Company Conduit,

4.67 cubic feet per second—priority January 1, 1885,
2.50 cubic feet per second—priority July 22, 1915,

7.17 cubic feet per second—Total,

or as much thereof as said company directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Millard Creek at a point (designated on Division of Water Rights Map as Diversion 27) situated approximately 272 feet southwesterly from a point which bears approximately S. 0° 13′ W., approximately 510.5 feet distant from the east quarter corner of Sec. 20, T. 2 S., R. 2 E., S. B. B. and M., being within the NE¼ SE¼ of said Sec. 20; and said water to be used by said Cabazon Water Company for the purpose of supplying water for domestic, stock watering and irrigation purposes within the territory served by said company, which territory includes approximately 2560 acres of land, situated within the following described parcels:

NW¼ of Sec. 5, T. 3 S., R. 2 E., S. B. B. and M.
S½ of Sec. 5, T. 3 S., R. 2 E., S. B. B. and M.
W½ NE¼ of Sec. 5, T. 3 S., R. 2 E., S. B. B. and M.
All of Sec. 15, T. 3 S., R. 2 E., S. B. B. and M.

All of Sec. 16, T. 3 S., R. 2 E., S. B. B. and M., except that portion of said section occupied by the right of way of the Southern Pacific Railroad Company.

All of Sec. 17, T. 3 S., R. 2 E., S. B. B. and M., except that portion of said section occupied by the right of way of the Southern Pacific Railroad Company.

N½ NW¼ of Sec. 21, T. 3 S., R. 2 E., S. B. B. and M.

16. The Coachella Valley County Water District

will be entitled to divert from the natural flow of Whitewater River by means of its spreading dams, ditches and other spreading works, all situated along the channel of said Whitewater River east of the west line of Secs. 20 and 29, T. 3 S., R. 4 E., S. B. B. and M., and west of the west line of Secs. 30 and 31, T. 3 S., R. 5 E.,

80,000 acre-feet per annum—priority October 25, 1918,

or as much thereof as it spreads and stores underground in the basin underlying Coachella Valley, situate in Riverside County, California: said quantity of water to be so diverted, spread and stored during the period between January first and December thirty-first of each year, both dates inclusive:

provided, that said water is subsequently withdrawn from said underground storage by the inhabitants of said Coachella Valley and applied by said inhabitants to beneficial use for domestic, stock watering, municipal and industrial purposes and for the irrigation of 25,000 acres of land lying within the 195,000-acre area included within the confines of the yellow border line on Coachella Valley County Water District Map No. 2, dated September, 1918, and filed by said Coachella Valley Water District with the State Water Commission with its Application 1122, and which map is now on file and of record in the office of the Division of Water Rights of the Department of Public Works of the State of California: and

provided, further, that prior to July 1, 1932, said Coachella Valley County Water District shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 536, and shall have submitted evidence of such completed appropriation and use to said Division of Water Rights. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

17. The Coachella Valley County Water District

will be entitled to divert from the natural flows of Whitewater River, Snow Creek, Falls Creek, Tahquitz Creek, Andreas Creek, Murray Creek, and Palm Canyon Creek, by means of spreading dams, ditches and other spreading works,

20,000 acre-feet per annum from Whitewater River,
8,000 acre-feet per annum from Snow Creek,
2,000 acre-feet per annum from Falls Creek,
5,000 acre-feet per annum from Tahquitz Creek,
1,000 acre-feet per annum from Andreas Creek,
1,000 acre-feet per annum from Murray Creek,
2,000 acre-feet per annum from Palm Canyon Creek,

39,000 acre-feet per annum—Total—priority July 8, 1922,

or as much of said quantities of water as it spreads and stores underground in the basin underlying Coachella Valley, situate in Riverside County, California; said quantities of water to be diverted from said streams at the respective points described as follows:

(1) From Whitewater River at a point situated approximately 3450 feet south and approximately 1750 feet east from the south quarter corner of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., being within the NE¼ SE¼ of Sec. 11, T. 3 S., R. 3 E., S. B. B. and M.:

(2) From Snow Creek at a point situated approximately 3645 feet north and approximately 2115 feet east from the section corner common to Secs. 20,

21, 28 and 29, T. 3 S., R. 3 E., S. B. B. and M., being within the SE¼ NW¼ of Sec. 21, T. 3 S., R. 3 E., S. B. B. and M.;

(3) From Falls Creek at a point situated approximately 1280 feet south and approximately 1110 feet east from the south quarter corner of Sec. 28, T. 3 S., R. 3 E., S. B. B. and M., being within the NW¼ NE¼ of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M.;

(4) From Tahquitz Creek at a point situated approximately 2130 feet south and approximately 2950 feet west from the section corner common to Secs. 14, 15, 22 and 23, T. 4 S., R. 4 E., S. B. B. and M., being within the SE¼ NW¼ of Sec. 22, T. 4 S., R. 4 E., S. B. B. and M.;

(5) From Andreas Creek at a point situated approximately 3440 feet north and approximately 255 feet east from the west quarter corner of Sec. 11, T. 5 S., R. 4 E., S. B. B. and M., being within the SW¼ SW¼ of Sec. 2, T. 5 S., R. 4 E., S. B. B. and M.;

(6) From Murray Creek at a point situated approximately 690 feet north and approximately 75 feet east from the west quarter corner of Sec. 11, T. 5 S., R. 4 E., S. B. B. and M., being within the SW¼ NW¼ of said Sec. 11;

(7) From Palm Canyon Creek at a point situated approximately 1330 feet south and approximately 3400 feet east from the west quarter corner of Sec. 11, T. 5 S., R. 4 E., S. B. B. and M., being within the SW¼ SE¼ of said Sec. 11;

said quantities of water to be so diverted, spread and stored during the period between January first and December thirty-first of each year, both dates inclusive; *provided*, that said water is subsequently withdrawn from said underground storage by the inhabitants of said Coachella Valley and applied by said inhabitants to beneficial use for domestic, stock watering, municipal and industrial purposes and for the irrigation of 25,000 acres of land lying within the 195,000-acre area included within the confines of the yellow border line on Coachella Valley County Water District Map No. 2, dated September, 1918, and filed by said Coachella Valley County Water District with the State Water Commission with its Application 1122, and which map is now on file and of record in the office of the Division of Water Rights of the Department of Public Works of the State of California; and

provided, further, that prior to July 1, 1932, said Coachella Valley County Water District shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 3011, and shall have submitted evidence of such completed appropriation and use to said Division of Water Rights. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

18. Nellie N. Coffman, Cornelia B. White, Florilla M. White, Lavina F. Crocker, Helen Coffman, Pearl McCallum McManus, Isabel White Chase, George Wellwood Murray, Ruth J. Orr, T. L. Douglas, C. A. Abbott, and Charles Powers,

jointly, are entitled to divert from the natural flow of Tahquitz Creek, through the Agua Caliente Ditch,

1.36 cubic feet per second—priority April 26, 1884,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Tahquitz Creek at a point (designated on Division of Water Rights Map as Diversion 61) which bears approximately S. 49° 30′ W., approximately 5400 feet distant from the northeast corner of Sec. 22, T. 4 S., R. 4 E., S. B. B. and M., being within the NW¼ SW¼ of said Sec. 22, and said water to be used for the irrigation of the respective lands of said parties as follows:

Nellie N. Coffman:

2.6 acres in a parcel bounded as follows: Beginning at the northwesterly corner of Spring Street and Main Avenue in the town of Palm Springs, Riverside County, California; thence west along the northerly line of Spring Street 290.4 feet; thence at right angles northerly 355.0 feet; thence at right angles

easterly 290.4 feet to westerly boundary line of Main Avenue; thence southerly along said westerly boundary of Main Avenue 355.0 feet to point of beginning.

0.6 acre in lots 22, 23 and 24 of block 8 of said town of Palm Springs.

6.9 acres in blocks 1, 6 and 8 of said town of Palm Springs bounded as follows: Beginning at a point in block 8 where the westerly side of the Whitewater or Palm Valley Water Company's Ditch intersects a line 150.0 feet north of and parallel with the north line of Park Street; thence N. 30° 58′ W., 327.0 feet; thence N. 0° 23′ W., 174.0 feet; thence west 40.0 feet; thence N. 0° 08′ W., 103.0 feet; thence S. 79° 10′ W., 335.7 feet; thence S. 84° 08′ W., 217.0 feet; thence S. 3° 40′ E., 264.25 feet; thence N. 89° 50′ E., 60.0 feet; thence S. 0° 08′ E., 210.0 feet; thence N. 89° 50′ E., 678.3 feet to point of beginning.

1.2 acres in lots 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 32 and 33, all in Block 20 of said town of Palm Springs.

0.4 acre in block 27 of said town of Palm Springs bounded as follows: Beginning at the southwest corner of said block; thence northerly on the easterly line of Main Avenue 100.0 feet; thence at right angles easterly and parallel with Park Street 145.0 feet; thence at right angles southerly 100.0 feet to northerly line of Park Street; thence westerly 145.0 feet to point of beginning.

11.7 acres—Total.

Cornelia B. White:

4.0 acres constituting all of block 27 of said town of Palm Springs, except the parcel last above described under Nellie N. Coffman, and except a parcel 80.0 feet square situate in the northwest corner of said block.

4.0 acres—Total.

Cornelia B. White and Florilla M. White:

4.1 acres constituting all of block 26 of said town of Palm Springs, except lots 1, 2, 3 and 4 thereof, and except a rectangular parcel having a frontage of 50.0 feet on Main Avenue, a depth of 100.0 feet, and situate south and contiguous to lot 4 of said block.

4.1 acres—Total.

Lavina F. Crocker:

1.6 acres in a parcel bounded as follows: Beginning at a point on the northerly line of Spring Street in said town of Palm Springs, 290.4 feet westerly from the northwest corner of Spring Street and Main Avenue; thence westerly along the said line of Spring Street 323.5 feet; thence N. 0° 08′ W., 204.0 feet; thence N. 89° 50′ E., 323.5 feet; thence S. 0° 08′ E., 204.0 feet to point of beginning; said description containing within its boundaries lots 9 to 20, both inclusive, of block 14 of said town of Palm Springs.

1.6 acres—Total.

Helen Coffman:

0.3 acre in lots 1, 2 and 3 of block 8 of said town of Palm Springs.

0.3 acre—Total.

Pearl McCallum McManus:

3.7 acres in lots 1, 2, 3 and 4 of block 1,
10.4 acres in lots 1, 2, 3 and 4 of block 2,
0.6 acre in lots 22, 23 and 24 of block 7,
2.2 acres in lots 4 to 9, both inclusive, and lots 14 to 21, both inclusive, of block 8,
2.6 acres in lots 1 to 16, both inclusive, and lots 26 to 28, both inclusive, of block 15,

0.3 acre in lots 11 and 12 of block 16.
0.6 acre in lots 9 to 12, both inclusive, of block 19,
1.5 acres in lots 1 to 12, both inclusive, of block 20,
all in said town of Palm Springs.

21.9 acres—Total.

Isabel White Chase:

1.1 acres constituting the west 250 feet of lot 4 of block 1 of said town of Palm Springs.

1.1 acres —Total.

George Wellwood Murray:

0.2 acre constituting a parcel of land 80.0 feet square situate in the northwest corner of block 27 of said town of Palm Springs.

0.2 acre—Total.

Ruth J. Orr:

0.5 acre in lots 34, 35 and 36 of block 20 of said town of Palm Springs.

0.5 acre—Total.

T. L. Douglas:

0.6 acre constituting the east 150 feet of lot 1 of block 2 of said town of Palm Springs.

0.6 acre——Total.

C. A. Abbott:

1.9 acres constituting the east 250 feet of lots 3 and 4 of block 2 of said town of Palm Springs.

1.9 acres—Total.

Charles Powers:

1.0 acre in lots 1, 2, 3, 4 and 5 of block 5 of said town of Palm Springs.

1.0 acre—Total.

The joint diversion and use of water under this right by the parties hereinabove enumerated is subject to the provisions of that certain agreement dated February 10, 1911, between the United States of America (Indian Service) and George Wellwood Murray et al., recorded March 11, 1911, in Book No. 325 of Deeds, page 260 *et seq.*, records of Riverside County, California.

19. Nellie N. Coffman, Prescott T. Stevens, Zaddie R. Bunker, T. A. Gray, Pearl McCallum McManus, Lavina F. Crocker, Ruth J. Orr, Helen Coffman, George Wellwood Murray, Trustees of Palm Springs Presbyterian Church, Cornelia B. White, Florilla M. White, Owen Earl Coffman and George B. Robertson,

jointly, are entitled to divert from the natural flow of Whitewater River, through the Palm Valley Water Company System (now generally known as the "Stevens Pipe Line"),

1.60 cubic feet per second—priority November 11, 1884,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River, all or in part, through any of the following described works:

(1) Through the main intake ditch leading to the "Stevens Pipe Line," the head of which ditch is situated at a point which bears approximately S. 84° 30′ E., approximately 440 feet distant from the northwest corner of lot 2 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., being within said lot 2,

(2) Through Infiltration Pipe Line "A" as shown on the map prepared by Davidson and Fulmor, Engineers, dated April, 1927, and entitled "Map Showing the Prescott T. Stevens Intake and Infiltration Pipe Lines from Whitewater River, Riverside County, Cal.," the head of which pipe line is situated approximately 727 feet due east of the northwest corner of lot 2 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., and approximately on the north line of said Sec. 2,

(3) Through Infiltration Pipe Line "B" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated approximately 122 feet due east of the northwest corner of lot 2 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., and approximately on the north line of said Sec. 2,

(4) Through Infiltration Pipe Line "C" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated at a point which bears approximately S. 62° 15′ W., approximately 278 feet distant from the northeast corner of lot 3 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., being within said lot 3;

and said water to be used for the irrigation of the respective lands of said parties as follows:

Nellie N. Coffman:

13.2 acres in a parcel bounded as follows: Beginning at the intersection of the center lines of Main Avenue and Spring Street in the town of Palm Springs, Riverside County, California; thence northerly along the center line of Main Avenue 453.0 feet; thence westerly at right angles to said center line 330.4 feet; thence at right angles northerly 146.0 feet; thence easterly at right angles 330.4 feet to center line of said Main Avenue; thence northerly along said center line 38.0 feet; thence at right angles westerly 618.88 feet; thence at right angles northerly 200.0 feet; thence at right angles westerly 491.12 feet to Palm Valley Water Company Ditch; thence southerly along line of said ditch 600 feet more or less to a point on said ditch 237.0 feet northerly of the center line of said Spring Street; thence easterly and parallel with the center line of Spring Street 669.6 feet more or less to a point 330.4 feet westerly from the center line of Main Avenue; thence at right angles southerly 237.0 feet to center line of said Spring Street; thence easterly along said center line of Spring Street 330.4 feet to point of beginning.

0.4 acre in block 27 of said town of Palm Springs bounded as follows: Beginning at the southwest corner of said block; thence northerly on the easterly line of Main Avenue 100.0 feet; thence at right angles easterly and parallel with Park Street 145.0 feet; thence at right angles southerly 100.0 feet to northerly line of Park Street; thence westerly 145.0 feet to point of beginning.

1.2 acres in lots 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 32 and 33, all in block 20 of said town of Palm Springs.

0.6 acre in lots 22, 23 and 24 of block 8 of said town of Palm Springs.

6.9 acres in blocks 1, 6 and 8 of said town of Palm Springs bounded as follows: Beginning at a point in block 8 where the westerly side of the Whitewater or Palm Valley Water Company's Ditch intersects a line 150.0 feet north of and parallel with the north line of Park Street; thence N. 30° 58′ W., 327.0 feet; thence N. 0° 23′ W., 174.0 feet; thence west 40.0 feet; thence N. 0° 08′ W., 103.0 feet; thence S. 79° 10′ W., 335.7 feet; thence S. 84° 08′ W. 217.0 feet; thence S. 3° 40′ E., 264.25 feet; thence N. 89° 50′ E., 60.0 feet; thence S. 0° 08′ E., 210.0 feet; thence N. 89° 50′ E., 678.3 feet to point of beginning.

22.3 acres—Total.

Prescott T. Stevens:

7.0 acres in SW¼ NE¼ NE¼ of Sec. 15, T. 4 S., R. 4 E., S. B. B. and M.

7.0 acres—Total.

Zaddie R. Bunker:

1.0 acre in SE¼ NE¼ of Sec. 15, T. 4 S., R. 4 E., S. B. B. and M.

1.0 acre—Total.

T. A. Gray:

1.3 acres in SE¼ NE¼ of Sec. 15, T. 4 S., R. 4 E., S. B. B. and M.

1.3 acres—Total.

Pearl McCallum McManus:

16.2 acres in E½ SE¼ of Sec. 15, T. 4 S., R. 4 E., S. B. B. and M.

16.2 acres—Total.

Lavina F. Crocker:

1.6 acres in a parcel bounded as follows: Beginning at a point on the northerly line of Spring street in said town of Palm Springs, 290.4 feet westerly from the northwest corner of Spring Street and Main Avenue; thence westerly along the said line of Spring Street 323.5 feet; thence N. 0° 08′ W., 204.0 feet; thence N. 89° 50′ E., 323.5 feet; thence S. 0° 08′ E., 204.0 feet to point of beginning; said description containing within its boundaries lots 9 to 20, both inclusive, of block 14 of said town of Palm Springs.

1.6 acres—Total.

Ruth J. Orr:

0.5 acre in lots 34, 35 and 36 of block 20 of said town of Palm Springs.

0.5 acre—Total.

Helen Coffman:

0.3 acre in lots 1, 2 and 3 of block 8 of said town of Palm Springs.

0.3 acre—Total.

George Wellwood Murray:

0.2 acre constituting a parcel of land 80.0 feet square situate in the northwest corner of block 27 of said town of Palm Springs.

0.2 acre—Total.

Trustees of Palm Springs Presbyterian Church:

0.4 acre constituting a rectangular parcel of land in the northwest corner of block 26 of said town of Palm Springs.

0.4 acre—Total.

Cornelia B. White:

4.0 acres in block 27 of said town of Palm Springs.

4.0 acres—Total.

Cornelia B. White and Florilla M. White:

4.1 acres in block 26 of said town of Palm Springs.

4.1 acres—Total.

Owen Earl Coffman:

0.5 acre in a parcel bounded as follows: Beginning at a point 470.0 feet westerly from the westerly line of Main Avenue in said town of Palm Springs and 604.0 feet northerly from the northerly property line of Spring Street; thence N. 0° 08′ W., 200.0 feet; thence westerly at right angles 108.88 feet; thence at right angles southerly 200.0 feet; thence easterly at right angles 108.88 feet to point of beginning.

0.5 acre—Total.

George B. Robertson:

0.4 acre in a parcel bounded as follows: Beginning at a point on the westerly property line of Main Avenue 566.0 feet northerly of the northerly property line of Spring Street in said town of Palm Springs; thence at right angles westerly to said line of Main Avenue 290.4 feet; thence at right angles southerly 61.0 feet; thence at right angles easterly 290.4 feet to the westerly property line of Main Avenue; thence northerly 61.0 feet to point of beginning.

0.4 acre—Total.

provided, however, that the lands described in this paragraph to which the water right hereinabove provided from Tahquitz Creek, by paragraph 18, is also appurtenant, shall only be entitled to water from Whitewater River under this right at such times and to such extent as the water supply available from Tahquitz Creek under the right provided in paragraph 18 may be inadequate for the irrigation of said lands. The joint diversion and use of water under this right by the parties hereinabove enumerated is subject to the provisions of that certain stipulation dated March 17, 1926, between the Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company on the one part, and Nellie N. Coffman et al., on the other part, which stipulation is on file and of record in these proceedings, and by the terms of which stipulation said Nellie N. Coffman et al., recognize that said Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company are the owners of the paramount right to divert water from the South Fork of Whitewater River through the Consolidated Reservoir and Power Company Canal as hereinbefore set forth in paragraph 11, regardless of the fact that the priority of said right set forth in said paragraph 11 is subsequent to the priority of the right of said Nellie N. Coffman et al., as set forth in this paragraph.

20. W. V. Covington

is entitled to divert from the natural flow of Lower Big Morongo Creek through the Covington West Ditch,

0.14 cubic foot per second—priority January 1, 1873,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Lower Big Morongo Creek at a point (designated on Division of Water Rights Map as Diversion 55) which bears approximately N. 56° 30′ W, approximately 2410 feet distant from the southeast corner of Sec. 28, T. 1 S., R. 4 E., S. B. B. and M., being within the NW¼ SE¼ of said Sec. 28, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

3.5 acres in SW¼ SE¼, Sec. 28, T. 1 S., R. 4 E., S. B. B. and M.

21. W. V. Covington

is entitled to divert from the natural flow of an unnamed stream rising in a meadow in Lower Big Morongo Wash, through the Covington East Ditch,

0.50 cubic foot per second—priority January 1, 1873,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said

unnamed stream at a point (designated on Division of Water Rights Map as Diversion 56) which bears approximately N. 38° 00′ W., approximately 2030 feet distant from the southeast corner of Sec. 28, T. 1 S., R. 4 E., S. B. B. and M., being within the NE¼ SE¼ of said Sec. 28, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

13.7 acres in SW¼ SE¼, Sec. 28, T. 1 S., R. 4 E., S. B. B. and M.

22. W. V. Covington

is entitled to divert from the natural flow of an unnamed stream rising in a meadow in Lower Big Morongo Wash, by means of a series of dykes and short spreading ditches,

0.74 cubic foot per second—priority January 1, 1873,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said unnamed stream between the head of the Covington East Ditch, as hereinabove described in the preceding paragraph, and the point where said unnamed stream crosses the south boundary line of the NE¼ of Sec. 33, T. 1 S., R. 4 E., S. B. B. and M., and said water to be used for stock watering purposes and for the irrigation of the following described lands:

35.0 acres in SE¼, Sec. 28, T. 1 S., R. 4 E., S. B. B. and M.
30.0 acres in E½ NE¼, Sec. 33, T. 1 S., R. 4 E., S. B. B. and M.

65.0 acres—Total.

23. Annie B. Fick

is entitled to divert from the natural or developed flow of an unnamed spring (designated on Division of Water Rights Map as Diversion 5) situated approximately N. 35° 00′ W., approximately 1000 feet distant from the east quarter corner of Sec. 5, T. 2 S., R. 1 E., S. B. B. and M., being within the SE¼ NE¼ of said Sec. 5, through the Fick East Pipe Line,

(a) during the period between March first and November first of each year,

0.07 cubic foot per second—priority July 31, 1913,

or as much thereof as she directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of her lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second—priority July 31, 1913,

or as much thereof as she directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at said spring, and to be used upon the following described lands:

3.3 acres in SW¼ NW¼, Sec. 4, T. 2 S., R. 1 E., S. B. B. and M.
2.2 acres in NW¼ SW¼, Sec. 4, T. 2 S., R. 1 E., S. B. B. and M.

5.5 acres—Total.

24. Annie B. Fick

is entitled to divert from the natural or developed flow of two unnamed springs (designated on Division of Water Rights Map as Diversion 6) situated approximately S. 70° 00′ W., approximately 1600 feet distant from the east quarter corner of Sec. 32, T. 1 S., R. 1 E., S. B. B. and M., being within the NW¼ SE¼ of said Sec. 32, through the Fick West Pipe Line,

(a) during the period between March first and November first of each year,

0.033 cubic foot per second—priority October 23, 1916,

or as much thereof as she directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of her lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second—priority October 23, 1916,

or as much thereof as she directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at said springs and to be used upon the following described land:

4.3 acres in NW¼ SE¼, Sec. 5, T. 2 S., R. 1 E., S. B. B. and M.

25. The Gilman Home Company

is entitled to divert from the natural flow of the stream flowing in Gilman Canyon No. 1, through an unnamed flume,

(a) during the period between March first and November first of each year,

0.10 cubic foot per second—priority March 1, 1869,
0.09 cubic foot per second—priority March 1, 1882,
0.06 cubic foot per second—priority March 1, 1892,

0.25 cubic foot per second—Total,

or as much thereof as said company directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of its lands hereinafter described,

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second—priority March 1, 1869,

or as much thereof as said company directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at a point (designated on Division of Water Rights Map as Diversion 11) which bears approximately S. 76° 30′ W, approximately 1860 feet distant from the east quarter corner of Sec. 5, T. 3 S., R. 1 E., S. B. B. and M., being within the NW¼ SE¼ of said Sec. 5, and all of said water to be used upon the following described lands:

24.0 acres in SE¼ SE¼, Sec. 5, T. 3 S., R. 1 E., S. B. B. and M.

26. The Gilman Home Company

is entitled to divert from the natural flow of the stream flowing in Gilman Canyon No. 2, through an unnamed pipe line,

0.125 cubic foot per second—priority March 1, 1892,

or as much thereof as said company directly applies to beneficial use for the purpose hereinafter set forth during the period between March first and November first of each year; said water to be diverted at a point (designated on Division of Water Rights Map as Diversion 12) which bears approximately N. 85° 00′ W., approximately 1420 feet distant from the east quarter corner of Sec. 5, T. 3 S., R. 1 E., S. B. B. and M., being within the SW¼ NE¼ of said Sec. 5 and said water to be used for the irrigation of the following described lands:

2.0 acres in NE¼ SE¼, Sec. 5, T. 3 S., R. 1 E., S. B. B. and M.
10.0 acres in SW¼ SE¼, Sec. 5, T. 3 S., R. 1 E., S. B. B. and M.

12.0 acres—Total.

27. The Gilman Home Company

is entitled to divert from the natural flow of the stream flowing in Gilman Canyon No. 3, through an unnamed pipe line,

0.25 cubic foot per second—priority March 1, 1891,

or as much thereof as said company directly applies to beneficial use for the purpose hereinafter set forth, during the period between March first and November first of each year; said water to be diverted at a point (designated on Division of Water Rights Map as Diversion 13) which bears approximately N. 52° 30′ W., approximately 970 feet distant from the east quarter corner of Sec. 5, T. 3 S., R. 1 E., S. B. B. and M., being within the SE¼ NE¼ of said Sec. 5, and said water to be used for the irrigation of the following described land:

24.0 acres in NW¼ NE¼, Sec. 8, T. 3 S., R. 1 E., S. B. B. and M.

28. George R. Hicks

will be entitled to divert from the natural flow of Upper Little Morongo Creek, through the Hicks Pipe Line and Ditch,

(a) during the period between March first and November first of each year,

2.50 cubic feet per second—priority April 24, 1917,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of the lands hereinafter described in this paragraph;

(b) during the period between November first of each year and March first of the succeeding year,

0.50 cubic foot per second—priority April 24, 1917,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at a point (designated on Division of Water Rights Map as Diversion 57) which bears approximately N. 30° 00′ E., approximately 3600 feet distant from the southwest corner of Sec. 2, T. 1 S., R. 4 E., S. B. B. and M., being within the SE¼ NW¼ of said Sec. 2, and all of said water to be used upon the following described lands:

80.0 acres in N½ SE¼, Sec. 12, T. 1 S., R. 4 E., S. B. B. and M.
80.0 acres in S½ NE¼, Sec. 14, T. 1 S., R. 4 E., S. B. B. and M.
80.0 acres in N½ SE¼, Sec. 14, T. 1 S., R. 4 E., S. B. B. and M.

240.0 acres—Total.

provided, that prior to December 1, 1929, said George R. Hicks shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 768, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

29. Marshall G. Jost

is entitled to divert from the natural or developed flow of an unnamed spring situated in Dunlap Canyon at a point which bears approximately N. 14° 30′ E., approximately 125 feet distant from the west quarter corner of Sec. 32, T. 2 S., R. 1 E., S. B. B. and M., being within the SW¼ NW¼ of said Sec. 32, through the Marshall Jost Pipe Line,

0.04 cubic foot per second—priority July 31, 1900,

or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted at said spring, and to be used for stock watering purposes in the

NE¼ SE¼, Sec. 31, T. 2 S., R. 1 E., S. B. B. and M.

30. Charles C. Leary

is entitled to divert from the natural or developed flow of an unnamed spring situated at a point (designated on Division of Water Rights Map as Diversion 33) which bears approximately S. 7° 30′ E., approximately 1780 feet distant from the west quarter corner of Sec. 20, T. 3 S., R. 2 E., S. B. B. and M., being within the SW¼ SW¼ of said Sec. 20, through the Leary Pipe Line,

0.025 cubic foot per second—priority October 18, 1913,

or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, during the period between March first and November first of each year; said water to be diverted at said spring, and to be used for the irrigation of the following described land:

7.0 acres in Lot 4 of NW¼ of Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.

31. Charles C. Leary

is entitled to divert from the natural or developed flow of an unnamed spring situated at a point (designated on Division of Water Rights Map as Diversion 32) which bears approximately S. 14° 00′ E., approximately 1420 feet distant from the west quarter corner of Sec. 20, T. 3 S., R. 2 E., S. B. B. and M., being within the SW¼ SW¼ of said Sec. 20, through the Leary Pipe Line.

(a) during the period between March first and November first of each year,

0.05 cubic foot per second—priority October 18, 1913,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second—priority October 18, 1913,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at said spring, and to be used upon the following described land:

14.0 acres in Lot 4 of NW¼ of Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.

32. Herman Luhrman (successor in interest to C. F. Jost)

is entitled to divert from the natural flow of the West Fork of Stubby Creek, through the Jost West Ditch and Pipe Line,

0.10 cubic foot per second—priority April 23, 1886,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said West Fork of Stubby Creek at a point (designated on Division of Water Rights Map as Diversion 36) which bears approximately S. 69° 00′ W., approximately 1950 feet distant from the northeast corner of Sec. 36, T. 2 S., R. 2 E., S. B. B. and M., being within the NW¼ NE¼ of said Sec. 36, and said water to be used for domestic, stock watering, irrigation and bee culture purposes within the

S½ NE¼, Sec. 36, T. 2 S., R. 2 E., S. B. B. and M.

33. Herman Luhrman (successor in interest to C. F. Jost)

is entitled to divert from the natural flow of the East Fork of Stubby Creek, through the Jost East Ditch.

0.10 cubic foot per second—priority April 23, 1886,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said East Fork of Stubby Creek at a point (designated on Division of Water Rights Map as Diversion 37) which bears approximately S. 82° 30′ W., approximately 1050 feet

distant from the northeast corner of Sec. 36, T. 2 S., R. 2 E., S. B. B. and M., being within the NE¼ NE¼ of said Sec. 36, and said water to be used for domestic, stock watering, irrigation and bee culture purposes within the

NE¼ NE¼, Sec. 36, T. 2 S., R. 2 E., S. B. B. and M.

34. Mayme V. Matthay (successor in interest to H. F. Nelles)

will be entitled to divert from the natural flow of Cottonwood Creek, through the Matthay Pipe Line,

0.25 cubic foot per second—priority February 6, 1923,

or as much thereof as she directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Cottonwood Creek at a point situated approximately 6319 feet upstream from a point approximately 2600 feet westerly of the east quarter corner of Sec. 32, T. 2 S., R. 3 E., S. B. B. and M.; said point of diversion being within the NE¼ SE¼ of Sec. 30, T. 2 S., R. 3 E., S. B. B. and M.; and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

320 acres in S½, Sec. 9, T. 3 S., R. 3 E., S. B. B. and M. (or as much of said tract as it is possible to irrigate with said quantity of water);

provided, that prior to December 1, 1928, said Mayme V. Matthay shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 1858, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

35. The Morongo Valley Mutual Water Company

is entitled to divert from the natural flow of Big Morongo Creek, through the Morongo Valley Mutual Water Company Pipe Line,

0.14 cubic foot per second—priority June 14, 1915,

or as much thereof as said company directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Big Morongo Creek at a point (designated on Division of Water Rights Map as Diversion 54) which bears approximately N. 30° 20′ W., approximately 1575 feet distant from the southeast corner of Sec. 18, T. 1 S., R. 4 E., S. B. B. and M., being within the NE¼ SE¼ of said Sec. 18, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described lands:

160.0	acres in	NW¼,	Sec. 28, T. 1 S., R. 4 E., S. B. B. and M.
80.0	acres in	W½ SW¼,	Sec. 28, T. 1 S., R. 4 E., S. B. B. and M.
40.0	acres in	NE¼ SW¼,	Sec. 28, T. 1 S., R. 4 E., S. B. B. and M.
80.0	acres in	E½ SE¼,	Sec. 29, T. 1 S., R. 4 E., S. B. B. and M.
40.0	acres in	SW¼ SE¼,	Sec. 29, T. 1 S., R. 4 E., S. B. B. and M.
80.0	acres in	N½ NE¼,	Sec. 32, T. 1 S., R. 4 E., S. B. B. and M.
40.0	acres in	NW¼ NW¼,	Sec. 33, T. 1 S., R. 4 E., S. B. B. and M.
520.0	acres—Total.		

36. The Palm Valley Water Company

is entitled to divert from the natural flow of Chino Creek, through the Chino Creek Pipe Line,

2.00 cubic feet per second—priority October 2, 1897,

or as much thereof as said company applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said

Chino Creek at a point (designated on Division of Water Rights Map as Diversion 59) which bears approximately S. 60° 30′ W., approximately 725 feet distant from the northeast corner of Sec. 7, T. 4 S., R. 4 E., S. B. B. and M., being within the NE¼ NE¼ of said Sec. 7, and said water to be used by said company for the purpose of supplying water for domestic and municipal uses in the territory within and adjacent to the town of Palm Springs, Riverside County, California.

37. George W. Parker and F. E. Matthews,

jointly, are entitled to divert from the natural flow of the stream flowing in Water Canyon, through the Parker and Matthews Water Canyon Pipe Line,

0.04 cubic foot per second—priority January 1, 1909,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year: said water to be diverted from said stream at a point which bears approximately S. 78° 30′ W., approximately 2080 feet distant from the northeast corner of Sec. 24, T. 3 S., R. 1 E., S. B. B. and M., being within the NW¼ NE¼ of said Sec. 24, and said water to be used for the irrigation of the following described land:

8.2 acres in NW¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.

38. George W. Parker and F. E. Matthews,

jointly, are entitled to divert from the natural or developed flow of Tunnel No. 1 Spring, through the Tunnel No. 1 Pipe Line,

0.04 cubic foot per second—priorty October 20, 1894,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 24) which bears approximately N. 87° 00′ W., approximately 1280 feet distant from the southeast corner of Sec. 13, T. 3 S., R. 1 E., S. B. B. and M., being within the SE¼ SE¼ of said Sec. 13, and said water to be used for the irrigation of the following described lands:

2.2 acres in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.
4.3 acres in NE¼ SE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.

6.5 acres—Total.

39. George W. Parker and F. E. Matthews,

jointly, are entitled to divert from the natural or developed flow of Newland Spring, through the Newland Spring Pipe Line,

0.08 cubc foot per second—priority January 3, 1898,

or as much thereof as they directly apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 23) which bears approximately N. 71° 00′ W., approximately 2450 feet distant from the southeast corner of Sec. 13, T. 3 S., R. 1 E., S. B. B. and M., being within the SW¼ SE¼ of said Sec. 13, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described lands:

2.6 acres in SW¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.
1.0 acre in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.
7.0 acres in NE¼ SE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.

10.6 acres—Total.

40. George W. Parker and F. E. Matthews,

jointly, are entitled to divert from the natural or developed flow of South Spring, through the South Spring Pipe Line,

0.06 cubic foot per second—priority January 3, 1898,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said

spring at a point (designated on Division of Water Rights Map as Diversion 26) which bears approximately S. 2° 30′ W., approximately 1340 feet distant from the northeast corner of Sec. 24, T. 3 S., R. 1 E., S. B. B. and M., being within the SE¼ NE¼ of said Sec. 24, and said water to be used for the irrigation of the following described lands:

1.2 acres in NW¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.
9.4 acres in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.

10.6 acres—Total.

41. George W. Parker and F. E. Matthews,

jointly, are entitled to divert from the natural or developed flow of Head Spring, through the Head Spring Pipe Line,

0.02 cubic foot per second—priority June 20, 1894,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 25) which bears approximately S. 67° 00′ W., approximately 3050 feet distant from the northeast corner of Sec. 24, T. 3 S., R. 1 E., S. B. B. and M., being within the NE¼ NW¼ of said Sec. 24, and said water to be used for the irrigation of the following described lands:

1.2 acres in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.
2.2 acres in NE¼ SE¼, Sec. 13, T. 3 S., R. 1 E., S. B. B. and M.

3.4 acres—Total.

42. H. C. Ratcliff (successor in interest to H. P. Jensen and H. C. Ratcliff)

is entitled to divert from the natural or developed flow of Jensen's Spring, through the Jensen West Pipe Line,

0.06 cubic foot per second—priority June 17, 1911,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 34) which bears approximately S. 29° 30′ W., approximately 2930 feet distant from the southeast corner of the NE¼ of Sec. 22, T. 3 S., R. 2 E., S. B. B. and M., being within Lot 11 of said Sec. 22, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

5.0 acres in SW¼ NE¼, Sec. 22, T. 3 S., R. 2 E., S. B. B. and M.

To Walter O. Edwards Dec 23, 1932

43. H. C. Ratcliff (successor in interest to H. P. Jensen and H. C. Ratcliff)

will be entitled to divert from the natural or developed flow of Jensen's Creek, through the Jensen East Pipe Line,

0.60 cubic foot per second—priority October 23, 1913,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth throughout the entire year: said water to be diverted from said Jensen's Creek at a point (designated on Division of Water Rights Map as Diversion 35) which bears approximately S. 28° 30′ E., approximately 3100 feet distant from the southwest corner of the NW¼ of Sec. 23, T. 3 S., R. 2 E., S. B. B. and M., being within Lot 11 of said Sec. 23, and said water to be used for domestic and stock watering purposes and for the irrigation of at least 50 acres of land within the following described tracts:

S½ NE¼, Sec. 22, T. 3 S., R. 2 E., S. B. B. and M.
Lot 8 of Sec. 22, T. 3 S., R. 2 E., S. B. B. and M.
Lot 8 of Sec. 23, T. 3 S., R. 2 E., S. B. B. and M.

provided, that prior to December 1, 1929, said H. C. Ratcliff shall have completed the above appropriation and applied said water to the beneficial use above specified, and shall have submitted evidence of such completed appropriation and use to the

Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

44. George D. Richey

will be entitled to divert from the natural or developed flow of Thousand Palms Canyon Creek, through the Bedwell and Richey Ditch and Pipe Line,

1.00 cubic foot per second—priority January 31, 1913,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Thousand Palms Canyon Creek at a point (designated on Division of Water Rights Map as Diversion 63) which bears approximately S. 77° 11′ E., approximately 2345 feet distant from the west quarter corner of Sec. 12, T. 4 S., R. 6 E., S. B. B. and M., being within the NE¼ SW¼ of said Sec. 12, and said water to be used for domestic and stock watering purposes and for the irrigation of at least 80 acres of land in the S½ of Sec. 22, T. 4 S., R. 6 E., S. B. B. and M.;

provided, that prior to December 1, 1929, said George D. Richey shall have completed the above appropriation and applied said water to the beneficial use above specified, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

45. The Southern Pacific Company and the Southern Pacific Railroad Company,

jointly, are entitled to divert from the natural flow of Snow Creek, through the Southern Pacific Snow Creek Ditch and Pipe Line,

2.00 cubic feet per second—priority October 24, 1899,

or as much thereof as they apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Snow Creek at a point (designated on Division of Water Rights Map as Diversion 39) which bears approximately S. 54° 52′ E., approximately 1300 feet distant from the northwest corner of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., being within the NW¼ NW¼ of said Sec. 33, and said water to be used for railroad and domestic purposes at and adjacent to Whitewater and Garnet stations on the Southern Pacific Railroad, in Riverside County, California, and for domestic, stock watering and irrigation purposes upon the following described lands:

7.8 acres in	SE¼ SE¼, Sec. 20, T. 3 S., R. 3 E., S. B. B. and M.
7.0 acres in	NE¼ SE¼, Sec. 20, T. 3 S., R. 3 E., S. B. B. and M.
4.3 acres in	SW¼ SW¼, Sec. 21, T. 3 S., R. 3 E., S. B. B. and M.
20.9 acres in	NW¼ SW¼, Sec. 21, T. 3 S., R. 3 E., S. B. B. and M.
40.0 acres—Total.	

46. The Southern Pacific Company and the Southern Pacific Railroad Company,

jointly, are entitled to divert from the natural or developed flow of springs rising in Millard Canyon near the center of Sec. 32, T. 2 S., R. 2 E., S. B. B. and M., through the Southern Pacific Millard Canyon Conduit,

0.23 cubic foot per second—priority January 1, 1877,
0.27 cubic foot per second—priority January 3, 1917,

0.50 cubic foot per second—Total.

or as much thereof as they apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said springs at a point (designated on Division of Water Rights Map as Diversion 28) which bears approximately N. 39° 53′ E., approximately 3350 feet distant from the southwest corner of Sec. 32, T. 2 S., R. 2 E., S. B. B. and M., being within the NE¼ SW¼ of said Sec. 32, and said water to be used for railroad and domestic purposes at and adjacent to Cabazon Station on the Southern Pacific Railroad, in Riverside County, California.

47. The Southern Pacific Land Company

is entitled to divert from the natural or developed flow of springs rising in Millard Canyon near the center of Sec. 32, T. 2 S., R. 2 E., S. B. B. and M., through the Southern Pacific Millard Canyon Conduit,

0.12 cubic foot per second—priority January 1, 1877,
0.16 cubic foot per second—priority January 3, 1917,

0.28 cubic foot per second—Total.

or as much thereof as said company applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said springs at a point (designated on Division of Water Rights Map as Diversion 28) which bears approximately N. 39° 53′ E., approximately 3350 feet distant from the southwest corner of Sec. 32, T. 2 S., R. 2 E., S. B. B. and M., being within the NE¼ SW¼ of said Sec. 32, and said water to be used for domestic, stock watering and irrigation purposes upon the following described lands:

18.7 acres in NE¼ SW¼, Sec. 32, T. 2 S., R. 2 E., S. B. B. and M.
13.0 acres in SE¼ SW¼, Sec. 32, T. 2 S., R. 2 E., S. B. B. and M.
0.8 acre in SW¼ SW¼, Sec. 32, T. 2 S., R. 2 E., S. B. B. and M.

32.5 acres—Total.

48. The Southern Sierras Power Company

will be entitled to divert from the natural flows of Falls Creek, the East Fork of Snow Creek, and Snow Creek, through the Snow Creek Power Plant No. 1 Pipe Line,

10.00 cubic feet per second from Falls Creek,
10.00 cubic feet per second from East Fork of Snow Creek,
40.00 cubic feet per second from Snow Creek,

60.00 cubic feet per second—Total—priority November 9, 1920,

or as much of said quantities of water as said company applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said quantities of water to be diverted from said streams at the respective points of diversion described as follows:

(1) From Falls Creek either at a point which bears approximately S. 38° 09′ E., approximately 8665 feet distant from the west quarter corner of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., being within the SW¼ SW¼ of Sec. 3, T. 4 S., R. 3 E., S. B. B. and M., or at a point which bears approximately S. 37° 14′ E., approximately 8185 feet distant from said west quarter corner of Sec. 33, being within the NE¼ SE¼ of Sec. 4, T. 4 S., R. 3 E., S. B. B. and M., or in part at each of said points;

(2) From the East Fork of Snow Creek at a point which bears approximately S. 28° 46′ E., approximately 8123 feet distant from the west quarter corner of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., being within the SW¼ SE¼ of Sec. 4, T. 4 S., R. 3 E., S. B. B. and M.;

(3) From Snow Creek at a point which bears approximately S. 30° 34′ W., approximately 8045 feet distant from the west quarter corner of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., being within the SW¼ SW¼ of Sec. 5, T. 4 S., R. 3 E., S. B. B. and M.;

and said quantities of water to be used for the purpose of generating electric energy at a power plant situated in the SW¼ NW¼ of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M.;

provided, that all water diverted under this right, with the exception of such quantity as may be necessarily lost in transportation, shall be returned to the natural channel of Snow Creek at a point within the SW¼ NW¼ of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M.; and

provided, further, that prior to December 1, 1929, said Southern Sierras Power Company shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 1008, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

49. The Southern Sierras Power Company

will be entitled to divert from the natural flows of Snow Creek and the East Fork thereof, through the Snow Creek Power Plant No. 2 Pipe Line,

40.00 cubic feet per second from Snow Creek,
20.00 cubic feet per second from East Fork of Snow Creek,

60.00 cubic feet per second—Total—priority November 20, 1920,

or as much of said quantities of water as said company applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said quantities of water to be diverted from said streams at the respective points of diversion described as follows:

(1) From Snow Creek at a point which bears approximately N. 50° 47′ E., approximately 365 feet distant from the west quarter corner of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., being within the SW¼ NW¼ of said Sec. 33;

(2) From the East Fork of Snow Creek at a point which bears approximately N. 72° 52′ E., approximately 1136 feet distant from the west quarter corner of Sec. 33, T. 3 S., R. 3 E., S. B. B. and M., being within the SW¼ NW¼ of said Sec. 33;

and said quantities of water to be used for the purpose of generating electric energy at a power plant situated in the SE¼ SE¼ of Sec. 20, T. 3 S., R. 3 E., S. B. B. and M.;

provided, that all water diverted under this right, with the exception of such quantity as may be necessarily lost in transportation, shall be returned either to the natural channel of Snow Creek or to the existing Southern Pacific Company Ditch leading from Snow Creek, at respective points immediately below said power plant; and

provided, further, that prior to December 1, 1929, said Southern Sierras Power Company shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 1009, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the said Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

50. Prescott T. Stevens

will be entitled to divert from the natural flow of Whitewater River, through the Palm Valley Water Company System (now generally known as the "Stevens Pipe Line"),

10.00 cubic feet per second—priority September 19, 1913,

1.60 from No 19

or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River, all or in part, through any of the following described works:

(1) Through the main intake ditch leading to the "Stevens Pipe Line", the head of which ditch is situated at a point which bears approximately S. 84° 30′ E., approximately 440 feet distant from the northwest corner of Lot 2 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., being within said Lot 2,

(2) Through Infiltration Pipe Line "A" as shown on the map prepared by Davidson & Fulmor, Engineers, dated April, 1927, and entitled "Map Showing the Prescott T. Stevens Intake and Infiltration Pipe Lines from Whitewater River, Riverside County, Cal.," the head of which pipe line is situated approximately 727 feet due east of the northwest corner of Lot 2 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., and approximately on the north line of said Sec. 2,

(3) Through Infiltration Pipe Line "B" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated approximately 122 feet due east of the northwest corner of Lot 2 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., and approximately on the north line of said Sec. 2,

(4) Through Infiltration Pipe Line "C" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated at a point which bears approximately S. 62° 15′ W., approximately 278 feet distant from the northeast corner of Lot 3 of Sec. 2, T. 3 S., R. 3 E., S. B. B. and M., being within said Lot 3;

and said water to be used for the irrigation of approximately 725 acres of land within the following described tracts:

SE¼ NE¼,	Sec. 3,	T. 4 S.,	R. 4 E.,	S. B. B. and M.	160
E½,	Sec. 10,	T. 4 S.,	R. 4 E.,	S. B. B. and M.	320
N½,	Sec. 11,	T. 4 S.,	R. 4 E.,	S. B. B. and M.	320
SW¼,	Sec. 11,	T. 4 S.,	R. 4 E.,	S. B. B. and M.	160
NE¼,	Sec. 15,	T. 4 S.,	R. 4 E.,	S. B. B. and M.	160

provided, that prior to January 1, 1930, said Prescott T. Stevens shall have completed the above appropriation and applied said water to the beneficial use above specified, and shall have submitted evidence of such completed appropriation and use to the Division of Water Rights of the Department of Public Works of the State of California. Upon receipt of such evidence of such completed appropriation and use, the Division of Water Rights will act thereupon as provided in section 36*f* of the Water Commission Act, and in accordance with said evidence will enter findings supplemental hereto, determining and establishing the above described right by appropriation in so far as the same shall have been completed.

NOTE.—The findings as to the claim of Prescott T. Stevens hereinabove set forth in this paragraph are based upon the *prima facie* case established by the "proof of appropriation" filed by the claimant and the field investigations of the Division of Water Rights, such findings being authorized by that certain stipulation dated February 13, 1928, and signed by W. G. Irving, attorney for the claimant and H. L. Carnahan, attorney for contestant Coachella Valley County Water District. In making said findings the Division of Water Rights has in no way considered or passed upon the objection raised by contestant Coachella Valley County Water District against the change in point of diversion made by the claimant, and said findings are made with the express intention that nothing therein contained shall be deemed prejudicial to either claimant or contestant in the event that either or both parties decide to file a notice of exception to this order of determination in the matter of said claim, and in the event of a hearing in the superior court upon the subject matter of said "proof of appropriation" and the "notice of contest" against the same filed herein by contestant Coachella Valley County Water District.

✓51. **Frank W. Talmadge, John W. Talmadge and William S. Talmadge** (hereinafter referred to as Talmadge Brothers),

jointly, are entitled to divert from the natural flow of Whitewater River, through the Whitewater Ranch Ditch,

3.75 cubic feet per second—priority January 1, 1850,

or as much thereof as they directly apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said

Whitewater River at a point (designated on Division of Water Rights Map as diversion 44) which bears approximately S. 87° 30′ W., approximately 1950 feet distant from the northeast corner of Sec. 11, T. 3 S., R. 3 E., S. B. B. and M., being within the NW¼ NE¼ of said Sec. 11, and said water to be used for domestic and stock watering purposes and for the irrigation of 100 acres of land within the following described tracts:

SW¼, Sec. 10, T. 3 S., R. 3 E., S. B. B. and M.
NW¼ NW¼, Sec. 15, T. 3 S., R. 3 E., S. B. B. and M.

The diversion and use of water under this right is subject to the provisions of that certain stipulation dated March 17, 1926, between the Banning Water Company, the Banning Heights Mutual Water Company and the San Gorgonio Power Company on the one part, and Julia B. Berry, Talmadge Brothers, and Andrew J. Warner and Clara J. Warner on the other part, which stipulation is on file and of record in these proceedings, and by the terms of which stipulation said Julia B. Berry, Talmadge Brothers, and Andrew J. Warner and Clara J. Warner recognize that said Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company are the owners of the paramount right to divert water from the South Fork of Whitewater River through the Consolidated Reservoir and Power Company Canal as hereinbefore set forth in paragraph 11, regardless of the fact that the priority of said right set forth in said paragraph 11 is subsequent to the priority of the right of said Talmadge Brothers as set forth in this paragraph.

2. The United States of America

is entitled to divert from the natural flow of Hathaway Creek, through the Hathaway Canyon Pipe Line,

2.00 cubic feet per second—priority January 1, 1890,

so much thereof as it applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Hathaway Creek at a point within the NW¼ NE¼ of Sec. 34, T. 2 S., R. 1 E., S. B. B. and M., and said water to be used for domestic, stock watering, power development and irrigation purposes within the Morongo Indian Reservation, comprising some 30,600 acres of land described as follows:

All of Secs. 10, 12, 13, 14, 15, 22, 23, 25, 26, 27, 34, 35 and 36, T. 2 S., R. 1 E., S. B. B. and M.
All of Secs. 8, 9, 17, 18, 25, 26, 27, 28 30, 31, 33, 34 and 35, T. 2 S., R. 2 E., S. B. B. and M.
E½, Sec. 16, T. 2 S., R. 2 E., S. B. B. and M.
N½, Sec. 19, T. 2 S., R. 2 E., S. B. B. and M.
SW¼, Sec. 19, T. 2 S., R. 2 E., S. B. B. and M.
N½, Sec. 20, T. 2 S., R. 2 E., S. B. B. and M.
SW¼, Sec. 20, T. 2 S., R. 2 E., S. B. B. and M.
N½ SE¼, Sec. 20, T. 2 S., R. 2 E., S. B. B. and M.
E½, Sec. 21, T. 2 S., R. 2 E., S. B. B. and M.
S½ SW¼, Sec. 21, T. 2 S., R. 2 E., S. B. B. and M.
E½, Sec. 29, T. 2 S., R. 2 E., S. B. B. and M.
W½, Sec. 36, T. 2 S., R. 2 E., S. B. B. and M.
SE¼, Sec. 36, T. 2 S., R. 2 E., S. B. B. and M.
All of Secs. 2, 12, 22, 24 and 26, T. 3 S., R. 1 E., S. B. B. and M.
N½, Sec. 1, T. 3 S., R. 1 E., S. B. B. and M.
NE¼, Sec. 6, T. 3 S., R. 1 E., S. B. B. and M.
S½ S½, Sec. 14, T. 3 S., R. 1 E., S. B. B. and M.
E½, Sec. 34, T. 3 S., R. 1 E., S. B. B. and M.
SW¼, Sec. 34, T. 3 S., R. 1 E., S. B. B. and M.
NE¼ NW¼, Sec. 34, T. 3 S., R. 1 E., S. B. B. and M.
N½ NW¼ NW¼, Sec. 34, T. 3 S., R. 1 E., S. B. B. and M.
All of Secs. 2, 4, 6, 8, 10, 12, 14 and 24, T. 3 S., R. 2 E., S. B. B. and M.
S½ SW¼ NE¼, Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.
S½ NW¼, Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.
SW¼, Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.

SW¼ SE¼, Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.
E½ SE¼, Sec. 20, T. 3 S., R. 2 E., S. B. B. and M.
S½, Sec. 22, T. 3 S., R. 2 E., S. B. B. and M.
N½, Sec. 28, T. 3 S., R. 2 E., S. B. B. and M.
N½ NW¼, Sec. 32, T. 3 S., R. 2 E., S. B. B. and M.
SW¼ NW¼ SW¼, Sec. 32, T. 3 S., R. 2 E., S. B. B. and M.
S½ NW¼ SE¼, Sec. 32, T. 3 S., R. 2 E., S. B. B. and M.
NE¼ NW¼ SE¼, Sec. 32, T. 3 S., R. 2 E., S. B. B. and M.
NE¼ SE¼, Sec. 32, T. 3 S., R. 2 E., S. B. B. and M.
S½ SE¼, Sec. 32, T. 3 S., R. 2 E., S. B. B. and M.

53. The United States of America

is entitled to divert from the natural flow of Potrero Creek, through the Potrero Creek Ditch,

7.00 cubic feet per second—priority January 1, 1894,

or as much thereof as it applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Potrero Creek, all or in part, at any of the following described points:

(1) At the rock dam across Woods Canyon (Potrero Creek headwaters) in the SW¼, Sec. 7, T. 2 S., R. 2 E., S. B. B. and M.

(2) At the intake from Potrero Creek in the SE¼ SE¼, Sec. 14, T. 2 S., R. 1 E., S. B. B. and M. (below Cienega).

(3) At the intake from Potrero Creek in the NW¼ NW¼, Sec. 25, T. 2 S., R. 1 E., S. B. B. and M. (below spring).

(4) At the Infiltration Gallery from Potrero Creek in the NE¼ NW¼, Sec. 25, T. 2 S., R. 1 E., S. B. B. and M.

(5) At the earth dam across Potrero Creek in the SE¼ SE¼, Sec. 25, T. 2 S., R. 1 E., S. B. B. and M.,

and said water to be used for domestic, stock watering, power development and irrigation purposes within the Morongo Indian Reservation, comprising some 30,600 acres of land as hereinabove described in the preceding paragraph. During the winter months, at times when the entire quantity of water available under this right may not be required for direct application to the uses hereinabove specified, the said United States of America is entitled to spread and store underground in Potrero Canyon, above the lowest point of diversion hereinabove described, all surplus water over and above the quantity required for direct application to use; *provided*, that all water so spread and stored is subsequently withdrawn from said underground storage and applied to beneficial use for the purposes hereinabove specified.

54. The United States of America

is entitled to divert from the natural flow of Mission Creek, through the Mission Creek Pipe Line,

3.00 cubic feet per second—priority January 1, 1902,

or as much thereof as it applies to beneficial use for the purposes hereinafter set forth, throughout the entire year: said water to be diverted from said Mission Creek at a point (designated on Division of Water Rights Map as Diversion 49) which bears approximately S. 56° 30′ W., approximately 2200 feet distant from the northeast corner of Sec. 2, T. 2 S., R. 3 E., S. B. B. and M., being within the NW¼ NE¼ of said Sec. 2, and said water to be used for domestic, stock watering, power development and irrigation purposes within the Mission Creek Indian Reservation, comprising some 2560 acres of land described as follows:

All of Secs. 12, 13 and 14, T. 2 S., R. 3 E., S. B. B. and M.
S½ Sec. 1, T. 2 S., R. 3 E., S. B. B. and M.
E½ Sec. 2, T. 2 S., R. 3 E., S. B. B. and M.

55. The United States of America

is entitled to divert from the natural flow of Andreas Creek, through the Andreas Creek Pipe Line,

6.00 cubic feet per second—priority January 1, 1893,

or as much thereof as it applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Andreas Creek at a point (designated on Division of Water Rights Map as Diversion 62) which bears approximately S. 31° 00′ W., approximately 1900 feet distant from the east quarter corner of Sec. 3, T. 5 S., R. 4 E., S. B. B. and M., being within the SE¼ SE¼ of said Sec. 3, and said water to be used for domestic, stock watering, power development and irrigation purposes within the Agua Caliente Indian Reservation, comprising some 30,240 acres of land described as follows:

All of Secs. 2, 4, 6, 8, 12, 14, 18, 20, 22, 24, 26, 28, 30, 32, 34 and 35, T. 4 S., R. 4 E., S. B. B. and M.
W½ Sec. 10, T. 4 S., R. 4 E., S. B. B. and M.
All of Secs. 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 28, 30, 32 and 34, T. 4 S., R. 5 E., S. B. B. and M.
All of Secs. 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, 32 and 34, T. 5 S., R. 4 E., S. B. B. and M.
SE¼ Sec. 3, T. 5 S., R. 4 E., S. B. B. and M.
N½ Sec. 11, T. 5 S., R. 4 E., S. B. B. and M.

56. The United States of America

is entitled to divert from the natural flow of Tahquitz Creek, through the Agua Caliente Ditch,

4.80 cubic feet per second—priority April 26, 1884,

or as much thereof as it applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Tahquitz Creek at a point (designated on Division of Water Rights Map as Diversion 61) which bears approximately S. 49° 30′ W., approximately 5400 feet distant from the northeast corner of Sec. 22, T. 4 S., R. 4 E., S. B. B. and M., being within the NW¼ SW¼ of said Sec. 22, and said water to be used for domestic, stock watering, power development and irrigation purposes within the Agua Caliente Indian Reservation, comprising some 30,240 acres of land as hereinabove described in the preceding paragraph. The use of water under this right by said United States of America is subject to the provisions of that certain agreement dated February 10, 1911, between the United States of America (Indian Service) and George Wellwood Murray et al.—recorded March 11, 1911, in Book No. 325 of Deeds, page 260 *et seq.*, records of Riverside County, California.

57. Andrew J. Warner and Clara J. Warner

jointly, are entitled to divert from the natural flow of Whitewater River, through the Warner Ranch Ditch,

1.62 cubic feet per second—priority September 18, 1907,

or as much thereof as they directly apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River at a point (designated on Division of Water Rights Map as Diversion 45) which bears approximately S. 45° 00′ W., approximately 1580 feet distant from the northeast corner of Sec. 11, T. 3 S., R. 3 E., S. B. B. and M., being within the NE¼ NE¼ of said Sec. 11, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

50.0 acres in S½ SE¼, Sec. 10, T. 3 S., R. 3 E., S. B. B. and M.

See stipulation Trans. p 231

Dated at Sacramento, California, this twenty-third day of April, 1928.

HAROLD CONKLING,
Chief of Division of Water Rights,
Department of Public Works, State of California.

[SEAL]

Entered in Book 1 of Orders of Determination, at page 426, April 23, 1928.

CERTIFICATE No. 1110

I, KATHERINE A. FEENY, Chief Clerk of the Division of Water Rights, Department of Public Works of the State of California, do hereby certify the foregoing to be a full, true, and correct copy of the original Order of Determination in the above entitled matter signed and filed in the office of said Division of Water Rights, April 23, 1928, as the same remains on file in said office.

In witness whereof, I hereunto set my hand and affix the seal of the Department of Public Works of the State of California, this twenty-third day of April, 1928.

KATHERINE A. FEENY,
Chief Clerk, Division of Water Rights,
Department of Public Works, State of California.

[SEAL]

APPENDIX

CHRONOLOGICALLY ARRANGED SUMMARY

of

RIGHTS BY APPROPRIATION TO USE OF THE WATERS OF WHITEWATER RIVER STREAM SYSTEM

EXPLANATORY

For the purpose of showing the relationships of the several rights by appropriation to the use of the waters of the Whitewater River Stream System established by the foregoing Order of Determination, the following chronologically arranged summary of the various rights is submitted.

In the first column of the tabulation the relative positions of the various rights are designated by numerals. The second, third, fourth and fifth columns are self-explanatory. In the sixth and seventh columns the maximum amounts of water to which the respective rights are entitled are given, either in cubic feet per second or in acre-feet per season. In the last column the numbers of the paragraphs of the Order of Determination in which the respective rights are defined, are given.

CHRONOLOGICALLY ARRANGED SUMMARY OF RIGHTS BY APPROPRIATION TO USE OF WATERS OF WHITEWATER RIVER STREAM SYSTEM

Order	Priority	Owner	Source	Conduit	Amount		Paragraph of order
					Cubic feet per second	Acre-feet per season	
1	Jan. 1, 1850	Talmadge Brothers	Whitewater River	Whitewater Ranch Ditch	[a]3.75		51
2	Mar. 1, 1869	Gilman Home Company	Stream in Gilman Canyon No. 1	Unnamed Flume	0.10		25
3	Jan. 1, 1873	W. V. Covington	Lower Big Morongo Creek	Covington West Ditch	0.14		20
3	Jan. 1, 1873	W. V. Covington	Stream in Lower Big Morongo Wash	Covington East Ditch	0.50		21
3	Jan. 1, 1873	W. V. Covington	Stream in Lower Big Morongo Wash	Dykes and Spreading Ditches	0.74		22
4	Mar. 17, 1875	Banning Water Company	San Gorgonio River (including foreign water and underground storage)	Banning Water Company Conduit		14,000	13
5	Jan. 1, 1877	Southern Pacific Co., et al	Springs in Millard Canyon	S. P. Millard Canyon Conduit	0.23		46
5	Jan. 1, 1877	Southern Pacific Land Company	Springs in Millard Canyon	S. P. Millard Canyon Conduit	0.12		47
6	Mar. 1, 1882	Gilman Home Company	Stream in Gilman Canyon No. 1	Unnamed Flume	0.09		25
7	April 26, 1884	United States of America (Indian Service)	Tahquitz Creek	Agua Caliente Ditch	4.80		56
7	April 26, 1884	Nellie N. Coffman, et al	Tahquitz Creek	Agua Caliente Ditch	1.36		18
8	Nov. 11, 1884	Nellie N. Coffman, et al	Whitewater River	Stevens Pipe Line	[a]1.60		19
9	Jan. 1, 1885	Cabazon Water Company	Millard Creek	Cabazon Water Company Conduit	4.67		15
10	April 23, 1886	Herman Luhrman	West Fork Stubby Creek	Jost West Conduit	0.10		32
10	April 23, 1886	Herman Luhrman	East Fork Stubby Creek	Jost East Conduit	0.10		33
11	Jan. 1, 1887	Banning Water Company	San Gorgonio River	Series of Spreading Ditches		[b]20,000	12
12	Jan. 1, 1890	United States of America (Indian Service)	Hathaway Creek	Hathaway Canyon Pipe Line	2.00		52
13	Mar. 1, 1891	Gilman Home Company	Stream in Gilman Canyon No. 3	Unnamed Pipe Line	0.25		27
14	Mar. 1, 1892	Gilman Home Company	Stream in Gilman Canyon No. 1	Unnamed Flume	0.08		25
14	Mar. 1, 1892	Gilman Home Company	Stream in Gilman Canyon No. 2	Unnamed Pipe Line	0.125		26
15	Jan. 1, 1893	United States of America (Indian Service)	Andreas Creek	Andreas Creek Pipe Line	6.00		55
16	Jan. 1, 1894	United States of America (Indian Service)	Potrero Creek	Potrero Creek Ditch	7.00		53
17	June 20, 1894	George W. Parker and F. E. Matthews	Head Spring	Head Spring Pipe Line	0.02		41
18	Oct. 20, 1894	George W. Parker and F. E. Matthews	Tunnel No. 1 Spring	Tunnel No. 1 Pipe Line	0.04		38
19	Oct. 2, 1897	Palm Valley Water Company	Chino Creek	Chino Creek Pipe Line	2.00		36
20	Jan. 3, 1898	George W. Parker and F. E. Matthews	Newland Spring	Newland Spring Pipe Line	0.08		39
20	Jan. 3, 1898	George W. Parker and F. E. Matthews	South Spring	South Spring Pipe Line	0.08		40
21	Oct. 24, 1899	Southern Pacific Co., et al	Snow Creek	S. P. Snow Creek Conduit	2.00		45
22	July 31, 1900	Marshall G. Jost	Unnamed Spring in Dunlap Canyon	Marshall Jost Pipe Line	0.04		29
23	Jan. 1, 1902	United States of America (Indian Service)	Mission Creek	Mission Creek Pipe Line	3.00		54
24	Oct. 31, 1906	Banning Heights Mutual Water Company, Banning Water Company and San Gorgonio Power Company	South Fork Whitewater River	Consolidated Reservoir and Power Company Canal	13.26		11

25	Sept. 18, 1907	Andrew J. Warner and Clara J. Warner	Whitewater River	Warner Ranch Ditch	1.62	.....	57
26	Jan. 1, 1909	George W. Parker and F. E. Matthews	Stream in Water Canyon	Parker and Matthews Water Canyon Pipe Line	0.04	.....	37
27	June 17, 1911	H. C. Ratcliff	Jensen's Spring	Jensen West Pipe Line	0.06	.....	42
28	Jan. 31, 1913	Donald M. Bedwell	Thousand Palms Canyon Creek	Bedwell and Richey Conduit	*1.00	.....	14
28	Jan. 31, 1913	George D. Richey	Thousand Palms Canyon Creek	Bedwell and Richey Conduit	*1.00	.....	44
29	July 31, 1913	Annie B. Fick	Unnamed Spring in SE¼ NE¼, Sec. 5, T. 2S., R. 1E., S.B.B. & M.	Fick East Pipe Line	0.07	.....	23
30	Sept. 19, 1913	Prescott T. Stevens	Whitewater River	Stevens Pipe Line	**10.00	.....	50
31	Oct. 18, 1913	Charles C. Leary	Unnamed Spring in SW¼ SW¼, Sec. 20, T. 3S., R. 2E., S.B.B. & M.	Leary Pipe Line	0.025	.....	30
31	Oct. 18, 1913	Charles C. Leary	Unnamed Spring in SW¼ SW¼, Sec. 20, T. 3S., R 2 E., S.B.B. & M.	Leary Pipe Line	0.05	.....	31
32	Oct. 23, 1913	H. C. Ratcliff	Jensen's Creek	Jensen East Pipe Line	*0.60	.....	43
33	June 14, 1915	Morongo Valley Mutual Water Company	Big Morongo Creek	Morongo Valley Mutual Water Company Pipe Line	0.14	.....	35
34	July 22, 1915	Cabazon Water Company	Millard Creek	Cabazon Water Company Conduit	2.50	.....	15
35	Oct. 23, 1916	Annie B. Fick	Two unnamed Springs in NW¼ SE¼, Sec. 32, T. 1S., R. 1E., S.B.B. & M.	Fick West Pipe Line	0.033	.....	24
36	Jan. 3, 1917	Southern Pacific Company, et al	Springs in Millard Canyon	S. P. Millard Canyon Conduit	0.27	.....	46
36	Jan. 3, 1917	Southern Pacific Land Company	Springs in Millard Canyon	S. P. Millard Canyon Conduit	0.16	.....	47
37	April 24, 1917	George R. Hicks	Upper Little Morongo Creek	Hicks Conduit	*2.50	.....	28
38	Oct. 25, 1918	Coachella Valley County Water District	Whitewater River	Spreading Dams, Ditches, etc.	.....	***80,000	16
39	Nov. 9, 1920	Southern Sierras Power Company	Snow Creek	Snow Creek Power Plant No. 1 Pipe Line	*40.00p	.....	48
39	Nov. 9, 1920	Southern Sierras Power Company	East Fork Snow Creek	Snow Creek Power Plant No. 1 Pipe Line	*10.00p	.....	48
39	Nov. 9, 1920	Southern Sierras Power Company	Falls Creek	Snow Creek Power Plant No. 1 Pipe Line	*10.00p	.....	48
40	Nov. 20, 1920	Southern Sierras Power Company	Snow Creek	Snow Creek Power Plant No. 2 Pipe Line	*40.00p	.....	49
40	Nov. 20, 1920	Southern Sierras Power Company	East Fork Snow Creek	Snow Creek Power Plant No. 2 Pipe Line	*20.00p	.....	49
41	June 19, 1922	Stuart D. Allen	Whitewater River	Allen Whitewater Conduit	*0.50	.....	7
42	July 8, 1922	Coachella Valley County Water District	Whitewater River	Spreading Dams, Ditches, etc.	.....	***20,000	17
42	July 8, 1922	Coachella Valley County Water District	Snow Creek	Spreading Dams, Ditches, etc.	.....	***8,000	17
42	July 8, 1922	Coachella Valley County Water District	Falls Creek	Spreading Dams, Ditches, etc.	.....	***2,000	17
42	July 8, 1922	Coachella Valley County Water District	Tahquitz Creek	Spreading Dams, Ditches, etc.	.....	***5,000	17
42	July 8, 1922	Coachella Valley County Water District	Andreas Creek	Spreading Dams, Ditches, etc.	.....	***1,000	17
42	July 8, 1922	Coachella Valley County Water District	Murray Creek	Spreading Dams, Ditches, etc.	.....	***1,000	17
42	July 8, 1922	Coachella Valley County Water District	Palm Canyon Creek	Spreading Dams, Ditches, etc.	.....	***2,000	17
43	Feb. 6, 1923	Mayme V. Matthay	Cottonwood Creek	Matthay Pipe Line	****0.25	.....	34

[a]Subject to right of Banning Heights Mutual Water Company, Banning Water Company and San Gorgonio Power Company to divert from South Fork of Whitewater River as set forth under priority Order 24.

[b]Right covers only spreading in San Gorgonio Canyon for purpose of equalizing the flow of San Gorgonio River to produce 14,000 acre-feet per annum as required o supply the right set forth under Priority Order 4.

*Right contingent upon completion of appropriation prior to December 1, 1929.

**Right contingent upon completion of appropriation prior to January 1, 1930.

***Right contingent upon completion of appropriation prior to July 1, 1932.

****Right contingent upon completion of appropriation prior to December 1, 1928.

pWater to be used for power purposes only, with subsequent return to stream system.

CHRONOLOGICALLY ARRANGED SUMMARY OF RIGHTS BY APPROPRIATION TO USE OF WATERS OF WHITEWATER RIVER STREAM SYSTEM—Continued

Order	Priority	Owner	Source	Conduit	Amount		Paragraph of order
					Cubic feet per second	Acre-feet per season	
44	Mar. 12, 1924	R. E. Bailiff	Stream in Water Canyon	Bailiff Water Canyon Pipe Line	*0.37	*45	8
45	Mar. 14, 1924	R. E. Bailiff	Unnamed Spring in NE¼, SE¼, Sec. 23, T. 3S., R. 1E., S.B.B. & M.	Bailiff West Spring Pipe Line	*0.11	*6	9
45	Mar. 14, 1924	R. E. Bailiff	Unnamed Spring in SE¼, SE¼, Sec. 13, T. 3S., R. 1E., S.B.B. & M.	Bailiff West Spring Pipe Line	*0.02		
46	April 24, 1924	R. E. Bailiff	Unnamed Spring in NE¼, SE¼, Sec. 19, T. 3S., R. 2E., S.B.B. & M.	Bailiff East Spring Pipe Line	0.05	.....	10
47	July 2, 1924	Stuart D. Allen	Blaisdell Creek	Allen Blaisdell Pipe Line	0.025	.....	6
				Total	a195.628	b153,051	

*Right contingent upon completion of appropriation prior to December 1, 1929.
aTotal includes 120.00 cubic feet per second for power use, all which is to be returned to the stream system,
bTotal includes 20,000 acre-feet per season for spreading by Banning Water Company for purpose of equalizing the flow available from San Gorgonio River, only.

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JUN 8 1948 H.S.

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF RIVERSIDE

--oOo--

Recorded in Book 46 of Judgments at Page 246 9th day of December 1938

IN THE MATTER OF THE DETERMINATION OF THE RELATIVE RIGHTS, BASED UPON PRIOR APPROPRIATION, OF THE VARIOUS CLAIMANTS TO THE WATERS OF WHITEWATER RIVER AND ITS TRIBUTARIES, IN S/N BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA.

No. 18035

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WILLIAM D. DEHY, JUDGE PRESIDING

--oOo--

DECEMBER 9, 1938

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF RIVERSIDE

--oOo--

IN THE MATTER OF THE DETERMINATION OF THE RELATIVE RIGHTS, BASED UPON PRIOR APPROPRIATION, OF THE VARIOUS CLAIMANTS TO THE WATERS OF WHITEWATER RIVER AND ITS TRIBUTARIES, IN SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA.	No. 18035

--oOo--

The above entitled proceeding came on regularly for hearing, trial and determination before the court sitting without jury, a trial by jury having been duly waived, on the 27th day of November, 1928, and was duly and regularly continued for further hearing, trial and determination to April 5, 1938;

Howard Surr, Surr & Hellyer, and Frank L. Miller appearing as counsel for Banning Water Company, a corporation, the San Gorgonia Power Company, a corporation, Banning Heights Mutual Water Company, a corporation, and Cabazon Water Company, a corporation; Frank L. Miller appearing as counsel for Morongo Valley Mutual Water Company, a corporation; C.L. McFarland appearing as counsel for George R. Hicks, Palm Valley Water Company, a corporation, Palm Springs Water Company, a corporation, and W. V. Covington; Arvin B. Shaw, Jr., and Stewart, Shaw & Murphey appearing as counsel for the Coachella Valley County Water District, having been duly and regularly substituted as such counsel for and in stead of H.L. Carnahan and Thos.C. Yeger; A. Heber Winder appearing as counsel for Pearl McCallum McManus and J.A. Gray; W. G. Irving appearing as counsel for the Whitewater Mutual Water Company, a corporation, successor in interest to Prescott T. Stevens; W.G.Irving and H.L.Thompson and Sarau&Thompson appearing as counsel for Nellie N.Coffman,Cornelia B.White,Florilla M.White,Lavina F.Crocker, Helen Coffman, Pearl McCallum McManus,Isabel White Chase, George Wellwood

Murray, Ruth J. Orr, T. L. Douglas, C. A. Abbott, Charles Powers, Zaddie R. Bunker, J. A. Gray, Owen Earl Coffman, George B. Roberson , and Trustees for Palm Springs Presbyterian Church, said H. L. Thompson and Sarau & Thompson having been duly and regularly associated as such counsel with said W. G. Irving; H. L. Thompson and Sarau & Thompson appearing as counsel for Walter O. Edwards, successor in interest to H. C. Ratcliff; Ralph E. Swing and Swing & Wilson, and Swing & Swing appearing as counsel for Frank L. Talmadge, John W. Talmadge and William S. Talmadge; Paul V. DeFord appearing as counsel for Southern Pacific Land Company, a corporation, Southern Pacific Railroad Company, a corporation, and Southern Pacific Company, a corporation, having been duly and regularly substituted as such counsel for and instead of Frank Thuneh; Robert F. Shippee appearing as counsel for Gertrude G. Hittson as successor in interest to George D. Richey; Carl W. Minton, and Minton & Minton appearing as counsel for Andrew J. Warner and Clara J. Warner; William O. Mackey appearing as counsel for R. E. Bailiff; Wing & Wing appearing as counsel for Stuart D. Allen and Stuart D. Allen as successor in interest to Julia B. Berry; Robert W. Daniels appearing specially as counsel for the United States of America; and Spencer Burroughs appearing as counsel for the Division of Water Resources, Department of Public Works, State of California; evidence both oral and documentary having been introduced, the evidence having been closed, the matter having been fully argued and submitted to the court for consideration and decision, the court having fully considered the facts and the law and being fully advised, and findings of fact and conclusions of law being duly waived, the court makes this its judgment and decree and it is therefore

ORDERED, ADJUDGED AND DECREED as follows:

I.

The Whitewater River rises on the south and east slopes of San Gorgonio Mountain, in the southwestern part of San Bernardino County at an altitude of about 11,000 feet, flows in a general southerly

direction for a distance of about sixty-five miles, traversing the central part of Riverside County, and empties into Salton Sea, the elevation of which is about 250 feet below sea level. Except in times of extreme flood, the entire flow of said river sinks into the desert between Whitewater Station and Palm Springs Station, on the Southern Pacific Railroad.

II

The principal tributaries rising in the San Bernardino Mountains are San Gorgonio River, Hathaway Creek, Potrero Creek, Millard Creek, Stubby Creek, Cottonwood Creek, Mission Creek, Dry Morongo Creek, Big Morongo Creek and Little Morongo Creek. Of these tributaries, the San Gorgonio River is by far the most important and drains San Gorgonio Canyon, situated north of Banning, and also San Gorgonio Pass from Banning east to Whitewater Station. Mission Creek and the Morongo Creeks, although having large watersheds, drain areas of comparatively low precipitation and consequently contribute but little water except in times of flood.

III

The principal tributaries rising in the San Jacinto Mountains are Cabazon Creek, Snow Creek, Falls Creek, Chino Creek, Tahquitz Creek, Andreas Creek, Murray Creek, and Palm Canyon Creek. Of these, Snow Creek, which drains the north slope of San Jacinto Peak, is the most important, and Tahquitz Creek, which drains the east slope of San Jacinto Peak, is next in importance. Both Snow Creek and Tahquitz Creek are extremely precipitous, falling from near the summit of San Jacinto Peak to the floor of the desert at rates in excess of 1,000 feet per mile. Palm Canyon Creek is about twenty miles long and drains the largest area, but its watershed is relatively low and consequently produces less water than the streams to the north.

IV

The only important tributaries entering from the Santa Rosa Mountains are Deep Canyon Creek and Martinez Canyon Creek. The Cottonwood

Mountains, forming the eastern boundary of Coachella Valley, produce no living streams with the exception of that in Thousand Palms Canyon, opposite Edom.

V

The various tributaries of the Whitewater River have built up debris cones where they debouch from their respective canyons, and, except in times of flood, their entire flows sink in these cones, travelling through underground channels to the lower part of Coachella Valley. The total area drained by the Whitewater River stream system is about 1200 square miles.

VI

On account of the extremes in altitude, there is a wide variation in climate in the different parts of the watershed. The climate of the high mountain region is characterized by a wet season extending from the first part of November to the latter part of April, followed by a long period during which there is practically no precipitation. In this region, the winters are severe and the summers are mild. Above the 7,000 foot level, a considerable portion of the precipitation falls as snow, which remains on the ground until early summer.

VII

The climate also varies widely over the valley floor. In the vicinity of Banning, the winters are mild, and while the summer days are often hot the nights are usually cool. The rainfall in this region is ample to permit the growing of grain crops without irrigation. Proceeding from Banning eastward through San Gorgonio Pass, the transition in climate is very rapid until, at Whitewater Station, a distinctly desert climate is reached. The climate of Coachella Desert and Coachella Valley is characterized by short mild winters followed by long hot seasons during which the heat is extreme. Temperatures of 125 degrees Fahrenheit are not uncommon in July and August. The precipitation in this region is low and erratic. During the late winter and early spring, very high winds are frequent,

originating in San Gorgonio Pass and sweeping southeastward across the desert.

VIII

In the San Gorgonio Pass area, deciduous fruits are the principal crop, although in the vicinity of Whitewater Station some alfalfa is grown. There is a small cultivated area in the vicinity of Palm Springs, in which the principal crops raised are alfalfa and citrus fruits. In the Coachella Valley a variety of crops are raised, the principal ones being cotton, grapes, dates, onions, alfalfa and citrus fruits. There are comparatively small areas in corn, vegetables and grain.

IX

The successful production of crops on all cultivated lands in the Whitewater River watershed is dependent upon irrigation and since the water supply of the stream system is inadequate for all agricultural needs throughout each irrigation season, it is essential that the rights in and to said water supply be determined in order that there may be an orderly distribution of the same to the rightful owners.

X

The term "act" when used herein means the "water commission act", being Chapter 586, Statutes of 1913 of the State of California, as amended; the term "stream system" when used herein means the Whitewater River and its various tributaries; the term "commission" when used herein means the commission created by said act, and its successors in power and jurisdiction under the laws of the State of California; the term "claimant" when used herein means parties claiming rights based on prior appropriation in and to the Whitewater River or any of its tributaries; and the term "order of determination" when used herein means the order duly given and made by said commission on April 23, 1928, and filed in this Court under and pursuant to sections 25 to 36g, inclusive, of said act.

XI

The above entitled proceeding was initiated by Coachella Valley

County Water District, a public district organized and existing under and by virtue of the County Water District Act, being an act approved June 10, 1913, Stats. 1913, P. 1049, as amended, and the Coachella District Merger Act, being an act approved June 21, 1937, Stats. 1937, P. 1410, which said district on June 29, 1922, duly filed a petition with the Division of Water Rights of the Department of Public Works, successor to the said commission, and predecessor of the Division of Water Resources of the Department of Public Works of the State of California, herein referred to as "commission", for determination in accordence with the provisions of said water commission act, of the relative rights by prior appropriation of the various claimants in and to the waters of the Whitewater River Stream system.

XII

On December 9, 1922, by order duly given and made, said commission granted said petition, and thereafter duly gave notice by publication as provided by law, setting forth the entry of the aforesaid order and of the pendency of said proceedings;the date upon which said commission would begin its examination of said stream system, to-wit, March 1, 1923; and prescribing and requiring all claimants to rights by appropriation of the waters of said stream system to make proof of their claims in the manner provided by law.

XIII

At the time set in said notice said commission began its investigation of the flow of the stream system and of the conduits diverting water, and of the lands irrigated or irrigable therefrom, and proceeded to gather all other data and information essential to the proper determination of the water rights by appropriation from said stream system; and thereafter said commission reduced its observations, data, information and measurements to writing and executed surveys and prepared maps from the observations of such surveys in accordance with uniform rules and regulations duly and regularly adopted by said commission, and upon said maps and surveys showed with substantial accuracy the course of the streams in said stream system; the location of each conduit diverting water there-

from; land irrigated and capable of being irrigated by each conduit; and the kind of culture upon said irrigated lands. Said maps and surveys were prepared by said commission as the surveys and observations progressed, and when completed were duly and regularly filed and made of record in the office of said commission.

XIV

Upon the completion of the aforesaid measurements and maps and after the filing of said observations, data, information and measurements, as aforesaid, said commission, by order duly given and made, gave notice by publication thereof as provided by law, setting forth the date prior to which proofs to be furnished by claimants in and to the waters of said stream system were required to be filed with said commission, and said commission gave like notice and enclosed therewith forms of proofs as required by said act, by registered mail, with postage fully prepaid thereon, to each claimant to rights by appropriation of the waters of said stream system, insofar as such claimant could be reasonably ascertained, at his last known place of address. Thereafter the time allowed within which proofs of appropriation might be filed was extended by orders duly given and made by said commission, to and including October 31, 1924, and within said period claimants herein duly filed with said commission proofs of appropriation of their respective rights to the waters of said stream system.

XV

After the filing of proofs of appropriation by claimants as aforesaid, and after the expiration of the time fixed by said commission for the filing of said proofs, said commission duly assembled all proofs, which had been filed and prepared, and duly certified an abstract of all said proofs, and duly caused the same to be printed in accordance with the provisions of said act, and thereafter by order duly given and made, prepared a notice fixing and setting a time and place convenient to the claimants when and where evidence taken by or filed with the commission

would be open to inspection for a period of not less than ten days; and a copy of said notice together with a printed copy of said abstract of proofs, was thereafter, and more than fifteen days prior to the first day prescribed in said order as the commencement of the period of such inspection, duly mailed by registered mail, with the postage fully prepaid thereon, to each claimant who had appeared and filed proofs of appropriation as required by said act; and thereafter and in accordance with said notice and with said act, all of the evidence taken by or filed with said commission was open for inspection at the times and in the places and for the period designated in said notice, and any and all persons during said period were permitted to inspect such evidence and proofs in conformity with the provisions of said act, and during all of said period of inspection, a representative of said commission was present.

XVI

In conformity with the provisions of section 34 of said act, contests were filed by certain of said claimants, with said commission, and thereafter by orders duly given and made, and within ten days after receipt by said commission of each contest of claimants, said commission duly notified by registered mail, with postage prepaid thereon, such contestant and claimant, respectively, whose rights were contested, to appear before said commission at the time and place specified in said notice, which said time in each instance was not less than fifteen days nor more than sixty days from the date of mailing of said notice by said commission; and thereafter and in conformity therewith, said commission held hearings on all contests filed by claimants, and upon the conclusion of said hearings closed the same and ordered the proceedings submitted for decision by said commission.

XVII

Thereafter and on April 23, 1928, said commission duly made and entered its order, finding, determining and establishing the several rights by appropriation to the use of the waters of said Whitewater River and its

tributaries which said order was entered of record in the office of said commission in Book No. 1, Orders of Determination, at page 426, which said order was duly certified by said commission. Thereafter said commission caused said order of determination so certified to be printed in the State Printing Office and a copy thereof to be sent by registered mail, with the postage fully prepaid, to each person who had filed proof of claim, and to each person who had become interested through intervention in said proceeding under the provisions of said act, in all respects as provided by said act and in conformity therewith.

XVIII

At the time of submission of said proofs of appropriation said commission collected the fees due thereon, as prescribed in section 32 of said act, and at the time of mailing its order of determination, as aforesaid, computed the entire cost incurred in performing the duties prescribed in sections 26 to 36 of said act, and duly apportioned the amount by which said entire cost exceeded the total amount received on account of fees paid at the time of filing said proofs of appropriation among all claimants according to the method of apportionment provided in section 32 of said act, and in all respects in conformity therewith, and duly mailed notice of the assessment of said additional charges by registered mail to each claimant, said notice including a statement of the total sum assessed and of the sum assessed to each claimant addressed, all of which said additional charges have been paid.

XIX

After the entry of said order of determination as aforesaid, and on April 30, 1928, a certified copy thereof, together with the original evidence and transcript of testimony filed with or taken before said commission, all duly certified by said commission, was filed with the clerk of the Superior Court of the State of California, in and for the County of Riverside. Upon the filing of said certified copy of said order, evidence and transcript with the clerk of said Court, and on April 30, 1928, said

commission procured an order from said Court setting November 27, 1928, at 2:00 o'clock in the afternoon of said day, in the courtroom of said Court in the City of Riverside, County of Riverside, State of California, as the time and place for hearing on said order of determination, and requiring and prescribing that on or before ten days prior thereto all parties in interest aggrieved or dissatisfied with said order of determination, should file with the clerk of said court notice of exceptions to said order of determination. Said commission thereupon procured from the clerk of said court a certified copy of said order of said court setting said time and place for hearing as aforesaid, and forthwith said commission mailed a copy of such certified copy of said order of said Court by registered mail, with postage fully prepaid thereon, addressed to each known party in interest at his last known place of residence, in all respects as required by said act, and duly caused said certified copy of said order to be published as required by said act, and duly filed with the clerk of said Court proof of such service by registered mail and publication.

XX

Prior to the effective date of said water commission act, certain of said claimants had made and maintained according to law certain appropriations from said stream system which, at and upon said effective date of said act were incomplete in that at said date said claimants or their predecessors or successors in interest, had not applied the full amount of water so appropriated to a useful or beneficial purpose; that upon the initiation of this proceeding before said commission, pursuant to sections 12 and 36f of said act then in effect, jurisdiction over said incomplete rights was vested in said commission as provided by said sections of said act; that said commission duly included in said order of determination said rights by appropriation which were incomplete as aforesaid, and duly fixed and prescribed therein for each of such rights the time within which said full amount of water so appropriated should be applied to such useful or beneficial purpose; and with respect to certain thereof, for good cause

shown, from time to time, upon due application therefor, duly extended said time, and duly made and entered supplemental findings in accordance with proof offered and presented to said commission, of completion of certain of said incomplete rights, and duly made other findings and orders with respect thereto, and filed with this court certified copies thereof.

XXI

On the 14th day of August, 1931, jurisdiction of said commission as aforesaid over said incomplete rights ceased and terminated, except as provided by said section 12 of said act, and in and by Chapter 1136 of the Statutes of 1931, amending said section 36f of said act, and upon said 14th day of August, 1931, jurisdiction over said incomplete rights vested in this Court as provided in and by said section 36f of said act as amended by said Chapter 1136 of the Statutes of 1931; that thereafter this court, for good cause shown, and upon motion therefor by certain of said claimants, from time to time, duly extended said time for completion of said incomplete rights as aforesaid, and, upon notice thereof and motion therefor, with respect to certain of said incomplete rights, received proof of completion thereof and duly entered findings (designated "Supplemental Decree") establishing said rights to appropriate the waters of said stream system.

XXII

This court hereby ratifies, approves and confirms each, every and all of said acts, orders and findings of said commission and of this Court with respect to said incompleted rights and herein enters judgment pursuant thereto, and in accordance therewith; said rights, incomplete as aforesaid, as contained in said order of determination filed as aforesaid with this court on said 30th day of April, 1928, together with each and every of said acts, orders and findings of said commission and of this Court appertaining thereto are as follows:

1. In and by paragraph 7 of said order of determination, said commission found that Stuart D. Allen would be entitled to divert, as therein

provided, the waters of Whitewater River, provided said appropriation thereof should be completed and said water applied to beneficial use prior to December 1, 1929, in accordance with the terms of Division of Water Rights Permit 1723 (Application 2888); on January 9, 1930, said commission entered an order extending said time for completion and application to beneficial use to December 1, 1931; on May 10, 1932, at the request of said claimant, said commission entered an order revoking said Permit 1723, and prepared and duly certified a copy of said order, and on June 2, 1932, duly forwarded the same by mail to the clerk of this court, which said certified copy was duly received by said clerk and filed in the above entitled proceeding; and pursuant to said last mentioned order of said commission, said incomplete right so found as aforesaid in paragraph 7 of said order of determination is hereby ordered, adjudged and decreed to have been abandoned and revoked, and is cancelled and held for naught.

2. In and by paragraph 8 of said order of determination, said commission found that R. E. Bailiff would be entitled to divert, as therein provided, certain of the waters of Water Canyon, provided that said appropriation should be completed and said water applied to beneficial use prior to December 1, 1929 in accordance with the terms of the Division of Water Rights Permit 1855 (Application 3902); on December 2, 1929, said commission entered an order extending said time for completion and application to beneficial use to December 1, 1930; on November 28, 1930, said commission entered an order further extending said time for completion and application to beneficial use to December 1, 1933; and on November 20, 1933, this court duly entered its findings (designated "Supplemental Decree") establishing said right of said claimant to appropriate the waters of said Water Canyon, and judgment and decree is entered herein pursuant thereto and in accordance therewith.

3. In and by paragraph 9 of said order of determination said commission found that R. E. Bailiff would be entitled to divert, as therein provided, certain of the waters of two unnamed springs, provided that said

appropriation should be completed and said water applied to beneficial use prior to December 1, 1929 in accordance with the terms of Division of Water Rights Permit 1856 (Application 3904); on May 11, 1931, said commission duly entered and made supplemental findings in accordance with proof of completion of said incomplete right by appropriation as presented to and found by it, a certified copy of which findings was on May 11, 1931, forwarded by mail to the clerk of this court and was received by said clerk and duly filed in this proceeding, and judgment and decree is entered herein pursuant thereto and in accordance therewith.

4. In and by paragraph 14 of said order of determination said commission found that Donald M. Bedwell would be entitled to a right to divert, as therein provided, certain of the waters of Thousand Palms Canyon Creek, provided the said appropriation should be completed and said water applied to beneficial use prior to December 1, 1929; on February 26, 1930, said commission entered an order extending said time for completion and application to beneficial use to December 1, 1930; and on May 11, 1931, said commission entered and made supplemental findings in accordance with proof of completion of said incomplete right as presented to and found by it, a certified copy of which findings was on May 11, 1931, forwarded by mail to the clerk of this court, and was received by said clerk and duly filed in the above entitled proceeding, and judgment and decree is entered herein pursuant thereto and in accordance therewith.

5. In and by paragraph 16 of said order of determination said commission found that the Coachella Valley County Water District would be entitled, as therein provided, to spread and store underground certain of the waters of the Whitewater River, provided that said appropriation should be completed and said water applied to beneficial use prior to July 1, 1932, in accordance with the terms of Division of Water Rights Permit 536 (Application 1122); on June 28, 1932, this court duly entered an order extending said time for completion and application to beneficial use to June 30, 1935; on July 18, 1935 this court duly entered an order

further extending said time for completion and application to beneficial use to June 30, 1938; and on April 28, 1938 this court duly entered an order further extending said time for completion and application to beneficial use to July 1, 1943.

6. In and by paragraph 17 of said order of determination said commission found that Coachella Valley County Water District would be entitled, as therein provided, to spread and store underground certain of the waters of Whitewater River, Snow Creek, Falls Creek, Tahquitz Creek, Andreas Creek, Murray Creek and Palm Canyon Creek, provided that said appropriation should be completed and said water applied to beneficial use prior to July 1, 1932 in accordance with the terms of Division of Water Rights Permit 3011 (Application 2922); on June 28, 1932 this court duly entered an order extending said time for completion and application to beneficial use to June 30, 1935; and on July 18, 1935 this court duly entered an order further extending said time for completion and application to beneficial use to June 30, 1938; and on April 28, 1938 this court duly entered an order further extending said time for completion and application to beneficial use to July 1, 1943.

7. In and by paragraph 28 of said order of determination said commission found that George R. Hicks would be entitled to divert as therein provided the waters of Upper Little Morongo Creek, provided said appropriation should be completed and said water applied to beneficial use prior to December 1, 1929 in accordance with the terms of Division of Water Rights Permit 768 (Application 650); on December 20, 1929, said commission entered an order extending said time for completion and application to beneficial use to December 1, 1931; on December 9, 1931 this court duly entered an order further extending said time for completion and application to beneficial use to December 1, 1932; and on December 21, 1932 this court duly entered an order further extending said time for completion and application to beneficial use to December 1, 1933; on December 1, 1933 this court duly entered an order further extending said

time for completion and application to beneficial use to December 1, 1934; on May 17, 1935 this court duly entered an order further extending said time for completion and application to beneficial use to December 1, 1935; on November 27, 1935 this court duly entered an order further extending said time for completion and application to beneficial use to December 1, 1936; on January 18, 1937 this court duly entered an order further extending said time for completion and application to beneficial use to June 1, 1937; and on July 12, 1937 this court entered its findings (designated "Supplemental Decree") establishing the right of said claimant to appropriate said waters; and judgment and decree is entered herein pursuant thereto and in accordance therewith.

8. In and by paragraph 34 of said order of determination said commission found that Mayme V. Matthey would be entitled to divert certain of the waters of Cottonwood Creek, provided that said appropriation should be completed and said water applied to beneficial use prior to December 1, 1928 in accordance with the terms of Permit 1858 (Application 3253); on November 30, 1928 said commission entered an order extending said time for completion and application to beneficial use to December 1, 1930; on November 12, 1930 at the request of said claimant, said commission entered an order revoking said Permit 1858, and prepared and duly certified a copy of said order, and on May 11, 1931, duly forwarded the same by mail to the clerk of this court, which said certified copy was received by said clerk and duly filed in the above entitled proceeding; and pursuant to said last mentioned order of said commission said incomplete right so found as aforesaid in said paragraph 34 of said order of determination is hereby ordered, adjudged and decreed to have been abandoned and revoked, and is cancelled and held for naught.

the Division of Water Rights

9. In and by paragraph 43 of said order of determination said commission found that H. C. Ratcliff would be entitled to divert certain of the waters of Jensen's Creek provided said appropriation was completed and said water applied to beneficial use prior to December 1, 1929; on December

herein in lieu, place and stead of the said Ruth J. Orr, it was so ordered by the court; and

5. It appearing to the court that Walter O. Edwards has succeeded to all right, title and interest of H. C. Retcliff as found in paragraphs 42 and 43 of said order of determination, and that said Walter O. Edwards should be substituted herein in lieu, place and stead of the said H. C. Retcliff, it was so ordered by the court; and

6. It appearing to the court that there was doubt concerning the accuracy of description of certain properties found as in the ownership of Pearl McCallum McManus in and by paragraph 18 of said order of determination, and particularly with respect to the description of said properties contained in the first items thereof whether such description should refer to lots 1, 2, 3 and 4, as stated in said paragraph of said order of determination, or whether such description, in lieu thereof, should refer to lots 5, 6, 7 and 8, it was duly and regularly stipulated and agreed orally in open court at the hearing herein held on April 5, 1938, by and among all parties in interest appearing at said hearing, including said Pearl McCallum McManus, which said stipulation was duly entered in the minutes of the court, that the said commission should make due examination with respect to such description, and if it found said description to be inaccurate, it should report the matter to this court and said paragraph 18 should be reformed accordingly, and it was so ordered by the court, and said commission having made such examination, and having found that said description as stated in said order of determination is accurately set forth therein, said finding is approved by the court and ordered in effect.

XXV

Subject to the hereinafter mentioned definitions, limitations and provisions the relative rights based upon prior appropriation of the various claimants to the waters of the Whitewater River and its tributaries in San Bernardino and Riverside counties, California, are

established, determined, adjudged and decreed as hereinafter in this judgment and decree set forth, said definitions, limitations and provisions being as follows, to-wit:

1. Although all quantities of water hereinafter adjudged and decreed to the several claimants for direct application to beneficial use are severally expressed in terms of continuous flow, nevertheless, nothing herein contained shall be construed as limiting or restricting the rights of any such claimants to rotate in the use of water, or the right of any such claimant to divert for limited periods of time convenient irrigation heads, and thereby apply water to his lands at a greater rate than indicated by the quantity of continuous flow so adjudged and decreed; provided, however, that such practice of rotation or use of irrigation heads shall not result in the use by any such claiment of a total quantity of water during any thirty-day period in excess of the equivalent of such claimant's continuous flow allowance for thirty days; and provided, further, that such practice of rotation or such use of irrigation heads shall not impair or infringe the right of any other such claimant.

2. The respective points of measurement of the quantities of water established, determined, adjudged and decreed to the several claiments hereinafter mentioned, are at the respective points of diversion from said stream system, as hereinafter set forth.

3. The term "directly apply to beneficial use" means the direct conveyance and application of water diverted to beneficial use without intermediate storage, except such regulatory storage as may be practiced for the purpose of equalizing the flow of water diverted to a convenient irrigation head.

4. The term "natural flow" means such flow as will naturally occur at any given point in a stream from the run-off of the watershed which it drains, from springs which naturally contribute to the stream, from seepage, and from waste and return flow from dems, conduits, and irrigated lands; as distinguished from released stored water, and from foreign water

directly conveyed to the stream from another watershed.

5. The "Division of Water Rights Map" hereinafter referred to is the map prepared by the Division of Water Rights of the Department of Public Works of the State of California, from its surveys made in 1922 and 1923, which map is entitled "Map of Whitewater River Watershed showing Diversion Systems and Irrigated Areas, San Bernardino and Riverside Counties, California", is dated 1923, and is on file in this proceeding.

XXVI

Said relative rights based upon prior appropriation of the various claimants to the waters of the Whitewater River and its Tributaries, in San Bernardino and Riverside Counties, California, are, subject to the aforesaid definitions, limitations and provisions, hereby established, determined, adjudged and decreed as follows, to-wit:

1. STUART D. ALLEN

is entitled to divert from the natural flow of Blaisdell Creek through the Allen Blaisdell Pipe Line,

0.025 cubic foot per second--priority July 2, 1924,

or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Blaisdell Creek at a point situated approximately 2000 feet south from the northwest corner of Sec. 36, T. 3 S., R. 3 E., S.B.B. and M., being within the $SW\frac{1}{4}$ $NW\frac{1}{4}$ of said Sec. 36, and said water to be used for domestic purposes within the

$S\frac{1}{2}$ $NW\frac{1}{4}$, Sec. 30, T. 3 S., R. 4 E., S.B.B. and M.

2. R. E. BAILIFF

is entitled to divert from the natural flow of the stream flowing in Water Canyon, through the Bailiff Water Canyon Pipe Line,

(a) during the period between March first and November first of each year,

0.37 cubic foot per second--priority March 12, 1924,

or as much thereof as he directly applies to beneficial use for

domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

45 acre-feet per season--priority March 12, 1924,

or as much thereof as he impounds in the Bailiff Storage Reservoir constructed in the SW¼ SW¼ of Section 18, T. 3 S., R. 2 E., S.B.B. and M., and thereafter withdrawsfrom said reservoir and applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

all of said water to be diverted from said stream at a point which bears approximately N. 77° 00' W., approximately 310 feet distant from the southwest corner of Section 18, T. 3 S., R. 2 E., S.B.B. and M., being within the SE¼ SE¼ of Section 13, T. 3 S., R. 1 E., S.B.B. and M., and all of said water to be used upon the following described lands:

25.0 acres in NW¼ SE¼, Sec. 18, T. 3 S., R. 2 E., S.B.B. and M.
5.0 acres in NE¼ SW¼, Sec. 18, T. 3 S., R. 2 E., S.B.B. and M.

3. R. E. BAILIFF

is entitled to divert from the natural or developed flow of two unnamed springs; the upper (Spring No. 1) being situated South 3805 feet and West 935 feet from the northeast corner of Section 23, T. 3 S., R. 1 E., S.B.B. and M., being within the NE¼ SE¼ of said Section 23, and the lower (Spring No. 2) being situated South 70 feet and West 300 feet from the southwest corner of Section 18, T. 3 S., R. 2 E., S.B.B. and M., being within the SE¼ SE¼ of Section 13, T. 3 S., R. 1 E., S.B.B. and M.; through the Bailiff West Spring Pipe Line,

(a) during the period between March first and November first of each year,

0.11 cubic foot per second--priority March 14, 1924,

from Spring No. 1, and

0.02 cubic foot per second--priority March 14, 1924,

from Spring No. 2,

or as much of said amounts as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year, a total of

0.025 cubic foot per second--priority March 14, 1924,

from either, or in part from each of said springs, or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes;

(c) during the period between November first of each year and March first of the succeeding year, a total of

1.5 acre-feet per season--priority March 14, 1924,

from either, or in part from each of said springs, or as much thereof as he impounds in the Bailiff Reservoir located in the NE¼ SW¼ of Section 18, T. 3 S., R. 2 E., S.B.B. and M., and thereafter withdraws from said reservoir and applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

all of said water to be diverted at the above described springs, and used for domestic and stock watering purposes and for the irrigation of

10.0 acres of land in the NE¼ SW¼, Section 18, T. 3 S., R. 2 E., S.B.B. and M.

4. R. E. BAILIFF

is entitled to divert from the natural or developed flow of an unnamed spring situated approximately N. 70° 00' W., approximately 2330 feet distant from the southeast corner of Sec. 19, T. 3 S., R. 2 E., S.B.B. and M., being within the NE¼ SE¼ of said Sec. 19, through the Bailiff East Spring Pipe Line,

(a) during the period between March first and November first of each year,

0.05 cubic foot per second--priority April 24, 1924, or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second--priority April 24, 1924, or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at said spring and to be used upon the following described land:

7.0 acres in NE¼ NE¼, Sec. 19, T. 3 S., R. 2 E., S.B.B. and M.

5. THE BANNING HEIGHTS MUTUAL WATER COMPANY, THE BANNING WATER COMPANY AND THE SAN GORGONIO POWER COMPANY,

Calif. Electric Power Company.

jointly, are entitled to divert from the natural flow of the South Fork of Whitewater River, through the Consolidated Reservoir and Power Company Canal, a total of

13.26 cubic feet per second--priority October 31, 1906,

or as much thereof as they apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said total quantity of water to be diverted from said South Fork of Whitewater River, all or in part, at any of the following described points.

See Appl. 2977 Fed. Power Com. Order Oct. 25, 1949.

(1) At a point on the East Branch of said South Fork of Whitewater River (designated on Division of Water Rights Map as Diversion 1) which bears approximately N. 26° 45' E., approximately 11,709 feet distant from the northeast corner of Sec. 1, T. 2 S., R. 1 E., S.B.B. and M., being within the SE¼ SE¼ of Sec. 19, T. 1 S., R. 2 E., S.B.B. and M.

(2) At a point on the West Branch of said South Fork of Whitewater River (designated on Division of Water Rights Map as Diversion 2) which bears approximately N. 11° 48' E., approximately

10,351 feet distant from the northeast corner of Sec. 1, T. 2 S., R. 1 E., S.B.B. and M., being within the NE¼ NW¼ of Sec. 30, T. 1 S., R. 2 E., S.B.B. and M.

(3) At a point on the Blackwheel Canyon Branch of the West Branch of said South Fork of Whitewater River (designated on Division of Water Rights Map as Diversion 3) which bears N. 12° 19½' E., approximately 9882 feet distant from the northeast corner of Sec. 1, T. 2 S., R. 1 E., S.B.B. and M., being within the NE¼ NW¼ of Sec. 30, T. 1 S., R. 2 E., S.B.B. and M.;

and said water to be used first by said San Gorgonio Power Company for the purpose of generating electric energy at two power plants, the upper of said plants being situated in the SW¼ NW¼ of Sec. 2, T. 2 S., R. 1 E., S.B.B. and M., and the lower of said plants being situated in the NE¼ NE¼ of Sec. 8, T. 2 S., R. 1 E., S.B.B. and M.; and said water to be used thereafter by said Banning Heights Mutual Water Company and by said Banning Water Company for the purpose of supplying water for domestic, stock watering and irrigation uses within the respective territories served by said companies as hereinafter described. During the winter months, at times when the entire quantity of water available under this right may not be required for direct application to use for domestic, stock watering and irrigation purposes as hereinabove provided for, the Banning Water Company is entitled to spread and store underground in San Gorgonio Canyon, above the mouth of said canyon in the SE¼ SE¼ of Sec. 33, T. 2 S., R. 1 E., S.B.B. and M., all surplus water available over and above the quantity required for direct application to use for domestic, stock watering and irrigation purposes;

provided, that all water so spread and stored is subsequently withdrawn from said underground storage and applied to beneficial use by said Banning Water Company as hereinafter provided in paragraph 7. The joint diversion and use of water under this right by said Banning Heights Mutual Water Company, said Banning Water Company, and said San Gorgonio

Power Company, is subject to the provisions of the following agreements and deeds:

(a) Agreement dated January 10, 1913, between the Consolidated Reservoir and Power Company and the Banning Water Company, recorded October 14, 1913, in Book No. 380 of Deeds, page 337 et seq., records of Riverside County, California.

(b) Instrument dated December 30, 1913, between the Consolidated Reservoir and Power Company and the Banning Heights Mutual Water Company, recorded December 14, 1922, in Book No. 561 of Deeds, page 543 et seq., records of Riverside County, California.

(c) Deed dated August 7, 1922, between the Consolidated Reservoir and Power Company and the San Gorgonio Power Company, recorded February 1, 1923, in Book No. 564 of Deeds, page 383 et seq., records of Riverside County, California.

The territory served by said Banning Heights Mutual Water Company includes approximately 1500 acres of land, situated within the following described parcels:

All of lots 1, 2, 3, 4, 5, 6, 7, 7A, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 55A, 55B, 56, 57, 57A, 58, 58A, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89 and 90 of the Banning Heights Subdivision, situate in Riverside County, California, as said lots are delineated on the "Map of Banning Heights" recorded in the office of the county recorder of Riverside County, California, in Book 9 of Maps, at pages 37 to 51 thereof.

60.0 acres in block 1 of the Ginzell-Montgomery Tract, situate in Riverside County, California, as said block is delineated on the map of said Ginzell-Montgomery Tract recorded in the office of the county recorder of Riverside County, California, in Book 8 of Maps,

at page 64 thereof.

48.0 acres in $S\frac{1}{2}$ $S\frac{1}{2}$, Sec. 5, T. 3 S., R. 1 E., S.B.B. and M.
10.0 acres in $S\frac{1}{2}$ $NW\frac{1}{4}$, Sec. 5, T. 3 S., R. 1 E., S.B.B. and M.
65.0 acres in $S\frac{1}{2}$ $S\frac{1}{2}$, Sec. 6, T. 3 S., R. 1 E., S.B.B. and M.

The territory served by said Banning Water Company includes approximately 3745 acres of land, situated within the following described parcels:

All of blocks 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, $25\frac{1}{2}$, 27, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 125, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184; 2.1 acres in block 2; 0.7 acre in block $26\frac{1}{2}$; 0.8 acre in block $28\frac{1}{2}$; 0.7 acre in block $31\frac{1}{2}$; 2.0 acres in block 32; 1.0 acre in block $32\frac{1}{2}$; 3.3 acres in block 90; 8.0 acres in block 91; 6.5 acres in block 92; 7.1 acres in block 93; 8.7 acres in block 94; 8.5 acres in block 95; 8.4 acres in block 96; 4.8 acres in block 101; 4.3 acres in block 102; 3.0 acres in block 103; 2.9 acres in block 104; $E\frac{1}{2}$ of block 124; and $W\frac{1}{2}$ of block 126; all within the Banning Colony Subdivision, situate in Riverside County, California, as said blocks are delineated on the map entitled "Map of Part of Banning Colony Lands" recorded in the office of the county recorder of Riverside County, California, in Book 5 of Maps, at page 186 thereof.

All of blocks 1 to 20, both inclusive, of the San Jose Tract, situate in Riverside County, California, as said blocks are delineated on the map of said San Jose Tract recorded in the office of the county recorder of San Diego County, California, in Book 1 of Maps, at page 55 thereof.

recorder of San Diego County, California, in Book 14 of Maps, at

60.0 acres in Sec. 33, T. 2 S., R. 1 E., S.B.B. and M.
18.5 acres in E½ NE¼, Sec. 4, T. 3 S., R. 1 E., S.B.B. and M.
72.6 acres in S½ SW¼, Sec. 4, T. 3 S., R. 1 E., S.B.B. and M.
235.3 acres in N½, Sec. 8, T. 3 S., R. 1 E., S.B.B. and M.
3.8 acres in NE¼ SW¼, Sec. 8, T. 3 S., R. 1 E., S.B.B. and M.
40.0 acres in SW¼ SW¼, Sec.11, T. 3 S., R. 1 E., S.B.B. and M.
258.0 acres in W½, Sec.16, T. 3 S., R. 1 E., S.B.B. and M.
89.4 acres in NE¼, Sec.16, T. 3 S., R. 1 E., S.B.B. and M.
25.5 acres in NE¼ SE¼, Sec.16, T. 3 S., R. 1 E., S.B.B. and M.
10.5 acres in NE¼ NE¼, Sec.18, T. 3 S., R. 1 E., S.B.B. and M.

6. THE BANNING WATER COMPANY

is entitled to divert from the natural flow of San Gorgonio River and its tributaries, through its system of spreading ditches shown as diversion ditches numbered 1 to 7, both inclusive, on the "Map Showing System of the Banning Water Company in San Gorgonio Canyon," prepared by J. F. Davidson, Civil Engineer, and dated January, 1923.

20,000 acre-feet per annum--priority January 1, 1887,

or as much thereof as it spreads and stores underground in San Gorgonio Canyon; said quantity of water to be so diverted, spread and stored during the period from January first to December thirty-first of each year, both dates inclusive; provided, that said water is subsequently withdrawn from said underground storage and applied to beneficial use by said Banning Water Company as hereinafter provided in paragraph 7.

7. THE BANNING WATER COMPANY

is entitled to divert from the natural flow of San Gorgonio River, or from its underground storage in San Gorgonio Canyon as hereinabove provided for in paragraphs 5 and 6, or in part from both of said sources, through the Main Stone Lined Conduit of said Banning Water Company's System, and through the various ditches and pipe lines leading thereto hereinafter mentioned, a total of

14,000 acre-feet per annum--priority March 17, 1925,

or as much thereof as it directly applies to beneficial use for the purpose of supplying water for domestic, stock watering and irrigation uses within the territory served by said company as hereinabove described in paragraph 5, for the purpose of supplying water for domestic and

municipal uses within the city of Banning, Riverside County, California, and for the purpose of driving water wheels connected with pumps at pumping plants of said company located in said San Gorgonio Canyon between the west line of Section 3, T. 2 S., R. 1 E., S.B.B. and M. and the east line of Section 33, T. 2 S., R. 1 E., S.B.B. and M.; said total quantity of water to be diverted from said sources, all or in part, at any of the following described points:

(a) At the upper intake of said Stone Lined Conduit situated at a point which bears approximately N. 35° 10' E., approximately 720 feet distant from the southwest corner of Sec. 4, T. 2 S., R. 1 E., S.B.B. and M., being within the SW¼ SW¼ of said Sec. 4,

(b) At the intake of a ditch leading to said Stone Lined Conduit and known as Diversion Ditch No. 11, situated at a point which bears approximately N. 51° 24' E., approximately 1424 feet distant from the southwest corner of Sec. 17, T. 2 S., R. 1 E., S.B.B. and M., being within the SW¼ SW¼ of said Sec. 17,

(c) At the lower intake of said Stone Lined Conduit situated at a point which bears approximately S. 86° 03' E., approximately 1232 feet distant from the northwest corner of Sec. 20, T. 2 S., R. 1 E., S.B.B. and M., being within the NW¼ NW¼ of said Sec. 20,

(d) At the intake of a twenty-inch pipe line leading to said Stone Lined Conduit, situated at a point which bears approximately N. 15° 34' W., approximately 3200 feet distant from the southeast corner of Sec. 29, T. 2 S., R. 1 E., S.B.B. and M., being within the SE¼ NE¼ of said Sec. 29,

(e) At the intake of a twelve-inch pipe line leading to said twenty-inch pipe line, situated at a point which bears approximately N. 11° 30' W., approximately 3188 feet distant from the southeast corner of Sec. 29, T. 2 S., R. 1 E., S.B.B. and M., being within the SE¼ NE¼ of said Sec. 29,

(f) At the intake of a ten-inch pipe line leading to said

Stone Lined Conduit, situated at a point which bears approximately N. 45° 45' W., approximately 2538 feet distant from the southeast corner of Sec. 33, T. 2 S., R. 1 E., S.B.B. and M., being within the NW¼ SE¼ of said Sec. 33,

(g) At the intake of an iron flume leading to said Stone Lined Conduit, situated at a point which bears approximately N. 8° 05' W., approximately 1165 feet distant from the southeast corner of Sec. 33, T. 2 S., R. 1 E., S.B.B. and M., being within the SE¼ SE¼ of said Sec. 33,

(h) At the intake of a short stone lined ditch leading to said iron flume, situated at a point which bears approximately N. 15° 49' W., approximately 1659 feet distant from the southeast corner of Sec. 33, T. 2 S., R. 1 E., S.B.B. and M., being within the NE¼ SE¼ of said Sec. 33;

and said total quantity of water to be diverted at such times and at such rates throughout the year as may be necessary in order that said Banning Water Company may adequately supply the requirements of water for domestic, stock watering and irrigation purposes within the territory which it serves as hereinabove described in paragraph 5, and the requirements of water for domestic and municipal purposes within the city of Banning.

8. DONALD M. BEDWELL

is entitled to divert from the natural or developed flow of Thousand Palms Canyon Creek through the Bedwell and Richey Ditch and pipe line,

0.35 cubic foot per second--priority January 31, 1913,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Thousand Palms Canyon Creek at a point (designated on Division of Water Rights Map as Diversion 63) which bears approximately S. 77° 11' E., approximately 2345 feet distant from the west quarter corner of Sec. 12, T. 4 S., R. 6 E., S.B.B. and M., being within

the NE¼ SW¼ of said Sec. 12, and said water to be used for domestic and stock watering purposes and for the irrigation of

40.0 acres of land in the N½ Sec. 22, T. 4 S., R. 6 E., S.B.B. and M.

9. THE CABAZON WATER COMPANY

is entitled to divert from the natural flow of Millard Creek, through the Cabazon Water Company Conduit,

4.67 cubic feet per second--priority January 1, 1835,
2.50 cubic feet per second--priority July 22, 1915,
7.17 cubic feet per second--Total,

or as much thereof as said company directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Millard Creek at a point (designated on Division of Water Rights Map as Diversion 27) situated approximately 272 feet southwesterly from a point which bears approximately S. 0° 15' W., approximately 510.5 feet distant from the east quarter corner of Sec. 20, T. 2 S., R. 2 E., S.B.B. and M., being within the NE¼ SE¼ of said Sec. 20; and said water to be used by said Cabazon Water Company for the purpose of supplying water for domestic, stock watering and irrigation purposes within the territory served by said company, which territory includes approximately 2560 acres of land, situated within the following described parcels:

NW¼ of Sec. 5, T. 3 S., R. 2 E., S.B.B. and M.
S½ of Sec. 5, T. 3 S., R. 2 E., S.B.B. and M.
W½ NE¼ of Sec. 5, T. 3 S., R. 2 E., S.B.B. and M.
All of Sec.15, T. 3 S., R. 2 E., S.B.B. and M.
All of Sec.16, T. 3 S., R. 2 E., S.B.B. and M., except that portion of said section occupied by the right of way of the Southern Pacific Railroad Company.
All of Sec.17, T. 3 S., R. 2 E., S.B.B. and M., except that portion of said section occupied by the right of way of theSouthern Pacific Railroad Company.
N½ NW¼ of Sec. 21, T. 3 S., R. 2 E., S.B.B. and M.

10. THE COACHELLA VALLEY COUNTY WATER DISTRICT

will be entitled to divert from the natural flow of Whitewater River by means of its spreading dams, ditches and other spreading works, all situated along the channel of said Whitewater River east of the west

line of Secs. 20 and 29, T. 3 S., R. 4 E., S.B.B. and M., and west of the west line of Secs. 30 and 31, T. 3 S., R. 5 E.,

80,000 acre-feet per annum--priority October 25, 1918,

or as much thereof as it spreads and stores underground in the basin underlying Coachella Valley, situate in Riverside County, California; said quantity of water to be so diverted, spread and stored during the period between January first and December thirty-first of each year, both dates inclusive; provided, that said water is subsequently withdrawn from said underground storage by the inhabitants of said Coachella Valley and applied by said inhabitants to beneficial use for domestic, stock watering, municipal and industrial purposes and for the irrigation of 25,000 acres of land lying within the 195,000-acre area included within the confines of the yellow border line on Coachella Valley County Water District Map No. 2 dated September, 1918, and filed by said Coachella Valley County Water District with the state water commission with its Application 1122, and which map is now on file and of record in the office of the Division of Water Resources of the Department of Public Works of the State of California; and provided, further, that prior to July 1, 1943, said Coachella Valley County Water District shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of the Division of Water Rights Permit 536, and shall have submitted evidence of such completed appropriation and use to this court. Upon receipt of such evidence of such completed appropriation and use, this court will act thereupon as provided in section 36f of the Water Commission Act, and in accordance with said evidence will enter a supplemental decree determining and establishing the right by appropriation specified in this paragraph, insofar as the same shall have been completed.

11. THE COACHELLA VALLEY COUNTY WATER DISTRICT

will be entitled to divert from the natural flows of Whitewater River, Snow Creek, Falls Creek, Tahquitz Creek, Andreas Creek, Murray Creek, and Palm Canyon Creek, by means of spreading dams, ditches

and other spreading works,

20,000 acre-feet per annum from Whitewater River,
8,000 acre-feet per annum from Snow Creek,
2,000 acre-feet per annum from Falls Creek,
5,000 acre-feet per annum from Tahquitz Creek,
1,000 acre-feet per annum from Andreas Creek,
1,000 acre-feet per annum from Murray Creek,
2,000 acre-feet per annum from Palm Canyon Creek,

39,000 acre-feet per annum--Total--priority July 8, 1922,

or as much of said quantities of water as it spreads and stores underground in the basin underlying Coachella Valley, situate in Riverside County, California; said quantities of water to be diverted from said streams at the respective points described as follows:

(1) From Whitewater River at a point situated approximately 3450 feet south and approximately 1750 feet east from the south quarter corner of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M.; being within the NE¼ SE¼ of Sec. 11, T. 3 S., R. 3 E., S.B.B. and M.;

(2) From Snow Creek at a point situated approximately 3645 feet north and approximately 2115 feet east from the section corner common to Secs. 20, 21, 28 and 29, T. 3 S., R. 3 E., S.B.B. and M., being within the SE¼ NW¼ of Sec. 21, T. 3 S., R. 3 E., S.B.B. and M.;

(3) From Falls Creek at a point situated approximately 1280 feet south and approximately 1110 feet east from the south quarter corner of Sec. 28, T. 3 S., R. 3 E., S.B.B. and M., being within the NW¼ NE¼ of Sec. 33, T. 3 S., R. 3 E., S.B.B. and M.;

(4) From Tahquitz Creek at a point situated approximately 2130 feet south and approximately 2950 feet west from the section corner common to Secs. 14, 15, 22 and 23, T. 4 S., R. 4 E., S.B.B. and M., being within the SE¼ NW¼ of Sec. 22, T. 4 S., R. 4 E., S.B.B. and M.;

(5) From Andreas Creek at a point situated approximately 3440 feet north and approximately 255 feet east from the west quarter corner of Sec. 11, T. 5 S., R. 4 E., S.B.B. and M., being within the SW¼ SW¼ of Sec. 2, T. 5 S., R. 4 E., S.B.B. and M.;

(6) From Murray Creek at a point situated approximately 690 feet north and approximately 75 feet east from the west quarter corner of Sec. 11, T. 5 S., R. 4 E., S.B.B. and M., being within the SW¼ NW¼ of said Sec. 11;

(7) From Palm Canyon Creek at a point situated approximately 1330 feet south and approximately 3400 feet east from the west quarter corner of Sec. 11, T. 5 S., R. 4 E., S.B.B. and M., being within the SW¼ SE¼ of said Sec. 11;

said quantities of water to be so diverted, spread and stored during the period between January first and December thirty-first of each year, both dates inclusive; provided, that said water is subsequently withdrawn from said underground storage by the inhabitants of said Coachella Valley and applied by said inhabitants to beneficial use for domestic, stockwatering, municipal and industrial purposes and for the irrigation of 25,000 acres of land lying within the 195,000-acre area included within the confines of the yellow border line on Coachella Valley County Water District Map No. 2, dated September, 1918, and filed by said Coachella Valley County Water District with the State Water Commission with its Application 1122, and which map is now on file and of record in the office of the Division of Water Resources of the Department of Public Works of the State of California; and provided, further, that prior to July 1, 1943, said Coachella Valley County Water District shall have completed the above appropriation and applied said water to beneficial use in accordance with the terms of Division of Water Rights Permit 3011, and shall have submitted evidence of such completed appropriation and use to this court. Upon receipt of such evidence of such completed appropriation and use, this court will act thereupon as provided in section 36f of the Water Commission Act, and in accordance with said evidence will enter a supplemental decree determining and establishing the right by appropriation specified in this paragraph, insofar as the same shall have been completed; and provided, finally, that the rights of the Coachella Valley County Water

District as set forth in this paragraph are subsequent in right to the water rights of the Palm Valley Water Company under Division of Water Resources Permit 3503 issued on Application 4752, to the extent of one and one-half (1.50) cubic feet per second, all as stipulated and agreed to in that certain stipulation and agreement between the Coachella Valley County Water District and Palm Valley Water Company dated February 21, 1929, and on file and of record in these proceedings.

12. NELLIE N. COFFMAN, CORNELIA B. WHITE, FLORILLA M. WHITE, LAVINA F. CROCKER, HELEN COFFMAN, PEARL McCALLUM McMANUS, ISABEL WHITE CHASE, GEORGE WELLWOOD MURRAY, T. L. DOUGLAS, C. A. ABBOTT, AND CHARLES POWERS,

jointly, are entitled to divert from the natural flow of Tahquitz Creek, through the Agua Caliente Ditch,

1.36 cubic feet per second--priority April 26, 1884,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Tahquitz Creek at a point (designated on Division of Water Rights Map as Diversion 61) which bears approximately S. 49° 30' W., approximately 5400 feet distant from the northeast corner of Sec. 22, T. 4 S., R. 4 E., S.B.B. and M., being within the NW¼ SW¼ of said Sec. 22, and said water to be used for the irrigation of the respective lands of said parties as follows:

Nellie N. Coffman:

2.6 acres in a parcel bounded as follows: Beginning at the northwesterly corner of Spring Street and Main Avenue in the town of Palm Springs, Riverside County, California; thence west along the northerly line of Spring Street 290.4 feet; thence at right angles northerly 355.0 feet; thence at right angles easterly 290.4 feet to westerly boundary line of Main Avenue; thence southerly along said westerly boundary of Main Avenue 355.0 feet to point of beginning.

0.6 acre in lots 22, 23 and 24 of block 8 of said town of Palm Springs.

6.9 acres in blocks 1, 6 and 8 of said town of Palm Springs bounded as follows: Beginning at a point in block 8 where the westerly side of the Whitewater or Palm Valley Water Company's Ditch intersects a line 150.0 feet north of and parallel with the north line of Park Street; thence N. 30° 58' W., 327.0 feet; thence N. 0° 23' W., 174.0 feet;

thence west 40.0 feet; thence N. 0° 08' W., 103.0 feet; thence S. 79° 10' W., 335.7 feet; thence S. 84° 08' W., 217.0 feet; thence S. 3° 40' E., 264.25 feet; thence N. 89° 50' E., 60.0 feet; thence S. 0° 08' E., 210.0 feet; thence N. 89° 50' E., 678.3 feet to point of beginning.

1.7 acres in lots 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 32, 33, 34, 35 and 36, all in Block 20 of said town of Palm Springs.

0.4 acre in block 27 of said town of Palm Springs bounded as follows: Beginning at the southwest corner of said block; thence northerly on the easterly line of Main Avenue 100.0 feet; thence at right angles easterly and parallel with Park Street 145.0 feet; thence at right angles southerly 100.0 feet to northerly line of Park Street; thence westerly 145.0 feet to point of beginning.

12.2 acres--Total.

Cornelia B. White:

4.0 acres constituting all of block 27 of said town of Palm Springs, except the parcel last above described under Nellie N. Coffmen, and except a parcel 80.0 feet square situate in the northwest corner of said block.

4.0 acres--Total.

Cornelia B. White and Florilla M. White:

4.1 acres constituting all of block 26 of said town of Palm Springs, except lots 1, 2, 3 and 4 thereof, and except a rectangular parcel having a frontage of 50.0 feet on Main Avenue, a depth of 100.0 feet, and situate south and contiguous to lot 4 of said block.

4.1 acres--Total.

Lavina F. Crocker:

1.6 acres in a parcel bounded as follows: Beginning at a point on the northerly line of Spring Street in said town of Palm Springs, 290.4 feet westerly from the northwest corner of Spring Street and Main Avenue; thence westerly along the said line of Spring Street 323.5 feet; thence N. 0° 08' W., 204.0 feet; thence N. 89° 50' E., 323.5 feet; thence S. 0° 08' E., 204.0 feet to point of beginning; said description containing within its boundaries lots 9 to 20, both inclusive, of block 14 of said town of Palm Springs.

1.6 acres--Total.

Helen Coffman:

0.3 acre in lots 1, 2 and 3 of block 8 of said town of Palm Springs.

0.3 acre--Total.

Pearl McCallum McManus:

3.7 acres in lots 1, 2, 3 and 4 of block 1;
10.4 acres in lots 1, 2, 3 and 4 of block 2,
0.6 acre in lots 22, 23 and 24 of block 7,
2.2 acres in lots 4 to 9, both inclusive, and lots 14 to 21, both inclusive, of block 8,
2.6 acres in lots 1 to 16, both inclusive and lots 26 to 28, both inclusive, of block 15,
0.3 acre in lots 11 and 12 of block 16,
0.6 acre in lots 9 to 12, both inclusive, of block 19,
1.5 acres in lots 1 to 12, both inclusive, of block 20, all in said town of Palm Springs.

21.9 acres--Total.

Isabel White Chase:

1.1 acres constituting the west 250 feet of lot 4 of block 1 of said town of Palm Springs.

1.1 acres--Total.

George Wellwood Murray:

0.2 acre constituting a parcel of land 30.0 feet square situate in the northwest corner of block 27 of said town of Palm Springs.

0.2 acre--Total.

T. L. Douglas:

0.6 acre constituting the east 150 feet of lot 1 of block 2 of said town of Palm Springs.

0.6 acre--Total.

C. A. Abbott:

1.9 acres constituting the east 250 feet of lots 3 and 4 of block 2 of said town of Palm Springs.

1.9 acres--Total.

Charles Powers:

1.0 acre in lots 1, 2, 3, 4 and 5 of block 5 of said town of Palm Springs.

1.0 acre--Total.

The joint diversion and use of water under this right by the parties hereinabove enumerated is subject to the provisions of that certain agreement dated February 10, 1911, between the United States of America (Indian Service) and George Wellwood Murray, et al., recorded March 11, 1911, in Book No. 325 of Deeds, page 260 et seq., records of Riverside County, California.

13. NELLIE N. COFFMAN, PRESCOTT T. STEVENS, ZADDIE R. BUNKER, J. A. GRAY, PEARL McCALLUM McMANUS, LAVINA F. CROCKER, HELEN COFFMAN, GEORGE WELLWOOD MURRAY, TRUSTEES OF PALM SPRINGS PRESBYTERIAN CHURCH,

CORNELIA B. WHITE, FLORILLA M. WHITE, OWEN EARL COFFMAN AND GEORGE B. ROBERSON,

jointly, are entitled to divert from the natural flow of Whitewater River, through the Palm Valley Water Company System (later known as the "Stevens Pipe Line"),

1.60 cubic feet per second--priority November 11, 1884,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River, all or in part, through any of the following described works:

(1) Through the main intake ditch leading to the "Stevens Pipe Line," the head of which ditch is situated at a point which bears approximately S. 84° 30' E., approximately 440 feet distent from the northwest corner of lot 2 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., being within said lot 2,

(2) Through Infiltration Pipe Line "A" as shown on the map prepared by Davidson and Fulmor, Engineers, dated April, 1927, and entitled "Map Showing the Prescott T. Stevens Intake and Infiltration Pipe Lines from Whitewater River, Riverside County, Cal.," the head of which pipe line is situated approximately 727 feet due east of the northwest corner of lot 2 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., and approximately on the north line of said Sec. 2,

(3) Through Infiltration Pipe Line "B" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated approximately 122 feet due east of the northwest corner of lot 2 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., and approximately on the north line of said Sec. 2,

(4) Through Infiltration Pipe Line "C" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated at a point which bears approximately S. 62° 15' W.,

approximately 278 feet distant from the northeast corner of lot 3 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., being within said lot 3; and said water to be used for the irrigation of the respective lands of said parties as follows:

Nellie N. Coffman

13.2 acres in a parcel bounded as follows: Beginning at the intersection of the center line of Main Avenue and Spring Street in the town of Palm Springs, Riverside County, California; thence northerly along the center line of Main Avenue 453.0 feet; thence westerly at right angles to said center line 330.4 feet; thence at right angles northerly 146.0 feet; thence easterly at right angles 330.4 feet to center line of said Main Avenue; thence northerly along said center line 38.0 feet; thence at right angles westerly 618.88 feet; thence at right angles northerly 200.0 feet; thence at right angles westerly 491.12 feet to Palm Valley Water Company Ditch; thence southerly along line of said ditch 600 feet more or less to a point on said ditch 237.0 feet northerly of the center line of said Spring Street; thence easterly and parallel with the center line of Spring Street 669.6 feet, more or less, to a point 330.4 feet westerly from the center line of Main Avenue; thence at right angles southerly 237.0 feet to center line of said Spring Street; thence easterly along said center line of Spring Street 330.4 feet to point of beginning.

0.4 acre in block 27 of said town of Palm Springs bounded as follows: Beginning at the southwest corner of said block; thence northerly on the easterly line of Main Avenue 100.0 feet; thence at right angles easterly and parallel with Park Street 145.0 feet; thence at right angles southerly 100.0 feet to northerly line of Park Street; thence westerly 145.0 feet to point of beginning.

1.7 acres in lots 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 32, 33, 34, 35 and 36, all in block 20 of said town of Palm Springs.

0.6 acre in lots 22, 23 and 24 of block 8 of said town of Palm Springs.

6.9 acres in blocks 1, 6 and 8 of said town of Palm Springs bounded as follows: Beginning at a point in block 8 where the westerly side of the Whitewater or Palm Valley Water Company's Ditch intersects a line 150.0 feet north of and parallel with the north line of Park Street; thence N. 30° 58' W., 327.0 feet; thence N. 0° 23' W., 174.0 feet; thence west 40.0 feet; thence N. 0° 08' W., 103.0 feet; thence S. 79° 10' W., 335.7 feet; thence S. 84° 08' W., 217.0 feet; thence S. 3° 40' E., 264.25 feet; thence N. 89° 50' E., 60.0 feet; thence S. 0° 08' E., 210.0 feet; thence N. 89° 50' E., 678.3 feet, to point of beginning.

22.8--Total.

Prescott T. Stevens:

7.0 acres in SW¼ NE¼ NE¼ of Sec. 15, T. 4 S., R. 4 E., S.B.B.and M.

7.0 acres--Total.

Zeddie R. Bunker:

1.0 acre in $SE\frac{1}{4}$ $NE\frac{1}{4}$ of Sec. 15, T. 4 S., R. 4 E., S.B.B. and M.

1.0 acre--Total.

J. A. Gray:

1.3 acres in $SE\frac{1}{4}$ $NE\frac{1}{4}$ of Sec. 15, T. 4 S., R. 4 E., S.B.B. and M.

1.3 acres--Total.

Pearl McCallum McManus:

16.2 acres in $E\frac{1}{2}$ $SE\frac{1}{4}$ of Sec. 15, T. 4 S., R. 4 E., S.B.B. and M.

16.2 acres--Total.

Lavina F. Crocker

1.6 acres in a parcel bounded as follows: Beginning at a point on the northerly line of Spring Street in said town of Palm Springs, 290.4 feet westerly from the northwest corner of Spring Street and Main Avenue; thence westerly along the said line of Spring Street 323.5 feet; thence N. 0° 08' W., 204.0 feet; thence N. 89° 50' E., 323.5 feet; thence S. 0° 08' E., 204.0 feet to point of beginning; said description containing within its boundaries lots 9 to 20, both inclusive, of block 14 of said town of Palm Springs.

1.6 acres--Total.

Helen Coffmen:

0.3 acre in lots 1, 2 and 3 of block 8 of said town of Palm Springs.

0.3 acre--Total.

George Wellwood Murray:

0.2 acre constituting a parcel of land 80.0 feet square situate in the northwest corner of block 27 of said town of Palm Springs.

0.2 acre--Total.

Trustees of Palm Springs Presbyterian Church:

0.4 acre constituting a rectangular parcel of land in the northwest corner of block 26 of said town of Palm Springs.

0.4 acre--Total.

Cornelia B. White:

4.0 acres in block 27 of said town of Palm Springs.

4.0 acres--Total.

Cornelia B. White and Florilla M. White:

4.1 acres in block 26 of said town of Palm Springs.

4.1 acres--Total.

Owen Earl Coffman:

0.5 acre in a parcel bounded as follows: Beginning at a point 470.0 feet westerly from the westerly line of Main Avenue in said town of Palm Springs and 604.0 feet northerly from the northerly property line of Spring Street; thence N. 0° 08' W., 200.0 feet; thence westerly at right angles 108.88 feet; thence at right angles southerly 200.0 feet; thence easterly at right angles 108.88 feet to point of beginning.

0.5 acre--Total.

George B. Roberson:

0.4 acre in a parcel bounded as follows: Beginning at a point on the westerly property line of Main Avenue 566.0 feet northerly of the northerly property line of Spring Street in said town of Palm Springs; thence at right angles westerly to said line of Main Avenue 290.4 feet; thence at right angles southerly 61.0 feet; thence at right angles easterly 290.4 feet to the westerly property line of Main Avenue; thence northerly 61.0 feet to point of beginning.

0.4 acre--Total

provided, however, that the lands described in this paragraph to which the water right hereinabove provided from Tahquitz Creek, by paragraph 12, is also appurtenant, shall only be entitled to water from Whitewater River under this right at such times and to such extent as the water supply available from Tahquitz Creek under the right provided in paragraph 12 may be inadequate for the irrigation of said lands. The joint diversion and use of water under this right by the parties hereinabove enumerated is subject to the provisions of that certain stipulation dated March 17, 1926, between said parties in this paragraph hereinabove enumerated, on the one part, and the Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company on the other part, which stipulation is on file and of record in these proceedings, and by the terms of which stipulation said parties in this paragraph hereinabove enumerated recognize that said Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company are the owners of the

paramount right to divert water from the South Fork of Whitewater River through the Consolidated Reservoir and Power Company Canal as hereinbefore set forth in paragraph 5, regardless of the fact that the priority of said right set forth in said paragreph 5 is subsequent to the priority of the right of said parties in this paragraph hereinabove enumerated, as set forth in this paragraph.

14. W. V. COVINGTON

is entitled to divert from the natural flow of Lower Big Morongo Creek, through the Covington West Ditch,

0.14 cubic foot per second--priority January 1, 1873,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Lower Big Morongo Creek at a point (designated on Division of Water Rights Map as Diversion 55) which bears approximately N. 56° 30' W., approximately 2410 feet distant from the southeast corner of Sec. 28, T. 1 S., R. 4 E., S.B.B. and M., being within the NW¼ SE¼ of said Sec. 28, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

3.5 acres in SW¼ SE¼, Sec. 28, T. 1 S., R. 4 E., S.B.B. and M.

15. W. V. COVINGTON

is entitled to divert from the natural flow of an unnamed stream rising in a meadow in Lower Big Morongo Wash, through the Covington East Ditch,

0.50 cubic foot per second--priority January 1, 1873,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said unnamed stream at a point (designated on Division of Water Rights Map as Diversion 56) which bears approximately N. 38° 00' W., approximately 2030 feet distant from the southeast corner of Sec. 28, T. 1 S., R. 4 E., S.B.B. and M., being within the NE¼ SE¼ of said Sec. 28, and said water to be used for domestic and stock watering purposes and

for the irrigation of the following described land:

13.7 acres in SW¼ SE¼, Sec. 28, T. 1 S., R. 4 E., S.B.B. and M.

16. W. V. COVINGTON

is entitled to divert from the natural flow of an unnamed stream rising in a meadow in Lower Big Morongo Wash, by means of a series of dykes and short spreading ditches,

0.74 cubic foot per second--priority January 1, 1973,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said unnamed stream between the head of the Covington East Ditch, as hereinabove described in the preceding paragraph, and the point where said unnamed stream crosses the south boundary line of the NE¼ of Sec. 33, T. 1 S., R. 4 E., S.B.B. and M., and said water to be used for stock watering purposes and for the irrigation of the following described lands:

35.0 acres in SE¼, Sec. 28, T. 1 S., R. 4 E., S.B.B. and M.
30.0 acres in E½ NE¼, Sec. 33, T. 1 S., R. 4 E., S.B.B. and M.

65.0 acres--Total.

17. WALTER O. EDWARDS

is entitled to divert from the natural or developed flow of Jensen's Spring, through the Jensen West Pipe Line,

0.06 cubic foot per second--priority June 17, 1911,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 34) which bears approximately S. 29° 30' W., approximately 2930 feet distant from the southeast corner of the NE¼ of Sec. 22, T. 3 S., R. 2 E., S.B.B. and M., being within Lot 11 of said Sec. 22, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described land:

5.0 acres in SW¼ NE¼, Sec. 22, T. 3 S., R. 2 E., S.B.B. and M.

18. WALTER O. EDWARDS

is entitled to divert from the natural or developed flow of Jensen's Creek, through the Jenson East Pipe Line,

0.60 cubic foot per second--priority October 23, 1913,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth throughout the entire year; said water to be diverted from said Jensen's Creek at a point (designated on Division of Water Rights Map as Diversion 35) which bears approximately S. 28° 30' E., approximately 3100 feet distant from the southwest corner of the NW¼ of Sec. 23, T. 3 S., R. 2 E., S.B.B. and M., being within Lot 11 of said Sec. 23, and said water to be used for domestic and stock watering purposes and for the irrigation of approximately 50 acres of land within the following described tracts:

S½ NE¼, Sec. 22, T. 3 S., R. 2 E., S.B.B. and M.
Lot 8 of Sec. 22, T. 3 S., R. 2 E., S.B.B. and M.
Lot 8 of Sec. 23, T. 3 S., R. 2 E., S.B.B. and M.

19. ANNIE B. FICK

is entitled to divert from the natural or developed flow of an unnamed spring (designated on Division of Water Rights Map as Diversion 5) situated approximately N. 35° 00' W., approximately 1000 feet distant from the east quarter corner of Sec. 5, T. 2 S., R. 1 E., S.B.B. and M., being within the SE¼ NE¼ of said Sec. 5, through the Fick East Pipe Line,

(a) during the period between March first and November first of each year,

0.07 cubic foot per second--priority July 31, 1913,

or as much thereof as she directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of her lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second--priority July 31, 1913,

or as much thereof as she directly applies to beneficial use for

0.10 cubic foot per second--priority March 1, 1869,
0.09 cubic foot per second--priority March 1, 1882,
0.06 cubic foot per second--priority March 1, 1892,

0.25 cubic foot per second--Total,

or as much thereof as said company directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of its lands hereinafter described,

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second--priority March 1, 1869,

or as much thereof as said company directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at a point (designated on Division of Water Rights Map as Diversion 11) which bears approximately S. 76° 30' W., approximately 1860 feet distant from the east quarter corner of Sec. 5, T. 3 S., R. 1 E., S.B.B. and M., being within the NW¼ SE¼ of said Sec. 5, and all of said water to be used upon the following described land:

24.0 acres in SE¼ SE¼, Sec. 5, T. 3 S., R. 1 E., S.B.B. and M.

22. THE GILMAN HOME COMPANY

is entitled to divert from the natural flow of the stream flowing in Gilman Canyon No. 2, through an unnamed pipe line,

0.125 cubic foot per second--priority March 1, 1892,

or as much thereof as said company directly applies to beneficial use for the purpose hereinafter set forth during the period between March first and November first of each year; said water to be diverted at a point (designated on Division of Water Rights Map as Diversion 12) which bears approximately N. 85° 00' W., approximately 1420 feet distant from the east quarter corner of Sec. 5, T. 3 S., R. 1 E., S.B.B. and M., being within the SW¼ NE¼ of said Sec. 5 and said water to be used for the irrigation of the following described lands:

2.0 acres in NE¼ SE¼, Sec. 5, T. 3 S., R. 1 E., S.B.B. and M.
10.0 acres in SW¼ SE¼, Sec. 5, T. 3 S., R. 1 E., S.B.B. and M.

12.0 acres--Total.

23. THE GILMAN HOME COMPANY

is entitled to divert from the natural flow of the stream flowing in Gilman Canyon No. 3, through an unnamed pipe line,

0.25 cubic foot per second--priority March 1, 1891,

or as much thereof as said company directly applies to beneficial use for the purpose hereinafter set forth, during the period between March first and November first of each year; said water to be diverted to a point (designated on Division of Water Rights Map as Diversion 13) which bears approximately N. 52° 30' W., approximately 970 feet distant from the east quarter corner of Sec. 5, T. 3 S., R. 1 E., S.B.B. and M., being within the SE¼ NE¼ of said Sec. 5, and said water to be used for the irrigation of the following described land:

24.0 acres in NW¼ NE¼, Sec. 8, T. 3 S., R. 1 E., S.B.B. and M.

24. GEORGE R. HICKS

is entitled to divert from the natural flow of Upper Little Morongo Creek, through the Hicks Pipe Line Ditch,

(a) during the period between March first and November first of each year,

2.50 cubic feet per second--priority April 24, 1917,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of the lands hereinafter described in this paragraph;

(b) during the period between November first of each year and March first of the succeeding year,

0.50 cubic foot per second--priority April 24, 1917,

or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes;

all of said water to be diverted at a point (designated on Division of

Water Rights Map as Diversion 57) which bears approximately N. 30° 00' E., approximately 3600 feet distant from the southwest corner of Sec. 2, T. 1 S., R. 4 E., S.B.B. and M., being within the SE¼ NW¼ of said Sec. 2, and all of said water to be used upon the following described lands;

160.0 acres in SE¼ Sec. 12, T. 1 S., R. 4 E., S.B.B. and M.
80.0 acres in N½ SE¼, Sec. 14, T. 1 S., R. 4 E., S.B.B. and M.
240.0 acres--Total.

25. GERTRUDE C. HITTSON

is entitled to divert from the natural or developed flow of Thousand Palms Canyon Creek through the Bedwell and Richey Ditch and Pipe Line,

0.35 cubic foot per second priority January 31, 1913, or as much thereof as she directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Thousand Palms Canyon Creek at a point (designated on Division of Water Rights Map as Diversion 63) which bears approximately S. 77° 11' E., approximately 2345 feet distant from the west quarter corner of Sec. 12, T. 4 S., R. 6 E., S.B.B. and M., being within the NE¼ SW¼ of said Sec. 12, and said water to be used for domestic and stock watering purposes and for the irrigation of

40.0 acres of land in the S½ Sec. 22, T. 4 S., R. 6 E., S.B.B. and M.

26. MARSHALL G. JOST

is entitled to divert from the natural or developed flow of an unnamed spring situated in Dunlap Canyon at a point which bears approximately N. 14° 30' E., approximately 125 feet distant from the west quarter corner of Sec. 32, T. 2 S., R. 1 E., S.B.B. and M., being within the SW¼ NW¼ of said Sec. 32, through the Marshall Jost Pipe Line,

0.04 cubic foot per second--priority July 31, 1900, or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted at said spring and to be used for stock watering purposes in the

NE¼ SE¼, Sec. 31, T. 2 S., R. 1 E., S.B.B. and M.

27. CHARLES C. LEARY

is entitled to divert from the natural or developed flow of an unnamed spring situated at a point (designated on Division of Water Rights Map as Diversion 33) which bears approximately S. 7° 30' E., approximately 1780 feet distant from the west quarter corner of Sec. 20, T. 3 S., R. 2 E., S.B.B. and M., being within the SW¼ SW¼ of said Sec. 20, through the Leary Pipe Line,

0.025 cubic foot per second--priority October 18, 1913, or as much thereof as he directly applies to beneficial use for the purpose hereinafter set forth, during the period between March first and November first of each year; said water to be diverted at said spring, and to be used for the irrigation of the following described land:

7.0 acres in Lot 4 of NW¼ of Sec. 20, T. 3 S., R. 2 E., S.B.B. and M.

28. CHARLES C. LEARY

is entitled to divert from the natural or developed flow of an unnamed spring situated at a point (designated on Division of Water Rights Map as Diversion 32) which bears approximately S. 14° 00' E., approximately 1420 feet distant from the west quarter corner of Sec. 20, T. 3 S., R. 2 E., S.B.B. and M., being within the SW¼ SW¼ of said Sec. 20, through the Leary Pipe Line,

(a) during the period between March first and November first of each year,

0.05 cubic foot per second--priority October 18, 1913, or as much thereof as he directly applies to beneficial use for domestic and stock watering purposes and for the irrigation of his lands hereinafter described;

(b) during the period between November first of each year and March first of the succeeding year,

0.025 cubic foot per second--priority October 18, 1913, or as much thereof as he directly applies to beneficial use for

domestic and stock watering purposes;

all of said water to be diverted at said spring, and to be used upon the following described land:

14.0 acres in Lot 4 of NW¼ of Sec. 20, T. 3 S., R. 2 E., S.B.B. and M.

29. HERMAN LUHRMAN

is entitled to divert from the natural flow of the West Fork of Stubby Creek, through the Jost West Ditch and Pipe Line,

0.10 cubic foot per second--priority April 23, 1886,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said West Fork of Stubby Creek at a point (designated on Division of Water Rights Map as Diversion 36) which bears approximately S. 69° 00' W., approximately 1950 feet distant from the northeast corner of Sec. 36, T. 2 S., R. 2 E., S.B.B. and M., being within the NW¼ NE¼ of said Sec. 36, and said water to be used for domestic, stock watering, irrigation and bee culture purposes within the

S½ NE¼, Sec. 36, T. 2 S., R. 2 E., S.B.B. and M.

30. HERMAN LUHRMAN

is entitled to divert from the natural flow of the East Fork of Stubby Creek, through the Jost East Ditch,

0.10 cubic foot per second--priority April 23, 1886,

or as much thereof as he directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said East Fork of Stubby Creek at a point (designated on Division of Water Rights Map as Diversion 37) which bears approximately S. 82° 30' W., approximately 1050 feet distant from the northeast corner of Sec. 36, T. 2 S., R. 2 E., S.B.B. and M., being within the NE¼ NE¼ of said Sec. 36, and said water to be used for domestic, stock watering, irrigation and bee culture purposes within the

NE¼ NE¼, Sec. 36, T. 2 S., R. 2 E., S.B.B. and M.

31. THE MORONGO VALLEY MUTUAL WATER COMPANY

is entitled to divert from the natural flow of Big Morongo

Creek, through the Morongo Valley Mutual Water Company Pipe Line,

0.14 cubic foot per second--priority June 14, 1915,

or as much thereof as said company directly applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Big Morongo Creek at a point (designated on Division of Water Rights Map as Diversion 54) which bears approximately N. 30° 20' W., approximately 1575 feet distant from the southeast corner of Sec. 18, T. 1 S., R. 4 E., S.B.B. and M., being within the NE¼ SE¼ of said Sec. 18, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described lands:

160.0	acres in	N½	Sec. 28, T. 1 S., R. 4 E., S.B.B. and M.
80.0	acres in	W½ SW¼,	Sec. 28, T. 1 S., R. 4 E., S.B.B. and M.
40.0	acres in	NE¼ SW¼,	Sec. 28, T. 1 S., R. 4 E., S.B.B. and M.
80.0	acres in	E½ SE¼,	Sec. 29, T. 1 S., R. 4 E., S.B.B. and M.
40.0	acres in	SW¼ SE¼,	Sec. 29, T. 1 S., R. 4 E., S.B.B. and M.
80.0	acres in	N½ NE¼,	Sec. 32, T. 1 S., R. 4 E., S.B.B. and M.
40.0	acres in	NW¼ NW¼,	Sec. 33, T. 1 S., R. 4 E., S.B.B. and M.
520.0	acres--Total.		

32. THE PALM VALLEY WATER COMPANY

is entitled to divert from the natural flow of Chino Creek, through the Chino Creek Pipe Line,

2.00 cubic feet per second--priority October 2, 1897,

or as much thereof as said company applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Chino Creek at a point (designated on Division of Water Rights Map as Diversion 59) which bears approximately S. 60° 30' W., approximately 725 feet distant from the northeast corner of Sec. 7, T. 4 S., R. 4 E., S.B.B. and M., being within the NE¼ NE¼ of said Sec. 7, and said water to be used by said company for the purpose of supplying water for domestic and municipal uses in the territory within and adjacent to the town of Palm Springs, Riverside County, California .

33. GEORGE W. PARKER AND F. E. MATTHEWS

jointly, are entitled to divert from the natural flow of the stream flowing in Water Canyon, through the Parker and Matthews Water

Canyon Pipe Line,

0.04 cubic foot per second--priority January 1, 1909,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said stream at a point which bears approximately S. 78° 30' W., approximately 2080 feet distant from the northeast corner of Sec. 24, T. 3 S., R. 1 E., S.B.B. and M., being within the NW¼ NE¼ of said Sec. 24, and said water to be used for the irrigation of the following described land:

8.2 acres in NW¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.

54. GEORGE W. PARKER AND F. E. MATTHEWS

jointly, are entitled to divert from the natural or developed flow of Tunnel No. 1 Spring, through the Tunnel No. 1 Pipe Line,

0.04 cubic foot per second--priority October 20, 1894,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 24) which bears approximately N. 87° 00' W., approximately 1280 feet distant from the southeast corner of Sec. 13, T. 3 S., R. 1 E., S.B.B. and M., being within the SE¼ SE¼ of said Sec. 13, and said water to be used for the irrigation of the following described lands:

2.2 acres in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.
4.3 acres in NE¼ SE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.

6.5 acres--Total

35. GEORGE W. PARKER AND F. E. MATTHEWS

jointly, are entitled to divert from the natural or developed flow of Newland Spring, through the Newland Spring Pipe Line,

0.08 cubic foot per second--priority January 3, 1898,

or as much thereof as they directly apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be

diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 23) which bears approximately N. 71° 00' W., approximately 2450 feet distant from the southeast corner of Sec. 13, T. 3 S., R. 1 E., S.B.B. and M., being within the SW¼ SE¼ of said Sec. 13, and said water to be used for domestic and stock watering purposes and for the irrigation of the following described lands:

2.6 acres in SW¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.
1.0 acre in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.
7.0 acres in NE¼ SE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.

10.6 acres--Total.

36. GEORGE W. PARKER AND F. E. MATTHEWS

jointly, are entitled to divert from the natural or developed flow of South Spring, through the South Spring Pipe Line,

0.06 cubic foot per second--priority January 3, 1898,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as Diversion 26) which bears approximately S. 2° 30' W., approximately 1340 feet distant from the northeast corner of Sec. 24, T. 3 S., R. 1 E., S.B.B. and M., being within the SE¼ NE¼ of said Sec. 24, and said water to be used for the irrigation of the following described lands:

1.2 acres in NW¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.
9.4 acres in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.

10.6 acres--Total.

37. GEORGE W. PARKER AND F. E. MATTHEWS

jointly, are entitled to divert from the natural or developed flow of Head Spring, through the Head Spring Pipe Line,

0.02 cubic foot per second--priority June 20, 1894,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said spring at a point (designated on Division of Water Rights Map as

Diversion 25) which bears approximately S. 67° 00' W., approximately 3050 feet distant from the northeast corner of Sec. 24, T. 3 S., R. 1 E., S.B.B. and M., being within the NE¼ NW¼ of said Sec. 24, and said water to be used for the irrigation of the following described lands:

1.2 acres in SE¼ NE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.
2.2 acres in NE¼ SE¼, Sec. 13, T. 3 S., R. 1 E., S.B.B. and M.

3.4 acres--Total.

38. THE SOUTHERN PACIFIC COMPANY AND THE SOUTHERN PACIFIC RAILROAD COMPANY

jointly, are entitled to divert from the natural flow of Snow Creek through the Southern Pacific Snow Creek Ditch and Pipe Line,

2.00 cubic feet per second--priority October 24, 1899,

or as much thereof as they apply to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Snow Creek at a point (designated on Division of Water Rights Map as Diversion 39) which bears approximately S. 54° 52' E., approximately 1300 feet distant from the northwest corner of Sec. 33, T. 3 S., R. 3 E., S.B.B. and M., being within the NW¼ NW¼ of said Sec. 33, and said water to be used for railroad and domestic purposes at and adjacent to Whitewater and Garnet stations on the Southern Pacific Railroad, in Riverside County, California and for domestic, stock watering and irrigation purposes upon the following described lands:

7.8 acres in SE¼ SE¼, Sec. 20, T. 3 S., R. 3 E., S.B.B. and M.
7.0 acres in NE¼ SE¼, Sec. 20, T. 3 S., R. 3 E., S.B.B. and M.
4.3 acres in SW¼ SW¼, Sec. 21, T. 3 S., R. 3 E., S.B.B. and M.
20.9 acres in NW¼ SW¼, Sec. 21, T. 3 S., R. 3 E., S.B.B. and M.

40.0 acres--Total.

39. THE SOUTHERN PACIFIC COMPANY AND THE SOUTHERN PACIFIC RAILROAD COMPANY

jointly, are entitled to divert from the natural or developed flow of springs rising in Millard Canyon near the center of Sec. 32, T. 2 S., R. 2 E., S.B.B. and M., through the Southern Pacific Millard

Canyon Conduit,

0.23 cubic foot per second--priority January 1, 1877,
0.27 cubic foot per second--priority January 3, 1917

0.50 cubic foot per second--Total

or as much thereof as they apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said springs at a point (designated on Division of Water Rights Map as Diversion 28) which bears approximately N. 39° 53' E., approximately 3350 feet distant from the southwest corner of Sec. 32, T. 2 S., R. 2 E., S.B.B. and M., being within the NE¼ SW¼ of said Sec. 32, and said water to be used for railroad and domestic purposes at and adjacent to Cabazon Station on the Southern Pacific Railroad in Riverside County, California.

40. THE SOUTHERN PACIFIC LAND COMPANY

is entitled to divert from the natural or developed flow of springs rising in Millard Canyon near the center of Sec. 32, T. 2 S., R. 2 E., S.B.B. and M., through the Southern Pacific Millard Canyon Conduit,

0.12 cubic foot per second--priority January 1, 1877,
0.16 cubic foot per second--priority January 3, 1917,

0.28 cubic foot per second--Total.

or as much thereof as said company applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said springs at a point (designated on Division of Water Rights Map as Diversion 28) which bears approximately N. 39° 53' E., approximately 3350 feet distant from the southwest corner of Sec. 32, T. 2 S., R. 2 E., S.B.B. and M., being within the NE¼ SW¼ of said Sec. 32, and said water to be used for domestic, stock watering and irrigation purposes upon the following described lands:

18.7 acres in NE¼ SW¼, Sec. 32, T. 2 S., R. 2 E., S.B.B. and M.
13.0 acres in SE¼ SW¼, Sec. 32, T. 2 S., R. 2 E., S.B.B. and M.
0.8 acre in SW¼ SW¼, Sec. 32, T. 2 S., R. 2 E., S.B.B. and M.

32.5 acres--Total.

41. FRANK L. TALMADGE, JOHN W. TALMADGE, AND WILLIAM S. TALMADGE, (hereinafter referred to as Talmadge Brothers),

jointly, are entitled to divert from the natural flow of Whitewater River, through the Whitewater Ranch Ditch,

3.75 cubic feet per second--priority January 1, 1850,

or as much thereof as they directly apply to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River at or near a point (designated on Division of Water Rights Map as Diversion 44) which bears approximately S. 87° 30' W., approximately 1950 feet distant from the northeast corner of Sec. 11, T. 3 S., R. 3 E., S.B.B. and M., being within the NW¼ NE¼ of said Sec. 11, and said water to be used for domestic and stock watering purposes and for the irrigation of 100 acres of land within and upon the following described tracts:

SW¼, Sec. 10, T. 3 S., R. 3 E., S.B.B. and M.
NW¼ NW¼, Sec. 15, T. 3 S., R. 3 E., S.B.B. and M.

provided, however, that nothing herein contained shall be deemed to or shall in any manner limit or restrict the right of said Talmadge Brothers, or their successors in interest, from transferring the use of said water from said lands to the community known as Palm Springs for domestic use within such community, and it is expressly provided that such water may be diverted and transported to said Palm Springs district for domestic use only within such district whenever said Talmadge Brothers, or their successors in interest, deem such transfer and use desirable. The diversion and use of water under this right is subject to the provisions of that certain stipulation dated March 17, 1926, between the Banning Water Company, the Banning Heights Mutual Water Company and the San Gorgonio Power Company on the one part, and Julia B. Berry, Talmadge Brothers, and Andrew J. Warner and Clara J. Warner on the other part, which stipulation is on file and of record in these proceedings, and by the terms of which stipulation said Julia B. Berry, Talmadge Brothers, and Andrew J.

Warner and Clara J. Warner recognize that said Banning Water Company, Banning Heights Mutual Water Company and San Gorgonio Power Company are the owners of the paramount right to divert water from the South Fork of Whitewater River through the consolidated Reservoir and Power Company Canal as hereinbefore set forth in paragraph 5, regardless of the fact that the priority of the right set forth in said paragraph 5 is subsequent to the priority of the right of said Talmadge Brothers as set forth in this paragraph.

42. THE UNITED STATES OF AMERICA

is entitled to divert from the natural flow of Hathaway Creek, through the Hathaway Canyon Pipe Line,

2.00 cubic feet per second--priority January 1, 1890,

or as much thereof as it applies to beneficial use for the purposes hereinafter set forth, throughout the entire year; said water to be diverted from said Hathaway Creek at a point within the NW¼ NE¼ of Sec. 34, T. 2 S., R. 1 E., S.B.B. and M., and said water to be used for domestic, stock watering, power development and irrigation purposes within the Morongo Indian Reservation, comprising some 30,600 acres of land described as follows:

All of Secs. 10, 12, 13, 14, 15, 22, 23, 25, 26, 27, 34, 35 and 36, T. 2 S., R. 1 E., S.B.B. and M.
All of Secs. 8, 9, 17, 18, 25, 26, 27, 28, 30, 31, 33, 34 and 35, T. 2 S., R. 2 E., S.B.B. and M.
E½, Sec. 16, T. 2 S., R. 2 E., S.B.B. and M.
N½, Sec. 19, T. 2 S., R. 2 E., S.B.B. and M.
SW¼, Sec. 19, T. 2 S., R. 2 E., S.B.B. and M.
N½, Sec. 20, T. 2 S., R. 2 E., S.B.B. and M.
SW¼, Sec. 20, T. 2 S., R. 2 E., S.B.B. and M.
N½ SE¼, Sec. 20, T. 2 S., R. 2 E., S.B.B. and M.
E½, Sec. 21, T. 2 S., R. 2 E., S.B.B. and M.
S½ SW¼, Sec. 21, T. 2 S., R. 2 E., S.B.B. and M.
E½, Sec. 29, T. 2 S., R. 2 E., S.B.B. and M.
W½, Sec. 36, T. 2 S., R. 2 E., S.B.B. and M.
SE¼, Sec. 36, T. 2 S., R. 2 E., S.B.B. and M.
All of Secs. 2, 12, 22, 24 and 26, T. 3 S., R. 1 E., S.B.B. and M.
N½, Sec. 1, T. 3 S., R. 1 E., S.B.B. and M.
NE¼, Sec. 6, T. 3 S., R. 1 E., S.B.B. and M.
S½ S½, Sec. 14, T. 3 S., R. 1 E., S.B.B. and M.
E½, Sec. 34, T. 3 S., R. 1 E., S.B.B. and M.
SW¼, Sec. 34, T. 3 S., R. 1 E., S.B.B. and M.
NE¼ NW¼, Sec. 34, T. 3 S., R. 1 E., S.B.B. and M.
N½ NW¼ NW¼, Sec. 34, T. 3 S., R. 1 E., S.B.B. and M.

Water Rights Map as Diversion 45) which bears approximately S. 45° 00' W., approximately 1580 feet distant from the northeast corner of Sec. 11, T. 3 S., R. 3 E., S.B.B. and M., being within the NE¼ NE¼ of said Sec. 11, and said water to be used for domestic and stock watering purposes upon the following described land and for the irrigation of said land:

50.0 acres in S½ SE¼, Sec. 10, T. 3 S., R. 3 E., S.B.B. and M.

48. WHITEWATER MUTUAL WATER COMPANY

is entitled to divert from the natural or developed flow of Whitewater River, through the Palm Valley Water Company System (later known as the "Stevens Pipe Line"),

10.00 cubic feet per second--priority September 19, 1913, or as much thereof as said company applies to beneficial use for the purpose hereinafter set forth, throughout the entire year; said water to be diverted from said Whitewater River, all or in part, through any of the following described works:

(1) Through the main intake ditch leading to the "Stevens Pipe Line", the head of which ditch is situated at a point which bears approximately S. 84° 30' E., approximately 440 feet distant from the northwest corner of Lot 2 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., being within said Lot 2,

(2) Through Infiltration Pipe Line "A" as shown on the map prepared by Davidson & Fulmor, Engineers, dated April, 1927, and entitled "Map Showing the Prescott T. Stevens Intake and Infiltration Pipe Lines from Whitewater River, Riverside County, Cal.," the head of which pipe line is situated approximately 727 feet due east of the northwest corner of Lot 2 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., and approximately on the north line of said Sec. 2,

(3) Through Infiltration Pipe Line "B" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated approximately 122 feet due east of the northwest corner of

Lot 2 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., and approximately on the north line of said Sec. 2,

(4) Through Infiltration Pipe Line "C" as shown on said map prepared by Davidson and Fulmor, the head of which pipe line is situated at a point which bears approximately S. 62° 15' W., approximately 278 feet distant from the northeast corner of Lot 3 of Sec. 2, T. 3 S., R. 3 E., S.B.B. and M., being within said Lot 3;

and said water to be used for domestic purposes on the following described tracts and for the irrigation of approximately 725 acres of land within the following described tracts:

SE¼ NE¼, Sec. 3, T. 4 S., R. 4 E., S.B.B. and M.
E½, Sec.10, T. 4 S., R. 4 E., S.B.B. and M.
N½, Sec.11, T. 4 S., R. 4 E., S.B.B. and M.
SW¼, Sec.11, T. 4 S., R. 4 E., S.B.B. and M.
NE¼, Sec.15, T. 4 S., R. 4 E., S.B.B. and M.

XXVII

No costs or disbursements are allowed herein to any of the parties to this proceeding and each of said parties shall respectively bear their own costs.

XXVIII

If at any time the natural flow of said Whitewater River and its tributaries, or any thereof, is insufficient to furnish all parties entitled thereto with the full amount of water awarded herein, then and in said event the said natural flow shall be distributed in accordance with the priorities as herein decreed.

XXIX

Each and every of the parties hereto, their servants, agents, attorneys, employees, successors in interest and all persons acting under their authority and on their behalf are enjoined and restrained from any and all interference with, or diversion or use of, the waters herein decreed, except in the manner, and to the extent, and for the purposes provided herein, whenever such interference, diversion or use in any manner interferes with the diversion or use of the said waters as decreed herein.



9th day of December, 1938.

Wm. D. DEHY (signed)

Judge of the Superior Court, presiding.

ENDORSED

F I L E D

December 9, 1938

D. G. Clayton, Clerk

By Jack A. Bergin,
Deputy

Recorded in Book 46 of

Judgments

at Page 246 the 9th

day of December, 1938

D. G. CLAYTON, Clerk

By: Erma E. Dewey, Deputy

Beaumont Basin Watermaster

2016 Annual Report

DRAFT

2016 Watermaster Board

Art Vela, City of Banning
George Jorritsma, South Mesa Water Company, **Vice Chairman**
Eric Fraser, Beaumont Cherry Valley Water District, **Secretary**
Joseph Zoba, Yucaipa Valley Water District, **Treasurer**
Kyle Warsinski, City of Beaumont

Alvarado Smith, **Legal Counsel**
ALDA Inc. in Association with Thomas Harder & Company, **Engineering**
Rogers, Anderson, Malody, and Scott. LLP, **Financial Auditors**

August 2017

ALDA Inc.
5928 Vineyard Avenue
Alta Loma, CA 91701
Tel: (909) 587-9916
Fax: (909) 498-0423

August 2, 2017

Art Vela, Chairman
Beaumont Basin Watermaster
560 Magnolia Avenue
Beaumont, CA 92223

Subject: **Beaumont Basin Watermaster**
Draft Annual Report for Calendar Year 2016

Dear Mr. Vela:

ALDA Inc., in association with Thomas Harder & Co. is pleased to submit to you, as Chairman of the Beaumont Basin Watermaster, the Beaumont Basin Watermaster Annual Report for Calendar Year 2016. This draft report expands on the earlier format of the annual report by incorporating information previously presented in the biannual Engineering Report. As such, this Annual Report summarizes all production, spreading, and storage activities that took place during calendar year 2016. Further, it documents changes in water levels and storage conditions, as well as, an estimate of the Basin Operating Safe Yield for 2016. Finally, the report presents an evaluation of water quality conditions for the 2012-2016 five year period.

We will make a formal presentation to the Watermaster Committee during the upcoming Board meeting on August 2nd, 2016. We welcome your review and comments on this report and look forward to answering any questions you may have.

Should you have any questions on this matter, please contact us at 909-587-9916 during normal business hours.

Very truly yours

ALDA Inc.



F. Anibal Blandon, P.E.
Principal

ALDA Inc.
5928 Vineyard Avenue
Alta Loma, CA 91701
Tel: (909) 587-9916
Fax: (909) 498-0423

August 2, 2017

Art Vela, Chairman
Beaumont Basin Watermaster
560 Magnolia Avenue
Beaumont, CA 92223

Subject: **Beaumont Basin Watermaster**
Draft Annual Report for Calendar Year 2016

Dear Mr. Vela:

ALDA Inc., in association with Thomas Harder & Co. is pleased to submit to you, as Chairman of the Beaumont Basin Watermaster, the Beaumont Basin Watermaster Annual Report for Calendar Year 2016. This draft report expands on the earlier format of the annual report by incorporating information previously presented in the biannual Engineering Report. As such, this Annual Report summarizes all production, spreading, and storage activities that took place during calendar year 2016. Further, it documents changes in water levels and storage conditions, as well as, an estimate of the Basin Operating Safe Yield for 2016. Finally, the report presents an evaluation of water quality conditions for the 2012-2016 five year period.

We will make a formal presentation to the Watermaster Committee during the upcoming Board meeting on August 2nd, 2016. We welcome your review and comments on this report and look forward to answering any questions you may have.

Should you have any questions on this matter, please contact us at 909-587-9916 during normal business hours.

Very truly yours

ALDA Inc.



F. Anibal Blandon, P.E.
Principal

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Abbreviations

ac-ft	acre-feet
ac-ft/yr	acre-feet per year
Banning	City of Banning
Basin	Beaumont Basin
BCVWD	Beaumont-Cherry Valley Water District
BMZ	Beaumont Management Zone
Beaumont	City of Beaumont
CDPH	California Department of Public Health
CVCOI	Cherry Valley Community of Interest
CY	calendar year
du	dwelling unit
FY	fiscal year
IRWMP	Integrated Regional Water Management Program
MCL	Maximum Contaminant Level
NL	Notification Level
NTU	Nephelometric Turbidity Units
OSWDS	On-Site Waste Disposal Systems
Pass Agency	San Gorgonio Pass Water Agency
PPCPs	Pharmaceutical and Personal Care Products
SGPWA	San Gorgonio Pass Water Agency
SMWC	South Mesa Water Company
STWMA	San Timoteo Watershed Management Authority
STWMP	San Timoteo Watershed Management Program
SWP	State Water Project
TDS	Total Dissolved Solids
UCR	University of California, Riverside
USEPA	United States Environmental Protection Agency
Watermaster	Beaumont Basin Watermaster Committee
YVWD	Yucaipa Valley Water District

Section 1
Background

The Fourteen Annual Report of the Beaumont Basin Watermaster Committee (Watermaster) consolidates the information about the basin previously presented in Annual Reports with the information presented in the bi-annual Engineer's Report. This report documents activities in the Beaumont Basin for Calendar Year 2016. Section 3 of the original annual report has been expanded and retitled as "Status of the Basin" to document the Administration of the Judgment as well as to provide a status of conditions in the basin addressing water production, water levels, and storage activities. In addition, a Water Quality section, Section 4, has been added to document historical water quality of selected compounds at selected wells, as well as, basin wide concentrations.

1.1 History of the Beaumont Basin Stipulated Judgment

In January 2001, the City of Beaumont (Beaumont), the Beaumont-Cherry Valley Water District (BCVWD), the South Mesa Water Company (SMWC), and the Yucaipa Valley Water District (YVWD) formed the San Timoteo Watershed Management Authority (STWMA). One of the initial tasks of STWMA was to develop a watershed-wide program to develop and implement a comprehensive management program for the San Timoteo watershed.

Phase I of the management program, documented in the San Timoteo Watershed Management Program, Phase I Report (WEI, 2002), included the following goals:

- Enhancing water supplies
- Protecting and enhancing water quality
- Optimizing the management of STWMA area groundwater basins
- Protecting riparian habitat in San Timoteo Creek and protecting/enhancing habitat in the STWMA area
- Equitably distributing the benefits and costs of developing the Integrated Regional Watershed Management Program for the San Timoteo watershed

One of the elements identified in the management plan to achieve the listed goals consisted in the establishment of a groundwater management entity for the Beaumont Basin. As a result of this initiative, two groups representing overlying users and water agencies with interest in this basin began negotiations in May 2002.

Over the next 18 months of negotiations, a Stipulated Agreement was developed and submitted to the Court. Honorable Judge Gary Tranbarger of the Superior Court of the State of California for the County of Riverside signed the Agreement, titled "San Timoteo Watershed Management Authority, vs. City of Banning, et al." (Case No. RIC 389197), on February 4, 2004, (the Judgment).

Pursuant to the Judgment, the Court appointed a five-member Watermaster Committee, consisting of representatives from each of the Appropriator parties: City of Banning, City of

Beaumont, Beaumont Cherry Valley Water District (BCVWD), South Mesa Water Company (SMWC), and Yucaipa Valley Water District (YVWD). The effective date of the Judgment for accounting purposes was retroactively established to July 1, 2003.

The Court gave the responsibility of managing the Basin to the Watermaster by approving the Stipulated Agreement but retained continuing jurisdiction should there be any future need to resolve difficult questions among the Parties.

1.2 Essential Elements of the Judgment

Elements of the 2004 Judgment are as follows:

- All producers shall be allowed to pump sufficient water from the Basin to meet their respective requirements.
- The Safe Yield of the Basin was established at 8,650 ac-ft/yr to be distributed among the Overlying Producers. The Safe Yield of the Basin is to be re-evaluated every 10 years, at a minimum.
- The Overlying Parties can extract a combined total of 8,650 ac-ft/yr. with individual rights set for each Overlying Producer. If an Overlying Party pumps more than five times its share of the operating safe yield in any five consecutive years, the overlying producer shall provide Watermaster with sufficient funds to replace the overproduction.
- A controlled overdraft of the basin is allowed to create enough additional storage capacity to prevent the waste of water. This controlled overdraft, also known as Temporary Surplus, allows Appropriators to extract up to 160,000 ac-ft of water from the basin over the 10-year period immediately following the Judgment inception. The Temporary Surplus will cease after the initial 10 years of operations.
- During the first ten years after adoption of the Judgment, the Appropriators have the right to extract, as a whole, a maximum of 16,000 ac-ft/yr not including storage credits from spreading supplemental water or transfers from Overlying Parties. The Temporary Surplus has been divided among the Appropriators as follows:

  - ✓ Beaumont Cherry Valley WD — 42.51 percent or 6,802 ac-ft/yr
  - ✓ City of Banning — 31.43 percent or 5,029 ac-ft/yr
  - ✓ South Mesa Water Company — 12.48 percent or 1.997 ac-ft/yr
  - ✓ Yucaipa Valley Water District — 13.58 percent or 2,173 ac-ft/yr

- After the first 10 years of operation, Appropriators can extract only the amount each has in storage or credited to them. An Appropriator shall provide Watermaster with sufficient funds to replace any amount of overproduction that may have occurred over a five-year consecutive period.
- The Watermaster has the authority to enter into Groundwater Storage Agreements with producers for the storage of supplemental water, wellhead protection and recharge, well

abandonment, well construction, monitoring, replenishment, mitigation of overdraft, and collection of assessments.

- Supplemental replenishment water can be in the form of recycled water, imported State Project Water, or other imported water. Replenishment can be accomplished by spreading and percolation, injection, or in-lieu use of surface water or imported water.
- A minimum of 200,000 ac-ft of groundwater storage capacity shall be reserved for conjunctive use. Any person, party to the Judgment can make reasonable beneficial use of the groundwater storage capacity for storage of supplemental water provided that it is in accordance with a storage agreement with Watermaster.
- Minimal producers, those producing less than 10 ac-ft/yr from the basin, and not listed in the Judgment, are exempt from the provisions of the Judgment.

1.3 Watermaster Responsibilities

Under the Judgment, the Watermaster is granted discretionary powers to develop and implement a groundwater management plan for the Beaumont Basin, including water quality and quantity considerations and being reflective of the provisions of the Judgment.

In carrying out its duties, Watermaster is responsible for providing the legal and practical means of ensuring that the waters of the Basin are put to maximum beneficial use. Specific responsibilities are summarized below.

1.- Administer the Beaumont Basin Judgment. Watermaster operates under the Judgment and the Rules and Regulations, which were originally adopted June 8, 2004, and subsequently amended in 2006 and 2008. The Judgment and the Rules and Regulations establish the procedures by which Watermaster accounts for the water resources of the Basin. Watermaster has the power to collect administrative assessments from all Appropriators and replenishment assessments from those parties (Appropriative and Overlying) pumping in excess of their pumping right to fund its operations. Each year, Watermaster publishes an Annual Report, which documents production and recharge activities in the Beaumont Basin.

2.- Approve Producer Activities. All producers must notify and obtain approval, as necessary, from Watermaster for activities, such as recharging water, transferring or exchanging water, storing local water, and storing or recovering supplemental water.

3.- Maintain and Improve Water Supply. On an annual basis, Watermaster determines the amount of groundwater that each producer is entitled to pump from the Basin without incurring a replenishment obligation. Further, Watermaster is responsible for facilitating and coordinating the acquisition, recharge, and storage of imported water or other local supplemental water to replenish and/or conjunctively manage the Basin to increase local supplies.

4.- Monitor and Understand the Basin. Watermaster is responsible for collecting information from producers, and other cooperating agencies, in order to enhance its knowledge of how the Basin works and manage it more effectively. Information collected by the Watermaster includes:

- Water production, water level, and water quality information from the Appropriator Parties.
- Water production and water level information from the Overlying Parties.
- Water level and water quality data collected by local agencies as part of their Maximum Benefit and Monitoring Program for the Beaumont Management Zone.
- Ground surface elevations from periodic surveys conducted to determine whether ground subsidence may be occurring as a result of over pumping from the basin.

5.- Maintain and Improve Water Quality. Watermaster coordinates and participates in local efforts to preserve and/or enhance the quality of groundwater in the Basin. It assists and encourages regulatory agencies to enforce water quality regulations that may have an effect on the Basin groundwater sources and its surrounding resources. One of these programs is the Maximum Benefit Monitoring Program of the Beaumont Management Zone.

6.- Develop and Administer a Well Policy. Watermaster is responsible for developing a policy on the proper construction and abandonment of wells in the Basin. Through the adoption of Resolution 2004-04, the Watermaster adopted minimum standards for the construction, repair, abandonment and destruction of groundwater extraction wells in the Beaumont Basin. As part of this resolution, Watermaster adopted Riverside County Ordinance No. 682.3 and expanded it to require the installation of a sounding tube in order to facilitate the measurement of water levels on all future wells.

7.- Develop Contracts for Beneficial Programs and Services. Watermaster is responsible for developing and entering into contracts for programs and services that are beneficial to the Basin on behalf of the Parties to the Judgment. This includes programs for conjunctively utilizing the Basin for the storage of supplemental water with other agencies and programs to implement and expand the direct or indirect use of recycled water.

8.- Provide Cooperative Leadership. Watermaster may act jointly or cooperate with other local, state, and/or federal agencies to develop and implement regional scale programs for the management of the Basin and its surrounding resources.

1.4 Watermaster Address

For the purposes of conducting Watermaster business and maintaining records, Watermaster's official address remains as follows:

Office of the Watermaster Secretary
C/O Beaumont-Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

1.5 Watermaster Website

Watermaster website address is www.beaumontbasinwatermaster.org. This website is maintained by the YVWD and it is used by the Watermaster to communicate its activities to the Parties and the public. The website contains copies of the Judgment, the Rules and

Regulations, Annual Reports, and Engineer's Reports. In addition, it contains meeting minutes, meeting agendas, and other documents of interest.

1.6 Mission Statement

Watermaster adopted the following mission statement in October 2004:

> *"Watermaster's mission is to manage the yield of and storage within the Beaumont Basin to provide maximum benefit to the people dependent on it."*

Section 2
Watermaster Activities

2.1 Makeup of the Board

During the December 4, 2013 regular meeting of the Beaumont Basin Watermaster, elections were held; the officers to the Watermaster Committee listed below were appointed for calendar year 2014. During the February 4, 2015 regular meeting a recommendation was made for the members of the Watermaster Committee to reaffirm the existing officers or conduct nominations for the appointment of new officers; however, no action was taken.

- Mr. Duane Burk – Chairman
- Mr. George Jorritsma – Vice Chairman
- Mr. Eric Fraser – Secretary
- Mr. Joseph Zoba – Treasurer

The Committee Representatives serving each Appropriator Party during CY 2015 were as follows:

- City of Banning - Duane Burk, Director of Public Works
- City of Beaumont – Kyle Warsinski, as an alternate member
- Beaumont-Cherry Valley Water District – Eric Fraser, General Manager
- South Mesa Water Company - George Jorritsma, General Manager
- Yucaipa Valley Water District - Joseph B. Zoba, General Manager

It should be noted that Mr. Burk only served as representative of the City of Banning during the first meeting in 2015. The City of Banning was represented by its alternate member, Mr. Art Vela for the remainder of the year.

Legal counsel during CY 2015 was provided by Alvarado Smith APC, represented by Keith McCullough and Thierry Montoya, while Engineering Services were provided by ALDA Inc., represented by Hannibal Blandon, in association with Thomas Harder & Company, represented by Thomas Harder.

2.2 Watermaster Accomplishments and Activities During 2016

2.2.1 Watermaster Meetings

A total of six regular meetings were held during CY 2016 on the following dates:

- February 3, 2016
- April 6, 2016
- June 1, 2016
- August 3, 2016
- October 5, 2016
- December 7, 2016

Agendas and approved minutes from each of the above meetings can be viewed at and/or downloaded from Watermaster's website or by making a request to the Watermaster Secretary. Pursuant to Resolution 2009-001, all of Watermaster's public records are open for inspection during office hours, provided that a written request to inspect said records has been submitted.

2.2.2 Watermaster Committee Resolutions

Resolution No. 2015-01 was adopted at the April 1st, 2015 Regular Watermaster Committee meeting. Through this resolution, the Final 2013 Reevaluation of the Beaumont Basin Safe Yield Report and Redetermination of the Safe Yield of the Beaumont Basin were adopted. See Technical Memorandum 15-07 for details.

2.2.3 Items Discussed in 2016

This section is simply an unofficial summary of topics addressed at Watermaster meetings. The Beaumont Basin Watermaster maintains official meeting minutes that report the items discussed and actions taken during normal and special meetings. Official meeting minutes may be accessed at: www.beaumontbasinwatermaster.org

The following items were discussed during the six meetings held in CY 2015 along with their resulting outcome.

Items Discussed During the February 3, 2016 Regular Watermaster Committee Meeting

- Reorganization of the Beaumont Basin Watermaster Committee [Memorandum 16-01]. Members Vela and Jorritsma were nominated and confirmed as Chairman and Vice-Chairman respectively. Members Fraser and Zoba were reaffirmed as Secretary and Treasurer respectively.

- Status Report on Water Level Monitoring throughout the Beaumont Basin [Memorandum 16-02]. Mr. Blandon gave a status report of the water level monitoring project.

- Discussion Regarding Task Order No. 9 for the Preparation of the 2015 Consolidated Annual Report, Estimate of the Basin Safe Yield, Update of the Groundwater Model, and Associated Consulting Services [Memorandum 16-03]. Watermaster Committee approved Task Order No. 9 for a sum not to exceed $81,940.00.

- Discussion Regarding Task Order No. 10 with ALDA Inc. for the Installation, Maintenance, and Data Collection of Water Level Monitoring Equipment in 2016 [Memorandum 16-04]. Watermaster Committee approved Task Order No. 10 for a sum not to exceed $18,840.00.

- Overview of the Sustainable Groundwater Management Act and Proposed Basin Boundary Revisions [Memorandum 16-05]. Member Zoba presented a proposed revision to the Beaumont Basin boundaries under the Sustainable Groundwater Management Act. After much discussion, member Fraser motioned and the Watermaster Committee approved to accept the proposed boundary as identified, and to develop a memorandum of understanding between the BCVWD and Beaumont Basin Watermaster to establish a groundwater sustainability agency (GSA) to manage the proposed sub-basin.

Items Discussed During the April 6, 2016 Regular Watermaster Committee Meeting

- Status Report on Water Level Monitoring throughout the Beaumont Basin [Memorandum 16-06]. A status report was presented, questions answered, and feedback from the Committee members provided.

- Consideration of Task Order No. 11 – Recalibration of the northwest portion of the Beaumont Basin groundwater model to more accurately represent water levels in the area [Memorandum 16-07]. Mr. Harder provided a background on the widening discrepancy between actual and estimated water levels in the northwest portion of the basin. The Watermaster Committee approved the task order to enhance the groundwater flow model for an amount not to exceed $ 10,850.00.

Items Discussed During the June 1, 2016 Regular Watermaster Committee Meeting

- Status Report on Water Level Monitoring throughout the Beaumont Basin [Memorandum 16-08]. A status report was presented, questions answered, and feedback from the Committee members provided.

- Status Update on the Refinement of the Beaumont Basin Groundwater Flow Model [Memorandum 16-09]. Mr. Harder highlighted how modifications to the model improved the overall model calibration. He further indicated that the enhanced model will be used to evaluate the change in storage for 2015.

- Engineer's Opinion on the Application by the San Gorgonio Pass Water Agency (SGPWA) for a Groundwater Storage Agreement in the Beaumont Basin [Memorandum 16-10]. Mr. Blandon provided engineering feedback on the application submitted by SGPWA. This was followed by significant discussion between members of the Watermaster Committee and Mr. Davis, SGPWA's General Manager. A motion was introduced to continue discussion at the August meeting to allow the development of contingencies guarantying that the account will be used to store water that is surplus to everyone's needs in the basin.

- Consideration of the Proposed Budget for Fiscal Year 2016-17 [Memorandum 16-11]. Member Zoba presented the proposed budget before adoption by the Watermaster Committee.

Items Discussed During the August 3, 2016 Regular Watermaster Committee Meeting

- Status Report on Water Level Monitoring throughout the Beaumont Basin [Memorandum 16-12]. Mr. Blandon gave a status report of the water level monitoring project.

- 2015 Consolidated Annual Report and Engineering Report [Memorandum No. 16-13]. Mr. Blandon presented information from the report including accomplishments of the Committee in 2015, groundwater conditions, production, and recharge, transfers and adjustments of rights, accounting of storage, and water quality in the basin.

Items Discussed During the October 5, 2016 Regular Watermaster Committee Meeting

- Status Report on Water Level Monitoring throughout the Beaumont Basin [Memorandum 16-14]. Mr. Blandon gave a status report of the water level conditions in the Beaumont Basin.

- Overview of Total Dissolved Solids (TDS) and Nitrate (N) in the Beaumont Basin and Surrounding Area [Memorandum 16-15]. Mr. Blandon reported on water quality issues documented in the 2015 Annual Report. Discussion ensued regarding the potential reasons for TDS spikes at various locations in the Beaumont Basin.

- Adoption of the 2015 Consolidated Annual Report and Engineering Report [Memorandum No. 16-16]. The Watermaster Committee adopted the 2015 Report.

- Concept for the Formation of a Groundwater Sustainability Agency (GSA) for the San Timoteo Basin [Memorandum 16-17]. Member Zoba provided background on the reasons for creating a GSA and explained that the Watermaster is already considered to be sustainable by virtue of the stipulated judgment. No decision was needed and none was made.

- Application by the San Gorgonio Pass Water Agency (SGPWA) for a Groundwater Storage Agreement in the Beaumont Basin [Memorandum 16-18]. Member Zoba reported that he had met with the General Manager to discuss the application and presented five stipulations or conditions to a potential agreement. Member Fraser suggested that the conditions be sent to the SGPWA's Board of Directors for vetting prior to drafting a final resolution. Further discussion of this item was postponed to the next meeting.

Items Discussed During the December 7, 2016 Regular Watermaster Committee Meeting

- Status Report on Water Level Monitoring throughout the Beaumont Basin [Memorandum 16-19]. Mr. Blandon gave a status report of the water level conditions in the Beaumont Basin and fielded questions by members of the Committee. He also indicated of field equipment troubles and the unresponsive support for Solinst. Member Fraser suggested looking at different vendors for monitoring equipment and to make a presentation at the next meeting.

- Discussion Regarding the Creation of a Return Flow Policy for the Beaumont Basin [Memorandum 16-20]. After an overview, Member Fraser motioned to direct staff to develop a return policy in which individual retail agencies are credited appropritately for the return

flows that occur within their service area as a result of their activities. The return policy is to be brought back to the Committee for additional discussion.

- Conditions Related to the Groundwater Storage Agreement in the Beaumont Basin for the San Gorgonio Pass Water Agency (SGPWA) [Memorandum 16-21]. Member Zoba reported that the Committee is ready to move forward with the agreement subject to the five conditions and that an update will be provided at the next meeting. SGPWA's General Manager made a commitment to have something for Committee consideration at the February 2017 regular meeting.

2.2.4 Redetermination of Safe Yield

Under the Judgment (2003) the Safe Yield of the Beaumont Basin was established at 8,650 ac-ft/yr. to be distributed among the Overlying Producers. The Judgment indicates that the Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of the Judgment (February 4, 2004).

At the February 2013 Watermaster meeting, the Watermaster Committee authorized a study to develop a hydrologic model of the groundwater basin to be used as a tool in the re-evaluation of the safe yield of the basin. At the February 2015 Watermaster meeting a formal presentation of the final-draft document was made to provide members of the Committee with an opportunity to ask questions and addressed any unresolved issues. The final document was presented for approval and adoption at the April 2015 Watermaster meeting.

Resolution No. 2015-01 was adopted at the April 1st, 2015 Regular Watermaster Committee meeting. Through this resolution, the Final 2013 Reevaluation of the Beaumont Basin Safe Yield Report and Redetermination of the Safe Yield of the Beaumont Basin were adopted.

The Beaumont Basin Watermaster re-determined the Safe Yield of the Beaumont Basin to be 6,700 ac-ft per year.

2.3 Storage Applications and Agreements

The first applications to use the Basin for storage purposes were approved in FY 2005-06 when Watermaster approved applications by Banning, BCVWD, SMWC, and YVWD to store up to 135,000 ac-ft of water in the Basin. The City of Beaumont's application to store water was approved by Watermaster in FY 2007-08 bringing the total storage allocation to 157,000 ac-ft. In FY 2009-10, Watermaster approved additional applications by Banning, BCVWD, Beaumont, and YVWD to increase the total storage allowed to 260,000 ac-ft. It is our understanding that the Watermaster Committee has not yet amended the respective Storage Agreements to reflect the current storage limits.

An application for a storage agreement was received by the Watermaster from the San Gorgonio Pass Water Agency (SGPWA) in mid 2010 and brought for discussion at the summer of 2012. The application was rejected because it was determined to be incomplete.

An application for a storage agreement was also received from the Morongo Band of Mission Indians at the December 2012 meeting. Watermaster deemed the application incomplete and

requested further information from the applicant to address questions posed by members of the Watermaster Committee. The application was subsequently approved at the June 5, 2013 meeting allowing the Morongo Band of Mission Indians to store up to 20,000 ac-ft of imported water in the basin.

As of December 31, 2015, the total storage allowed stands at 280,000 ac-ft; storage limits by participant are as follows:

- City of Banning 80,000 ac-ft
- City of Beaumont 30,000 ac-ft
- Beaumont Cherry Valley WD 80,000 ac-ft
- South Mesa Water Company 20,000 ac-ft
- Yucaipa Valley Water District 50,000 ac-ft
- Morongo Band of Mission Indians 20,000 ac-ft

A new application for Groundwater Storage Agreement was developed in early 2013; the application was presented and discussed at several Watermaster Committee meetings where input was received and questions were addressed. The new application was approved by the Watermaster Committee in August 2013 and will be used for future applicants.

After development of new forms and procedures, a new application by SGPWA was received in early 2016 to develop a Groundwater Storage Agreement. This application has been discussed over several Watermaster Committee meetings and is anticipated to be approved in mid 2017.

2.4 Rules and Regulations

The original Rules and Regulations of the Watermaster were adopted on June 8, 2004. The Judgment provides for their periodic update as deemed necessary by the Watermaster. On September 9, 2008, the Watermaster adopted Rule and Regulation 7.8, entitled “Availability of Unused Overlying Production and Allocation to the Appropriator Parties”. The objective of this rule is to define the process through which unused production by Overlying Parties is allocated to the Appropriator Parties. The unused water will be allocated based on each Appropriator’s percent share of the operating safe yield, as described in Exhibit C of the Judgment. This allocation will have no impact on the legal water rights owned by the Overlying Parties in subsequent years. The initial allocation to take place on or after February 4, 2009.

No changes to the Rules and Regulations were made during Calendar Year 2016.

2.5 Active Party List

Part VII, Paragraph 1 of the Judgment, indicates that Watermaster shall maintain an updated list of parties to whom notices are to be sent for service. Said list should include names, addresses for the Parties or their successors. A copy of the list has been included with this annual report as Appendix A.

2.6 Financial Management

The Watermaster must develop and administer a budget for all administrative, operational, and capital costs it incurs. The following discussion summarizes the budget established for the Fiscal Year 2016 operations.

2.6.1 Budget

The budget for Fiscal Year 2016 was initially approved at the June 1, 2016 Watermaster Committee meeting. The approved budget provided funding for Administrative expenses in the amount of $128,050.00 , an increase of $15,000.00 or 13.3 percent from the prior year of $113,050.00. Funding for administrative expenses was covered from a carryover of $15,000.00 and water agencies contributions of $22,610.00 each. The approved budget did not include any funds for Special Projects as the basin model update and the Safe Yield studies were completed in the previous two years.

The proposed budget for FY 2017 includes $183,050.00 for administrative expenses; no budget was allocated for special projects. Funding for administrative expenses is expected to be cover from water agencies contributions of $ 36,610.00 each. The following table presents a comparison between the final budgets for FY 2014-15, final budget for FY 2015-16, and approved budget for FY 2016-17.

Operating Expense	*FY 2014-15 Approved Budget*	*FY 2015-16 Approved Budget*	*FY 2016-17 Approved Budget*
Administrative Expenses			
Bank Fees and Interest	$ 50.00	$ 50.00	$ 50.00
Miscellaneous and Meetings	$ 500.00	$ 500.00	$ 500.00
Acquisition/computation & Annual Report	$ 75,000.00	$ 85,000.00	$ 90,000.00
Annual Audit	$ 2,500.00	$ 2,500.00	$ 2,500.00
Engineering Services	$ 10,000.00	$ 10,000.00	$ 20,000.00
Monitoring and Data Acquisition			$ 25,000.00
Meter Installation and Repair			$ 10,000.00
Legal Expenses	$ 15,000.00	$ 20,000.00	$ 20,000.00
Reserve Funding	$ 10,000.00	$ 10,000.00	$ 15,000.00
	$ 113,050.00	**$ 128,050.00**	**$ 183,050.00**
Special Project Expenses			
Engineering	$ 22,500.00	$ 0.00	$ 0.00
Litigation	$ 2,500.00	$ 0.00	$ 0.00
	$ 25,000.00	**$ 0.00**	**$ 0.00**
Total Operating Expense	**$ 138,050.00**	**$ 128,050.00**	**$ 183,050.00**

2.6.2 Financial Audit

The Beaumont Basin Watermaster has a financial audit performed on annually on a fiscal year basis. The audit assists in properly accounting for the revenues and expenses of the Watermaster and tracking the financial resources of the agency. The detailed audit report for FY 2016, prepared by Rogers, Anderson, Malody, and Scott, LLP, has been completed, but not presented to the Watermaster Committee as of the time of this writing.

It is anticipated that the financial audit report will be presented at the June 7, 2017 meeting as an agenda item. This report will be included in the final 2016 Annual Report, scheduled for delivery at the October 2017 meeting.

Section 3
Status of the Basin and Administration of the Judgment

The Beaumont Basin Watermaster is responsible for the accounting of groundwater production, recharge of supplemental water, groundwater transfers and storage activities in the Beaumont Basin. Since the inception of the Judgment accounting has been conducted on a fiscal year basis starting on July 1, 2003.

Through the adoption of Resolution No. 2011-01, on September 21, 2011, Watermaster changed the accounting from a fiscal year basis to a calendar year basis starting in CY 2011. The conversion of Fiscal Year basis to Calendar Year basis was documented in the Annual Report for CY 2011 adopted by the Board in early 2013. The annual report for CY 2016 builds on the information presented in previous annual reports.

3.1 Climate, Hydrology and Hydrogeology

3.1.1 Climate

The Beaumont Basin is located in a semi-arid region characterized by warm summers and mild winters with average summer high temperatures in the mid to upper 90s (Fahrenheit) and average winter low temperatures in the mid to low 40s. Precipitation in the region occurs as snowfall in the upper elevations of the San Bernardino Mountains to the north and rainfall in the Basin. Annual precipitation in the Beaumont Basin, as recorded at the County of Riverside's Beaumont Station 013 averaged 17.15 inches over the 100-year period between 1917 and 2016. On the average, 11.94 inches of precipitation, or 70 percent of total, fell during the winter between December and March.

Figure 3-1 illustrates annual precipitation at this station for the reporting period including a plot of the cumulative departure from the mean (CDFM) precipitation. This parameter is used to assess the occurrence, duration, and extent of wet and dry precipitation cycles. Upper trending periods in the graph represent periods with above average precipitation such as the 1913-46 period; average precipitation during this period was 20.5 inches or close to 16 percent above the long-term average. Other above average precipitation periods include the 1977-83 and 1990-98 periods. Conversely, down trending periods indicate periods of below average precipitation as in the 1947-77 period when average precipitation was only 15.2 inches. The 1984-90 period with seven consecutive years of below average precipitation was also characterized as a dry period.

Currently, the Basin is in a dry period that began in 1999. During this 17-year period three of the five years with the lowest precipitation ever recorded at Station 13 have occurred; 6.3 inches (lowest ever) in 1999, 7.40 inches in 2013, and 8.07 inches in 2009. It should be noted that the average precipitation during the base period (1997-2001) used to determine the safe yield of the Basin was 13.43 inches, close to 25 percent below the long-term average for the Basin.

3.1.2 Surface Water Hydrology

There are three significant drainage systems that overlie the Beaumont Basin: the San Timoteo Creek drainage system which is tributary to the Santa Ana River; the Potrero Creek drainage system in the San Jacinto watershed; and the Smith Creek drainage system tributary to the White Water River which is part of the Salton Sea drainage basin.

Surface water flows originate in the San Bernardino Mountains to the north of the Basin. The streams and creeks that flow into the Beaumont Basin are dry for most of the year with occasional runoff during rainfall events. There are no stream gages in the Basin that can be used to estimate surface water recharge to the Basin or discharge from the Basin.

3.1.3 Hydrogeology

3.1.3.1 Regional Geologic Context

The Beaumont Basin is located in the San Gorgonio Pass, a low-relief highland that is bordered on the north by the San Bernardino Mountains, on the southeast by the San Jacinto Mountains, and on the west by the San Timoteo Badlands. Surface sediments in the Beaumont Basin and nearby lowlands consist of unconsolidated to semiconsolidated Quaternary alluvium. Surrounding the alluvial sediments are semiconsolidated rocks of the San Timoteo Formation and igneous and metamorphic rocks that make up the San Jacinto and San Bernardino Mountains (see Figure 3-2). The San Timoteo Formation is composed primarily of sandstone, conglomerate, siltstone, and mudstone (Rewis, et al., 2007). The igneous and metamorphic rocks form the crystalline basement rocks in the area (Bloyd, 1971). The unconsolidated Quaternary alluvium and the upper portion of the underlying San Timoteo Formation constitute the water-bearing aquifer of the Beaumont Basin (Rewis, et al., 2007).

3.1.3.2 Faults

The boundaries of the Beaumont Basin are based on faults that often form barriers to groundwater flow (Bloyd, 1971). Major faults in the area include the Banning and Cherry Valley faults, which form the northern boundary of the basin (see Figure 3-2). Groundwater levels within the Beaumont Basin are generally lower than groundwater levels in the surrounding areas. Along the Banning Fault, groundwater levels on the north side of the fault and outside the basin are as much as 400 ft higher than groundwater levels on the south side of the fault and inside the basin. The same condition has been observed along the southern Beaumont Basin boundary.

3.1.3.3 Groundwater Occurrence and Flow

Groundwater in the Beaumont Basin occurs at depth in the Quaternary alluvium and the underlying San Timoteo Formation. Groundwater flow within the Beaumont Basin generally depends on location with respect to a groundwater flow divide which occurs in the center of the basin, approximately coincident with the Noble Creek drainage (see Figure 3-2). West of the Noble Creek drainage, groundwater generally flows to the northwest and ultimately as

underflow beneath San Timoteo Wash. East of the Noble Creek drainage, groundwater flows to the southeast towards the City of Banning.

The groundwater system in the Beaumont Basin is replenished from multiple sources. These include:

- Infiltration of precipitation within the unlined portions of natural streams
- Subsurface seepage across fault boundaries
- Return flow from irrigation and individual septic systems
- Artificial recharge in man-made basins (e.g. Noble Creek Recharge Facility).

Groundwater discharges from the Beaumont Basin primarily occur from:

- Groundwater production
- Underflow out of the basin at the downgradient margins
- Rising water in San Timoteo Creek
- Evapotranspiration

3.2 Production

The Beaumont Basin Watermaster is responsible for the tracking and accounting of groundwater production by all producers named in the Judgment regardless of the amount of groundwater produced. Other producers, not listed in the Judgment, and pumping less than 10 ac-ft /yr., also known as minimal producers, are exempt from the provisions of the Judgment. Figure 3-3 illustrates the location of all production wells that belong to the Appropriators and Overlying parties of the Judgment.

3.2.1 Appropriative Party Production

There are five Appropriative Producers; namely, City of Banning, City of Beaumont, the BCVWD, the SMWC, and the YVWD. The amount that each Appropriator produces in any given year, without incurring a replenishment obligation, varies from year to year and results from a combination of:

- Their share of the Operating Yield, based on the Temporary Surplus of 16,000 ac-ft/yr for all Appropriators,
- Transfers from other Appropriators,
- Transfers of unused production from Overlying Producers,
- Water withdrawn from their storage account, and
- New yield created by the Appropriator.

It should be noted that beginning in 2014, the Temporary Surplus is no longer available to the Appropriators as it officially ended during Fiscal Year 2013.

Annual production by well for each of the five Appropriative Parties for the CY 2003-2011 period is summarized in Table 3-1A while monthly production for the last five years of operation (CY 2012-16) are presented in a series of tables starting with Table 3-1B for CY 2012 and continuing on an annual basis through Table 3-1F for CY 2016. Tables 3-1B (2012) and 3-1C (2013) also include the overall Temporary Surplus Allocation and the amount of unused production that is eligible for storage for each Appropriator. The year 2013 was the last year that the Temporary Surplus was allocated. It should be noted that all production by Appropriators is currently being metered; however, no information is available as to the accuracy of existing meters.

During CY 2016, Appropriators pumped a combined amount of 11,989.70 ac-ft of groundwater from the Beaumont Basin representing the fifth lowest annual production year since the inception of the Judgment. While groundwater production by Appropriators in CY 2016 was 8.1 percent higher than 2015 production, it was approximately 10 percent lower than the 10-year running average of 13,270 ac-ft/yr.

Compared to groundwater production totals for CY 2015, production for individual agencies in CY 2016 was mixed. The City of Banning production dropped by 12 percent; however, production by BCVWD and SMWC increased by 13 percent and 11 percent respectively. Production by YVWD was rather minimal as less than five ac-ft were pumped during the year. A comparison of production against a 10-yr running average, all agencies underproduced. BCVWD production was lower by less than one percent while production by the City of Banning and SMWC were lower by 23 and 17 percent respectively. YVWD production was less than one percent of the 10-yr average.

3.2.2 Overlying Party Production

Overlying Parties are defined in the Judgment as persons, or their assignees, that are part of the Judgment and who are owners of land which overlies the Beaumont Basin and have exercised Overlying Water Rights to pump therefrom. Overlying Parties include successors in interest and assignees. Overlying Producers were assigned a share of the Basin's Safe Yield, estimated in 2003 at 8,650 ac-ft/yr. Individual Overlying Producers may not pump more than five times their assigned share of the Basin's Safe Yield in any five-year consecutive period without incurring a replenishment obligation.

Currently, there are 17 Overlying Producers in the Basin pumping from 22 groundwater wells. All active wells operated by the larger producers are metered. Meters were installed by individual owners or as part of an effort initiated by Watermaster in 2013 to obtain a closer production accounting from Overlying Parties. Production from metered wells represented close to 99 percent of the total production by Overlying Parties in CY 2016.

The remaining wells, operated by smaller producers, did not have meters for some or most of 2016 and their production is estimated using the water duty method. This method was initially proposed by Wildermuth Environmental Inc. (WEI), during the preparation of the 2005-06 Annual Report. After being accepted by the Watermaster, an updated water duty method was developed by WEI and it has been used since. The estimate of unmetered production for the CY 2016 Annual Report uses the updated method developed by WEI as detailed in Appendix C.

Similar to the production reported for the Appropriators, a series of tables was developed to report monthly and annual production from the Overlying Parties on a calendar year basis. Starting with Table 3-2A, annual production is documented for CY 2003-11; Table 3-2B through 3-2F summarize monthly production by Overlying well for CY 2012 through CY 2016. In addition, these tables show their share of the safe yield and the amount of unused water for each Overlying Party is shown. It should be noted that these tables have been revised to reflect updated production records from Sharondale Mesa Owner Association since 2011.

During CY 2016, Overlying Producers produced an estimated 1,683 ac-ft; this level of production is approximately 7.7 percent lower than in 2015 and the lowest on record since accounting began in 2003. Part of the reason is related to revisions made to production totals by Oak Valley Partners in CY 2015. Production by this Overlying Party has been reported in the past at approximately 310 ac-ft per year under the assumption that a significant amount of water has been produced for agricultural purposes. A field visit to the property conducted in early April 2015 revealed that agricultural production has not taken place in that area since 2008. In addition, two of the four wells have been abandoned and the other two produce minimally; annual production has been conservatively estimated at 2.5 ac-ft/yr. Production quantities from this Overlying Producer were revised for CY 2008 through 2016.

3.2.3 2003-2015 Annual Production Summary

Annual production for all Appropriators and Overlying Parties since 2003 is summarized in Table 3-3 on a calendar year basis. Production from 2003 only includes production for the second half of the year. Since July 2003, a total of 211,999 ac-ft have been pumped from the Beaumont Basin; an estimated 83 percent of this total has been pumped by Appropriators. The percentage of groundwater production from Appropriators has steadily increased since the Judgment inception from a low of 74.3 percent registered in CY 2003 to a high of 89 percent recorded in CY 2014 and has averaged 87.2 percent over the last five calendar years.

Groundwater production peaked in CY 2007 when close to 20,000 ac-ft were pumped from the basin; since, it declined steadily through 2010 to approximately 13,600 ac-ft; however, production during the 2011-14 period increased by 23.6 percent. Total groundwater production from the basin in CY 2016 was only 13,673 ac-ft; the fourth lowest recorded since the inception of the judgment. Of this amount, 11,989.7 ac-ft were pumped by Appropriators representing close to 88 percent of total production. Annual production for each of the Appropriators and for the Overlying Producers combined is depicted in Figure 3-4.

3.3 Groundwater Recharge

The Watermaster is responsible for maintaining an annual account of all water artificially recharged in the Beaumont Basin and any losses of water supplies or Safe Yield resulting from such recharge water. Sources of groundwater recharge include imported water from the State Water Project (SWP), recycled water, and new yield sources developed in the basin since the Judgment inception in July 2003. The Watermaster has maintained the accounting of groundwater recharge; however, losses from the basin, if any, have not been estimated. Table 3-4 presents a summary of the annual groundwater recharge in the Beaumont Basin since 2003 on a calendar year basis.

3.3.1 State Water Project Water Recharge

BCVWD's Noble Creek spreading facility, located in the vicinity of Beaumont Avenue and Cherry Valley Boulevard, is the only facility in the Beaumont Basin where deliveries of imported water can be used to recharge the groundwater basin. The location of this spreading facility is depicted in Figure 3-3. Deliveries of imported water are conducted through the San Gorgonio Pass Water Agency, which is the State Water Contractor for this area.

The BCVWD began taking deliveries of imported water for groundwater recharge in the Fall of 2006 when 3,501 ac-ft were spread pursuant to the storage and recharge agreement on file with Watermaster. Deliveries of imported water for BCVWD increased over the next five years peaking in CY 2011 at 7,979 ac-ft and declining through 2015 to an all-time low of 2,773 ac-ft. Spreading of imported water in CY 2016 at 9,319 ac-ft was the highest recorded. A total of 58,531 ac-ft of imported water have been spread by the BCVWD since 2006 as illustrated in Table 3-4. Values provided by the SGPWA for CY 2016 need to be checked against information to be provided by the BCVWD.

The City of Banning began purchasing imported water for recharge at the BCVWD's Noble Creek facility in July 2008 and has since recharged 10,592 ac-ft. in accordance with their storage agreement on file with Watermaster. During CY 2012 and 2013, the City of Banning spread an average of 100 ac-ft per month; spreading in CY 2014 and 2015 was reduced to approximately half of the amount spread during the previous two years. However, spreading in CY 2016 increased again to 1,477 ac-ft.

In addition to imported water deliveries to BCVWD's Noble Creek facility, SGPWA has also delivered significant quantities of imported water at the Little San Gorgonio Creek Spreading Ponds. These spreading ponds are located outside the adjudicated boundary of the Beaumont Basin and to the north of the Banning Fault, as shown in Figure 3-3. Spreading of imported water at these spreading ponds is likely to be a source of subsurface recharge to the Beaumont Basin; however, Watermaster has not adopted this finding. Subsurface recharge across the Banning Fault was investigated as part of the Safe Yield of the Basin determination study, completed in early 2015.

Deliveries of imported water by the SGPWA to the Little San Gorgonio Creek Spreading Ponds began in August 2003; the agency has since recharged a total of 10,507 ac-ft averaging 808 ac-ft/yr. Deliveries in CY 2013, at 881 ac-ft, were less than half of the amount spread in CY 2011 and CY 2012. Deliveries in CY 2014 through CY 2016 were basically non-existent as less than 44 ac-ft were spread in those three years combined. Currently, the SGPWA is in the process of finalizing a storage agreement with the Beaumont Basin Watermaster.

3.3.2 Recycled Water Recharge

Prior to March 2010, Beaumont's recycled water from Wastewater Treatment Plant No. 1 was discharged at Discharge Point No. 1 (DP-001) in Cooper's Creek where it infiltrates into the San Timoteo Management Zone and outside the Beaumont Basin. Starting in March

2010, Beaumont began deliveries of recycled water to Discharge Point No. 7 (DP-007), located along an unnamed tributary of Marshall Creek, as shown in Figure 3-3. It is believed that a portion of the recycled water discharged at this location reaches and recharges the Beaumont Basin; should this be the case, this would be considered a new source of supplemental water for which Beaumont should receive credit pursuant to the storage agreement with the Watermaster and Section 5.4 of the Rules and Regulations. Technical documentation of the amount of recycled water that reaches and recharges the Beaumont Basin would need to be prepared by Beaumont and considered and accepted by Watermaster. It should be noted that deliveries to DP-007 ceased in the Fall of 2015 due to mechanical failure of a pump station.

In CY 2016, the City of Beaumont discharged an estimated 3,533 ac-ft of recycled water at DP-001 in Cooper's Creek; no discharges were made at DP-007. Recycled water discharges in CY 2016 were approximately five percent higher than in CY 2015. Monthly discharges at DP-001 vary slightly monthly from a low 3.01 mgd in March to a high of 3.26 mgd in August; the average for the year was 3.15 mgd. Monthly recycled water discharges by the City of Beaumont since 2007 are summarized in Table 3-5.

3.3.3 New Yield Stormwater Recharge

Before accounting for any new yield resulting from the recharge of local surface water, not initially considered as part of the Basin Safe Yield, Watermaster needs to develop a methodology to quantify and credit the New Yield to the party that creates the new recharge. According to Part VI Paragraph 5.V of the Judgment, Watermaster shall make an independent scientific assessment of the estimated new yield created by each proposed project. It is our understanding that the City of Beaumont has been recharging local waters at various locations in the Basin and would like to receive credit for the New Yield developed. For Beaumont to receive credit however, Watermaster will need to develop the methodology to compute and credit the New Yield dating back to the Judgment inception in February 2003 or since delivery of flows began, whichever is latest.

3.4 Water Transfers and Adjustments of Rights

Section 7 of the Watermaster Rules and Regulations, as amended in September 2008, provides for the adjustment of rights by and between Appropriators and Overlying Parties. This section indicates that Watermaster shall maintain an accounting for all transfers and include said transfers in the Annual Report or other relevant document. There are three types of transfers that Watermaster accounts for: a) transfer of water rights and/or water in storage between Appropriator Producers, b) transfer of water rights from Overlying Producers to an Appropriator Producer in exchange for water service, and c) the allocation of unused Overlying Water to the Appropriator Parties based on their share of the Operating Safe Yield.

According to Part VI, Administration, Paragraph 5Y of the Judgment, the Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years after the date of entry of the Judgment, February 4, 2004. In 2015 the Safe Yield of the Beaumont Basin was redetermined and estimated at 6,700 ac-ft/yr. This amount represents a 22.54 percent reduction from the previous estimate of 8,650 ac-ft/yr. Table 3-6 presents the initial and

revised production rights from individual Overlying Producers and compares them against actual groundwater production during the 2012-16 five year period for each user. Annual average groundwater production during this period for all Overlying Producers combined was estimated at 1,893 ac-ft/yr; representing approximately 28 percent of the revised safe yield. Individually, none of the Overlying Producers produced more than their allowable production rights during this five year period; Sharondale Mesa Owners Association produced the highest percentage of their respective allocation at 78.6 percent followed by California Oak Valley Golf and Resort LLC at 77.8 percent and Tukwet Canyon Golf Club at 60.7 percent.

3.4.1 Transfers between Appropriators

According to Section 7.3 of the Rules and Regulations, an Appropriator may transfer all or a portion of its production right or water in storage that exceeds its supply needs to another Appropriator. In January 2008, the SMWC and the BCVWD entered into a transfer agreement that allows BCVWD the option to purchase all water that SMWC determines to be available for transfer from their storage account. As part of the agreement, each year the SMWC estimates the amount of water available for transfer and offers it to the BCVWD for purchase prior to offering it to other Appropriators. Since the beginning of the agreement, SMWC has transferred 9,500 ac-ft of water to BCVWD with 3,500 ac-ft transferred in CY 2011. SMWC also transferred 1,500 ac-ft of water to Banning in CY 2007. The purchase agreements and transfers between these agencies are on file with Watermaster. Water transfers between Appropriators were not reported during CY 2016.

3.4.2 Transfers of Overlying Rights for Service by an Appropriator

The Judgment, under Part III, Paragraph 3, provides that to the extent an Overlying Party request water service from an Appropriator Party, and uses its adjudicated water rights to obtain said service; an equivalent volume of groundwater shall be reserved for the Appropriator Party providing the service to the Overlying Party. Further, Section 7 of the Rules and Regulations indicates that both the Overlying and Appropriator will file a Notice of Adjustments of Rights with Watermaster within 30 days after entering a service agreement.

The BCVWD has given verbal notification to Watermaster that is providing potable service to certain Overlying Parties; however, formal notification by either party for the adjustment of water rights has not been received by Watermaster. A formal notification will be required to complete the transfer of water rights from one or more Overlying Producers to BCVWD; the notification should be retroactive to the time service began. Upon formal completion of the transfer, Watermaster will be required to recalculate the allocation of unused Overlying Water to the Appropriators, as documented in Section 7 of the Rules and Regulations.

In early 2013, BCVWD provided detailed documentation of all the parcels now served by the District that were previously owned by Overlying Users including parcels owned by Oak Valley Partners, Southern California PGA, and Plantation on the Lake. The accounting of this information has been challenged by the Morongo Band of Mission Indians representatives. As of the time of this writing, the accuracy of the information has not been corroborated and it is therefore not included in this report.

3.4.3 Allocation of Unused Overlying Water

Section 7.8 of the Rules and Regulations, adopted on September 9, 2008, by Watermaster, outlines the process for distributing the volume of adjudicated water not produced by the Overlying Parties to the Appropriators. Under this section, if an Overlying Party produces less than five times of their share of the safe yield in any five-year period, the quantity of groundwater not produced by that Overlying Party shall be made available for allocation to the Appropriators. Transferring of unused production from Overlying Users does not diminish their legal right to produce in subsequent years.

Since the inception of the Judgment, transfers of unused production by Overlying Users has been made on a fiscal year basis coinciding with the preparation of the annual report. Preparing the annual report on a calendar year basis required that the transfers of unused production also be made on the same basis. Based on the five-year format used in the Rules and Regulations, transfers to the Appropriator Parties for CY 2016 were based on unused production from Overlying Users in CY 2011. This required the recalculation of Overlying Users production, back to July 2003, on a calendar year basis. Under this format, unused production from the second half of 2003, with adjusted water rights for half of the year, was allocated to Appropriators for CY 2008. Table 3-7 summarizes the volume of unused Overlying water for CY 2003 through CY 2016. While groundwater production by Overlying Users has decreased by over 40 percent since 2004, the volume of unused overlying water has correspondingly increased from 5,053 ac-ft/yr in CY 2006 to a maximum of 6,679 ac-ft during CY 2011. The amount of unused production decreased significantly in CY 2014 and CY 2015 to slightly over 4,800 ac-ft/yr because of reduced Overlying allocations resulting from the new basin Safe Yield of 6,700 ac-ft/yr.

Table 3-7 presents the allocation of unused Overlying water to each Appropriator based on their shares of the safe yield and the schedule set forth under Section 7.8 of the Rules and Regulations. It should be noted that this schedule has been modified to reflect a calendar year basis for allocation. Under the modified schedule, unused Overlying production in CY 2011, estimated at 6,679 ac-ft, is allocated to Appropriators during CY 2016. Unused Overlying production during CY 2016, estimated at 5,017 ac-ft and subject to revision, would be allocated to Appropriators during CY 2021.

3.5 Storage Accounting

Section 6.7 of the Watermaster Rules and Regulations indicates that Watermaster shall calculate additions, extractions, and losses of all water stored and any losses of water supplies or Safe Yield resulting from such water stored. This section further indicates that Watermaster shall keep and maintain for public record an annual accounting thereof. While additions (spreading) and extractions (pumping) are easily quantifiable, losses from storage are more difficult to estimate. A methodology for estimating groundwater losses from the Basin is anticipated to be developed after the completion of the groundwater model update of the Beaumont Basin in CY 2015.

3.5.1 Annual Storage Consolidation

Consistent with the new reporting format to document extractions, spreading and other groundwater activities on a calendar year basis, Table 3-8 represents the consolidation of each Appropriator's storage account from CY 2003 through CY 2016. This table includes annual production by Appropriator, their share of Temporary Surplus, supplemental water recharge in its various forms, transfers between Appropriators, potable deliveries to parcels previously owned by Overlying Users, and transfers of unused water from Overlying Users. At the end of 2015, an overall total of 95,629.9 ac-ft of water were stored in the Basin for future use; this total increased in CY 2016 by 5,795 ac-ft to a cumulative total of 101,425.0 ac-ft. Increased spreading of imported water by BCVWD and the City of Banning along with low production totals by YVWD and SMWC were the primary reasons for the increase in groundwater storage. Despite of the expiration of the Temporary Surplus allocation at the end of CY 2013, the amount of water in storage at the end of CY 2016 was 612 ac-ft higher. The amount of water in storage by party at the beginning and end of CY 2016 is as follows:

Agency / Party to the Judgment	Calendar Year 2016 (ac-ft)		
	Beginning	Ending	Change
City of Banning	47,887.5	49,990.8	2,103.4
BCVWD	25,567.6	27,565.9	1,998.3
City of Beaumont	0.0	0.0	0.0
South Mesa Water Company	8,198.4	8,987.5	789.1
Yucaipa Valley Water District	13,976.4	14,880.8	904.4
Morongo Band of Mission Indians	0.0	0.0	0.0
TOTAL in storage	95,629.9	101,425.0	5,795.1

3.6 Changes in Groundwater Levels in the Beaumont Basin

3.6.1 Analysis of Groundwater Level Changes

Changes in groundwater flow and groundwater levels between 2015 and 2016 were evaluated using a calibrated groundwater flow model that was previously developed to reevaluate the safe yield of the Beaumont Basin (TH&Co, 2015). For this analysis, the existing calibrated model was updated with groundwater pumping, recharge, and groundwater levels through the end of 2016. A model-generated groundwater contour map was created for Fall 2016 and compared to the model-generated Fall 2015 groundwater contour map in order to evaluate changes in groundwater flow patterns and basin-wide changes in groundwater levels. The model-generated groundwater contour maps for 2015 and 2016 are shown on Figures 3-5 and 3-6, respectively.

Groundwater flow within the Beaumont Basin generally depends on location with respect to a groundwater flow divide which occurs in the center of the basin approximately coincident with the Noble Creek drainage. West of the Noble Creek drainage, groundwater generally flows to the northwest and ultimately towards San Timoteo Wash. East of the Noble Creek drainage, groundwater flows to the southeast towards the City of Banning. The groundwater flow directions did not change significantly between 2015 and 2016 except near the Noble Creek Recharge Facility where a localized mount can be seen in 2016.

Basin-wide groundwater level trends in the Beaumont Basin were evaluated based on hydrographs from eights key wells and the groundwater level change map developed by subtracting the 2015 groundwater surface from the 2016 groundwater surface (See Figures 3-7 and 3-8). In the northwest portion of the basin (YVWD 34 and Singleton Ranch 7), groundwater levels remained stable or increased between November 2015 and November 2016. At Tukwet Canyon Golf Club C, groundwater levels continued a steady decline in 2016 that has been observed since 2003. When evaluated on a long-term basis, groundwater levels in wells in the western portion of the basin have shown a general long-term decline since approximately 2005.

As shown on Figure 3-8, groundwater levels in the north central portion of the basin rose as much as 40 ft in 2016 as a result of renewed recharge at the Noble Creek Artificial Recharge facility. Conversely, groundwater levels in TW-1, located on the northeast corner of the recharge facility continued a decline that had started in 2014. This well is perforated in the lower aquifer and typically shows a delayed response to groundwater recharge relative to wells perforated in the upper aquifer.

In the south-central portion of the basin, groundwater levels at Oak Valley No. 1 increased in 2016 by over 10 feet. At BCVWD Well No. 2, groundwater levels rose in March 2016 to the highest levels in eleven years, declined in the summer, and have been rising since September. At Banning Well C-4 (southeast Beaumont Basin), groundwater levels were rising in April, declined in the summer, and began increasing in October.

The variability of groundwater levels at BCVWD Well No. 2 and Banning Well C4 are likely due to seasonal pumping patterns in these areas. Groundwater levels in the northeast portion of the basin (335714116565002) have been trending upward since 2010 and have remained mostly stable in 2016.

3.6.2 Analysis of Change in Groundwater Storage

Basin-wide change in groundwater storage between Fall 2015 and Fall 2016 was analyzed as a function of the difference in groundwater levels across the basin and the specific yield of the aquifer sediments. Groundwater level change across the basin was analyzed using the following procedure:

1. The Fall 2014 and Fall 2015 model-generated groundwater contour maps were each converted into three-dimensional raster surfaces.
2. The basin was discretized into 100-ft by 100-ft grid cells.

3. Attributes were assigned to each grid cell including groundwater level change and specific yield.
4. The resulting attribute table was processed in a Geographic Information System (GIS) for calculating the change in storage.

The specific yield distribution used for the analysis was obtained from the calibrated groundwater flow model used to evaluate the safe yield of the Beaumont Basin, as summarized in TH&Co (2015).

Results of the analysis show an increase in groundwater storage within the adjudicated basin of approximately 1,279 acre-ft between Fall 2015 and Fall 2016. The net storage increase is attributable to artificial recharge of imported water at the Noble Creek Artificial Recharge facility. Most of the western and southern areas showed decreases in groundwater in storage

3.7 Operating Safe Yield

For purposes of this annual report, the annual operating safe yield (OSY) describes the net infiltration to the adjudicated groundwater basin (not including artificial recharge) for any given year. It is noted that the OSY is different than the Operating Yield, which is a function of the unused overlyer production (Appropriative Water) and Temporary Surplus, as described in the Beaumont Basin Judgment (San Timoteo Management Authority v. Banning et al., 2004).

Operating safe yield is estimated based on the following equation:

$$OSY = \frac{\Sigma P + \Delta S - \Sigma AR}{\Delta T}$$

where:

ΣP	=	The sum of groundwater production (ac-ft)
ΔS	=	The change in groundwater storage (ac-ft)
ΣAR	=	The sum of groundwater recharge (ac-ft)
ΔT	=	The time over which the OSY is estimated (years)

Total Beaumont Basin groundwater production in calendar year 2016 was 13,777 ac-ft (see Table 3-3). Total artificial recharge in calendar year 2016 was 10,746 ac-ft (see Table 3-4). It is noted that only the Noble Creek Recharge Facility recharge was used in the analysis of OSY (recharge at the Little San Gorgonio Creek facility is not included because it is outside the adjudicated area). The change in groundwater storage estimate is based on the analysis of groundwater levels described earlier in this TM. The period of time over which the OSY is evaluated is one year. The resulting OSY is estimated as:

$$OSY = \frac{13,777 + 1,279 - 10,796}{1} = 4,260 \text{ ac-ft}$$

It is emphasized that the OSY, as presented herein, is based on one year of data. When evaluated on a long-term basis, this methodology can be used to estimate the long-term Safe Yield of the basin, as defined in the Beaumont Basin Judgment. As required by the Judgment, the Safe Yield of the basin was reevaluated in 2013.

It is also noted that there are a number of data limitations that could impact the OSY estimate. These limitations include:

- Accuracy of Overlyer Production Data – Production data from many of the Overlying Parties is not metered but is estimated based on a water duty method (Wildermuth Environmental, 2012). In addition to inherent limitations in this methodology, there are, in some cases, discrepancies between groundwater production estimated using the water duty method and production reported by individual parties to the California State Water Resources Control Board. Resolution of Overlyer Production is anticipated to affect the OSY (plus or minus) on the order of hundreds of ac-ft (not thousands).

- Change in Storage Calculation – Although groundwater storage change estimates will always have inherent uncertainty, it is possible to develop more representative results through collection and analysis of additional data. These data include:

    - ✓ Static groundwater levels from dedicated non-pumping wells. There is evidence that groundwater levels measured in some wells had not recovered fully between pumping cycles in the w ell and were not, therefore, representative of true static conditions. This can be addressed by waiting longer after pumping to collect groundwater levels or constructing/designating non-pumping groundwater monitoring wells in strategic areas.
    - ✓ Measurement of surface water flow in selected drainages, hydrogeological data near Noble Creek and San Timoteo Creek, and hydrogeological analysis of faults in the basin to help achieve a better calibrated model, resulting in more accurate groundwater head distributions. Bettering our understanding of the hydrogeology of this area will help improve the accuracy of the model and its output.

3.8 Recommendations

The Rules and Regulations, initially adopted in June 2004, were developed with the understanding that they should be revisited and/or revised from time to time to make sure they were consistent with the provisions of the Judgment. Revisions to the Rules and Regulations have been made over the years with the latest revision changing the reporting of Watermaster activities from a fiscal year basis to a calendar year basis.

Since the completion of the previous report, Watermaster is in the process of conducting additional groundwater studies, expected to be completed by early 2015, that may be used to address some of the recommendations from previous years including:

- The development of a methodology to account for new yield from capturing local stormwater in the basin.
- The development of a methodology to account for groundwater storage losses in the basin resulting from the spreading of additional water sources.
- The development of a methodology to account for recycled water recharge.

In preparing this annual report and through the review of previous annual reports, we have identified a number of issues/activities that should be considered by the Watermaster to ensure accurate accounting of production, transfers, recharge, and storage. It should be noted that many of the recommendations provided in this section have been previously documented in prior annual reports. Our recommendations are as follows:

- Develop a protocol to increase the accuracy and consistency of data reported to the Watermaster. Watermaster should identify a person and/or entity to be the central repository for data collection, transfer, and exchange. This person/entity shall be responsible for the collection and distribution of all groundwater production, water level, groundwater recharge, and water quality information. Quality control of the data in its various forms including checks for errors, omissions, and inconsistencies between the reporting agencies and/or parties should be part of this process.
- Develop a policy to account for transfers of water that may result when an Appropriator provides water service to an Overlying Party. Section 7 of the Rules and Regulations, Adjustments for Rights, provides initial guidelines to execute this transfer; however, it needs to be enhanced in the following areas: a) data requirements to complete the transfer, b) review process by Watermaster, c) schedule for completion so that proper accounting of transfers can be given and documented in the annual report.

As indicated earlier, Watermaster should revisit the Rules and Regulations to ensure that its activities are consistent with the requirements of the Judgment. The following inc onsistencies between guidelines provided in this document and current Watermaster activities were identified:

- Watermaster has not conducted a meter maintenance program, as required under Section 3.1 of the Rules and Regulations, to make sure groundwater production is reported accurately. Individual parties may or may not maintain and calibrate their production meters at acceptable intervals.
- Under Section 3.2 of the Rules and Regulations, producers producing in an excess of 10 ac-ft/yr. should report on a monthly basis by the 15th day of the ensuing month while those producing less should file on an annual basis by the 15th of July. This

provision should be revised as it was written for fiscal year accounting. Overlying Parties producing less than 10 ac-ft/yr should report by the 15th of January now that calendar year accounting is used. Proper supporting information should be provided.

- Watermaster has not enforced the submittal of notices of transfers prior to accounting for said transfers as defined in Sections 7.1 through 7.5 of the Rules and Regulations.
- Watermaster has not filed its annual reports with the Court. The Watermaster Board should make a formal determination as to whether the annual reports should be filed with the Court.

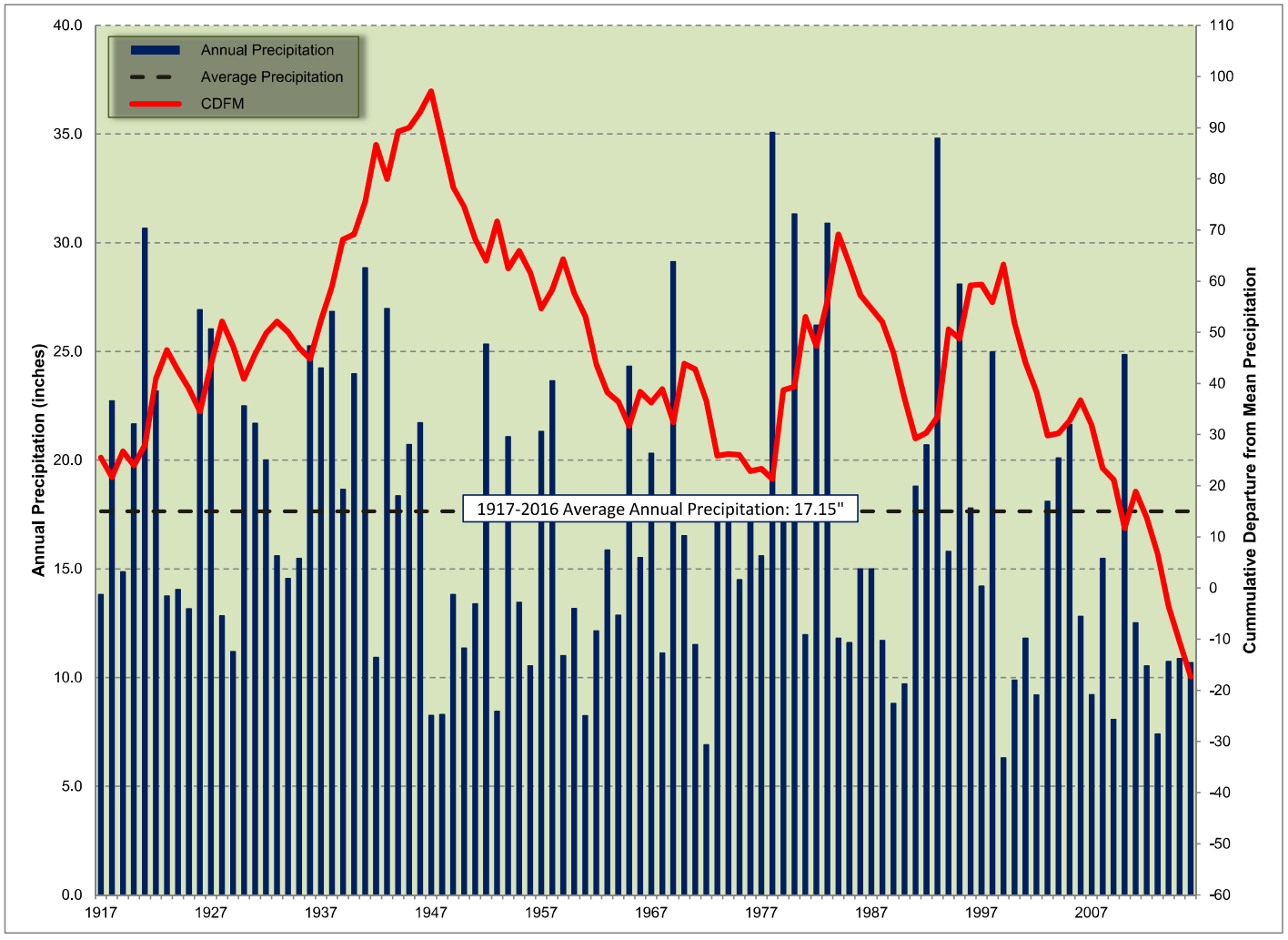
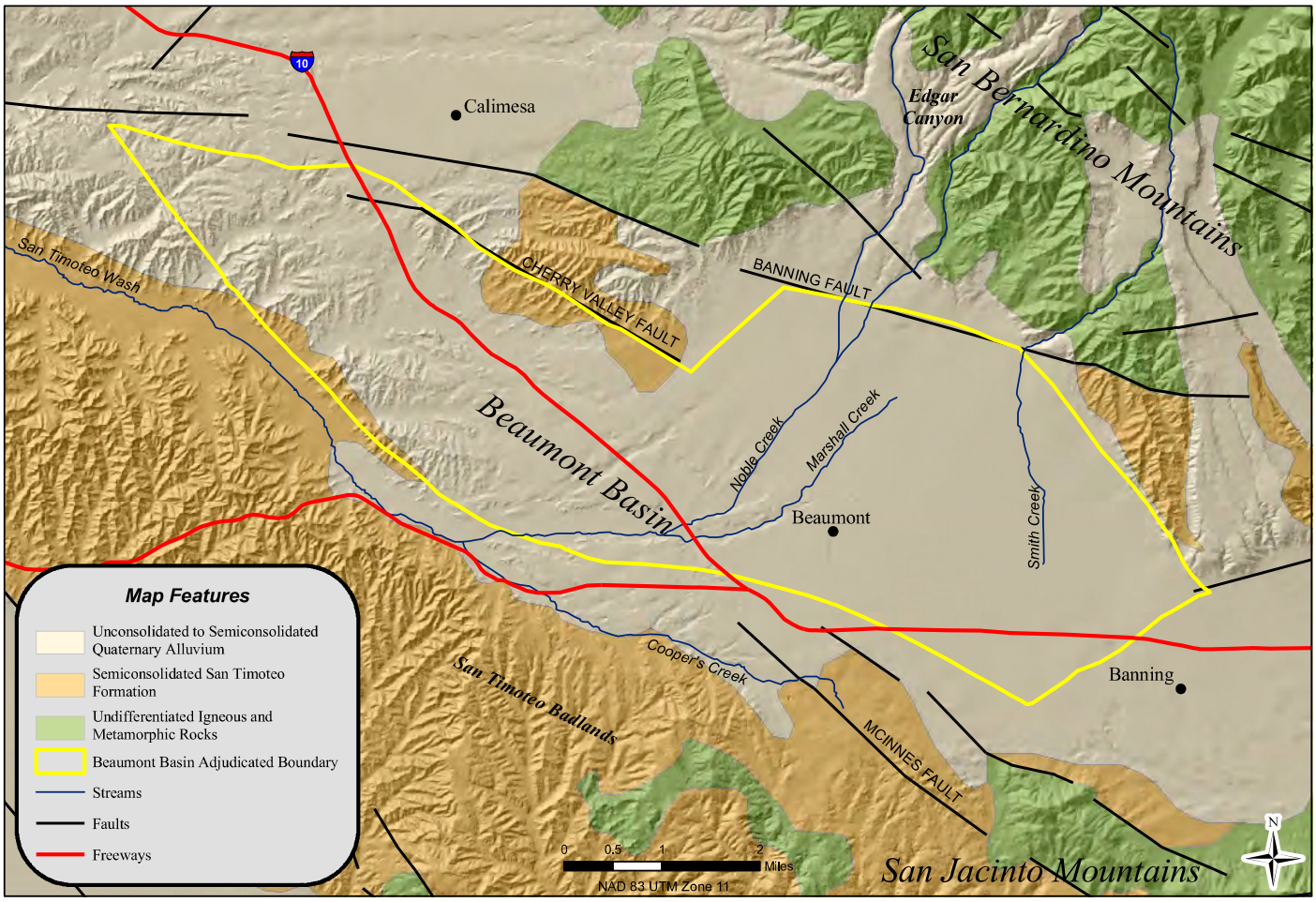


Figure 3-1
Annual Precipitation with Cummulative Departure from the Mean (1917-2016)



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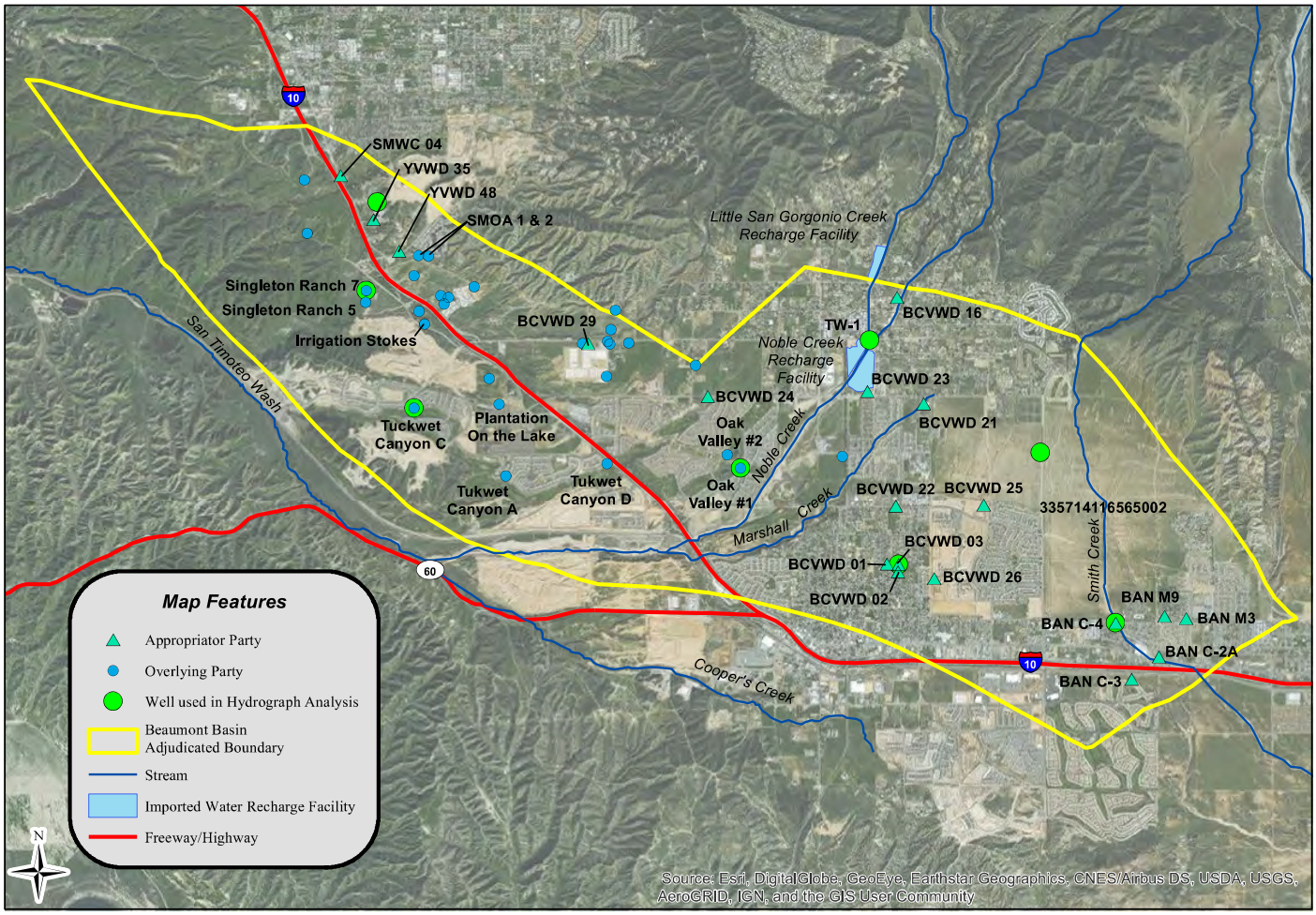
Thomas Harder & Co.
Groundwater Consulting

Geology of the Beaumont Basin
Figure 3-2



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0 0.5 1 2 Miles
NAD 83 UTM Zone 11

Well Locations in the Beaumont Basin
Figure 3-3

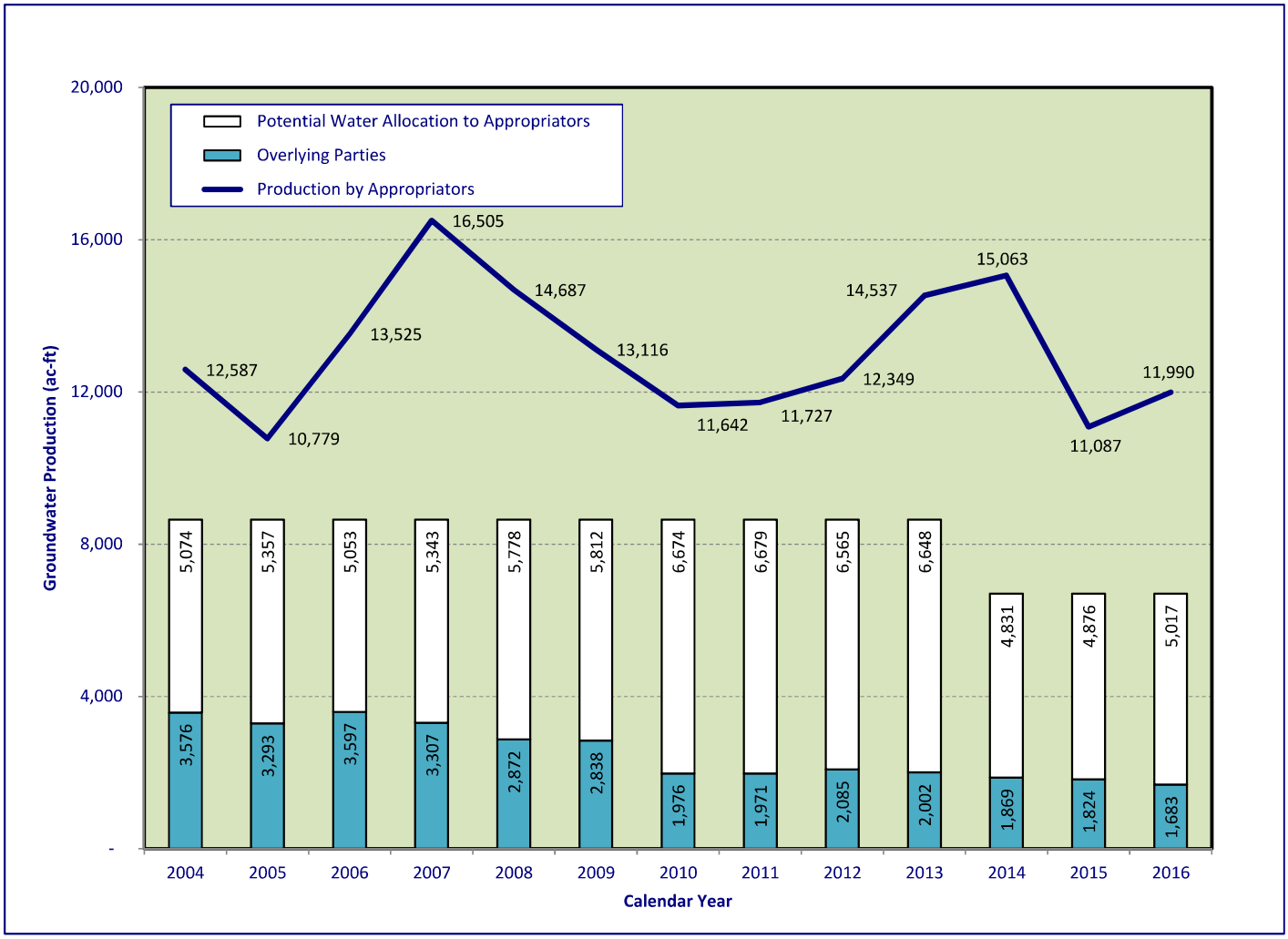
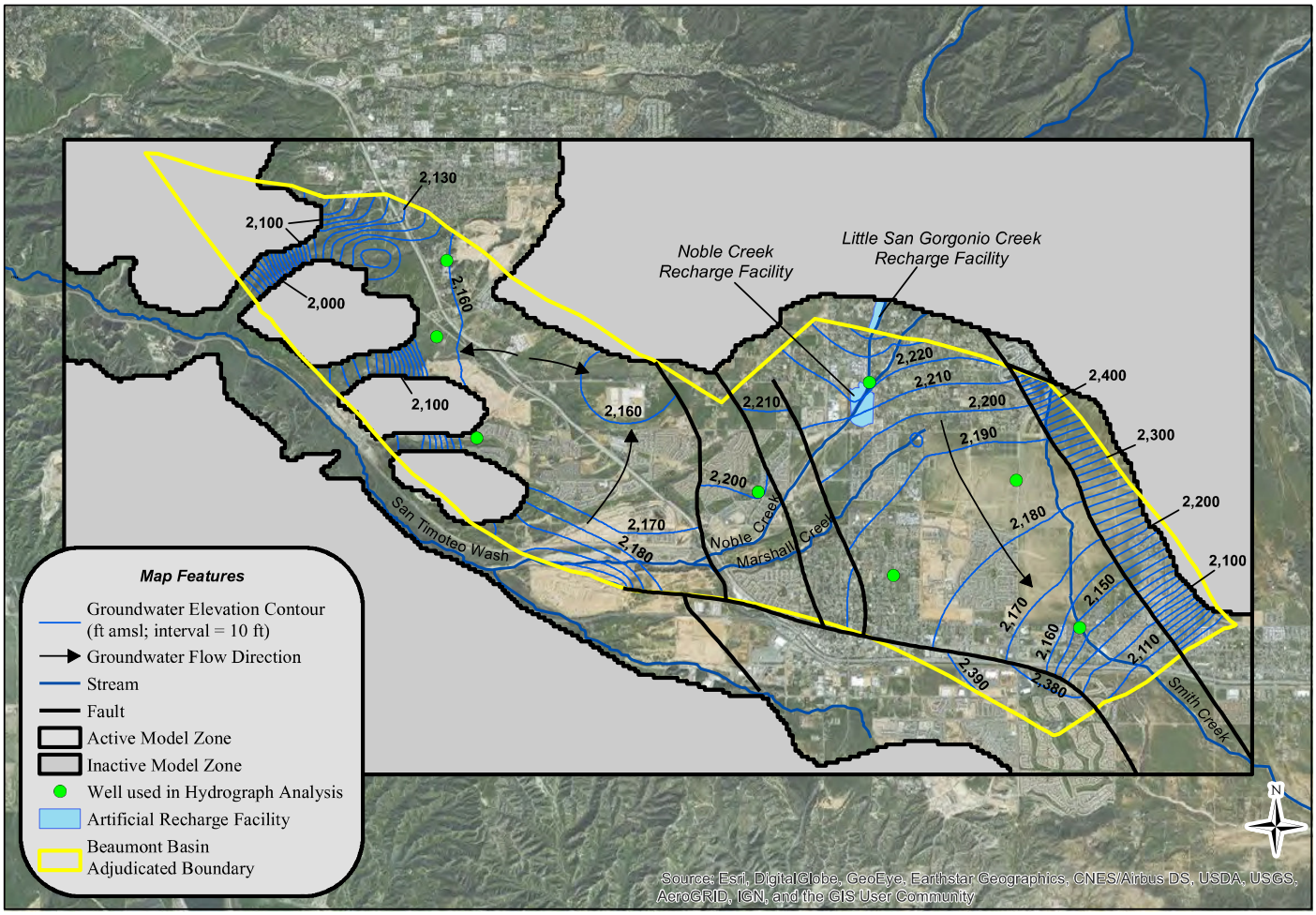


Figure 3-4
Annual Production by Appropriators and Overalying Users (2004-16)



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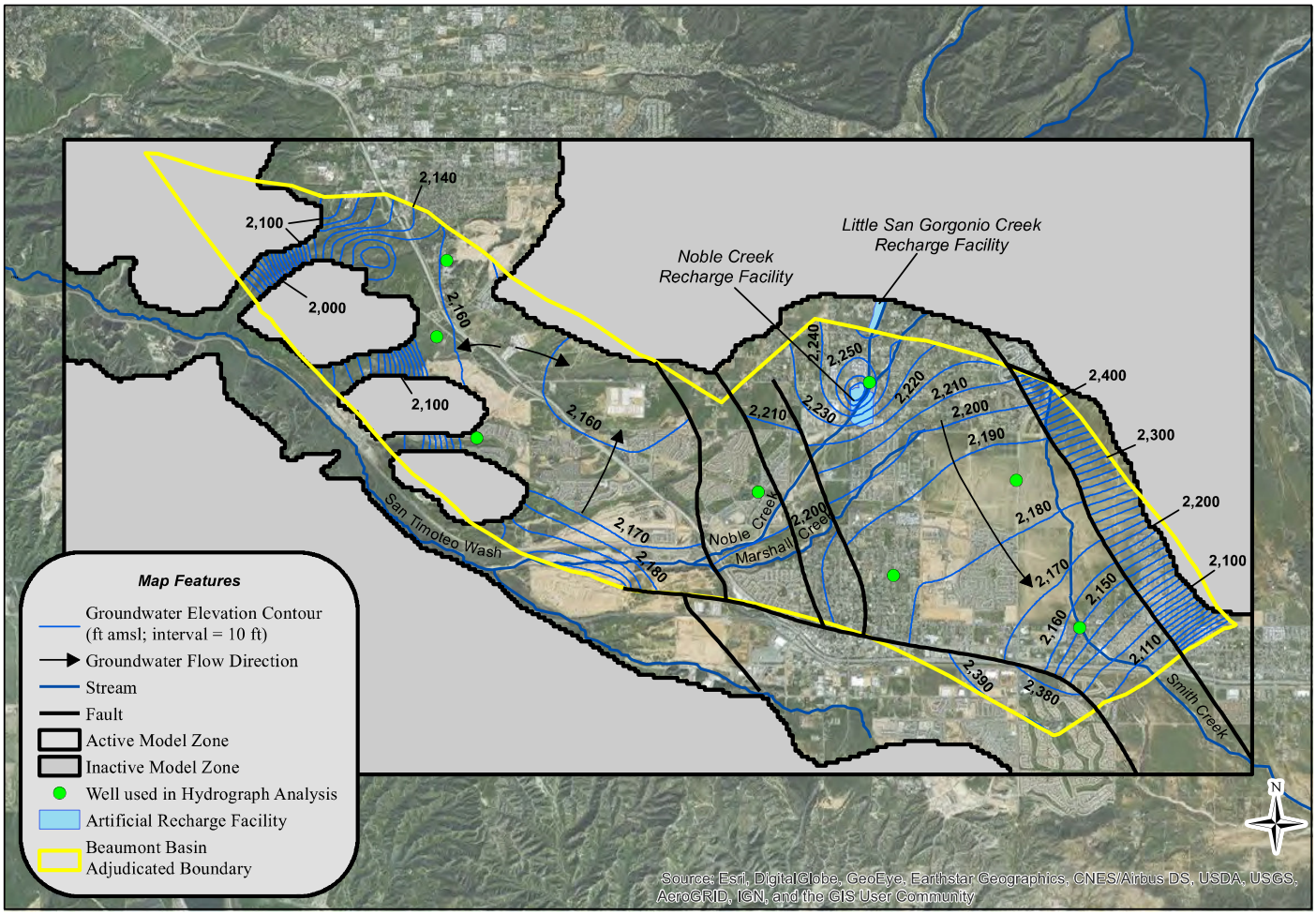
Groundwater Consulting

0 0.5 1 2
Miles
NAD 83 CA State Plane Zone 6

Groundwater Elevation Contours in the Beaumont Basin - Fall 2015
Figure 3-5



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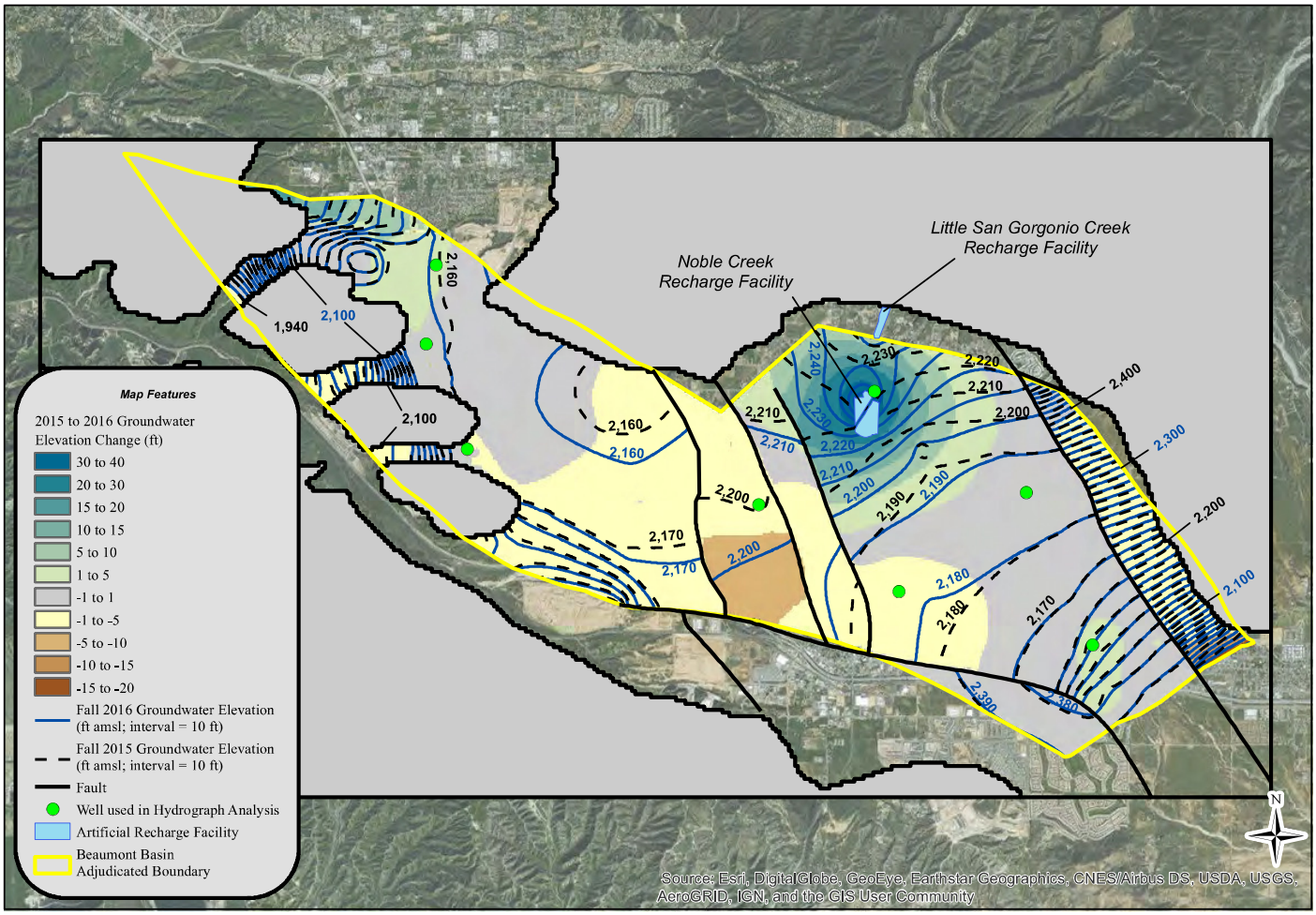
0 0.5 1 2 Miles
NAD 83 CA State Plane Zone 6

Groundwater Elevation Contours in the Beaumont Basin - Fall 2016
Figure 3-6



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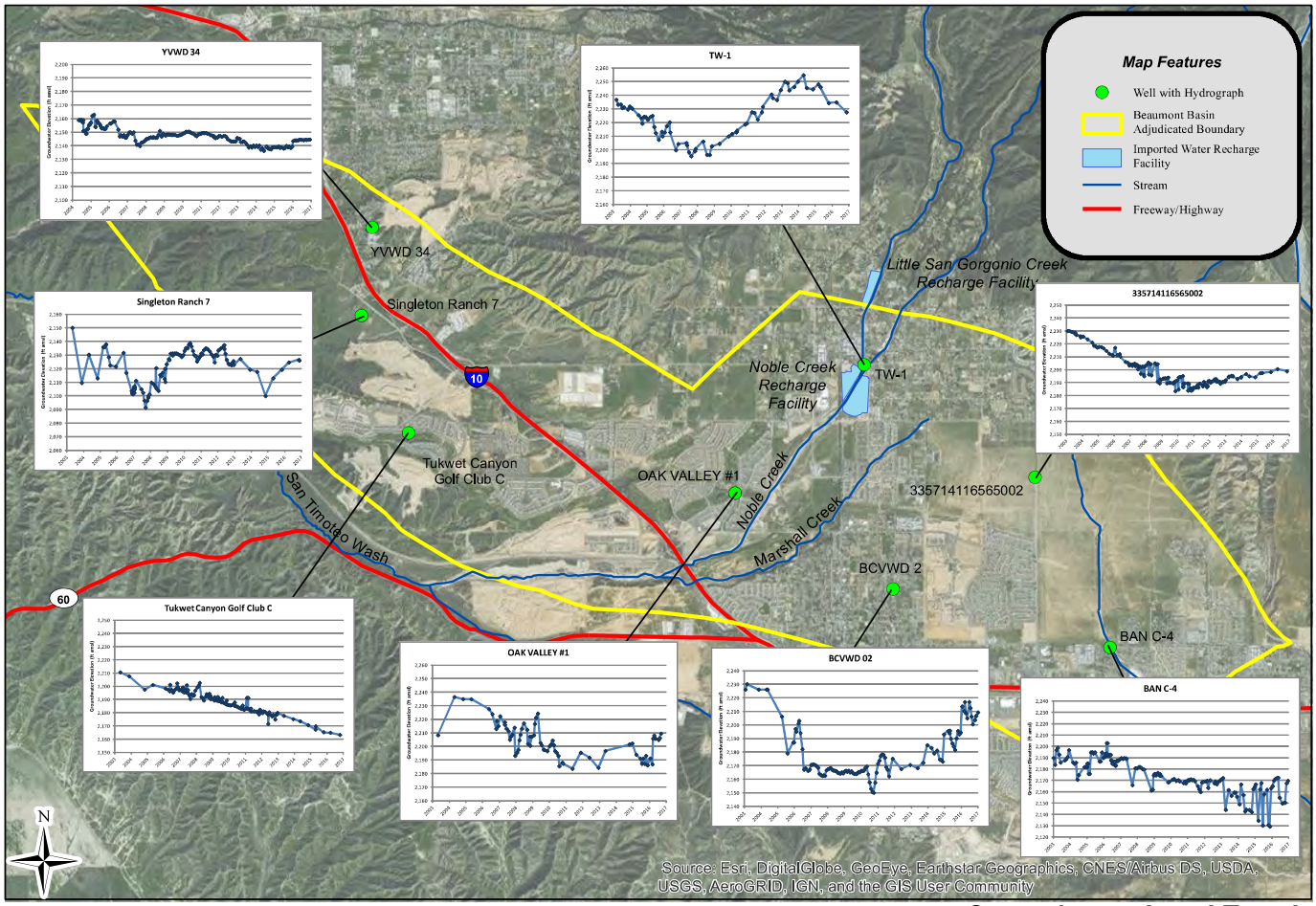
0 0.5 1 2 Miles
NAD 83 CA State Plane Zone 6

Change in Groundwater Elevation
2015 - 2016
Figure 3-7



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0 0.5 1 2
Miles
NAD 83 UTM Zone 11

Groundwater Level Trends at Key Wells

Figure 3-8

Table 3-1A
Appropriator Producer - Summary of Annual Production (2003 to 2010)

Owner & Well Name	Water Production by Well (ac-ft/yr) [1]								
	2003 [2]	2004	2005	2006	2007	2008	2009	2010	2011
Banning, City of									
Well C2-A	619.2	710.7	0.4	6.8	288.1	382.3	119.8	26.8	32.5
Well C3	517.7	1,026.6	521.2	235.3	511.6	552.5	733.0	843.0	776.6
Well C4	448.3	1,135.7	387.8	276.8	673.9	664.3	472.6	51.4	197.5
Well M3	525.7	169.8	532.8	671.9	726.0	583.3	294.8	80.0	335.1
Well M9	63.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
From BCVWD [3]	0.0	354.5	366.4	636.7	572.9	751.3	474.8	142.5	0.0
Annual Production	**2,174.2**	**3,397.3**	**1,808.6**	**1,827.5**	**2,772.6**	**2,933.6**	**2,095.0**	**1,143.6**	**1,341.7**
Eligible for Storage [4]	340.3	1,631.7	3,220.4	3,201.5	2,256.4	2,095.4	2,934.0	3,885.4	3,687.3
Beaumont Cherry Valley Water District									
Well 1	5.9	978.3	1,244.2	1,149.1	1,283.8	976.9	894.1	809.1	461.7
Well 2	960.2	1,628.2	117.6	0.0	0.0	0.0	0.0	0.0	0.0
Well 3	675.1	936.0	841.6	749.7	1,357.3	1,310.2	1,139.5	775.6	535.6
Well 16	554.6	1,103.7	735.6	537.7	348.3	414.9	452.0	11.9	153.8
Well 21	832.8	1,252.5	2,299.5	1,996.3	2,424.7	2,446.1	1,784.1	8.7	1,473.3
Well 22	483.3	1,125.3	405.7	1,062.6	1,056.8	1,105.3	265.1	381.7	95.1
Well 23	0.0	204.3	1,747.9	1,963.9	3,018.3	2,491.7	982.7	1,930.4	982.1
Well 24				2,231.7	2,467.1	2,093.1	2,045.4	2,199.6	2,045.7
Well 25						127.6	1,060.7	1,300.4	1,188.6
Well 26						495.9	1,187.9	1,312.2	1,435.3
Well 29							797.1	834.4	1,060.3
To Banning [3]	0.0	-354.5	-366.4	-636.7	-572.9	-751.3	-474.8	-142.5	0.0
Annual Production	**3,511.9**	**6,873.9**	**7,025.6**	**9,054.1**	**11,383.3**	**10,710.5**	**10,133.9**	**9,421.3**	**9,431.3**
Eligible for Storage [4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Mesa Water Company									
3rd No. 4 Well	223.2	482.5	663.2	616.0	665.8	470.9	382.2	405.0	419.9
Annual Production	**223.2**	**482.5**	**663.2**	**616.0**	**665.8**	**470.9**	**382.2**	**405.0**	**419.9**
Eligible for Storage [4]	774.8	1,513.5	1,332.8	1,380.0	1,330.2	1,525.2	1,613.8	1,591.0	1,576.1
Yucaipa Valley Water District									
Well 35	58.9	226.3	117.5	220.0	163.8	3.2	0.0	0.0	0.0
Well 48	1,103.5	1,607.4	1,163.7	1,807.2	1,519.1	568.8	504.4	672.4	534.1
Annual Production	**1,162.4**	**1,833.7**	**1,281.3**	**2,027.3**	**1,682.9**	**572.0**	**504.4**	**672.4**	**534.1**
Eligible for Storage [4]	0.0	339.3	891.7	145.7	490.1	1,601.0	1,668.6	1,500.6	1,638.9
Annual Production	**7,071.7**	**12,587.4**	**10,778.6**	**13,524.9**	**16,504.6**	**14,687.0**	**13,115.6**	**11,642.3**	**11,727.1**
Eligible for Storage	**1,115.1**	**3,484.5**	**5,445.0**	**4,727.2**	**4,076.7**	**5,221.5**	**6,216.4**	**6,977.0**	**6,902.3**

1.- Calendar Year Production. All values rounded and subject to revision based on receipt of more accurate information.

2.- 2003 Production only includes from July to December to account for first half of Fiscal Year 2004 Production.

3.- Pursuant to Part I, Paragraph 3 B of the Judgment, and a separate Agreement (a copy of which is on file with the Watermaster).

4.- Volume of water available for storage is equal to the positive difference between the temporary surplus allocation and the volume of groundwater produced by each agency. Temporary surplus based on 16,000 ac-ft/yr allocated from Fiscal Year 2004 to Fiscal Year 2013. Annual allocation is as follows: a) City of Banning, 5,029 ac-ft/yr, b) Beaumont Cherry Valley Water District, 6,802 ac-ft/yr, c) South Mesa Water Company, 1,996 ac-ft/yr, and d) Yucaipa Valley Water District, 2,173 ac-ft/yr. Allocations for 2003 are based on 50 percent of the annual allocation to acount for the second half of the year only.

Table 3-1B
Appropriator Producer - Summary of Production for Calendar Year 2012 (ac-ft)

Owner & Well Name	Water Production by Appropriator (ac-ft) [1]												Total Production	Eligible for Storage [2]
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Banning, City of														
Well C2-A	0.5	0.4	0.4	2.3	0.3	0.7	1.4	6.1	0.2	0.2	0.4	0.2	13.1	
Well C3	95.4	82.2	64.5	85.2	107.5	25.9	20.1	47.1	41.4	29.9	8.6	0.3	607.9	
Well C4	0.7	0.7	0.4	0.2	1.0	13.3	2.2	26.9	23.4	3.0	1.0	0.2	73.0	
Well M3	0.6	0.2	0.5	1.4	0.6	76.1	80.0	72.3	68.4	37.9	2.3	3.9	344.2	
Well M9		-	-	-	-	-	-	-	-	-	-	-	0.0	
From BCVWD [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal	**97.1**	**83.4**	**65.8**	**89.1**	**109.5**	**116.1**	**103.6**	**152.3**	**133.3**	**71.0**	**12.4**	**4.7**	**1,038.3**	**3,990.7**
Beaumont Cherry Valley Water District														
Well 1	-	-	-	3.02	72.03	18.84	-	-	-	-	-	-	93.9	
Well 2	-	-	-	-	-	-	-	-	-	-	-	-	0.0	
Well 3	-	-	-	2.99	60.85	130.94	150.25	140.12	90.97	64.36	60.38	15.76	716.6	
Well 16	-	-	0.01	-	17.17	45.11	72.41	53.98	39.05	8.15	15.87	3.27	255.0	
Well 21	192.55	165.40	193.32	174.32	205.19	209.22	216.61	200.54	211.30	180.71	0.77	85.08	2,035.0	
Well 22	-	1.50	-	-	18.64	141.42	136.12	76.60	106.07	34.37	-	-	514.7	
Well 23	24.66	99.04	82.69	28.94	-	1.04	40.21	188.67	94.27	157.50	115.95	21.67	854.6	
Well 24	143.87	139.27	124.45	155.98	107.88	185.79	207.00	138.86	145.87	148.56	160.36	106.24	1,764.1	
Well 25	100.50	27.80	-	78.74	222.76	245.35	257.70	238.09	264.00	139.88	76.09	30.02	1,680.9	
Well 26	97.20	93.20	76.80	54.20	147.45	147.78	131.49	126.50	115.35	121.99	104.40	64.56	1,280.9	
Well 29	1.59	-	-	30.41	85.06	138.76	156.83	150.64	129.68	129.06	92.69	51.35	966.1	
To Banning [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal	**560.4**	**526.2**	**477.3**	**528.6**	**937.0**	**1,264.3**	**1,368.6**	**1,314.0**	**1,196.6**	**984.6**	**626.5**	**378.0**	**10,162.0**	**0.0**
South Mesa Water Company														
3rd No. 4 Well	27.77	23.65	23.13	23.22	41.79	70.07	69.08	62.75	53.24	27.30	8.18	18.32	448.5	
Subtotal	**27.8**	**23.7**	**23.1**	**23.2**	**41.8**	**70.1**	**69.1**	**62.8**	**53.2**	**27.3**	**8.2**	**18.3**	**448.5**	**1,547.5**
Yucaipa Valley Water District														
Well 35	-	-	-	-	-	-	-	-	-	-	-	-	0.0	
Well 48	7.19	39.11	19.00	37.39	76.94	100.79	108.51	129.60	70.41	67.78	31.59	11.79	700.1	
Subtotal	**7.2**	**39.1**	**19.0**	**37.4**	**76.9**	**100.8**	**108.5**	**129.6**	**70.4**	**67.8**	**31.6**	**11.8**	**700.1**	**1,472.9**
Total	**692.5**	**672.4**	**585.2**	**678.4**	**1,165.3**	**1,551.2**	**1,649.8**	**1,658.6**	**1,453.5**	**1,150.6**	**678.6**	**412.7**	**12,348.9**	**7,011.1**

1.- All values rounded and subject to revision based on receipt of more accurate information

2.- Volume of water available for storage is equal to the positive difference between the temporary surplus allocation and the volume of groundwater produced by each agency. Temporary surplus based on 16,000 ac-ft/yr allocated from Fiscal Year 2004 to Fiscal Year 2013. Annual allocation is as follows: a) City of Banning, 5,029 ac-ft/yr, b) Beaumont Cherry Valley Water District, 6,802 ac-ft/yr, c) South Mesa Water Company, 1,996 ac-ft/yr, and d) Yucaipa Valley Water District, 2,173 ac-ft/yr.

3.- Pursuant to Part I, Paragraph 3 B of the Judgment, and a separate Agreement (a copy of which is on file with the Watermaster).

Table 3-1C
Appropriator Producer - Summary of Production for Calendar Year 2013 (ac-ft)

Owner & Well Name	Water Production by Appropriator (ac-ft) [1]												Total Production	Eligible for Storage [2]
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Banning, City of														
Well C2-A	0.3	0.3	0.2	0.7	0.3	0.4	35.5	52.8	7.2	10.7	4.0	3.2	115.5	
Well C3	3.0	0.1	2.2	56.6	76.2	92.1	78.7	82.0	79.5	70.9	47.1	38.3	626.7	
Well C4	0.5	2.8	126.0	140.6	97.6	100.5	116.2	87.3	56.0	48.1	23.8	59.0	858.5	
Well M3	0.1	66.4	0.1	0.0	0.0	0.0	12.6	69.9	84.6	99.8	79.3	87.1	499.9	
Well M9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
From BCVWD [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal	**4.0**	**69.7**	**128.5**	**197.9**	**174.1**	**193.0**	**243.0**	**292.1**	**227.3**	**229.4**	**154.1**	**187.6**	**2,100.7**	**413.8**
Beaumont Cherry Valley Water District														
Well 1	0.6	0.0	0.0	0.3	74.0	95.9	121.9	2.2	0.0	0.0	0.0	0.0	294.9	
Well 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Well 3	0.5	0.0	0.0	0.0	79.2	113.9	154.4	160.8	139.9	104.0	26.5	9.9	789.2	
Well 16	0.2	0.0	35.7	52.4	43.2	53.3	0.0	45.2	53.6	41.6	9.2	26.5	360.8	
Well 21	47.1	50.6	170.6	188.9	226.7	215.4	189.1	225.5	226.6	211.0	199.5	190.2	2,141.1	
Well 22	0.0	0.0	0.0	0.0	48.0	94.0	43.1	76.5	72.7	4.5	9.7	10.3	358.9	
Well 23	0.7	0.0	54.0	36.2	168.0	198.6	240.1	89.7	0.0	0.0	0.0	0.0	787.3	
Well 24	157.5	123.4	128.7	159.7	109.3	122.6	100.2	118.8	123.4	120.1	118.1	144.6	1,526.5	
Well 25	78.6	77.8	80.8	165.8	112.5	144.0	204.6	292.8	287.0	253.9	203.3	132.5	2,033.4	
Well 26	70.2	75.7	80.7	125.0	115.4	144.8	148.6	155.9	146.2	126.8	68.6	0.0	1,257.9	
Well 29	64.0	65.9	93.1	123.2	144.0	144.6	192.4	89.0	273.7	144.6	118.5	94.3	1,547.3	
To Banning [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal	**419.3**	**393.4**	**643.7**	**851.4**	**1,120.4**	**1,327.2**	**1,394.4**	**1,256.4**	**1,323.2**	**1,006.5**	**753.4**	**608.4**	**11,097.4**	**0.0**
South Mesa Water Company														
3rd No. 4 Well	18.09	14.48	22.02	26.88	31.13	42.36	47.77	45.59	34.45	25.58	-	-	308.4	
Subtotal	**18.1**	**14.5**	**22.0**	**26.9**	**31.1**	**42.4**	**47.8**	**45.6**	**34.5**	**25.6**	**0.0**	**0.0**	**308.4**	**689.7**
Yucaipa Valley Water District														
Well 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Well 48	0.0	17.0	72.8	106.0	95.6	135.6	188.2	198.0	99.5	106.5	11.6	0.0	1,030.8	
Subtotal	**0.0**	**17.0**	**72.8**	**106.0**	**95.6**	**135.6**	**188.2**	**198.0**	**99.5**	**106.5**	**11.6**	**0.0**	**1,030.8**	**55.7**
Total	**441.3**	**494.5**	**867.0**	**1,182.1**	**1,421.2**	**1,698.1**	**1,873.4**	**1,792.1**	**1,684.5**	**1,368.0**	**919.1**	**796.0**	**14,537.2**	**1,159.2**

1.- All values rounded and subject to revision based on receipt of more accurate information

2.- Volume of water available for storage is equal to the positive difference between the temporary surplus allocation and the volume of groundwater produced by each agency. Temporary surplus for 2013 is based on 8,000 ac-ft corresponding to half of the 16,000 ac-ft allocated between 2004 and 2012 . Annual allocation is as follows: a) City of Banning, 2,514.5 ac-ft/yr, b) Beaumont Cherry Valley Water District, 3,401 ac-ft/yr, c) South Mesa Water Company, 998 ac-ft/yr, and d) Yucaipa Valley Water District, 1,086.5 ac-ft/yr.

3.- Pursuant to Part I, Paragraph 3 B of the Judgment, and a separate Agreement (a copy of which is on file with the Watermaster).

Table 3-1D
Appropriator Producer - Summary of Production for Calendar Year 2014 (ac-ft)

Owner & Well Name	Water Production by Appropriator (ac-ft) [1]												Total Production
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Banning, City of													
Well C2-A	0.9	26.3	93.5	87.4	73.1	71.3	71.2	52.3	9.2	15.6	29.4	0.3	530.5
Well C3	68.2	26.7	2.4	26.9	58.6	66.8	73.0	61.9	46.7	49.2	41.3	5.2	526.8
Well C4	64.1	1.5	21.2	39.4	124.4	112.9	110.1	103.3	118.1	114.5	47.7	0.2	857.7
Well M3	98.4	71.4	96.7	80.2	26.2	68.4	29.3	37.7	92.0	69.4	0.0	0.4	670.0
Well M9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
From BCVWD [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**231.7**	**125.9**	**213.9**	**233.9**	**282.2**	**319.4**	**283.6**	**255.2**	**265.9**	**248.7**	**118.4**	**6.0**	**2,585.1**
Beaumont Cherry Valley Water District													
Well 1	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9
Well 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 3	7.4	81.4	72.5	140.9	143.4	161.8	192.3	124.1	135.0	122.2	85.1	15.6	1,281.8
Well 16	21.7	0.0	0.0	0.0	0.0	0.0	0.0	35.1	45.5	51.3	20.7	7.8	182.2
Well 21	229.5	181.2	184.3	170.1	231.5	242.0	283.3	262.8	211.4	212.5	177.6	174.4	2,560.7
Well 22	0.1	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Well 23	0.0	0.0	0.0	0.0	76.2	208.3	211.0	133.9	92.7	90.6	165.2	103.3	1,081.0
Well 24	198.6	80.7	128.0	104.6	110.0	94.1	2.4	0.0	86.1	147.6	108.7	5.9	1,066.7
Well 25	227.3	164.1	175.4	234.7	259.9	279.0	372.6	285.9	188.3	170.9	26.3	2.4	2,386.8
Well 26	0.0	0.0	8.2	9.1	0.3	0.0	0.0	55.6	142.3	123.2	89.8	93.3	521.9
Well 29	119.0	88.7	102.0	128.1	172.9	198.3	210.9	180.6	172.3	158.4	120.1	65.2	1,716.5
To Banning [2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**803.6**	**596.1**	**671.3**	**794.4**	**994.3**	**1,183.5**	**1,272.5**	**1,078.1**	**1,073.7**	**1,076.7**	**793.6**	**467.8**	**10,805.5**
South Mesa Water Company													
3rd No. 4 Well	17.43	24.26	56.87	30.32	38.34	50.25	56.87	46.55	54.69	45.88	33.22	19.04	473.7
Subtotal	**17.4**	**24.3**	**56.9**	**30.3**	**38.3**	**50.3**	**56.9**	**46.6**	**54.7**	**45.9**	**33.2**	**19.0**	**473.7**
Yucaipa Valley Water District													
Well 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 48	5.1	57.0	81.7	143.3	96.6	127.1	136.5	108.9	127.9	156.6	117.9	39.9	1,198.5
Subtotal	**5.1**	**57.0**	**81.7**	**143.3**	**96.6**	**127.1**	**136.5**	**108.9**	**127.9**	**156.6**	**117.9**	**39.9**	**1,198.5**
Total	**1,057.8**	**803.4**	**1,023.8**	**1,201.9**	**1,411.5**	**1,680.2**	**1,749.4**	**1,488.8**	**1,522.2**	**1,527.9**	**1,063.1**	**532.8**	**15,062.8**

1.- All values rounded and subject to revision based on receipt of more accurate information

2.- Pursuant to Part I, Paragraph 3 B of the Judgment, and a separate Agreement (a copy of which is on file with the Watermaster).

Table 3-1E
Appropriator Producer - Summary of Production for Calendar Year 2015 (ac-ft)

Owner & Well Name	Water Production by Appropriator (ac-ft) [1]												Total Production
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Banning, City of													
Well C2-A	3.8	13.0	55.3	3.3	2.0	1.7	3.2	2.6	28.2	4.6	0.4	0.5	118.6
Well C3	1.7	-1.4	35.3	41.0	22.9	59.5	43.9	60.0	38.3	26.5	50.9	11.6	390.2
Well C4	3.2	2.7	7.5	1.4	5.1	94.0	100.4	89.4	55.1	103.0	69.9	39.9	571.8
Well M3	0.1	10.1	58.3	88.6	91.9	84.8	94.2	83.6	53.8	1.2	18.1	13.1	597.7
Well M9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
From BCVWD [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**8.8**	**24.5**	**156.5**	**134.2**	**122.0**	**240.0**	**241.7**	**235.6**	**175.3**	**135.2**	**139.3**	**65.1**	**1,678.3**
Beaumont Cherry Valley Water District													
Well 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 16	5.6	24.4	49.7	75.3	81.7	83.1	72.5	60.3	51.4	73.6	57.0	41.8	0.0
Well 21	166.9	184.6	230.4	218.9	185.3	218.2	216.1	224.9	200.5	204.2	192.8	191.9	0.0
Well 22	40.0	108.3	30.6	86.1	7.5	74.6	128.2	116.1	121.1	55.5	13.4	3.0	0.0
Well 23	184.7	121.3	199.1	246.6	232.9	267.5	261.9	241.3	216.7	226.2	167.1	143.9	0.0
Well 24	54.6	5.7	97.1	69.0	64.7	179.4	124.6	106.8	60.1	24.5	49.4	27.3	0.0
Well 25	0.0	61.1	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 26	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 29	80.4	95.7	102.6	113.2	112.0	156.7	155.7	163.3	151.3	138.4	114.5	93.0	0.0
Egg Ranch Well	10.5	8.1	7.1	15.1	0.0	34.0	6.8	14.9	25.3	0.0	17.3	0.5	0.0
To Banning [2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**559.6**	**609.2**	**727.4**	**824.2**	**684.2**	**1,013.4**	**965.6**	**927.5**	**826.4**	**722.4**	**611.4**	**501.5**	**8,972.8**
South Mesa Water Company													
3rd No. 4 Well	20.10	19.95	21.55	27.08	21.72	36.95	34.27	37.80	28.89	27.91	21.03	19.90	317.2
Subtotal	**20.1**	**20.0**	**21.6**	**27.1**	**21.7**	**37.0**	**34.3**	**37.8**	**28.9**	**27.9**	**21.0**	**19.9**	**317.2**
Yucaipa Valley Water District													
Well 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 48	7.5	10.0	43.0	12.8	4.3	5.8	6.1	20.4	3.4	0.0	0.1	5.8	119.2
Subtotal	**7.5**	**10.0**	**43.0**	**12.8**	**4.3**	**5.8**	**6.1**	**20.4**	**3.4**	**0.0**	**0.1**	**5.8**	**119.2**
Total	**596.0**	**663.6**	**948.6**	**998.3**	**832.2**	**1,296.2**	**1,247.7**	**1,221.3**	**1,034.0**	**885.5**	**771.9**	**592.3**	**11,087.4**

1.- All values rounded and subject to revision based on receipt of more accurate information

2.- Pursuant to Part I, Paragraph 3 B of the Judgment, and a separate Agreement (a copy of which is on file with the Watermaster).

Table 3-1F
Appropriator Producer - Summary of Production for Calendar Year 2016 (ac-ft)

Owner & Well Name	Water Production by Appropriator (ac-ft) [1]												Total Production
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Banning, City of													
Well C2-A	4.1	0.7	0.2	0.2	1.9	17.4	32.9	30.1	1.1	2.0	0.0	3.5	94.2
Well C3	15.5	21.9	0.2	5.8	20.1	50.0	50.9	70.6	55.5	23.0	3.0	1.5	317.8
Well C4	25.5	0.9	12.0	8.3	11.8	92.8	121.5	121.2	101.9	91.9	14.2	0.5	602.3
Well M3	0.4	0.4	0.0	0.4	22.3	92.9	95.7	95.8	90.3	58.4	1.7	0.1	458.5
Well M9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
From BCVWD [3]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**45.4**	**23.9**	**12.5**	**14.8**	**56.0**	**253.0**	**301.0**	**317.7**	**248.8**	**175.3**	**18.8**	**5.5**	**1,472.7**
Beaumont Cherry Valley Water District													
Well 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 16	68.6	67.5	61.8	66.6	80.2	75.0	91.4	74.0	37.7	70.1	47.9	20.8	761.5
Well 21	221.1	196.3	223.2	201.2	234.2	246.1	245.0	295.8	258.9	225.3	193.1	153.3	2,693.3
Well 22	0.0	2.6	0.0	0.0	40.5	111.8	144.7	177.7	164.2	155.8	67.5	7.0	871.8
Well 23	19.9	85.8	113.9	152.0	213.6	250.9	273.2	257.9	228.1	228.1	160.6	153.7	2,137.8
Well 24	30.4	48.9	19.1	1.5	0.0	188.0	241.6	216.5	145.8	38.6	104.9	62.2	1,097.3
Well 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 26	23.3	65.8	54.6	74.6	101.9	123.3	151.8	293.5	25.1	99.6	82.8	31.7	1,127.9
Well 29	77.3	101.7	98.7	104.3	91.7	141.6	198.7	36.8	181.8	89.9	183.7	84.2	1,390.4
Egg Ranch Well	11.6	8.4	2.6	7.0	3.1	11.1	7.4	11.2	11.4	0.2	2.7	3.0	79.8
To Banning [2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**452.1**	**577.0**	**573.9**	**607.2**	**765.2**	**1,147.9**	**1,353.7**	**1,363.4**	**1,052.9**	**907.6**	**843.2**	**515.9**	**10,159.8**
South Mesa Water Company													
3rd No. 4 Well	16.9	21.9	23.3	24.7	28.1	38.4	47.1	45.6	37.6	27.9	23.6	17.6	352.6
Subtotal	**16.9**	**21.9**	**23.3**	**24.7**	**28.1**	**38.4**	**47.1**	**45.6**	**37.6**	**27.9**	**23.6**	**17.6**	**352.6**
Yucaipa Valley Water District													
Well 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well 48	0.7	0.7	1.0	0.0	0.0	1.4	0.0	0.0	0.9	0.0	0.0	0.0	4.6
Subtotal	**0.7**	**0.7**	**1.0**	**0.0**	**0.0**	**1.4**	**0.0**	**0.0**	**0.9**	**0.0**	**0.0**	**0.0**	**4.6**
Total	**515.0**	**623.5**	**610.6**	**646.6**	**849.3**	**1,440.7**	**1,701.9**	**1,726.7**	**1,340.2**	**1,110.8**	**885.6**	**539.0**	**11,989.7**

1.- All values rounded and subject to revision based on receipt of more accurate information

2.- Pursuant to Part I, Paragraph 3 B of the Judgment, and a separate Agreement (a copy of which is on file with the Watermaster).

Table 3-2A
Overlying Producer - Summary of Production for Calendar Year 2003 through 2011 (ac-ft)

Owner and Well Name	Metered	Annual Water Production by Overlying Producer [1] [2]									Overlying Water Right (ac-ft/yr)
		2003	2004	2005	2006	2007	2008	2009	2010	2011	
Beckman, Walter M.	No	**16.2**	**27.0**	**22.4**	**11.5**	**8.3**	**12.7**	**12.9**	**6.4**	**9.0**	**75.0**
California Oak Valley Golf and Resort LLC [3]											
Oak Valley #1	Yes			523.2	453.6	181.7	596.9	135.7	304.2	0.0	
Oak Valley #2	Yes			180.7	377.9	597.3	183.5	631.0	260.9	0.0	
Subtotal		**736.2**	**728.6**	**703.9**	**831.5**	**779.0**	**780.4**	**766.7**	**565.1**	**517.3**	**950.0**
Merlin Properties	No	**3.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.5**	**1.6**	**550.0**
Oak Valley Partners, LP [4]											
Haskell Ranch-Main	N/A	29.4	19.6	300.0	300.0	300.0	0.0	0.0	0.0	0.0	
Singleton Ranch #5	No	180.0	300.0	40.2	2.1	2.1	2.5	2.5	2.5	2.5	
Singleton Ranch #7	Yes	85.8	111.1	10.0	10.0	10.0	0.0	0.0	0.0	0.0	
Irrigation Stokes	No	6.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal		**301.2**	**440.7**	**350.2**	**312.1**	**312.1**	**2.5**	**2.5**	**2.5**	**2.5**	**1,806.0**
Plantation on the Lake LLC	Yes	**178.6**	**340.9**	**310.2**	**350.1**	**344.2**	**354.0**	**352.3**	**337.2**	**344.7**	**581.0**
Rancho Calimesa Mobile Home Park	No	**35.4**	**68.3**	**68.3**	**68.3**	**69.3**	**69.3**	**69.3**	**69.3**	**69.3**	**150.0**
Roman Catholic Bishop of San Bernardino	No	**46.8**	**59.1**	**55.6**	**59.0**	**0.7**	**0.7**	**0.7**	**0.0**	**0.0**	**154.0**
Sharondale Mesa Owners Association											
Well No.1	Yes	98.6	111.0	98.4	97.0	130.1	102.9	80.3	67.7	81.0	
Well No.2	Yes	5.7	47.0	82.6	91.6	52.3	90.4	74.0	64.6	52.0	
Subtotal		**104.3**	**158.0**	**181.0**	**188.6**	**182.3**	**193.3**	**154.3**	**132.3**	**133.0**	**200.0**
Tukwet Canyon Golf Club [5]											
Well A	Yes	130.8	268.0	217.2	341.7	329.1	11.2	204.4	118.6	118.4	
Well C	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Well D	Yes	660.6	1,078.6	995.9	1,411.6	1,269.9	1,126.4	954.2	733.2	764.5	
Subtotal		**791.4**	**1,346.7**	**1,213.1**	**1,753.4**	**1,599.1**	**1,137.6**	**1,158.6**	**851.8**	**882.9**	**2,200.0**
Stearns, Leonard M. and Dorothy D.	No	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**0.7**	**0.7**	**200.0**
Sunny-Cal Egg and Poultry Company	N/A	**226.0**	**404.4**	**385.4**	**2.6**	**2.7**	**4.2**	**4.2**	**3.8**	**4.2**	**1,439.5**
Sunny-Cal North - Manheim, M & Berman	No				**13.2**	**2.3**	**2.3**	**2.3**	**2.1**	**2.3**	**300.0**
Nikodinov, Nick	No				**0.7**	**0.8**	**0.8**	**0.7**	**0.7**	**0.8**	**20.0**
McAmis, Ronald L.	No				**0.5**	**0.6**	**0.6**	**0.5**	**0.5**	**0.6**	**5.0**
Aldama, Nicolas and Amalia	No				**0.8**	**0.8**	**0.9**	**0.8**	**0.8**	**0.9**	**7.0**
Gutierrez, Hector, et al.	No				**1.4**	**1.4**	**1.4**	**1.4**	**1.3**	**1.4**	**10.0**
Darmont, Boris and Miriam	No				**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**2.5**
TOTAL		**2,440.8**	**3,576.3**	**3,292.6**	**3,596.7**	**3,306.5**	**2,563.6**	**2,530.1**	**1,976.5**	**1,971.4**	**8,650.0**

1.- All values rounded and subject to revision based on receipt of more accurate information.

2.- Annual production is estimated for Overlying parties with un-metered wells.

3.- Metering began in late 2004 and was not reported monthly. One total production value for each well was reported to Watermaster for FY 2003/04 . For the conversion to CY accounting, it was assumed that CY 2004 production for this entity was equal to FY 2003/04 production (1,227.4 acre-ft).

4.- Provided copies of state filing with annual calendar year totals for each well. Production values for Singleton Ranch #5 and Irrigation Stokes are estimated by Oak Valley Partners through 2007. Starting in 2008, production was reduced to ar estimated 2.5 ac-ft/yr as agricultural use of the land ended. Estimate based on water use by a single farm house and a small cattle population.

5.- The Southern California Section of the PGA of America changed to East Valley Golf Club in 2007 and to Tukwet Canyon Golf Course in 2010. Monthly production provided by the Morongo Band of Mission Indians - 03/14.

Table 3-2B
Overlying Producer - Summary of Production for Calendar Year 2012 (ac-ft)

Owner and Well Name	Metered	Monthly Water Production by Overlying Producer [1]												Total [2] Production	Overlying Water Right	Unused Overlying Allocation in 2012
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Beckman, Walter M. [3]	Yes	0.20	0.20	0.17	0.17	0.17	0.40	1.79	2.21	1.93	0.75	0.84	0.14	**8.98**	**75.00**	**66.02**
California Oak Valley Golf and Resort LLC [3]																
Oak Valley #1	Yes															
Oak Valley #2	Yes															
Subtotal		**10.95**	**10.55**	**0.79**	**15.36**	**72.15**	**12.58**	**97.56**	**94.19**	**109.08**	**39.45**	**45.87**	**8.83**	**517.35**	**950.00**	**432.66**
Merlin Properties	No	Water Duty Method Used to Estimate Annual Production												**1.62**	**550.00**	**548.38**
Oak Valley Partners, LP [4]																
Singleton Ranch #5	No													0.00		
Singleton Ranch #7	No													2.50		
	No													0.00		
Subtotal		Annual consumption estimated based on water use by a single farm house and a small bovine population												**2.50**	**1,806.00**	**1,803.50**
Plantation on the Lake LLC [3]	Yes	16.09	23.37	15.94	20.68	24.09	34.30	35.24	45.73	27.15	41.92	31.42	28.74	**344.67**	**581.00**	**236.33**
Rancho Calimesa Mobile Home Park [5]	No	Water Duty Method Used to Estimate Annual Production												**69.30**	**150.00**	**80.70**
Roman Catholic Bishop of San Bernardino		Water Duty Method Used to Estimate Annual Production												**0.00**	**154.00**	**154.00**
Sharondale Mesa Owners Association [5]																
Well No.1	Yes	4.28	3.94	3.60	4.52	8.44	10.20	10.43	8.00	9.49	9.14	4.75	2.44	79.23		
Well No.2	Yes	3.96	3.68	3.33	4.00	6.50	7.59	7.93	7.75	7.30	7.34	4.37	2.29	66.04		
Subtotal		**8.24**	**7.63**	**6.93**	**8.52**	**14.94**	**17.80**	**18.37**	**15.74**	**16.79**	**16.47**	**9.12**	**4.72**	**145.27**	**200.00**	**54.73**
Tukwet Canyon Golf Club [6]																
Well A	Yes	0.47	0.58	0.83	0.59	20.36	44.05	38.86	36.60	29.52	28.86	16.30	0.45	217.47		
Well C	Yes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Well D	Yes	51.36	27.39	28.12	47.64	93.11	118.17	113.83	102.25	86.26	70.99	17.37	10.37	766.84		
Subtotal		**51.82**	**27.97**	**28.95**	**48.23**	**113.47**	**162.21**	**152.69**	**138.85**	**115.78**	**99.85**	**33.67**	**10.82**	**984.32**	**2,200.00**	**1,215.69**
Stearns, Leonard M. and Dorothy D.	No	Water Duty Method Used to Estimate Annual Production												**0.70**	**200.00**	**199.30**
Sunny-Cal Egg and Poultry Company	No	Water Duty Method Used to Estimate Annual Production												**4.34**	**1,439.50**	**1,435.16**
Albor Properties III, LP	No	Water Duty Method Used to Estimate Annual Production												**2.43**	**300.00**	**297.57**
Nikodinov, Nick	No	Water Duty Method Used to Estimate Annual Production												**0.77**	**20.00**	**19.23**
McAmis, Ronald L.	No	Water Duty Method Used to Estimate Annual Production												**0.56**	**5.00**	**4.44**
Aldama, Nicolas and Amalia	No	Water Duty Method Used to Estimate Annual Production												**0.87**	**7.00**	**6.13**
Gutierrez, Hector, et al.	No	Water Duty Method Used to Estimate Annual Production												**1.43**	**10.00**	**8.57**
Darmont, Boris and Miriam	No	Water Duty Method Used to Estimate Annual Production												**0.35**	**2.50**	**2.15**
TOTAL														**2,085.4**	**8,650.0**	**6,564.6**

1.- All values rounded and subject to revision based on receipt of more accurate information in the future.

2.- Total production is estimated for Overlying parties with un-metered wells.

3.- Monthly production provided by BCVWD - Feb 2013. Production by Plantation on the Lake for 2012 was not available; 2011 production values were used.

4.- Starting in 2008, the parcels owned by Oak Valley Partners were no longer used for agricultural purposes. Groundwater production was estimated at 2.5 ac-ft/yr based on water use by a single farm house and a small cattle population.

5.- Monthly production since 2011 provided by Clearwater Solutions, a company in charge of operating the water system.

6.- Actual monthly production provided by the Morongo Band of Mission Indians - March 2014.

Table 3-2C
Overlying Producer - Summary of Production for Calendar Year 2013 (ac-ft)

Owner and Well Name	Metered	Monthly Water Production by Overlying Producer [1]												Total [2] Production	Overlying Water Right	Unused Overlying Allocation in 2013
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Beckman, Walter M. [3]	Yes	0.0	0.0	0.0	0.3	0.3	0.4	0.6	0.0	0.4	0.1	0.0	0.0	**2.1**	**75.0**	**72.9**
California Oak Valley Golf and Resort LLC [3]																
Oak Valley #1	Yes	11.5	12.4	12.5	11.4	55.2	66.1	97.7	0.0	0.0	0.0	0.0	0.0	266.8		
Oak Valley #2	Yes	1.3	0.7	1.1	0.8	0.0	0.0	2.5	68.9	49.7	70.4	53.3	110.4	359.0		
Subtotal		**12.8**	**13.1**	**13.6**	**12.1**	**55.2**	**66.1**	**100.1**	**68.9**	**49.7**	**70.4**	**53.3**	**110.4**	**625.8**	**950.0**	**324.2**
Merlin Properties	No	Water Duty Method Used to Estimate Annual Production												1.6	550.0	548.4
Oak Valley Partners, LP [4]																
Singleton Ranch #5	No													0.00		
Singleton Ranch #7	No													2.50		
Irrigation Stokes	No													0.00		
Subtotal		Annual consumption estimated based on water use by a single farm house and a small bovine population												**2.5**	**1,806.0**	**1,803.5**
Plantation on the Lake LLC [3]	Yes	1.8	2.1	2.3	4.0	2.7	4.7	4.9	5.5	4.7	4.9	3.3	2.7	43.7	581.0	537.3
Rancho Calimesa Mobile Home Park [5]	No	Water Duty Method Used to Estimate Annual Production												69.3	150.0	80.7
Roman Catholic Bishop of San Bernardino		Water Duty Method Used to Estimate Annual Production												0.0	154.0	154.0
Sharondale Mesa Owners Association [5]																
Well No.1	Yes	2.7	3.1	4.8	7.3	7.6	9.7	10.8	10.9	3.6	1.6	5.8	4.0	72.0		133.4
Well No.2	Yes	2.5	2.8	4.1	5.9	5.8	6.6	7.6	7.8	13.3	12.2	3.0	3.7	75.0		
Subtotal		**5.2**	**6.0**	**8.8**	**13.2**	**13.4**	**16.3**	**18.3**	**18.7**	**16.9**	**13.8**	**8.8**	**7.7**	**147.0**	**200.0**	**53.0**
Tukwet Canyon Golf Club [6]																
Well A	Yes	6.6	6.2	15.6	29.9	33.8	39.6	0.0	0.0	5.2	25.4	15.7	20.0	198.1		
Well C	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Well D	Yes	20.2	13.3	35.3	70.2	86.0	111.1	152.8	143.9	117.1	77.7	41.6	31.2	900.3		
Subtotal		**26.9**	**19.4**	**50.9**	**100.0**	**119.8**	**150.6**	**152.8**	**143.9**	**122.3**	**103.1**	**57.3**	**51.2**	**1,098.4**	**2,200.0**	**1,101.6**
Stearns, Leonard M. and Dorothy D.	No	Water Duty Method Used to Estimate Annual Production												**0.7**	**200.0**	**199.3**
Sunny-Cal Egg and Poultry Company	No	Water Duty Method Used to Estimate Annual Production												**4.3**	**1,439.5**	**1,435.2**
Albor Properties III, LP	No	Water Duty Method Used to Estimate Annual Production												**2.4**	**300.0**	**297.6**
Nikodinov, Nick	No	Water Duty Method Used to Estimate Annual Production												**0.8**	**20.0**	**19.2**
McAmis, Ronald L.	No	Water Duty Method Used to Estimate Annual Production												**0.6**	**5.0**	**4.4**
Aldama, Nicolas and Amalia	No	Water Duty Method Used to Estimate Annual Production												**0.9**	**7.0**	**6.1**
Gutierrez, Hector, et al.	No	Water Duty Method Used to Estimate Annual Production												**1.4**	**10.0**	**8.6**
Darmont, Boris and Miriam	No	Water Duty Method Used to Estimate Annual Production												**0.4**	**2.5**	**2.2**
TOTAL														**2,001.8**	**8,650.0**	**6,648.2**

1.- All values rounded and subject to revision based on receipt of more accurate information in the future.

2.- Total production is estimated for Overlying parties with un-metered wells.

3.- Monthly production provided by BCVWD - Feb 2014

4.- Starting in 2008, the parcels owned by Oak Valley Partners were no longer used for agricultural purposes. Groundwater production was estimated at 2.5 ac-ft/yr based on water use by a single farm house and a small cattle population.

5.- Monthly production since 2011 provided by Clearwater Solutions, a company in charge of operating the water syste

6.- Actual monthly production provided by the Morongo Band of Mission Indians - March 2014.

Table 3-2D
Overlying Producer - Summary of Production for Calendar Year 2014 (ac-ft)

Owner and Well Name	Metered	Monthly Water Production by Overlying Producer[1]												Total[2] Production	Overlying Water Right	Unused Overlying Allocation in 2014
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Beckman, Walter M. [3]	Yes	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.9**	**58.1**	**57.2**
California Oak Valley Golf and Resort LLC [3]																
Oak Valley #1	Yes	0.0	2.0	3.3	4.7	6.4	5.5	4.0	5.9	0.0	0.0	4.9	18.7	55.4		
Oak Valley #2	Yes	28.7	16.9	0.0	0.0	0.0	42.8	69.0	24.7	54.9	98.7	25.9	0.0	361.6		
Subtotal		**28.7**	**18.9**	**3.3**	**4.7**	**6.4**	**48.3**	**73.0**	**30.5**	**54.9**	**98.7**	**30.8**	**18.7**	**417.0**	**735.8**	**318.8**
Merlin Properties	No	Water Duty Method Used to Estimate Annual Production												1.6	426.0	424.4
Oak Valley Partners, LP [4]																
Singleton Ranch #5	No													0.00		
Singleton Ranch #7	No													2.50		
Irrigation Stokes	No													0.00		
Subtotal		Annual consumption estimated based on water use by a single farm house and a small bovine population												**2.5**	**1,398.9**	**1,396.4**
Plantation on the Lake LLC	Yes	2.7	3.2	3.4	5.9	4.2	4.3	5.0	5.7	5.2	4.4	4.5	5.3	54.0	450.0	396.0
Rancho Calimesa Mobile Home Park [5]	Yes	0.9	0.9	0.9	1.0	1.0	1.1	2.6	1.1	0.6	2.0	1.7	2.3	16.2	116.2	100.0
Roman Catholic Bishop of San Bernardino		Water Duty Method Used to Estimate Annual Production												0.0	119.3	119.3
Sharondale Mesa Owners Association [5]																
Well No.1	Yes	5.1	4.0	4.9	7.0	9.0	8.7	10.1	7.0	6.5	8.8	4.9	1.8	78.0		
Well No.2	Yes	4.8	3.7	4.3	5.4	6.3	6.4	6.9	4.4	5.4	5.5	4.6	1.7	59.3		
Subtotal		**9.9**	**7.7**	**9.2**	**12.4**	**15.3**	**15.1**	**17.0**	**11.4**	**12.0**	**14.3**	**9.5**	**3.5**	**137.3**	**154.9**	**17.6**
Tukwet Canyon Golf Club [6]																
Well A	Yes	24.0	15.9	20.1	29.3	34.3	43.4	41.1	29.6	12.1	23.5	3.5	0.8	277.6		
Well C	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Well D	Yes	55.4	30.0	34.6	63.1	114.4	127.5	119.3	111.5	134.5	85.8	58.4	16.0	950.3		
Subtotal		**79.4**	**45.8**	**54.7**	**92.4**	**148.7**	**170.9**	**160.3**	**141.1**	**146.6**	**109.3**	**61.9**	**16.7**	**1,227.9**	**1,704.0**	**476.1**
Stearns, Leonard M. and Dorothy D.	No	Water Duty Method Used to Estimate Annual Production												**0.7**	**154.9**	**154.2**
Sunny-Cal Egg and Poultry Company	No	Water Duty Method Used to Estimate Annual Production												**4.3**	**1,115.0**	**1,110.6**
Albor Properties III, LP	No	Water Duty Method Used to Estimate Annual Production												**2.4**	**232.4**	**229.9**
Nikodinov, Nick	No	Water Duty Method Used to Estimate Annual Production												**0.8**	**15.5**	**14.7**
McAmis, Ronald L.	No	Water Duty Method Used to Estimate Annual Production												**0.6**	**3.9**	**3.3**
Aldama, Nicolas and Amalia	No	Water Duty Method Used to Estimate Annual Production												**0.9**	**5.4**	**4.6**
Gutierrez, Hector, et al.	No	Water Duty Method Used to Estimate Annual Production												**1.4**	**7.7**	**6.3**
Darmont, Boris and Miriam	No	Water Duty Method Used to Estimate Annual Production												**0.4**	**1.9**	**1.6**
TOTAL														**1,868.9**	**6,700.0**	**4,831.1**

1.- All values rounded and subject to revision based on receipt of more accurate information in the future.

2.- Total production is estimated for Overlying parties with un-metered wells.

3.- Monthly production provided by BCVWD - Feb 2015

4.- Starting in 2008, the parcels owned by Oak Valley Partners were no longer used for agricultural purposes. Groundwater production was estimated at 2.5 ac-ft/yr based on water use by a single farm house and a small cattle population.

5.- Monthly production since 2011 provided by Clearwater Solutions, a company in charge of operating the water system.

6.- Actual monthly production provided by the Morongo Band of Mission Indians - March 2014.

Table 3-2E
Overlying Producer - Summary of Production for Calendar Year 2015 (ac-ft)

Owner and Well Name	Metered	Monthly Water Production by Overlying Producer[1]												Total[2] Production	Overlying Water Right	Unused Overlying Allocation in 2015
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Beckman, Walter M. [3]	Yes	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.9**	**58.1**	**57.2**
California Oak Valley Golf and Resort LLC [3]																
Oak Valley #1	Yes	22.2	0.0	34.5	56.4	40.1	66.6	35.1	59.9	111.6	31.3	25.3	2.8	485.6		
Oak Valley #2	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	193.8	11.7	60.0	0.0	265.5		
Subtotal		**22.2**	**0.0**	**34.5**	**56.4**	**40.1**	**66.6**	**35.1**	**59.9**	**305.4**	**43.0**	**85.3**	**2.8**	**751.1**	**735.8**	**-15.3**
Merlin Properties	No	Water Duty Method Used to Estimate Annual Production												**1.6**	**426.0**	**424.4**
Oak Valley Partners, LP [4]																
Singleton Ranch #5	No													0.00		
Singleton Ranch #7	No													2.50		
Irrigation Stokes	No													0.00		
Subtotal		Annual consumption estimated based on water use by a single farm house and a small bovine population												**2.5**	**1,398.9**	**1,396.4**
Plantation on the Lake LLC [5]	Yes	5.3	2.6	2.3	3.3	3.5	4.3	2.8	3.3	3.8	3.7	2.9	2.7	**40.4**	**450.0**	**409.6**
Rancho Calimesa Mobile Home Park [5]																
Well No.1	Yes	1.2	1.1	1.1	1.5	0.8	0.8	1.2	1.2	0.9	1.2	1.1	1.0	13.2		
Well No.2	No	0.8	1.0	0.9	0.9	0.8	0.8	1.0	1.0	0.8	0.8	0.8	0.8	10.2		
Subtotal		**1.9**	**2.1**	**2.0**	**2.4**	**1.7**	**1.7**	**2.2**	**2.2**	**1.7**	**1.9**	**1.9**	**1.8**	**23.4**	**116.2**	**92.7**
Roman Catholic Bishop of San Bernardino		Water Duty Method Used to Estimate Annual Production												**0.0**	**119.3**	**119.3**
Sharondale Mesa Owners Association [6]																
Well No.1	Yes	2.5	3.9	0.5	0.2	1.9	5.1	6.3	9.6	8.4	8.9	7.9	1.8	57.1		
Well No.2	Yes	2.4	3.2	6.6	9.3	5.3	3.9	1.9	0.0	0.0	0.0	0.0	4.5	37.0		
Subtotal		**4.9**	**7.2**	**7.1**	**9.5**	**7.2**	**9.0**	**8.2**	**9.6**	**8.4**	**8.9**	**7.9**	**6.3**	**94.1**	**154.9**	**60.8**
Tukwet Canyon Golf Club [7]																
Well A	Yes	6.0	1.6	3.3	4.3	1.5	12.4	6.4	5.1	1.8	1.9	0.7	3.2	48.1		
Well C	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Well D	Yes	42.1	53.7	51.7	89.2	55.4	120.3	93.3	104.8	95.5	59.3	50.9	34.1	850.5		
Subtotal		**48.1**	**55.4**	**55.0**	**93.5**	**56.9**	**132.7**	**99.7**	**109.8**	**97.3**	**61.2**	**51.6**	**37.3**	**898.6**	**1,704.0**	**805.4**
Stearns, Leonard M. and Dorothy D.	No	Water Duty Method Used to Estimate Annual Production												**0.7**	**154.9**	**154.2**
Sunny-Cal Egg and Poultry Company	No	Water Duty Method Used to Estimate Annual Production												**4.3**	**1,115.0**	**1,110.6**
Albor Properties III, LP	No	Water Duty Method Used to Estimate Annual Production												**2.4**	**232.4**	**229.9**
Nikodinov, Nick	No	Water Duty Method Used to Estimate Annual Production												**0.8**	**15.5**	**14.7**
McAmis, Ronald L.	No	Water Duty Method Used to Estimate Annual Production												**0.6**	**3.9**	**3.3**
Aldama, Nicolas and Amalia	No	Water Duty Method Used to Estimate Annual Production												**0.9**	**5.4**	**4.6**
Gutierrez, Hector, et al.	No	Water Duty Method Used to Estimate Annual Production												**1.4**	**7.7**	**6.3**
Darmont, Boris and Miriam	No	Water Duty Method Used to Estimate Annual Production												**0.4**	**1.9**	**1.6**
TOTAL														**1,824.1**	**6,700.0**	**4,875.9**

1.- All values rounded and subject to revision based on receipt of more accurate information in the future.

2.- Total production is estimated for Overlying parties with un-metered wells.

3.- Monthly production provided by BCVWD - Feb 2015 - Production for Plantation by the Lake provided by producer.

4.- Starting in 2008, the parcels owned by Oak Valley Partners were no longer used for agricultural purposes. Groundwater production was estimated at 2.5 ac-ft/yr based on water use by a single farm house and a small cattle population.

5.- Production for Plantation by the Lake provided by producer.

6.- Monthly production since 2011 provided by Clearwater Solutions, a company in charge of operating the water syster

7.- Actual monthly production provided by the Morongo Band of Mission Indians - May 2016

Table 3-2F
Overlying Producer - Summary of Production for Calendar Year 2016 (ac-ft)

Owner and Well Name	Metered	Monthly Water Production by Overlying Producer[1]												Total[2] Production	Overlying Water Right	Unused Overlying Allocation in 2016
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Beckman, Walter M. [3]	Yes	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.9**	**58.1**	**57.2**
California Oak Valley Golf and Resort LLC [3]																
Oak Valley #1	Yes	23.7	12.6	4.3	18.7	20.9	75.0	113.5	106.2	31.7	5.6	4.1	2.2	418.5		
Oak Valley #2	Yes	44.6	43.9	5.5	11.1	26.9	0.0	0.0	0.0	1.8	0.1	0.0	0.0	133.9		
Subtotal		**68.2**	**56.5**	**9.8**	**29.8**	**47.8**	**75.0**	**113.5**	**106.2**	**33.4**	**5.7**	**4.1**	**2.2**	**552.3**	**735.8**	**183.5**
Merlin Properties	No	Water Duty Method Used to Estimate Annual Production												**1.6**	**426.0**	**424.4**
Oak Valley Partners, LP [4]																
Singleton Ranch #5	No													0.00		
Singleton Ranch #7	No													2.50		
Irrigation Stokes	No													0.00		
Subtotal		Annual consumption estimated based on water use by a single farm house and a small cattle population.												**2.5**	**1,398.9**	**1,396.4**
Plantation on the Lake LLC [3]	Yes	1.9	2.1	2.4	2.6	2.2	3.8	4.6	4.7	5.1	4.5	2.8	2.4	**39.2**	**450.0**	**410.8**
Rancho Calimesa Mobile Home Park [5]																
Well No.1	Yes	1.0	1.0	0.6	1.7	2.5	3.3	3.0	3.4	3.7	2.8	2.7	1.1	26.9		
Well No.2	No	0.7	0.6	0.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	4.2		
Subtotal		**1.7**	**1.6**	**1.1**	**2.9**	**2.5**	**3.3**	**3.0**	**3.4**	**3.7**	**2.8**	**3.1**	**2.0**	**31.2**	**116.2**	**85.0**
Roman Catholic Bishop of San Bernardino		Water Duty Method Used to Estimate Annual Production												**0.0**	**119.3**	**119.3**
Sharondale Mesa Owners Association [5]																
Well No.1	Yes	2.7	3.7	4.7	2.7	5.1	6.6	3.5	0.3	7.2	5.3	5.8	2.9	50.5		
Well No.2	Yes	2.3	2.7	1.4	4.0	3.3	4.0	5.5	4.3	1.6	0.0	2.8	2.5	34.3		
Subtotal		**5.0**	**6.4**	**6.1**	**6.7**	**8.4**	**10.6**	**9.0**	**4.5**	**8.9**	**5.3**	**8.6**	**5.4**	**84.8**	**154.9**	**70.1**
Tukwet Canyon Golf Club [6]																
Well A	Yes	0.8	0.7	14.1	0.7	1.7	4.7	7.9	11.7	5.7	1.4	0.6	0.5	50.6		
Well C	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Well D	Yes	18.2	39.1	17.1	43.8	78.6	138.6	134.9	162.8	124.8	85.7	58.4	6.0	908.1		
Subtotal		**19.1**	**39.8**	**31.2**	**44.5**	**80.2**	**143.2**	**142.8**	**174.5**	**130.5**	**87.2**	**59.1**	**6.5**	**958.6**	**1,704.0**	**745.4**
Stearns, Leonard M. and Dorothy D.	No	Water Duty Method Used to Estimate Annual Production												**0.7**	**154.9**	**154.2**
Sunny-Cal Egg and Poultry Company	No	Water Duty Method Used to Estimate Annual Production												**4.3**	**1,115.0**	**1,110.6**
Albor Properties III, LP	No	Water Duty Method Used to Estimate Annual Production												**2.4**	**232.4**	**229.9**
Nikodinov, Nick	No	Water Duty Method Used to Estimate Annual Production												**0.8**	**15.5**	**14.7**
McAmis, Ronald L.	No	Water Duty Method Used to Estimate Annual Production												**0.6**	**3.9**	**3.3**
Aldama, Nicolas and Amalia	No	Water Duty Method Used to Estimate Annual Production												**0.9**	**5.4**	**4.6**
Gutierrez, Hector, et al.	No	Water Duty Method Used to Estimate Annual Production												**1.4**	**7.7**	**6.3**
Darmont, Boris and Miriam	No	Water Duty Method Used to Estimate Annual Production												**0.4**	**1.9**	**1.6**
TOTAL														**1,682.5**	**6,700.0**	**5,017.5**

1.- All values rounded and subject to revision based on receipt of more accurate information in the future.
2.- Total production is estimated for Overlying parties with un-metered wells.
3.- Monthly production provided by BCVWD - Feb 2015 - Production for Plantation by the Lake for 2015 was used for 2016 until producer provides final numbers.
4.- Starting in 2008, the parcels owned by Oak Valley Partners were no longer used for agricultural purposes. Groundwater production was estimated at 2.5 ac-ft/yr based on water use by a single farm house and a small cattle population.
5.- Monthly production since 2011 provided by Clearwater Solutions, a company in charge of operating the water system.
6.- Actual monthly production provided by the Morongo Band of Mission Indians - May 2017.

Table 3-3
Production Summary for Appropriator and Overlying Producers in the Beaumont Basin
2003 through 2016 - Calendar Year Accounting (ac-ft)

	Annual Production (ac-ft)													
	2003[1]	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Appropriator Parties														
Banning, City of	2,174.2	3,397.3	1,808.6	1,827.5	2,772.6	2,933.6	2,095.0	1,143.6	1,341.7	1,038.3	2,100.7	2,585.1	1,678.3	1,472.7
Beaumont-Cherry Valley Water District	3,511.9	6,873.9	7,025.6	9,054.1	11,383.3	10,710.5	10,133.9	9,421.3	9,431.3	10,162.0	11,097.4	10,805.5	8,972.8	10,159.8
South Mesa Water Company	223.2	482.5	663.2	616.0	665.8	470.9	382.2	405.0	419.9	448.5	308.4	473.7	317.2	352.6
Yucaipa Valley Water District	1,162.4	1,833.7	1,281.3	2,027.3	1,682.9	572.0	504.4	672.4	534.1	700.1	1,030.8	1,198.5	119.2	4.6
Subtotal	**7,071.7**	**12,587.4**	**10,778.6**	**13,524.9**	**16,504.6**	**14,687.0**	**13,115.6**	**11,642.3**	**11,727.1**	**12,348.9**	**14,537.2**	**15,062.8**	**11,087.4**	**11,989.7**
Overlying Parties														
Beckman, Walter M	16.2	27.0	22.4	11.5	8.3	12.7	12.9	6.4	9.0	9.0	2.1	0.9	0.9	0.9
California Oak Valley Golf and Resort LLC	736.2	728.6	703.9	831.5	779.0	780.4	766.7	565.1	517.3	517.3	625.8	417.0	751.1	552.3
Merlin Properties	3.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Oak Valley Partners, LP	301.2	440.7	350.2	312.1	312.1	310.5	310.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Plantation on the Lake LLC	178.6	340.9	310.2	350.1	344.2	354.0	352.3	337.2	344.7	344.7	43.7	54.0	40.4	39.2
Rancho Calimesa Mobile Home Park	35.4	68.3	68.3	68.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	16.2	23.4	31.2
Roman Catholic Bishop of San Bernardino	46.8	59.1	55.6	59.0	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sharondale Mesa Owners Association	104.3	158.0	181.0	188.6	182.3	193.3	154.3	132.3	133.0	145.3	147.0	137.3	94.1	84.8
Tukwet Canyon Golf Club[2]	791.4	1,346.7	1,213.1	1,753.4	1,599.1	1,137.6	1,158.6	851.8	882.9	984.3	1,098.4	1,227.9	898.6	958.6
Stearns, Leonard M. and Dorothy D.	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Sunny-Cal Egg and Poultry Company	226.0	404.4	385.4	2.6	2.7	4.2	4.2	3.8	4.2	4.3	4.3	4.3	4.3	4.3
Albor Properties III, LP[3]				13.2	2.3	2.3	2.3	2.1	2.3	2.4	2.4	2.4	2.4	2.4
Nikodinov, Nick				0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
McAmis, Ronald L.				0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Aldama, Nicolas and Amalia				0.8	0.8	0.9	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
Gutierrez, Hector, et. al.				1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.4
Darmont, Boris and Miriam				0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subtotal	**2,440.8**	**3,576.3**	**3,292.6**	**3,596.7**	**3,306.5**	**2,871.6**	**2,838.2**	**1,976.5**	**1,971.4**	**2,085.4**	**2,001.8**	**1,868.9**	**1,824.0**	**1,682.5**
Total	**9,512.5**	**16,163.6**	**14,071.3**	**17,121.6**	**19,811.1**	**17,558.6**	**15,953.7**	**13,618.8**	**13,698.4**	**14,434.3**	**16,538.9**	**16,931.7**	**12,911.4**	**13,672.3**

1.- 2003 groundwater production only includes Jul-Dec time period.

2.- Formerly known as the East Valley Golf Course and the Southern California Section of the PGA of America.

3.- Formerly Known as Sunny Cal North - Manheim, Manheim & Berman.

Table 3-4
Annual Supplemental Recharge to the Beaumont Basin -- Calendar Year Accounting

Year	Supplemental Recharge (ac-ft)				
	Banning[1]	Beaumont[2]	BCVWD[1]	SGPWA[3]	Total
2003	-	-	-	-	-
2004	-	-	-	813.8	813.8
2005	-	-	-	687.4	687.4
2006	-	-	3,501.0	777.7	4,278.7
2007	-	-	4,501.0	541.3	5,042.3
2008	1,534.0	-	2,399.0	1,047.4	4,980.4
2009	2,741.2	-	2,741.2	823.4	6,305.8
2010	1,338.0	-	5,727.0	1,222.3	8,287.3
2011	800.0	-	7,979.0	1,842.0	10,621.0
2012	1,200.0	-	7,783.0	1,827.2	10,810.2
2013	1,200.0	-	7,403.0	881.8	9,484.8
2014	608.0	-	4,405.0	16.5	5,029.5
2015	694.0	-	2,773.0	9.2	3,476.2
2016	1,477.0	-	9,319.0	17.8	10,813.8
Totals	**11,592.2**	**-**	**58,531.2**	**10,507.8**	**80,631.2**

1.- SWP water recharged in the BCVWD Noble Creek Recharge Facility

2.- The City of Beaumont is seeking credit for recycled water recharge in the Beaumont Basin from DP-007 in an unnamed tributary to Marshall Creek. A technical demonstration of the estimated amount of recharge in the Beaumont Basin is pending.

3.- SWP water recharged in the Pass Agency's Little San Gorgonio Creek Spreading Ponds

Table 3-5
City of Beaumont Wastewater Treatment Plant - Monthly Discharges Since 2007

Recycled Water Daily Average Discharges (mgd) to DDP1 - Coopers's Canyon

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average (mgd)	Annual (ac-ft)
2007	2.32	2.17	2.25	2.23	2.61	2.57	2.57	2.66	2.66	2.67	2.63	2.50	2.49	2,786
2008	2.44	2.79	2.49	2.65	2.55	2.59	2.55	2.59	2.60	2.50	2.57	2.65	2.58	2,889
2009	2.52	2.66	2.56	2.58	2.59	2.56	2.44	2.63	2.60	2.61	2.63	2.69	2.59	2,902
2010	2.83	2.65	2.66	2.60	2.00	1.88	1.94	1.96	1.94	2.00	2.04	2.22	2.23	2,495
2011	2.07	2.12	2.06	2.01	2.04	2.25	2.23	2.13	2.10	2.08	2.19	2.13	2.12	2,371
2012	2.19	2.64	2.19	2.23	2.29	2.24	2.28	2.29	2.24	2.70	2.38	2.33	2.33	2,614
2013	2.76	2.80	2.80	2.81	2.78	2.78	2.81	2.82	2.89	2.83	2.21	2.50	2.73	3,061
2014	2.62	2.22	2.45	2.48	2.61	2.62	2.61	2.74	2.87	2.74	2.99	3.12	2.67	2,992
2015	2.87	2.94	2.97	2.90	2.92	2.98	2.99	3.10	3.08	3.08	3.06	3.11	3.00	3,360
2016	3.15	3.06	3.01	3.07	3.11	3.15	3.15	3.26	3.22	3.18	3.19	3.30	3.15	3,533

Recycled Water Daily Average Discharges (mgd) to DDP7 - Marshall's Canyon

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average (mgd)	Annual (ac-ft)
2010	0.00	0.00	0.82	0.67	0.57	0.62	0.70	0.69	0.69	0.70	0.67	0.65	0.68	633
2011	0.66	0.63	0.63	0.63	0.58	0.45	0.52	0.63	0.64	0.60	0.55	0.54	0.59	660
2012	0.54	0.54	0.52	0.47	0.45	0.45	0.45	0.49	0.50	0.47	0.41	0.53	0.49	545
2013	0.48	0.52	0.45	0.43	0.25	0.44	0.52	0.61	0.33	0.69	0.57	0.41	0.47	530
2014	0.21	0.65	0.61	0.66	0.61	0.42	0.49	0.35	0.21	0.24	0.02	0.02	0.37	418
2015	0.24	0.20	0.31	0.31	0.22	0.38	0.37	0.23	0.00	0.00	0.00	0.00	0.19	212
2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-

Table 3-6
Overlying Parties Production Rights Allocation Based on Revised Safe Yield

Overlying Party to the 2003 Judgment	Initial Overlying Water Right through 2013	New Overlying Water Right Starting in 2014	5-Year (2012-16) Average Production (ac-ft)	5-Year (2012-16) Running Avg % of Water Right
Sharondale Mesa Owners Association	200.0	154.9	121.7	78.6%
California Oak Valley Golf and Resort LLC	950.0	735.8	572.7	77.8%
Tukwet Canyon Golf Club	2,200.0	1,704.0	1,033.6	60.7%
Rancho Calimesa Mobile Home Park	150.0	116.2	41.9	36.0%
Plantation on the Lake LLC	581.0	450.0	104.6	23.2%
Darmont, Boris and Miriam	2.5	1.9	1.4	73.8%
Gutierrez, Hector, et al.	10.0	7.7	0.4	4.5%
Aldama, Nicolas and Amalia	7.0	5.4	0.9	16.0%
McAmis, Ronald L.	5.0	3.9	0.6	14.5%
Beckman, Walter M.	75.0	58.1	0.8	1.3%
Nikodinov, Nick	20.0	15.5	2.7	17.7%
Albor Properties III, LP	300.0	232.4	2.4	1.0%
Stearns, Leonard M. and Dorothy D.	200.0	154.9	0.7	0.5%
Sunny-Cal Egg and Poultry Company	1,439.5	1,115.0	4.3	0.4%
Merlin Properties	550.0	426.0	1.6	0.4%
Oak Valley Partners, LP	1,806.0	1,398.9	2.5	0.2%
Roman Catholic Bishop of San Bernardino	154.0	119.3	0.0	0.0%
	8,650.0	**6,700.0**	**1,892.8**	**28.3%**

Table 3-7
Summary of Unused Overlying Water and Allocation to Appropriators (ac-ft)

Accounting Year	Overlying Water Right	Overlying Production	Unused Overlying Water Right
2003	4,325	2,441	1,884
2004	8,650	3,576	5,074
2005	8,650	3,293	5,357
2006	8,650	3,597	5,053
2007	8,650	3,307	5,343
2008	8,650	2,872	5,778
2009	8,650	2,838	5,812
2010	8,650	1,976	6,674
2011	8,650	1,971	6,679
2012	8,650	2,085	6,565
2013	8,650	2,002	6,648
2014	6,700	1,869	4,831
2015	6,700	1,824	4,876
2016	6,700	1,683	5,017

Allocation Year	City of Banning	City of Beaumont	Beaumont Cherry Valley WD	South Mesa Water Co.	Yucaipa Valley Water District	Total
2008	592	0	801	235	256	1,884
2009	1,595	0	2,157	633	689	5,074
2010	1,684	0	2,277	669	728	5,357
2011	1,588	0	2,148	631	686	5,053
2012	1,679	0	2,272	667	726	5,343
2013	1,816	0	2,456	721	785	5,778
2014	1,827	0	2,471	725	789	5,812
2015	2,097	0	2,837	833	906	6,674
2016	2,099	0	2,839	833	907	6,679
2017	2,063	0	2,791	819	891	6,565
2018	2,090	0	2,826	830	903	6,648
2019	1,518	0	2,054	603	656	4,831
2020	1,533	0	2,073	609	662	4,876
2021	1,577	0	2,133	626	681	5,017

Table 3-8
Consolidation of Appropriator Production and Storage Accounts
Calendar Year Accounting (ac-ft) 2003 through 2016

Calendar Year	Storage Account Balance at Beginning of CY	Share of Surplus Water	Groundwater Production for CY	Additions to Storage Account							Ending Account Balance
				Under / Over Production [1]	Unused Overlying Production Allocation	Transfers Among Appropriators	Supplemental Water		Local Recharge	Total Additions to Storage Account	
							SWP Water Recharge	Recycled Water Recharge			
City of Banning - Authorized Storage Account: 80,000 ac-ft											
2003	0.0	2,514.5	2,174.2	340.3	0.0	0.0	0.0	0.0	0.0	340.3	340.3
2004	340.3	5,029.0	3,397.3	1,631.7	0.0	0.0	0.0	0.0	0.0	1,631.7	1,972.0
2005	1,972.0	5,029.0	1,808.6	3,220.4	0.0	0.0	0.0	0.0	0.0	3,220.4	5,192.5
2006	5,192.5	5,029.0	1,827.5	3,201.5	0.0	0.0	0.0	0.0	0.0	3,201.5	8,393.9
2007	8,393.9	5,029.0	2,772.6	2,256.4	0.0	1,500.0	0.0	0.0	0.0	3,756.4	12,150.3
2008	12,150.3	5,029.0	2,933.6	2,095.4	592.2	0.0	1,534.0	0.0	0.0	4,221.6	16,371.9
2009	16,371.9	5,029.0	2,095.0	2,934.0	1,594.7	0.0	2,741.2	0.0	0.0	7,269.8	23,641.8
2010	23,641.8	5,029.0	1,143.6	3,885.4	1,683.8	0.0	1,338.0	0.0	0.0	6,907.2	30,549.0
2011	30,549.0	5,029.0	1,341.7	3,687.3	1,588.2	0.0	800.0	0.0	0.0	6,075.6	36,624.5
2012	36,624.5	5,029.0	1,038.3	3,990.7	1,679.5	0.0	1,200.0	0.0	0.0	6,870.2	43,494.7
2013	43,494.7	2,514.5	2,100.7	413.8	1,816.1	0.0	1,200.0	0.0	0.0	3,430.0	46,924.7
2014	46,924.7	0.0	2,585.1	-2,585.1	1,826.7	0.0	608.0	0.0	0.0	-150.4	46,774.3
2015	46,774.3	0.0	1,678.3	-1,678.3	2,097.5	0.0	694.0	0.0	0.0	1,113.2	47,887.5
2016	47,887.5	0.0	1,472.7	-1,472.7	2,099.1	0.0	1,477.0	0.0	0.0	2,103.4	49,990.8
Beaumont Cherry Valley Water District - Authorized Storage Account: 80,000 ac-ft											
2003	0.0	3,401.0	3,511.9	-110.9	0.0	0.0	0.0	0.0	0.0	-110.9	-110.9
2004	-110.9	6,802.0	6,873.9	-71.9	0.0	0.0	0.0	0.0	0.0	-71.9	-182.8
2005	-182.8	6,802.0	7,025.6	-223.6	0.0	0.0	0.0	0.0	0.0	-223.6	-406.4
2006	-406.4	6,802.0	9,054.1	-2,252.1	0.0	0.0	3,501.0	0.0	0.0	1,248.9	842.5
2007	842.5	6,802.0	11,383.3	-4,581.3	0.0	1,500.0	4,501.0	0.0	0.0	1,419.7	2,262.2
2008	2,262.2	6,802.0	10,710.5	-3,908.5	801.0	2,500.0	2,399.0	0.0	0.0	1,791.5	4,053.7
2009	4,053.7	6,802.0	10,133.9	-3,331.9	2,156.8	2,000.0	2,741.2	0.0	0.0	3,566.1	7,619.8
2010	7,619.8	6,802.0	9,421.3	-2,619.3	2,277.4	0.0	5,727.0	0.0	0.0	5,385.1	13,004.9
2011	13,004.9	6,802.0	9,431.3	-2,629.3	2,148.1	3,500.0	7,979.0	0.0	0.0	10,997.8	24,002.8
2012	24,002.8	6,802.0	10,162.0	-3,360.0	2,271.5	0.0	7,783.0	0.0	0.0	6,694.5	30,697.3
2013	30,697.3	3,401.0	11,097.4	-7,696.4	2,456.4	0.0	7,403.0	0.0	0.0	2,163.0	32,860.3
2014	32,860.3	0.0	10,805.5	-10,805.5	2,470.6	0.0	4,405.0	0.0	0.0	-3,929.9	28,930.4
2015	28,930.4	0.0	8,972.8	-8,972.8	2,836.9	0.0	2,773.0	0.0	0.0	-3,362.8	25,567.6
2016	25,567.6	0.0	10,159.8	-10,159.8	2,839.1	0.0	9,319.0	0.0	0.0	1,998.3	27,565.9

Table 3-8
Consolidation of Appropriator Production and Storage Accounts
Calendar Year Accounting (ac-ft) 2003 through 2016

Calendar Year	Storage Account Balance at Beginning of CY	Share of Surplus Water	Groundwater Production for CY	Additions to Storage Account							Ending Account Balance
				Under / Over Production [1]	Unused Overlying Production Allocation	Transfers Among Appropriators	Supplemental Water		Local Recharge	Total Additions to Storage Account	
							SWP Water Recharge	Recycled Water Recharge			
City of Beaumont - Authorized Storage Account: 30,000 ac-ft											
2003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Mesa Water Company - Authorized Storage Account: 20,000 ac-ft											
2003	0.0	998.0	223.2	774.8	0.0	0.0	0.0	0.0	0.0	774.8	774.8
2004	774.8	1,996.0	482.5	1,513.5	0.0	0.0	0.0	0.0	0.0	1,513.5	2,288.3
2005	2,288.3	1,996.0	663.2	1,332.8	0.0	0.0	0.0	0.0	0.0	1,332.8	3,621.1
2006	3,621.1	1,996.0	616.0	1,380.0	0.0	0.0	0.0	0.0	0.0	1,380.0	5,001.1
2007	5,001.1	1,996.0	665.8	1,330.2	0.0	-3,000.0	0.0	0.0	0.0	-1,669.8	3,331.3
2008	3,331.3	1,996.0	470.9	1,525.2	235.2	-2,500.0	0.0	0.0	0.0	-739.7	2,591.6
2009	2,591.6	1,996.0	382.2	1,613.8	633.2	-2,000.0	0.0	0.0	0.0	247.0	2,838.6
2010	2,838.6	1,996.0	405.0	1,591.0	668.6	0.0	0.0	0.0	0.0	2,259.6	5,098.2
2011	5,098.2	1,996.0	419.9	1,576.1	630.6	-3,500.0	0.0	0.0	0.0	-1,293.3	3,805.0
2012	3,805.0	1,996.0	448.5	1,547.5	666.9	0.0	0.0	0.0	0.0	2,214.4	6,019.3
2013	6,019.3	998.0	308.4	689.7	721.1	0.0	0.0	0.0	0.0	1,410.8	7,430.1
2014	7,430.1	0.0	473.7	-473.7	725.3	0.0	0.0	0.0	0.0	251.6	7,681.7
2015	7,681.7	0.0	317.2	-317.2	832.9	0.0	0.0	0.0	0.0	516.7	8,198.4
2016	8,198.4	0.0	119.2	-119.2	906.3	0.0	0.0	0.0	0.0	789.1	8,987.5
Morongo Band of Mission Indians - Authorized Storage Account: 20,000 ac-ft											
2013	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 3-8
Consolidation of Appropriator Production and Storage Accounts
Calendar Year Accounting (ac-ft) 2003 through 2016

Calendar Year	Storage Account Balance at Beginning of CY	Share of Surplus Water	Groundwater Production for CY	Additions to Storage Account							Ending Account Balance
				Under / Over Production [1]	Unused Overlying Production Allocation	Transfers Among Appropriators	Supplemental Water		Local Recharge	Total Additions to Storage Account	
							SWP Water Recharge	Recycled Water Recharge			
Yucaipa Valley Water District - Authorized Storage Account: 50,000 ac-ft											
2003	0.0	1,086.5	1,162.4	-75.9	0.0	0.0	0.0	0.0	0.0	-75.9	-75.9
2004	-75.9	2,173.0	1,833.7	339.3	0.0	0.0	0.0	0.0	0.0	339.3	263.4
2005	263.4	2,173.0	1,281.3	891.7	0.0	0.0	0.0	0.0	0.0	891.7	1,155.1
2006	1,155.1	2,173.0	2,027.3	145.7	0.0	0.0	0.0	0.0	0.0	145.7	1,300.8
2007	1,300.8	2,173.0	1,682.9	490.1	0.0	0.0	0.0	0.0	0.0	490.1	1,790.9
2008	1,790.9	2,173.0	572.0	1,601.0	255.9	0.0	0.0	0.0	0.0	1,856.8	3,647.8
2009	3,647.8	2,173.0	504.4	1,668.6	689.0	0.0	0.0	0.0	0.0	2,357.6	6,005.4
2010	6,005.4	2,173.0	672.4	1,500.6	727.5	0.0	0.0	0.0	0.0	2,228.1	8,233.5
2011	8,233.5	2,173.0	534.1	1,638.9	686.2	0.0	0.0	0.0	0.0	2,325.1	10,558.6
2012	10,558.6	2,173.0	700.1	1,472.9	725.6	0.0	0.0	0.0	0.0	2,198.5	12,757.1
2013	12,757.1	1,086.5	1,030.8	55.7	784.7	0.0	0.0	0.0	0.0	840.4	13,597.6
2014	13,597.6	0.0	1,198.5	-1,198.5	789.2	0.0	0.0	0.0	0.0	-409.2	13,188.4
2015	13,188.4	0.0	119.2	-119.2	906.3	0.0	0.0	0.0	0.0	788.1	13,976.4
2016	13,976.4	0.0	4.6	-4.6	907.0	0.0	0.0	0.0	0.0	904.4	14,880.8
Totals											
2003	0.0	8,000.0	7,071.7	928.3	0.0	0.0	0.0	0.0	0.0	928.3	928.3
2004	928.3	16,000.0	12,587.4	3,412.6	0.0	0.0	0.0	0.0	0.0	3,412.6	4,340.9
2005	4,340.9	16,000.0	10,778.6	5,221.4	0.0	0.0	0.0	0.0	0.0	5,221.4	9,562.3
2006	9,562.3	16,000.0	13,524.9	2,475.1	0.0	0.0	3,501.0	0.0	0.0	5,976.1	15,538.3
2007	15,538.3	16,000.0	16,504.6	-504.6	0.0	0.0	4,501.0	0.0	0.0	3,996.4	19,534.8
2008	19,534.8	16,000.0	14,687.0	1,313.0	1,884.2	0.0	3,933.0	0.0	0.0	7,130.2	26,665.0
2009	26,665.0	16,000.0	13,115.6	2,884.4	5,073.7	0.0	5,482.4	0.0	0.0	13,440.6	40,105.6
2010	40,105.6	16,000.0	11,642.3	4,357.7	5,357.4	0.0	7,065.0	0.0	0.0	16,780.0	56,885.6
2011	56,885.6	16,000.0	11,727.1	4,272.9	5,053.3	0.0	8,779.0	0.0	0.0	18,105.2	74,990.9
2012	74,990.9	16,000.0	12,348.9	3,651.1	5,343.5	0.0	8,983.0	0.0	0.0	17,977.6	92,968.5
2013	92,968.5	8,000.0	14,537.2	-6,537.2	5,778.4	0.0	8,603.0	0.0	0.0	7,844.2	100,812.7
2014	100,812.7	0.0	15,062.8	-15,062.8	5,811.8	0.0	5,013.0	0.0	0.0	-4,237.9	96,574.8
2015	96,574.8	0.0	11,087.4	-11,087.4	6,673.5	0.0	3,467.0	0.0	0.0	-944.9	95,629.9
2016	95,629.9	0.0	11,756.3	-11,756.3	6,751.4	0.0	10,796.0	0.0	0.0	5,795.1	101,425.0

1 – Negative values of under production indicate that the appropriator pumped more than its share of the operating yield.

Section 4
Water Quality Conditions

The purpose of this section is to document the water quality conditions in the Beaumont Basin during the 2011-2015 reporting period. TDS and nitrate concentrations in the basin are compared against groundwater quality objectives for anti-degradation and maximum benefit as established by the Regional Board for TDS and nitrate-nitrogen in the Beaumont Management Zone (BMZ). In addition, water quality concentrations for a number of compounds are compared against Federal and State Drinking Water Standards. Figure 4-1 depicts all the wells that have groundwater quality data for the reporting period.

4.1 Comparison with Management Zone Objectives

Groundwater quality objectives for anti-degradation and maximum benefit have been established by the Regional Board for TDS and nitrate-nitrogen in the BMZ, which encompasses portions of the Beaumont Basin, the Singleton and South Beaumont basins, and limited portions of Edgar Canyon above the Banning Fault as illustrated in Figure 4-1. The anti-degradation objectives are based on the historic ambient TDS and nitrate-nitrogen concentration of 230 mg/L and 1.5 mg/L respectively.

The maximum benefit objectives were adopted by the Regional Board in 2004 at the request of STWMA and Beaumont to allow for recharge of imported water and the reuse of recycled water. The maximum benefit object ives, set to 330 mg/L for TDS and 5.0 mg/L for Nitrate-N, are relatively low compared to other basins and are protective of the beneficial uses of the Basin groundwater. According to the Basin Plan, salt mitigation will be required once the ambient TDS and nitrate-nitrogen concentration exceeds the BMZ maximum benefit objectives.

4.1.1 Total Dissolved Solids

Figure 4-2 shows the maximum TDS concentrations for 58 wells measured within and in the vicinity of the Beaumont Basin wells during the 2012-2016 reporting period. A total of 40 wells are located inside the basin with the remaining 18 in the Singleton Basin / Edgar Canyon and the South Beaumont Basin areas.

The maximum TDS concentrations for domestic wells within the basin ranged from 170 to 370 mg/L and averaged 246 mg/L; this average value is 9 mg/L lower than the average maximum TDS concentration reported in the 2008-11 Engineering Report indicating that TDS concentrations have been fairly stable in the last 10 years.

In the Singleton Basin / Edgar Canyon area, the maximum TDS concentration ranged from 260 to 550 mg/L and averaged 330 mg/L. The average TDS concentration for all samples in this area was 311 mg/L.

In the South Beaumont Basin, the maximum TDS concentration ranged from 220 to 780 mg/L and averaged 510 mg/L. The average TDS concentration for all samples in this area was 475 mg/L.

Average and maximum TDS concentrations for all sampled wells within the basin are as follows:

Well Classification	Count	Samples	Average Concentration	Avg Max Concentration
Beaumont Groundwater Basin				
Appropriators	23	65	234	248
Overlyiers	10	14	226	244
Other	7	8	244	244
Total	50	87	234	246
Singleton Basin / Edgar Canyon Area				
All Wells	8	16	311	330
South Beaumont Basin				
All Wells	10	44	475	510

Of the 33 potable wells, 15 wells had a maximum concentration below the anti-degradation objective of 230 mg/L, 16 wells were between the anti-degradation and maximum benefit objective of 330 mg/L, and two exceeded the maximum benefit objective for the BMZ. None of the production wells samples exceeded the secondary federal or state drinking water standard for TDS (500 mg/L). BCVWD wells along Edgar Canyon were not included in the analysis of domestic wells.

In the Singleton Basin / Edgar Canyon area, one well had a maximum concentration below the anti-degradation objective, three wells were between the anti-degradation and maximum benefit objective of 330 mg/L, and the remaining four wells exceeded the maximum objective. In the South Beaumont Basin, one well had a maximum TDS concentration below the anti-degradation objective, one well was between this and the maximum objective, and the remaining eight wells exceeded the maximum objective. Most of the wells with the highest TDS concentrations are located in the South Beaumont Basin. Table 4-1 presents the average and maximum TDS and Nitrate (as N) concentration for all the wells in the Beaumont Basin and surrounding areas.

4.1.2 Nitrate-Nitrogen

Figure 4-3 shows the maximum Nitrate-N concentrations for 58 wells measured within and in the vicinity of the Beaumont Basin wells during the 2012-2016 reporting period. A total of 40 wells are located inside the basin with the remaining 18 in the Singleton Basin / Edgar Canyon and the South Beaumont Basin areas.

The maximum Nitrate-N concentrations for domestic wells owned by Appropriators ranged from 0.6 to 3.6 mg/L and averaged 2.3 mg/L. Maximum concentrations for overlying wells was slightly higher as it ranged from 1.2 to 6.1 mg/L and averaged 2.9 mg/L. The average concentration for all potable wells was 2.0 mg/L.

In the Singleton Basin / Edgar Canyon area, the maximum Nitrate-N concentration ranged from 1.9 to 19.0 mg/L and averaged 7.5 mg/L. The average concentration for all samples in this area was 6.3 mg/L.

In the South Beaumont Basin, the maximum Nitrate-N concentration ranged from 4.0 to 22.0 mg/L and averaged 12.3 mg/L. The average concentration for all samples in this area was 10.7 mg/L.

Average and maximum Nitrate-N concentrations for all sampled wells within the basin are as follows:

Well Classification	Count	Samples	Average Concentration	Avg Max Concentration
Beaumont Groundwater Basin				
Appropriators	23	159	1.7	2.3
Overlyiers	10	21	2.8	2.9
Other	7	8	3.0	3.0
Total	50	188	2.2	2.6
Singleton Basin / Edgar Canyon Area				
All Wells	8	16	6.3	7.5
South Beaumont Basin				
All Wells	10	44	10.7	12.3

Of the 33 potable wells, 14 wells had a maximum concentration below the anti-degradation objective of 1.5 mg/L, 22 wells were between the anti-degradation and maximum benefit objective of 5.0 mg/L, and four exceeded the maximum benefit objective for the BMZ. None of the production wells samples exceeded the primary federal or state drinking water standard for Nitrate-N (10 mg/L). BCVWD wells along Edgar Canyon were not included in the analysis of domestic wells.

In the Singleton Basin / Edgar Canyon area, four wells had a maximum concentration below the anti-degradation objective and four wells exceeded the maximum benefit objective of 5.0 mg/L. There were no wells with nitrate concentrations between the anti-degradation and maximum objectives.

In the South Beaumont Basin, one well had a maximum concentration below the anti-degradation objective; all other nine wells in this area exceeded the maximum objective of 5.0 mg/L. There were no wells with nitrate concentrations between the anti-degradation and

maximum objectives. Table 4-1 presents the average and maximum TDS and Nitrate (as N) concentration for all the wells in the Beaumont Basin and surrounding areas.

4.1.3 Nitrate Studies in the Beaumont Management Zone

Rising nitrate concentrations observed in 2005 along the northern portion of the Basin prompted STWMA to launch an investigation in 2006 to determine the potential impact on groundwater quality from on-site waste disposal systems (OSWDS) commonly used in the Cherry Valley Community of Interest (CVCOI). STWMA retained the services of Wildermuth Environmental Inc. (WEI) to conduct this study.

The results of this study were disputed by the Beaumont Board of Supervisors' Groundwater Quality Evaluation Committee (Committee) as they identified potential shortcomings in sampling design and project execution. The Committee recommended that an independent assessment be conducted. They recommended that the second study should expand the study area, consider reasonable build-out projections and other sources of groundwater contamination. This independent study was conducted by scientist at the University of California, Riverside and funded as a Supplemental Environmental Project by the State Water Resources Control Board. The results of this study were published in early 2012. A brief summary and their findings is presented below for information purposes only.

Summary of Wildermuth Environmental Inc. Study

This study is titled: "*Water Quality Impacts from On-Site Waste Disposal Systems in the Cherry Valley Community of Interest" (WEI, 2007).* The bases for this study include the following:

- A review of scientific literature,
- A field study to estimate nitrogen concentrations in soil water below selected OSWDS,
- A tracer study of nitrogen isotope and pharmaceutical and personal care products (PPCP) to confirm the presence of effluent from OSWDS,
- An estimation of current and future discharge from OSWDS to groundwater,
- A planning-level evaluation of basin impacts using the groundwater flow and nitrate transport model, and
- A review of the threshold used in California to compel sewering when OSWDS contaminate or threaten to contaminate groundwater

The results of the investigation are summarized as follows:

- Parcel density in the CVCOI violates the minimum half-acre parcel size requirement of the Regional Board to be on a septic system.
- Water produced from high nitrate wells in the area has a nitrogen isotopic signature and contain PPCPs consistent with discharge from OSWDS.
- Present contribution of OSWDS discharges is estimated at 665 ac-ft/yr.; this represents about five percent of total recharge to the BMZ. At ultimate buildout, there will be between 4,900 to 8,800 OSWDS in the CVCOI. Discharge contribution from these

OSWDS is estimated between 1,700 and 3,100 ac-ft/yr. representing 13 to 21 percent of total recharge to the BMZ.

- At 4,900 lots, the contributions from OSWDS will significantly impact water quality to the point that well head treatment will be required at certain well locations in order to meet drinking water standards. At 8,800 lots, the contributions from OSWDS will rendered the entire BMZ non-potable.
- Left unmitigated, OSWDS discharges will contribute enough nitrate to exceed the Basin Plan objectives for the BMZ.
- There is sufficient evidence of groundwater contamination by OSWDS to warrant the Regional Board to issue a prohibition on new OSWDS in the CVCOI.

According to WEI, as a result of this investigation, the County of Riverside issued a moratorium, followed by a permanent prohibition on the installation of septic systems in Cherry Valley unless the septic system is designed to remove at least 50 percent of the nitrogen in the wastewater. In 2009, the County passed a new ordinance that removed the prohibition on conventional OSWDS. WEI further indicates that the Regional Board initiated a process in 2009 that may lead to amending the Basin Plan prohibiting conventional OSWDS and regulating the discharges to meet antidegradation objectives.

Summary of University of California, Riverside Study

This study is titled: *"Water Quality Assessment of the Beaumont Management Zone: Identifying Sources of Groundwater Contamination Using Chemical and Isotopic Tracers" (UCR, 2012).*

The study divides the BMZ into four distinct zones; their location is depicted in Figure 2 of the UCR report (not included here). A brief description of the zones is as follows:

Zone 1 – Region Influenced by Wastewater Treatment Plant Effluent. This zone occupies the southernmost area of the BMZ. Water quality in this zone is influenced by effluent from the City of Beaumont wastewater treatment plant.

Zone 2 – Wildland and Low Density Septic Disposal Region. This zone is defined as the area uphill of Edgar Canyon to the north of Cherry Valley. Water quality in this area had low to moderate concentrations of TDS and nitrate.

Zone 3 – Urban Region with On-site Septic Disposal Systems. This zone overlies the Cherry Valley area including the area around the Noble Creek and Little San Gorgonio Spreading Ponds. Human waste from homes and business in this zone is primarily disposed of in on-site waste disposal systems.

Zone 4 – Urban Region with Consolidate Sewer System. Zone 4 comprises those portions of the City of Beaumont utilizing a municipal wastewater system.

The UCR report attempted to answer a series of questions; the questions and a summary of their response is provided below.

1.- Can different groundwater regions within the BMZ be defined using isotope, PPCP, and general chemical parameters?

According to the study,

- Zone 1 was characterized by relatively high levels of PPCPs and it has the highest likelihood for nitrate contamination from human waste.
- Zone 2 had detectable levels of some PPCPs. Septic contributions to groundwater are relatively minor.
- Zone 3 had several wells with clear signs of contamination by septic systems. Groundwater in the central portion of Cherry Valley appeared to be more strongly affected by septic systems than on the periphery of Cherry Valley.
- Zone 4 shows the fewest signs of human waste as most homes are served by consolidated sewer systems.

1A.- Do areas with septic systems have different chemistry than areas with sewers?

The report indicates that there are statistically significant differences between groundwater in areas with septic systems and groundwater where sewer service is available. The concentrations of PPCPs, TDS, Nitrate-N, the sum of base cations, Boron, and Isotopes of Nitrate were all significantly higher in areas with septic systems than in areas with sewer service.

1B.- Do areas where groundwater recharge with water from the State Water Project or wastewater treatment plant effluent have different chemistry from other areas?

Strong evidence of nitrate deriving from human waste was detected in Zone 1 as well as strong biological attenuation of nitrate transported in groundwater.

2.- What sources contribute nitrate to groundwater of the BMZ?

The report indicates that in Zone 1 the isotopes of nitrate values overlap those expected for human or animal waste. Similarly, in Zone 3 the isotopic composition of water suggest a high probability of inputs of nitrate from human or animal waste. The presence of PPCPs in most samples indicates the possibility that septic systems are contaminating groundwater within the central part of Cherry Valley.

3.- How much nitrate from human waste is making its way into the groundwater of the BMZ?

The report documents the following findings:

- Mixing models suggest that between 18 to 30 percent of the nitrate in central Cherry Valley groundwater is derived from septic systems.
- If septic systems were completely phased out, nitrate concentrations in central Cherry Valley groundwater could decline by 30 percent once a steady state condition is achieved. The time to reach a steady state is anticipated to be shorter than in other portions of the BMZ due to relatively high rates of recharge in Zone 3.
- Mass balance calculations show that nitrate-nitrogen inputs from septic systems is one of the largest inputs of nitrogen to groundwater in the BMZ.

- If the waste from septic tanks were to be conveyed to the City of Beaumont WWTP, about 30 percent of the current input of nitrate from human waste to groundwater would be removed.

4.2 Comparison with Federal and State Drinking Water Standards

The California Department of Health Services (CDPH) maintains an active water quality database of all public and private drinking water wells throughout the state. This database, available at CDPH's website, was assessed for the 2012-2016 reporting period for 23 domestic production wells in the Beaumont Basin. The objective of this analysis was to determine whether any of these potable wells had exceeded the Primary or Secondary Federal and State standards or the notification levels set by the state. Federal standards are set by the United States Environmental Protection Agency (USEPA) while state standards in California are set by CDPH. Primary standards at the federal and state level are enforceable criteria that have been established to protect the public against consumption of drinking water contaminants that present a risk to human health. Secondary standards are not enforceable standards; they have been established for aesthetic qualities of water, such as taste, color, and other. Contaminants with a secondary MCL are not considered to present a risk to human health at the established maximum level. Notification levels (NL) are not enforceable standards; however, they require that municipal water suppliers notify the public if the NL for a chemical has been exceeded.

A total of 1,464 water quality results were extracted from the CDPH database for the 23 production wells in the Beaumont Basin. Results were obtained for 176 analytes sampled between 2012 and 2016. The results of the analysis indicate that not a single production well exceeds either the primary or secondary federal and state standards during the reporting period. However, the California Notification Limit for Vanadium (100 ug/day) was exceeded once at SMWC Well No. 4 during the reporting period.

Additional water quality information from 2012 through 2016 was obtained from Dudek Engineering as part of the Maximum Benefit Monitoring Program. A total of 1,356 water quality results were analyzed to determine if the water quality at non-domestic wells exceeded drinking water standards. Drinking standards were exceeded for a limited number of constituents as follows:

- Nitrate-N – Nine of the 17 monitoring wells sampled for Nitrate-N exceeded the federal and state primary MCL of 10 mg/L – Total of 98 readings. All of these wells are located outside the Beaumont Basin.
- pH – Nine of the 16 monitoring wells sampled for pH exceeded the secondary federal MCL of 8.5 – Total of 77 readings. One of these wells is located in the Beaumont Basin.
- Total Dissolved Solids – Nine of the 16 monitoring wells exceeded the federal and state secondary MCL of 500 mg/L – Total of 75 readings. These wells are located outside the Beaumont Basin.

Appendix D contains summary statistics of the analytical results for the 2012-2016 period for all chemicals that have a federal or state drinking water standard whether maximum contaminant levels were exceeded.

4.2.1 Trace Metals

As indicated earlier, not a single domestic well exceeded either the primary or secondary federal and state standards during the reporting period. This represents a significant improvement over previous reporting periods when several wells exceeded the MCL for trace metals. Trace metals are briefly discussed here and compared to previous reporting periods.

Aluminum. There were 42 water samples taken during the reporting period and tested for aluminum. Aluminum concentration at all wells was below 50 ug/L, significantly below the secondary MCL of 200 ug/L. Aluminum above the MCL can add color to water. One well exceeded the MCL during the FY 2004-08 reporting period.

Arsenic. There were 43 water samples collected and tested for arsenic during the reporting period. The highest arsenic concentration was observed at SMWC's Well No. 4; arsenic concentration at this well has increased from 4.2 mg/L in 2009, to 4.6 mg/L in 2012, to the highest value of 5.2 mg/L in April 2013. Latest value, recorded in April 2016, arsenic concentration was down to 4.4 mg/L. One well exceeded the MCL during the FY 2004-08 reporting period.

Iron. A total of 42 water samples were taken during the reporting period and tested for iron. In most cases iron concentration was below 100 ug/L., which is significantly below the current secondary MCL of 300 ug/L. However, there is one well that exceeded the MCL during the 2012-16 period; BCVWD Well No. 3 at 450 mg/L. Iron at a concentration above the MCL can impact color, odor, and taste in water. Five wells exceeded the MCL during the FY 2004-08 reporting period.

Lead. There were 42 water samples collected and tested for lead during the reporting period. The highest concentration reported were 0.0065 mg/L at BCVWD Well No. 25 and 0.0058 mg/L at Rancho Calimesa Mobile Home Park Well No. 1. Both of these concentrations are significantly below the current primary MCL for Lead of 0.015 mg/L. Lead concentrations in water above the MCL can have significant impacts on human health. One well exceeded the MCL during the FY 2004-08 reporting period.

Manganese. There were 42 water samples taken during the reporting period and tested for Manganese. Manganese concentration at all wells was below 20 ug/L, significantly below the secondary MCL of 50 ug/L. Manganese can significantly impact color and taste in water at concentrations above the MCL. One monitoring well exceeded the MCL during the FY 2004-08 reporting period.

Total Chromium. A total of 42 water samples were taken during the reporting period and tested for total chromium. The highest reported concentrations of total chromium were observed in January 2012 at Banning C-02A at 17 ug/L and in March 2014 at Banning C-3 at 14 ug/L. Both of these values are significantly below the current state primary MCL of 50 ug/L. One well exceeded the state primary MCL during the FY 2004-08 reporting period.

Vanadium. Three water samples were tested for vanadium during the reporting period from SMWC's Well 4 and YVWD No. 48. Vanadium at the SMWC well has been consistently hovering around 100 ug/L doubling the state notification level of 50 ug/L. Vanadium concentration at YVWD No. 48 was 25 ug/L, which is half the state notification level.

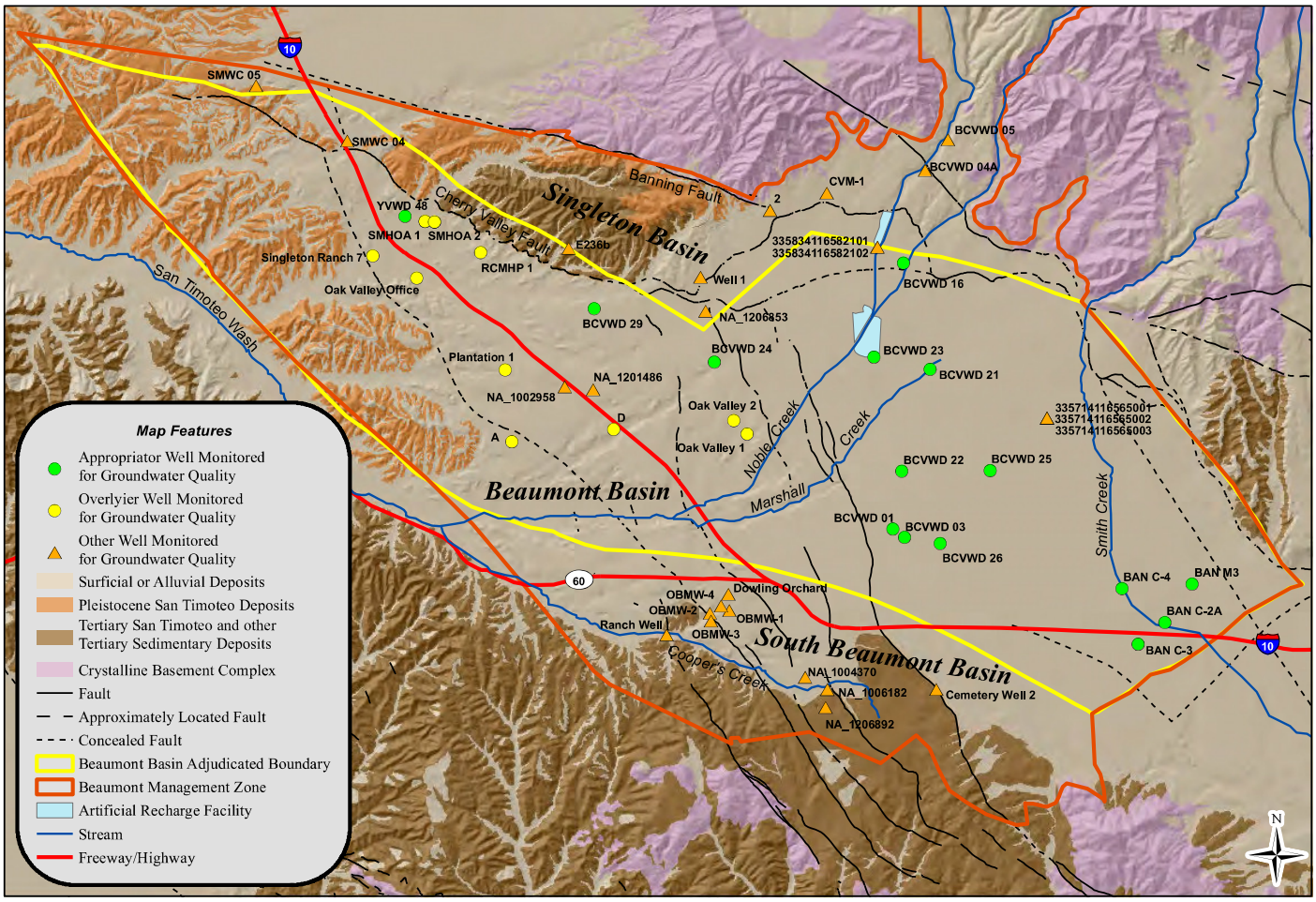
Copper. There were 42 water samples collected and tested for copper during the reporting period. Over the last five years only one well has exceeded the detection limit of 50 ug/L; the Rancho Calimesa Well No. 2 at 62 ug/L (Feb 2013). This concentration is significantly below the state primary MCL of 1,000 ug/L. This is consistent with previous reporting periods.

4.2.3 pH

There are two secondary standards for pH, a lower limit of 6.5 and an upper limit of 8.5. With the exception of one well, all other production wells were within these limits. pH concentrations ranging from a low of 7.0 to a high of 8.9 (SMWC Well No. 4) with most wells in the 7.8 to 8.0 range. Four wells in the basin exceeded the upper limit for pH during the FY 2004-08 reporting period.

4.2.4 Turbidity

Turbidity is a measure of the cloudiness of water, and is used to indicate water quality and filtration effectiveness. All production wells in the Basin were tested for turbidity and none exceeded the primary federal and state MCL of 5 NTU.



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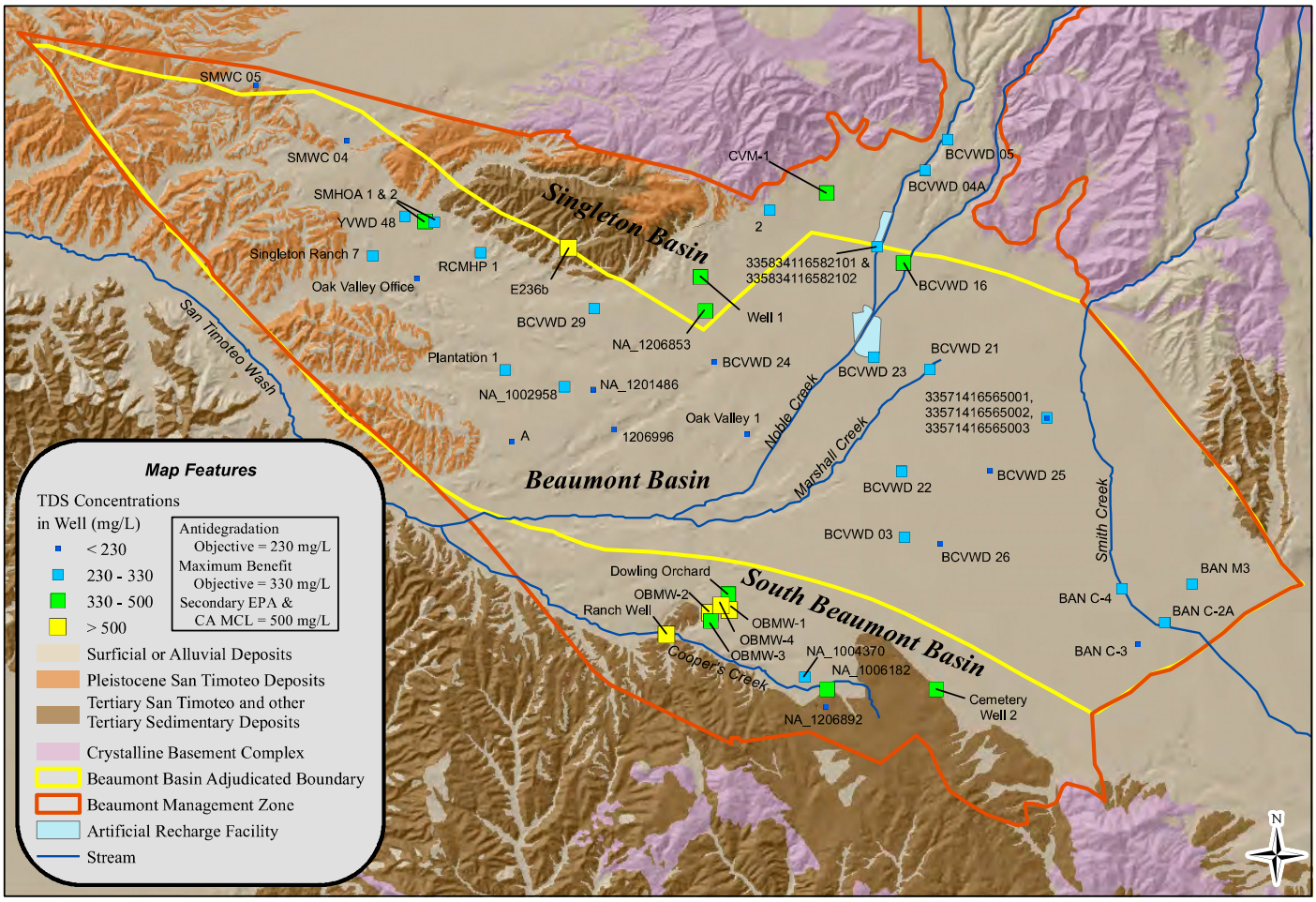
Groundwater Consulting

Wells with Groundwater Quality Data in the Beaumont Basin

Figure 4-1



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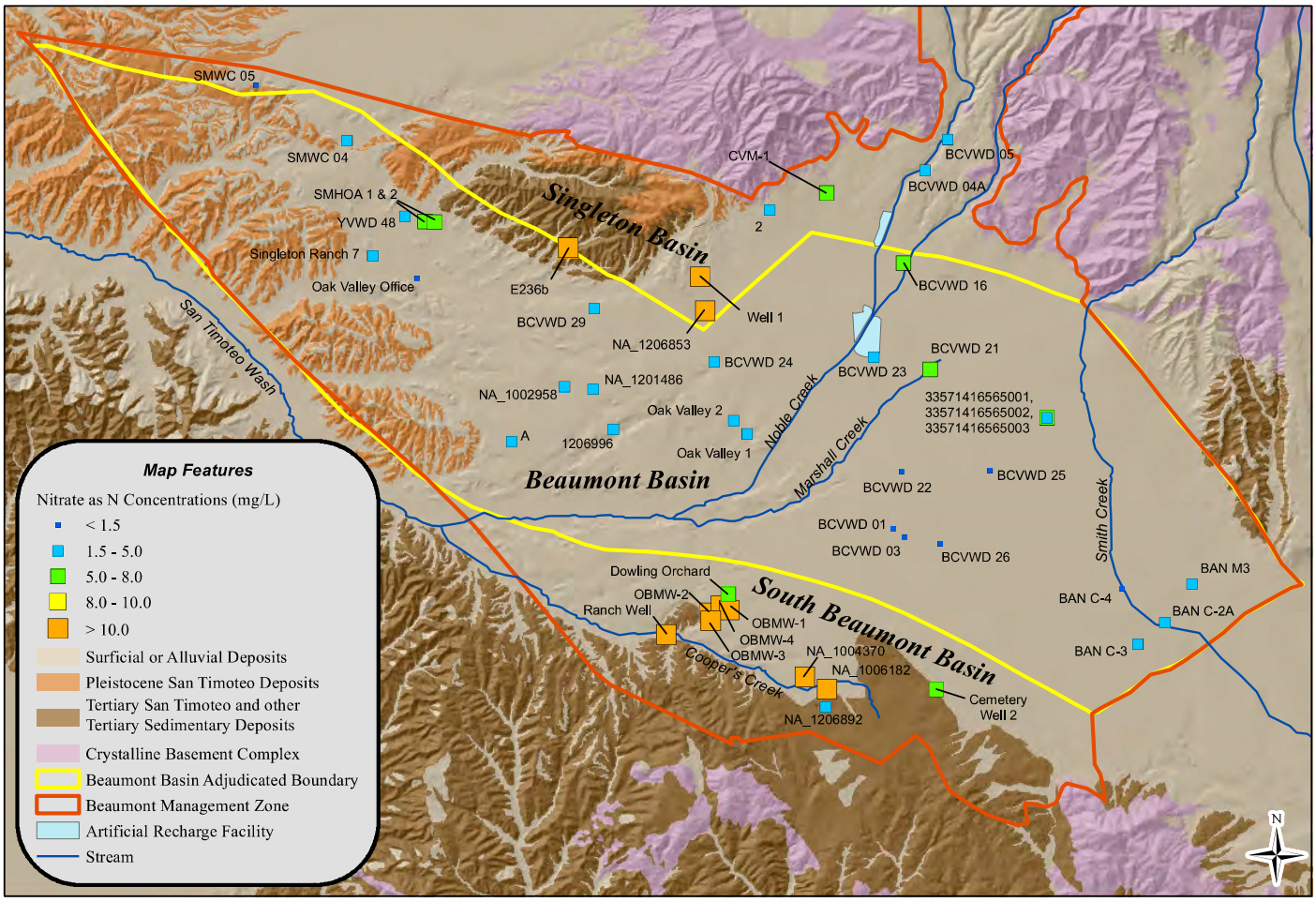
0 0.5 1 2 Miles
NAD 83 UTM Zone 11

Total Dissolved Solids in Groundwater (Maximum Concentrations 2012 to 2016)

Figure 4-2



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0 0.5 1 2 Miles
NAD 83 UTM Zone 11

Nitrate in Groundwater (Maximum Concentrations 2012 to 2016)

Figure 4-3

Table 4-1
Summary of Nitrate and TDS by Well in and around the Beaumont Basin

Rec No.	Well Name	Nitrate as N			TDS		
		Count	Avg	Max	Count	Avg	Max
Appropriators							
1007031	BAN C-2A	7	1.9	2.5	3	230	240
1004377	BAN C-3	6	1.7	1.9	5	173	190
1206706	BAN C-4	5	1.1	1.2	3	203	240
1206700	BAN M-3	5	1.7	1.8	2	290	300
1004351	BCVWD 01	1	0.6	0.6			
1004350	BCVWD 03	3	0.8	0.9	4	219	240
1002917	BCVWD 06	2	2.5	2.5	1	260	260
1002896	BCVWD 10	3	3.6	8.1	1	290	290
1002901	BCVWD 11	1	1.0	1.0	2	230	230
1002891	BCVWD 12	2	0.9	1.0	1	220	220
1002890	BCVWD 13	1	0.8	0.8			
1002899	BCVWD 14	2	0.6	0.7	1	250	250
1002938	BCVWD 16	46	5.3	7.3	5	335	370
1002895	BCVWD 18	2	1.4	1.5	1	240	240
1007011	BCVWD 19	2	0.7	0.8	1	230	230
1007014	BCVWD 20	2	1.1	1.2	2	210	220
1201487	BCVWD 21	40	3.7	7.9	2	280	290
1002966	BCVWD 22	3	0.9	1.2	2	235	260
1207328	BCVWD 23	4	2.9	3.6	3	243	300
1208224	BCVWD 24	4	1.4	1.6	2	195	210
1220057	BCVWD 25	3	0.9	1.1	3	222	227
1220058	BCVWD 26	2	1.0	1.1	1	190	190
1201480	BCVWD 29	2	2.0	2.1	3	260	280
1003035	SMWC 04	4	2.9	2.9	2	170	170
1003063	YVWD 48	7	2.2	3.1	15	205	250
		Avg:	1.7	2.3	Avg:	234	248
Overlyier							
1206844	1	11	5.1	6.1			
1206845	2	4	4.5	5.0			
1206995	A	1	2.0	2.0	1	220	220
1206996	D	1	2.2	2.2	1	200	200
1007025	Oak Valley 1	1	2.1	2.1	1	210	210
1207769	Oak Valley 2	1	2.8	2.8	1	180	180
1201561	Oak Valley Office	1	1.2	1.2	1	200	200
0	Plantation 1				2	260	270
0	RCMHP 1				2	170	280
1003072	Singleton Ranch 7	1	2.2	2.2	1	230	230
0	SMHOA 1				2	310	360
0	SMHOA 2				2	275	290
		Avg:	2.8	2.9	Avg:	226	244

Table 4-1
Summary of Nitrate and TDS by Well in and around the Beaumont Basin

Rec No.	Well Name	Nitrate as N			TDS		
		Count	Avg	Max	Count	Avg	Max
Other - Inside Basin							
1207773	335714116565001	1	4.7	4.7	1	251	251
1207770	335714116565002	1	5.1	5.1	1	203	203
1207771	335714116565003	1	6.6	6.6	1	221	221
1207827	335834116582101	1	0.5	0.5	1	310	310
1207828	335834116582102	1	0.5	0.5	1	280	280
1002958	NA_1002958	1	1.5	1.5	1	230	230
1201486	NA_1201486	2	1.9	1.9	2	210	210
		Avg:	3.0	3.0	Avg:	244	244
All Wells within the Beaumont Basin			**2.2**	**2.6**		**234**	**246**
Singleton Basin / Edgar Cyn							
1208430	CVM-1	2	7.5	7.6	2	330	340
1207012	E236b	2	12.5	19.0	2	440	550
1201450	2	1	1.7	1.7	1	270	270
1206853	NA_1206853	2	11.5	13.0	2	315	340
1007022	Well 1	1	11.5	12.0	2	365	370
1002931	BCVWD 04A	2	1.8	1.9	1	320	320
1002935	BCVWD 05	2	2.9	3.2	1	260	260
1003032	SMWC 05	4	1.2	1.3	1	190	190
		Avg:	6.3	7.5	Avg:	311	330
South Beaumont Basin							
1220050	Cemetery Well 2	4	6.2	7.7	4	283	370
1221612	Dowling Orchard	6	6.2	6.6	4	383	420
1004370	NA_1004370	3	13.7	14.0	3	277	280
1006182	NA_1006182	1	22.0	22.0	1	370	370
1206892	NA_1206892	2	3.7	4.0	2	215	220
1208432	Ranch Well	3	15.3	16.0	3	690	720
1232662	OBMW-1	6	1.7	12.0	4	698	770
1232663	OBMW-2	6	15.3	17.0	5	678	710
1232664	OBMW-3	7	10.2	11.0	3	448	460
1232665	OBMW-4	6	12.3	13.0	3	703	780
		Avg:	10.7	12.3	Avg:	475	510

Section 5
Land Subsidence

In the first ten years of operations under the Judgment, a temporary surplus was established that allows up to 160,000 acre-ft of overdraft within the Basin. The purpose of the temporary surplus was to create room for the safe storage of supplemental water and to reduce losses from the basin. A major concern is that overdraft of the groundwater basin may lead to the lowering of groundwater levels and, subsequently, to land subsidence and ground fissuring. To proactively address this concern, the STWMA and the Watermaster developed a monitoring program specifically to assess the occurrence of subsidence from past groundwater pumping and future pumping. To implement this program, the STWMA, on behalf of the Watermaster, successfully applied for an AB303 Grant from the California Department of Water Resources (DWR)

The Subsidence Monitoring Program was established in 2005. Initially, ground level information for the 1928 to 2000 period was analyzed. In mid to late 2006, 72 benchmark monuments were installed across the Basin and in nearby basins and an initial ground-level survey conducted to establish the initial elevations of all benchmarks. A second survey was conducted in 2007. A comparison analysis of the two surveying efforts reveals little vertical change; in addition, this minimum subsidence was fairly evenly distributed across the Basin. According to the program, the ground level survey of all benchmarks was to be conducted on a tri-annual basis with the next round of survey scheduled for the spring of 2009. The 2009 survey was not conducted by Watermaster since it was determined that the level of subsidence was minimal. No additional surveys are scheduled at this time.

Appendix A
Active and Interested Party List

City of Banning
Arturo Vela
Post Office Box 998
Banning, CA 92220
avela@ci.banning.ca.us

Yucaipa Valley Water District
Joseph Zoba
Post Office Box 730
Yucaipa, CA 92399
jzoba@yvwd.dst.ca.us

South Mesa Mutual Water Company
George Jorritsma
Post Office Box 458
Calimesa, CA 92320
smwc@verizon.net

South Mesa Mutual Water Company
Dave Armstrong
Post Office Box 458
Calimesa, CA 92320
darmstrongsmwc@yahoo.com

Beaumont-Cherry Valley Water District
Eric Fraser
560 Magnolia Avenue
Beaumont, CA 92223
eric.fraser@bcvwd.org

Beaumont-Cherry Valley Water District
Anthony Lara
560 Magnolia Avenue
Beaumont, CA 92223
tony.lara@bcvwd.org

Yucaipa Valley Water District
Jennifer Ares
Post Office Box 730
Yucaipa, CA 92399
Jennifer Ares (jares@yvwd.dst.ca.us)

Yucaipa Valley Water District
Mike Kostelecky
Post Office Box 730
Yucaipa, CA 92399

Beaumont-Cherry Valley Water District
Andy Ramirez, Director
560 Magnolia Avenue
Beaumont, CA 92223

Beaumont-Cherry Valley Water District
Claudeen Diaz, Director
560 Magnolia Avenue
Beaumont, CA 92223

City of Beaumont
Kyle Warsinski
550 East Sixth Street
Beaumont, CA 92223
kwarsinski@ci.beaumont.ca.us

Sharondale Mesa Owners Association
William Wood
9525 Sharon Way
Calimesa, CA 92320

Sharondale Mesa Owners Association
Ira Pace
9525 Sharon Way
Calimesa, CA 92320
rbnjp@msn.com

Plantation on the Lake
James Krueger
10961 Desert Lawn Drive
Calimesa, CA 92320
jimk@mrc1.com

California Oak Valley Golf and Resort, LLC.
Ron Sullivan
27710 Jefferson Avenue, Suite 301
Temecula, CA 92590

Oak Valley Partners, LP.
John Ohanian
Post Office Box 645
10410 Roberts Road
Calimesa, CA 92320

San Bernardino Valley MWD
Douglas Headrick
380 East Vanderbilt Way
San Bernardino, CA 92408

Mrs. Beckman
38201 Cherry Valley Boulevard
Cherry Valley, CA 92223

Merlin Properties, LLC.
Fred and Richard Reidman
6475 East Pacific Coast Highway, Suite 399
Long Beach, CA 90803
riedman@gte.net

San Gorgonio Pass Water Agency
David Fenn, Director
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
Jeff Davis, General Manager
1210 Beaumont Avenue
Beaumont, CA 92223

Beaumont-Cherry Valley Water District
Daniel Slawson, Director
560 Magnolia Avenue
Beaumont, CA 92223

Beaumont-Cherry Valley Water District
John Covington, Director
560 Magnolia Avenue
Beaumont, CA 92223

Beaumont-Cherry Valley Water District
David Hoffman, Director
560 Magnolia Avenue
Beaumont, CA 92223

Leonard Stearns
Post Office Box 141
Calimesa, CA 92320

Latham and Watkins, LLP.
Paul Singarella, Esq.
650 Town Center Drive, 20th Floor
Costa Mesa, CA 92626-1925

Southern California Professional Golfers Association of America
Tom Addis
36201 Champions Drive
Beaumont, CA 92223

Ted Haring
10961 - 354 Desert Lawn Drive
Calimesa, CA 92320
tdharing@msn.com

Redwine and Sherrill
Gil Granito, Esq.
1950 Market Street
Riverside, CA 92501

Patsy Reeley
10096 Live Oak Avenue
Cherry Valley, CA 92223

Luwana Ryan
9574 Mountain View Avenue
Cherry Valley, CA 92223

Frances Flanders
41045 Mohawk Circle
Cherry Valley, CA 92223

Albor Properties
Eric Borstein
12301 Wilshire Boulevard, Suite 302
Los Angeles, CA 90025

Niki Magee
38455 Vineland Street
Cherry Valley, CA 92223

San Gorgonio Pass Water Agency
Ron Duncan, Director
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
Leonard Stevenson, Director
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
Dr. Blair Ball, Director
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
David Castaldo, Director
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
Steve Lehtonen
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
Mike Thompson
1210 Beaumont Avenue
Beaumont, CA 92223

San Gorgonio Pass Water Agency
Cheryle Rasmussen
1210 Beaumont Avenue
Beaumont, CA 92223

Robert C. Newman
29455 Live Oak Canyon Road
Redlands, CA 92373
newman4governor@aol.com

Judy Bingham
115 Viele Avenue
Beaumont, CA 92223

Thomas Harder and Company
Thomas Harder
1260 N. Hancock, Suite 109
Anaheim, CA 92807
tharder@thomashardercompany.com
714.792.3875

Alvarado Smith
Thierry Montoya
1 Mac Arthur Place
Santa Ana, CA 92707
714.852.6800

Best, Best and Krieger
Greg Wilkinson, Esq.
3750 University Avenue, Suite 400
Riverside, CA 92501

Sunny Cal Egg and Poultry Company
Steve Anderson, Esq.
c/o Best, Best and Krieger
3750 University Avenue, Suite 400
Riverside, CA 92501

Alda, Inc.
Anibal Blandon
5928 Vineyard Avenue
Rancho Cucamonga, CA 91701
blandona@aldaengineering.com
909.587.9916

Manheim, Manheim and Berman
Steve Anderson, Esq.
c/o Best, Best and Krieger
3750 University Avenue, Suite 400
Riverside, CA 92501

Appendix B
Fiscal Year 2015-16 Audit Letter

TO BE INCLUDED IN FINAL REPORT

Appendix C
Production Estimation Methods for Unmetered Overlying Producers

University of California Riverside - CIMIS Station 44

Monthly Evapotranspiration Values - 2002 through 2016

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2002	2.65	3.60	4.68	4.88	6.34	7.13	7.55	6.95	5.66	3.13	3.15	2.01	57.73
2003	3.05	2.57	4.61	5.00	5.65	5.16	7.05	7.46	5.54	4.08	2.23	2.07	54.47
2004	2.49	2.76	4.81	5.90	7.10	6.50	7.55	6.81	5.83	3.39	2.44	2.30	57.88
2005	2.02	2.21	3.93	5.41	6.47	6.49	7.28	6.68	5.32	3.65	2.84	2.15	54.45
2006	2.92	3.35	3.42	4.26	6.02	7.16	7.73	7.20	5.70	3.95	3.14	2.94	57.79
2007	3.28	2.91	5.02	5.04	6.47	7.16	7.57	7.09	5.44	4.34	2.81	2.24	59.37
2008	1.69	2.31	5.30	6.04	6.28	7.59	7.53	7.23	5.79	5.02	3.14	1.89	59.81
2009	3.32	2.41	4.62	5.58	6.32	5.37	7.60	6.68	5.89	4.40	3.18	2.08	57.45
2010	2.35	2.44	4.67	5.11	6.18	6.25	6.57	6.99	5.45	2.10	3.22	1.78	53.11
2011	2.91	2.91	4.22	5.57	6.67	6.95	7.76	7.65	5.47	4.03	2.45	2.82	59.41
2012	3.02	3.41	4.51	5.85	7.00	7.62	7.93	7.83	6.44	4.38	2.72	1.70	62.41
2013	2.72	3.18	4.80	5.71	7.01	7.36	7.13	7.37	6.14	4.27	2.76	2.80	61.25
2014	3.27	3.03	4.95	6.52	7.65	7.62	7.76	7.29	6.19	4.40	3.21	2.01	63.90
2015	2.76	3.33	5.83	6.30	5.38	7.42	6.76	7.67	5.83	3.81	2.77	1.84	59.70
2016	2.09	4.28	4.91	6.00	5.34	6.95	7.26	6.67	4.84	3.67	3.10	1.83	56.94

Crop Coefficient (Warm Season Bermuda Grass)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kc	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

Monthly Water Requirements (inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2004	1.74	1.93	3.37	4.13	4.97	4.55	5.29	4.77	4.08	2.37	1.71	1.61	40.52
2005	1.41	1.55	2.75	3.79	4.53	4.54	5.10	4.68	3.72	2.56	1.99	1.51	38.12
2006	2.04	2.35	2.39	2.98	4.21	5.01	5.41	5.04	3.99	2.77	2.20	2.06	40.45
2007	2.30	2.04	3.51	3.53	4.53	5.01	5.30	4.96	3.81	3.04	1.97	1.57	41.56
2008	1.18	1.62	3.71	4.23	4.40	5.31	5.27	5.06	4.05	3.51	2.20	1.32	41.87
2009	2.32	1.69	3.23	3.91	4.42	3.76	5.32	4.68	4.12	3.08	2.23	1.46	40.22
2010	1.65	1.71	3.27	3.58	4.33	4.38	4.60	4.89	3.82	1.47	2.25	1.25	37.18
2011	2.04	2.04	2.95	3.90	4.67	4.87	5.43	5.36	3.83	2.82	1.72	1.97	41.59
2012	2.11	2.39	3.16	4.10	4.90	5.33	5.55	5.48	4.51	3.07	1.90	1.19	43.69
2013	1.90	2.23	3.36	4.00	4.91	5.15	4.99	5.16	4.30	2.99	1.93	1.96	42.88
2014	2.29	2.12	3.47	4.56	5.36	5.33	5.43	5.10	4.33	3.08	2.25	1.41	44.73
2015	1.93	2.33	4.08	4.41	3.77	5.19	4.73	5.37	4.08	2.67	1.94	1.29	41.79
2016	1.46	3.00	3.44	4.20	3.74	4.87	5.08	4.67	3.39	2.57	2.17	1.28	39.86

Indoor Water Use: 0.35 ac-ft/yr/du

Irrigation Efficienty: 70%

Estimated Pumping - All Unmetered Accounts

Year	Total Use (ac-ft/yr)
2004	466.11
2005	443.64
2006	81.28
2007	12.23
2008	13.78
2009	13.47
2010	11.85
2011	12.67
2012	13.07
2013	12.98
2014	13.17
2015	12.87
2016	12.67

Estimated Pumping by Merlin Properties

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	48	3	1.05	0.11	0.37	0.53	1.58
2005	48	3	1.05	0.11	0.35	0.50	1.55
2006	48	3	1.05	0.11	0.37	0.53	1.58
2007	48	3	1.05	0.11	0.38	0.54	1.59
2008	48	3	1.05	0.11	0.38	0.55	1.60
2009	48	3	1.05	0.11	0.37	0.53	1.58
2010	48	3	1.05	0.11	0.34	0.49	1.54
2011	48	3	1.05	0.11	0.38	0.54	1.59
2012	48	3	1.05	0.11	0.40	0.57	1.62
2013	48	3	1.05	0.11	0.39	0.56	1.61
2014	48	3	1.05	0.11	0.41	0.59	1.64
2015	48	3	1.05	0.11	0.38	0.55	1.60
2016	48	3	1.05	0.11	0.37	0.52	1.57

Estimated Pumping by Roman Catholic Bishop of San Bernardino

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	34	2	0.70	12.10	40.85	58.36	59.06
2005	34	2	0.70	12.10	38.43	54.90	55.60
2006	34	2	0.70	12.10	40.79	58.27	58.97
2007	34	2	0.70	0.00	0.00	0.00	0.70
2008	34	2	0.70	0.00	0.00	0.00	0.70
2009	34	2	0.70	0.00	0.00	0.00	0.70
2010	34	0	0.00	0.00	0.00	0.00	0.00
2011	34	0	0.00	0.00	0.00	0.00	0.00
2012	34	0	0.00	0.00	0.00	0.00	0.00
2013	34	0	0.00	0.00	0.00	0.00	0.00
2014	34	0	0.00	0.00	0.00	0.00	0.00
2015	34	0	0.00	0.00	0.00	0.00	0.00
2016	34	0	0.00	0.00	0.00	0.00	0.00

Estimated Pumping by Leonard Stearns

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	91	3	1.05	0.00	0.00	0.00	1.05
2005	91	3	1.05	0.00	0.00	0.00	1.05
2006	91	3	1.05	0.00	0.00	0.00	1.05
2007	91	3	1.05	0.00	0.00	0.00	1.05
2008	91	3	1.05	0.00	0.00	0.00	1.05
2009	91	3	1.05	0.00	0.00	0.00	1.05
2010	91	2	0.70	0.00	0.00	0.00	0.70
2011	91	2	0.70	0.00	0.00	0.00	0.70
2012	91	2	0.70	0.00	0.00	0.00	0.70
2013	91	2	0.70	0.00	0.00	0.00	0.70
2014	91	2	0.70	0.00	0.00	0.00	0.70
2015	91	2	0.70	0.00	0.00	0.00	0.70
2016	91	2	0.70	0.00	0.00	0.00	0.70

Estimated Pumping by Sunny Cal

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Number of Chickens	Chicken Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	200	10	3.50	1,200,000	80.65	66.40	224.19	320.27	404.42
2005	200	10	3.50	1,200,000	80.65	66.40	210.90	301.29	385.44
2006	185	2	0.70	0.00	0.00	0.40	1.35	1.93	2.63
2007	185	2	0.70	0.00	0.00	0.40	1.39	1.98	2.68
2008	185	2	0.70	0.00	0.00	0.70	2.44	3.49	4.19
2009	185	2	0.70	0.00	0.00	0.70	2.35	3.35	4.05
2010	185	2	0.70	0.00	0.00	0.70	2.17	3.10	3.80
2011	185	2	0.70	0.00	0.00	0.70	2.43	3.47	4.17
2012	185	2	0.70	0.00	0.00	0.70	2.55	3.64	4.34
2013	185	2	0.70	0.00	0.00	0.70	2.55	3.64	4.34
2014	185	2	0.70	0.00	0.00	0.70	2.55	3.64	4.34
2015	185	2	0.70	0.00	0.00	0.70	2.55	3.64	4.34
2015	185	2	0.70	0.00	0.00	0.70	2.55	3.64	4.34

Water consumption per chicken estimated at 6.0 gal/100 chickens

Estimated Pumping by Albor Properties

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	0	0	0.00	0.00	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00	0.00	0.00
2006	122	2	0.70	2.60	8.76	12.52	13.22
2007	122	1	0.35	0.40	1.39	1.98	2.33
2008	122	1	0.35	0.40	1.40	1.99	2.34
2009	122	1	0.35	0.40	1.34	1.92	2.27
2010	122	1	0.35	0.40	1.24	1.77	2.12
2011	122	1	0.35	0.40	1.39	1.98	2.33
2012	122	1	0.35	0.40	1.46	2.08	2.43
2013	122	1	0.35	0.40	1.43	2.04	2.39
2014	122	1	0.35	0.40	1.49	2.13	2.48
2015	122	1	0.35	0.40	1.39	1.99	2.34
2016	122	1	0.35	0.40	1.33	1.90	2.25

Estimated Pumping by Nikodinov

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	0	0	0.00	0.00	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00	0.00	0.00
2006	10	1	0.35	0.08	0.27	0.39	0.74
2007	10	1	0.35	0.08	0.28	0.40	0.75
2008	10	1	0.35	0.08	0.28	0.40	0.75
2009	10	1	0.35	0.08	0.27	0.38	0.73
2010	10	1	0.35	0.08	0.25	0.35	0.70
2011	10	1	0.35	0.08	0.28	0.40	0.75
2012	10	1	0.35	0.08	0.29	0.42	0.77
2013	10	1	0.35	0.08	0.29	0.41	0.76
2014	10	1	0.35	0.08	0.30	0.43	0.78
2015	10	1	0.35	0.08	0.28	0.40	0.75
2016	10	1	0.35	0.08	0.27	0.38	0.73

Estimated Pumping by McAmis

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	0	0	0.00	0.00	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00	0.00	0.00
2006	0.9	1	0.35	0.04	0.13	0.19	0.54
2007	0.9	1	0.35	0.04	0.14	0.20	0.55
2008	0.9	1	0.35	0.04	0.14	0.20	0.55
2009	0.9	1	0.35	0.04	0.13	0.19	0.54
2010	0.9	1	0.35	0.04	0.12	0.18	0.53
2011	0.9	1	0.35	0.04	0.14	0.20	0.55
2012	0.9	1	0.35	0.04	0.15	0.21	0.56
2013	0.9	1	0.35	0.04	0.14	0.20	0.55
2014	0.9	1	0.35	0.04	0.15	0.21	0.56
2015	0.9	1	0.35	0.04	0.14	0.20	0.55
2016	0.9	1	0.35	0.04	0.13	0.19	0.54

Estimated Pumping by Aldama

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	0	0	0.00	0.00	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00	0.00	0.00
2006	1.4	1	0.35	0.10	0.34	0.48	0.83
2007	1.4	1	0.35	0.10	0.35	0.49	0.84
2008	1.4	1	0.35	0.10	0.35	0.50	0.85
2009	1.4	1	0.35	0.10	0.34	0.48	0.83
2010	1.4	1	0.35	0.10	0.31	0.44	0.79
2011	1.4	1	0.35	0.10	0.35	0.50	0.85
2012	1.4	1	0.35	0.10	0.36	0.52	0.87
2013	1.4	1	0.35	0.10	0.36	0.51	0.86
2014	1.4	1	0.35	0.10	0.37	0.53	0.88
2015	1.4	1	0.35	0.10	0.35	0.50	0.85
2016	1.4	1	0.35	0.10	0.33	0.47	0.82

Estimated Pumping by Gutierrez

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	0	0	0.00	0.00	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00	0.00	0.00
2006	2	2	0.70	0.14	0.47	0.67	1.37
2007	2	2	0.70	0.14	0.48	0.69	1.39
2008	2	2	0.70	0.14	0.49	0.70	1.40
2009	2	2	0.70	0.14	0.47	0.67	1.37
2010	2	2	0.70	0.14	0.43	0.62	1.32
2011	2	2	0.70	0.14	0.49	0.69	1.39
2012	2	2	0.70	0.14	0.51	0.73	1.43
2013	2	2	0.70	0.14	0.50	0.71	1.41
2014	2	2	0.70	0.14	0.52	0.75	1.45
2015	2	2	0.70	0.14	0.49	0.70	1.40
2016	2	2	0.70	0.14	0.47	0.66	1.36

Estimated Pumping by Damont

Year	Parcel Size (acres)	No. DU	Indoor Water Use (ac-ft/yr)	Irrigated Acres	Irrigation Requirement (ac-ft/yr)	Outdoor Water Use (ac-ft/yr)	Total Use (ac-ft/yr)
2004	0	0	0.00	0.00	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00	0.00	0.00
2006	0.5	1	0.35	0.00	0.00	0.00	0.35
2007	0.5	1	0.35	0.00	0.00	0.00	0.35
2008	0.5	1	0.35	0.00	0.00	0.00	0.35
2009	0.5	1	0.35	0.00	0.00	0.00	0.35
2010	0.5	1	0.35	0.00	0.00	0.00	0.35
2011	0.5	1	0.35	0.00	0.00	0.00	0.35
2012	0.5	1	0.35	0.00	0.00	0.00	0.35
2013	0.5	1	0.35	0.00	0.00	0.00	0.35
2014	0.5	1	0.35	0.00	0.00	0.00	0.35
2015	0.5	1	0.35	0.00	0.00	0.00	0.35
2016	0.5	1	0.35	0.00	0.00	0.00	0.35

Appendix D
Water Quality Analysis Summary (2012-2016) for Production Wells

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-02A	03-Jan-12	ALKALINITY (AS CACO3)	150	MG/L
BAN C-02A	25-Mar-14	ALKALINITY (AS CACO3)	160	MG/L
BAN C-02A	03-Jan-12	ALUMINUM	< 50	UG/L
BAN C-02A	25-Mar-14	ALUMINUM	< 50	UG/L
BAN C-02A	03-Jan-12	ARSENIC	< 2	UG/L
BAN C-02A	25-Mar-14	ARSENIC	< 2	UG/L
BAN C-02A	03-Jan-12	BICARBONATE ALKALINITY	190	MG/L
BAN C-02A	25-Mar-14	BICARBONATE ALKALINITY	200	MG/L
BAN C-02A	03-Jan-12	CALCIUM	41	MG/L
BAN C-02A	25-Mar-14	CALCIUM	44	MG/L
BAN C-02A	03-Jan-12	CARBONATE ALKALINITY	< 3	MG/L
BAN C-02A	25-Mar-14	CARBONATE ALKALINITY	< 3	MG/L
BAN C-02A	03-Jan-12	CHLORIDE	9.5	MG/L
BAN C-02A	25-Mar-14	CHLORIDE	11	MG/L
BAN C-02A	03-Jan-12	CHROMIUM (TOTAL)	17	UG/L
BAN C-02A	25-Mar-14	CHROMIUM (TOTAL)	15	UG/L
BAN C-02A	10-Dec-14	CHROMIUM, HEXAVALENT	17	UG/L
BAN C-02A	24-Mar-15	CHROMIUM, HEXAVALENT	17	UG/L
BAN C-02A	27-Jun-15	CHROMIUM, HEXAVALENT	17	UG/L
BAN C-02A	02-Oct-15	CHROMIUM, HEXAVALENT	17	UG/L
BAN C-02A	30-Dec-15	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-02A	29-Mar-16	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-02A	24-Jun-16	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-02A	22-Sep-16	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-02A	04-Jan-17	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-02A	03-Jan-12	COPPER	< 50	UG/L
BAN C-02A	25-Mar-14	COPPER	< 50	UG/L
BAN C-02A	03-Jan-12	DBCP	< 0.01	UG/L
BAN C-02A	25-Mar-14	DBCP	< 0.01	UG/L
BAN C-02A	03-Jan-12	FLUORIDE	0.3	MG/L
BAN C-02A	25-Mar-14	FLUORIDE	0.3	MG/L
BAN C-02A	03-Jan-12	HARDNESS (AS CACO3)	140	MG/L
BAN C-02A	25-Mar-14	HARDNESS (AS CACO3)	150	MG/L
BAN C-02A	03-Jan-12	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-02A	25-Mar-14	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-02A	03-Jan-12	IRON	< 100	UG/L
BAN C-02A	25-Mar-14	IRON	< 100	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 23	21-Dec-12	ALKALINITY (AS CACO3)	180	MG/L
BCVWD 23	04-Dec-15	ALKALINITY (AS CACO3)	170	MG/L
BCVWD 23	08-Dec-15	ALKALINITY (AS CACO3)	160	MG/L
BCVWD 23	21-Dec-12	ALUMINUM	< 50	UG/L
BCVWD 23	04-Dec-15	ALUMINUM	< 50	UG/L
BCVWD 23	08-Dec-15	ALUMINUM	< 50	UG/L
BCVWD 23	21-Dec-12	ARSENIC	< 2	UG/L
BCVWD 23	07-Dec-15	ARSENIC	< 2	UG/L
BCVWD 23	07-Dec-15	ARSENIC	< 2	UG/L
BCVWD 23	21-Dec-12	BICARBONATE ALKALINITY	220	MG/L
BCVWD 23	04-Dec-15	BICARBONATE ALKALINITY	210	MG/L
BCVWD 23	08-Dec-15	BICARBONATE ALKALINITY	190	MG/L
BCVWD 23	21-Dec-12	CALCIUM	47	MG/L
BCVWD 23	04-Dec-15	CALCIUM	46	MG/L
BCVWD 23	08-Dec-15	CALCIUM	42	MG/L
BCVWD 23	21-Dec-12	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 23	04-Dec-15	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 23	08-Dec-15	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 23	21-Dec-12	CHLORIDE	11	MG/L
BCVWD 23	03-Dec-15	CHLORIDE	9.9	MG/L
BCVWD 23	04-Dec-15	CHLORIDE	15	MG/L
BCVWD 23	21-Dec-12	CHROMIUM (TOTAL)	5.3	UG/L
BCVWD 23	08-Dec-15	CHROMIUM (TOTAL)	6.3	UG/L
BCVWD 23	08-Dec-15	CHROMIUM (TOTAL)	8.4	UG/L
BCVWD 23	22-Oct-14	CHROMIUM, HEXAVALENT	5.4	UG/L
BCVWD 23	05-Nov-15	CHROMIUM, HEXAVALENT	6.7	UG/L
BCVWD 23	21-Dec-12	COPPER	< 50	UG/L
BCVWD 23	04-Dec-15	COPPER	< 50	UG/L
BCVWD 23	08-Dec-15	COPPER	< 50	UG/L
BCVWD 23	04-Dec-15	DBCP	< 0.01	UG/L
BCVWD 23	04-Dec-15	CBCP	0.028	UG/L
BCVWD 23	21-Dec-12	FLUORIDE (F)	0.6	MG/L
BCVWD 23	06-Dec-15	FLUORIDE (F)	0.4	MG/L
BCVWD 23	06-Dec-15	FLUORIDE (F)	0.3	MG/L
BCVWD 23	21-Dec-12	HARDNESS (AS CACO3)	190	MG/L
BCVWD 23	04-Dec-15	HARDNESS (AS CACO3)	170	MG/L
BCVWD 23	08-Dec-15	HARDNESS (AS CACO3)	170	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-02A	03-Jan-12	LEAD	< 5	UG/L
BAN C-02A	25-Mar-14	LEAD	< 5	UG/L
BAN C-02A	03-Jan-12	MAGNESIUM	9.3	MG/L
BAN C-02A	25-Mar-14	MAGNESIUM	9.5	MG/L
BAN C-02A	03-Jan-12	MANGANESE	< 20	UG/L
BAN C-02A	25-Mar-14	MANGANESE	< 20	UG/L
BAN C-02A	27-Apr-16	NITRATE (AS N)	1.8	MG/L
BAN C-02A	26-Apr-17	NITRATE (AS N)	1.9	MG/L
BAN C-02A	20-Apr-11	NITRATE (AS NO3)	8.4	MG/L
BAN C-02A	03-Jan-12	NITRATE (AS NO3)	8.2	MG/L
BAN C-02A	16-Jun-12	NITRATE (AS NO3)	8.6	MG/L
BAN C-02A	27-Jun-13	NITRATE (AS NO3)	7.7	MG/L
BAN C-02A	24-Jul-13	NITRATE (AS NO3)	8.1	MG/L
BAN C-02A	25-Mar-14	NITRATE (AS NO3)	8.5	MG/L
BAN C-02A	29-May-14	NITRATE (AS NO3)	11	MG/L
BAN C-02A	30-Apr-15	NITRATE (AS NO3)	8.1	MG/L
BAN C-02A	03-Jan-12	NITRITE (AS N)	< 100	MG/L
BAN C-02A	25-Mar-14	NITRITE (AS N)	< 100	MG/L
BAN C-02A	27-Apr-16	NITRITE (AS N)	< 0.1	MG/L
BAN C-02A	26-Apr-17	NITRITE (AS N)	< 0.1	MG/L
BAN C-02A	03-Jan-12	POTASSIUM	1.5	MG/L
BAN C-02A	25-Mar-14	POTASSIUM	1.3	MG/L
BAN C-02A	03-Jan-12	SODIUM	24	MG/L
BAN C-02A	25-Mar-14	SODIUM	26	MG/L
BAN C-02A	03-Jan-12	SPECIFIC CONDUCTANCE	390	US
BAN C-02A	25-Mar-14	SPECIFIC CONDUCTANCE	380	US
BAN C-02A	03-Jan-12	SULFATE	9.3	MG/L
BAN C-02A	25-Mar-14	SULFATE	10	MG/L
BAN C-02A	03-Jan-12	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-02A	25-Mar-14	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-02A	03-Jan-12	TOTAL DISSOLVED SOLIDS	210	MG/L
BAN C-02A	25-Mar-14	TOTAL DISSOLVED SOLIDS	240	MG/L
BAN C-02A	03-Jan-12	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-02A	25-Mar-14	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-02A	03-Jan-12	TURBIDITY, LABORATORY	< 0.2	NTU
BAN C-02A	25-Mar-14	TURBIDITY, LABORATORY	< 0.2	NTU
BAN C-02A	03-Jan-12	ZINC	< 50	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 23	21-Dec-12	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 23	04-Dec-15	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 23	08-Dec-15	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 23	21-Dec-12	IRON	< 100	UG/L
BCVWD 23	04-Dec-15	IRON	< 100	UG/L
BCVWD 23	08-Dec-15	IRON	< 100	UG/L
BCVWD 23	21-Dec-12	LEAD	< 5	UG/L
BCVWD 23	07-Dec-15	LEAD	< 5	UG/L
BCVWD 23	07-Dec-15	LEAD	< 5	UG/L
BCVWD 23	21-Dec-12	MAGNESIUM	17	MG/L
BCVWD 23	04-Dec-15	MAGNESIUM	14	MG/L
BCVWD 23	08-Dec-15	MAGNESIUM	15	MG/L
BCVWD 23	21-Dec-12	MANGANESE	< 20	UG/L
BCVWD 23	04-Dec-15	MANGANESE	< 20	UG/L
BCVWD 23	08-Dec-15	MANGANESE	< 20	UG/L
BCVWD 23	09-Dec-16	NITRATE (AS N)	2.8	MG/L
BCVWD 23	15-Dec-11	NITRATE (AS NO3)	17	MG/L
BCVWD 23	21-Dec-12	NITRATE (AS NO3)	16	MG/L
BCVWD 23	25-Jun-14	NITRATE (AS NO3)	15	MG/L
BCVWD 23	03-Dec-15	NITRATE (AS NO3)	10	MG/L
BCVWD 23	04-Dec-15	NITRATE (AS NO3)	10	MG/L
BCVWD 23	21-Dec-12	NITRITE (AS N)	< 100	MG/L
BCVWD 23	02-Dec-15	NITRITE (AS N)	< 100	MG/L
BCVWD 23	03-Dec-15	NITRITE (AS N)	< 100	MG/L
BCVWD 23	04-Dec-15	POTASSIUM	1.6	MG/L
BCVWD 23	08-Dec-15	POTASSIUM	1.7	MG/L
BCVWD 23	21-Dec-12	SODIUM	18	MG/L
BCVWD 23	04-Dec-15	SODIUM	24	MG/L
BCVWD 23	08-Dec-15	SODIUM	19	MG/L
BCVWD 23	21-Dec-12	SPECIFIC CONDUCTANCE	420	US
BCVWD 23	04-Dec-15	SPECIFIC CONDUCTANCE	410	US
BCVWD 23	04-Dec-15	SPECIFIC CONDUCTANCE	390	US
BCVWD 23	21-Dec-12	SULFATE	19	MG/L
BCVWD 23	03-Dec-15	SULFATE	16	MG/L
BCVWD 23	04-Dec-15	SULFATE	13	MG/L
BCVWD 23	21-Dec-12	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 23	04-Dec-15	TETRACHLOROETHYLENE	< 0.5	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-02A	25-Mar-14	ZINC	< 50	UG/L
BAN C-03	27-Dec-11	ALKALINITY (AS CACO3)	110	MG/L
BAN C-03	25-Mar-14	ALKALINITY (AS CACO3)	140	MG/L
BAN C-03	15-Mar-17	ALKALINITY (AS CACO3)	140	MG/L
BAN C-03	27-Dec-11	ALUMINUM	< 50	UG/L
BAN C-03	25-Mar-14	ALUMINUM	< 50	UG/L
BAN C-03	13-Mar-17	ALUMINUM	< 50	UG/L
BAN C-03	27-Dec-11	ARSENIC	< 2	UG/L
BAN C-03	25-Mar-14	ARSENIC	< 2	UG/L
BAN C-03	13-Mar-17	ARSENIC	< 2	UG/L
BAN C-03	27-Dec-11	BICARBONATE ALKALINITY	140	MG/L
BAN C-03	25-Mar-14	BICARBONATE ALKALINITY	160	MG/L
BAN C-03	15-Mar-17	BICARBONATE ALKALINITY	160	MG/L
BAN C-03	27-Dec-11	CALCIUM	25	MG/L
BAN C-03	25-Mar-14	CALCIUM	32	MG/L
BAN C-03	13-Mar-17	CALCIUM	31	MG/L
BAN C-03	27-Dec-11	CARBONATE ALKALINITY	< 3	MG/L
BAN C-03	25-Mar-14	CARBONATE ALKALINITY	< 3	MG/L
BAN C-03	15-Mar-17	CARBONATE ALKALINITY	< 3	MG/L
BAN C-03	27-Dec-11	CHLORIDE	9.9	MG/L
BAN C-03	25-Mar-14	CHLORIDE	12	MG/L
BAN C-03	08-Mar-17	CHLORIDE	9.9	MG/L
BAN C-03	27-Dec-11	CHROMIUM (TOTAL)	14	UG/L
BAN C-03	25-Mar-14	CHROMIUM (TOTAL)	13	UG/L
BAN C-03	09-Mar-17	CHROMIUM (TOTAL)	15	UG/L
BAN C-03	10-Dec-14	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-03	24-Mar-15	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-03	27-Jun-15	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-03	02-Oct-15	CHROMIUM, HEXAVALENT	14	UG/L
BAN C-03	02-Jan-16	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-03	29-Mar-16	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-03	24-Jun-16	CHROMIUM, HEXAVALENT	14	UG/L
BAN C-03	22-Sep-16	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-03	27-Dec-11	COPPER	< 50	UG/L
BAN C-03	25-Mar-14	COPPER	< 50	UG/L
BAN C-03	13-Mar-17	COPPER	< 50	UG/L
BAN C-03	27-Dec-11	DBCP	< 0.01	UG/L
BCVWD 23	04-Dec-15	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 23	21-Dec-12	TOTAL DISSOLVED SOLIDS	300	MG/L
BCVWD 23	04-Dec-15	TOTAL DISSOLVED SOLIDS	180	MG/L
BCVWD 23	08-Dec-15	TOTAL DISSOLVED SOLIDS	250	MG/L
BCVWD 23	21-Dec-12	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 23	04-Dec-15	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 23	04-Dec-15	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 23	21-Dec-12	TURBIDITY, LABORATORY	0.44	NTU
BCVWD 23	03-Dec-15	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 23	04-Dec-15	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 23	21-Dec-12	ZINC	< 50	UG/L
BCVWD 23	04-Dec-15	ZINC	< 50	UG/L
BCVWD 23	08-Dec-15	ZINC	< 50	UG/L
BCVWD 24	05-Dec-11	ALKALINITY (AS CACO3)	150	MG/L
BCVWD 24	02-Dec-16	ALKALINITY (AS CACO3)	160	MG/L
BCVWD 24	05-Dec-11	ALUMINUM	< 50	UG/L
BCVWD 24	09-Dec-16	ALUMINUM	< 50	UG/L
BCVWD 24	05-Dec-11	ARSENIC	< 2	UG/L
BCVWD 24	06-Dec-16	ARSENIC	< 2	UG/L
BCVWD 24	05-Dec-11	BICARBONATE ALKALINITY	180	MG/L
BCVWD 24	02-Dec-16	BICARBONATE ALKALINITY	190	MG/L
BCVWD 24	05-Dec-11	CALCIUM	37	MG/L
BCVWD 24	09-Dec-16	CALCIUM	37	MG/L
BCVWD 24	05-Dec-11	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 24	02-Dec-16	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 24	05-Dec-11	CHLORIDE	5.9	MG/L
BCVWD 24	02-Dec-16	CHLORIDE	5.6	MG/L
BCVWD 24	05-Dec-11	CHROMIUM (TOTAL)	8.2	UG/L
BCVWD 24	07-Dec-16	CHROMIUM (TOTAL)	7.2	UG/L
BCVWD 24	22-Oct-14	CHROMIUM, HEXAVALENT	7.5	UG/L
BCVWD 24	12-Nov-15	CHROMIUM, HEXAVALENT	7.7	UG/L
BCVWD 24	05-Dec-11	COPPER	< 50	UG/L
BCVWD 24	09-Dec-16	COPPER	< 50	UG/L
BCVWD 24	05-Dec-11	DBCP	< 0.01	UG/L
BCVWD 24	05-Dec-11	FLUORIDE	0.5	MG/L
BCVWD 24	07-Dec-16	FLUORIDE	0.5	MG/L
BCVWD 24	05-Dec-11	HARDNESS (AS CACO3)	140	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-03	25-Mar-14	DBCP	< 0.01	UG/L
BAN C-03	14-Mar-17	DBCP	< 0.01	UG/L
BAN C-03	27-Dec-11	FLUORIDE	0.9	MG/L
BAN C-03	25-Mar-14	FLUORIDE	0.5	MG/L
BAN C-03	15-Mar-17	FLUORIDE	0.4	MG/L
BAN C-03	27-Dec-11	HARDNESS (AS CACO3)	79	MG/L
BAN C-03	25-Mar-14	HARDNESS (AS CACO3)	100	MG/L
BAN C-03	13-Mar-17	HARDNESS (AS CACO3)	100	MG/L
BAN C-03	27-Dec-11	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-03	25-Mar-14	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-03	15-Mar-17	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-03	27-Dec-11	IRON	< 100	UG/L
BAN C-03	25-Mar-14	IRON	< 100	UG/L
BAN C-03	13-Mar-17	IRON	< 100	UG/L
BAN C-03	27-Dec-11	LEAD	< 5	UG/L
BAN C-03	25-Mar-14	LEAD	< 5	UG/L
BAN C-03	13-Mar-17	LEAD	< 5	UG/L
BAN C-03	27-Dec-11	MAGNESIUM	4.3	MG/L
BAN C-03	25-Mar-14	MAGNESIUM	5.9	MG/L
BAN C-03	13-Mar-17	MAGNESIUM	5.7	MG/L
BAN C-03	27-Dec-11	MANGANESE	< 20	UG/L
BAN C-03	25-Mar-14	MANGANESE	< 20	UG/L
BAN C-03	13-Mar-17	MANGANESE	< 20	UG/L
BAN C-03	23-Apr-16	NITRATE (AS N)	1.6	MG/L
BAN C-03	08-Mar-17	NITRATE (AS N)	1.6	MG/L
BAN C-03	26-Apr-17	NITRATE (AS N)	1.8	MG/L
BAN C-03	13-Apr-11	NITRATE (AS NO3)	7.4	MG/L
BAN C-03	27-Dec-11	NITRATE (AS NO3)	6.9	MG/L
BAN C-03	16-Jun-12	NITRATE (AS NO3)	7.4	MG/L
BAN C-03	20-Jun-13	NITRATE (AS NO3)	7.2	MG/L
BAN C-03	25-Mar-14	NITRATE (AS NO3)	8.5	MG/L
BAN C-03	29-May-14	NITRATE (AS NO3)	7.5	MG/L
BAN C-03	22-Apr-15	NITRATE (AS NO3)	7.1	MG/L
BAN C-03	27-Dec-11	NITRITE (AS N)	< 100	MG/L
BAN C-03	17-Jul-13	NITRITE (AS N)	< 100	MG/L
BAN C-03	25-Mar-14	NITRITE (AS N)	< 100	MG/L
BAN C-03	22-Apr-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 24	09-Dec-16	HARDNESS (AS CACO3)	140	MG/L
BCVWD 24	05-Dec-11	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 24	02-Dec-16	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 24	05-Dec-11	IRON	< 100	UG/L
BCVWD 24	09-Dec-16	IRON	< 100	UG/L
BCVWD 24	05-Dec-11	LEAD	< 5	UG/L
BCVWD 24	06-Dec-16	LEAD	< 5	UG/L
BCVWD 24	05-Dec-11	MAGNESIUM	12	MG/L
BCVWD 24	09-Dec-16	MAGNESIUM	12	MG/L
BCVWD 24	05-Dec-11	MANGANESE	< 20	UG/L
BCVWD 24	09-Dec-16	MANGANESE	< 20	UG/L
BCVWD 24	02-Dec-16	NITRATE (AS N)	1.7	MG/L
BCVWD 24	05-Dec-11	NITRATE (AS NO3)	6.7	MG/L
BCVWD 24	18-Dec-12	NITRATE (AS NO3)	6.4	MG/L
BCVWD 24	23-Oct-13	NITRATE (AS NO3)	7	MG/L
BCVWD 24	25-Jun-14	NITRATE (AS NO3)	5.8	MG/L
BCVWD 24	04-Dec-15	NITRATE (AS NO3)	6.4	MG/L
BCVWD 24	05-Dec-11	NITRITE (AS N)	< 100	MG/L
BCVWD 24	01-Dec-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 24	05-Dec-11	POTASSIUM	1.7	MG/L
BCVWD 24	09-Dec-16	POTASSIUM	1.4	MG/L
BCVWD 24	05-Dec-11	SODIUM	19	MG/L
BCVWD 24	09-Dec-16	SODIUM	19	MG/L
BCVWD 24	05-Dec-11	SPECIFIC CONDUCTANCE	360	US
BCVWD 24	02-Dec-16	SPECIFIC CONDUCTANCE	360	US
BCVWD 24	05-Dec-11	SULFATE	11	MG/L
BCVWD 24	02-Dec-16	SULFATE	11	MG/L
BCVWD 24	05-Dec-11	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 24	03-Dec-16	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 24	05-Dec-11	TOTAL DISSOLVED SOLIDS	180	MG/L
BCVWD 24	02-Dec-16	TOTAL DISSOLVED SOLIDS	210	MG/L
BCVWD 24	05-Dec-11	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 24	03-Dec-16	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 24	05-Dec-11	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 24	01-Dec-16	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 24	05-Dec-11	ZINC	< 50	UG/L
BCVWD 24	09-Dec-16	ZINC	< 50	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-03	08-Mar-17	NITRITE (AS N)	< 0.1	MG/L
BAN C-03	25-Apr-17	NITRITE (AS N)	< 0.1	MG/L
BAN C-03	27-Dec-11	POTASSIUM	1.5	MG/L
BAN C-03	25-Mar-14	POTASSIUM	1.6	MG/L
BAN C-03	13-Mar-17	POTASSIUM	1.5	MG/L
BAN C-03	27-Dec-11	SODIUM	33	MG/L
BAN C-03	25-Mar-14	SODIUM	31	MG/L
BAN C-03	13-Mar-17	SODIUM	29	MG/L
BAN C-03	27-Dec-11	SPECIFIC CONDUCTANCE	310	US
BAN C-03	25-Mar-14	SPECIFIC CONDUCTANCE	320	US
BAN C-03	13-Mar-17	SPECIFIC CONDUCTANCE	330	US
BAN C-03	27-Dec-11	SULFATE	7.1	MG/L
BAN C-03	25-Mar-14	SULFATE	5.9	MG/L
BAN C-03	08-Mar-17	SULFATE	6	MG/L
BAN C-03	27-Dec-11	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-03	25-Mar-14	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-03	09-Mar-17	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-03	27-Dec-11	TOTAL DISSOLVED SOLIDS	130	MG/L
BAN C-03	25-Mar-14	TOTAL DISSOLVED SOLIDS	190	MG/L
BAN C-03	13-Mar-17	TOTAL DISSOLVED SOLIDS	170	MG/L
BAN C-03	27-Dec-11	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-03	25-Mar-14	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-03	09-Mar-17	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-03	27-Dec-11	TURBIDITY, LABORATORY	< 0.2	NTU
BAN C-03	25-Mar-14	TURBIDITY, LABORATORY	< 0.2	NTU
BAN C-03	09-Mar-17	TURBIDITY, LABORATORY	0.18	NTU
BAN C-03	27-Dec-11	ZINC	< 50	UG/L
BAN C-03	25-Mar-14	ZINC	< 50	UG/L
BAN C-03	13-Mar-17	ZINC	< 50	UG/L
BAN C-04	27-Dec-11	ALKALINITY (AS CACO3)	140	MG/L
BAN C-04	22-Mar-14	ALKALINITY (AS CACO3)	160	MG/L
BAN C-04	13-Mar-17	ALKALINITY (AS CACO3)	120	MG/L
BAN C-04	27-Dec-11	ALUMINUM	< 50	UG/L
BAN C-04	22-Mar-14	ALUMINUM	< 50	UG/L
BAN C-04	13-Mar-17	ALUMINUM	< 50	UG/L
BAN C-04	27-Dec-11	ARSENIC	< 2	UG/L
BAN C-04	22-Mar-14	ARSENIC	< 2	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 25	06-Jan-13	ALKALINITY (AS CACO3)	160	MG/L
BCVWD 25	06-Jan-13	ALUMINUM	< 50	UG/L
BCVWD 25	06-Jan-13	ARSENIC	< 2	UG/L
BCVWD 25	06-Jan-13	BICARBONATE ALKALINITY	200	MG/L
BCVWD 25	06-Jan-13	CALCIUM	43	MG/L
BCVWD 25	06-Jan-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 25	06-Jan-13	CHLORIDE	7	MG/L
BCVWD 25	06-Jan-13	CHROMIUM (TOTAL)	14	UG/L
BCVWD 25	22-Oct-14	CHROMIUM, HEXAVALENT	11	UG/L
BCVWD 25	01-Apr-15	CHROMIUM, HEXAVALENT	8.3	UG/L
BCVWD 25	11-Aug-15	CHROMIUM, HEXAVALENT	11	UG/L
BCVWD 25	02-Sep-15	CHROMIUM, HEXAVALENT	11	UG/L
BCVWD 25	06-Jan-13	COPPER	< 50	UG/L
BCVWD 25	06-Jan-13	FLUORIDE	0.3	MG/L
BCVWD 25	06-Jan-13	HARDNESS (AS CACO3)	160	MG/L
BCVWD 25	06-Jan-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 25	06-Jan-13	IRON	< 100	UG/L
BCVWD 25	06-Jan-13	LEAD	6.5	UG/L
BCVWD 25	06-Jan-13	MAGNESIUM	13	MG/L
BCVWD 25	06-Jan-13	MANGANESE	< 20	UG/L
BCVWD 25	30-Nov-11	NITRATE (AS NO3)	4.5	MG/L
BCVWD 25	06-Jan-13	NITRATE (AS NO3)	3.2	MG/L
BCVWD 25	23-Oct-13	NITRATE (AS NO3)	4.6	MG/L
BCVWD 25	06-Jan-13	NITRITE (AS N)	< 100	MG/L
BCVWD 25	06-Jan-13	POTASSIUM	1.5	MG/L
BCVWD 25	06-Jan-13	SODIUM	22	MG/L
BCVWD 25	06-Jan-13	SPECIFIC CONDUCTANCE	400	US
BCVWD 25	06-Jan-13	SULFATE	12	MG/L
BCVWD 25	06-Jan-13	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 25	06-Jan-13	TOTAL DISSOLVED SOLIDS	220	MG/L
BCVWD 25	06-Jan-13	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 25	06-Jan-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 25	06-Jan-13	ZINC	< 50	UG/L
BCVWD 26	06-Jan-13	ALKALINITY (AS CACO3)	140	MG/L
BCVWD 26	06-Jan-13	ALUMINUM	< 50	UG/L
BCVWD 26	06-Jan-13	ARSENIC	< 2	UG/L
BCVWD 26	06-Jan-13	BICARBONATE ALKALINITY	170	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-04	13-Mar-17	ARSENIC	< 2	UG/L
BAN C-04	27-Dec-11	BICARBONATE ALKALINITY	180	MG/L
BAN C-04	22-Mar-14	BICARBONATE ALKALINITY	190	MG/L
BAN C-04	13-Mar-17	BICARBONATE ALKALINITY	140	MG/L
BAN C-04	27-Dec-11	CALCIUM	36	MG/L
BAN C-04	22-Mar-14	CALCIUM	37	MG/L
BAN C-04	13-Mar-17	CALCIUM	22	MG/L
BAN C-04	27-Dec-11	CARBONATE ALKALINITY	< 3	MG/L
BAN C-04	22-Mar-14	CARBONATE ALKALINITY	< 3	MG/L
BAN C-04	13-Mar-17	CARBONATE ALKALINITY	< 3	MG/L
BAN C-04	27-Dec-11	CHLORIDE	10	MG/L
BAN C-04	22-Mar-14	CHLORIDE	7.1	MG/L
BAN C-04	06-Mar-17	CHLORIDE	5.6	MG/L
BAN C-04	27-Dec-11	CHROMIUM (TOTAL)	15	UG/L
BAN C-04	22-Mar-14	CHROMIUM (TOTAL)	13	UG/L
BAN C-04	09-Mar-17	CHROMIUM (TOTAL)	9.9	UG/L
BAN C-04	12-Dec-14	CHROMIUM, HEXAVALENT	13	UG/L
BAN C-04	01-Apr-15	CHROMIUM, HEXAVALENT	13	UG/L
BAN C-04	27-Jun-15	CHROMIUM, HEXAVALENT	17	UG/L
BAN C-04	02-Oct-15	CHROMIUM, HEXAVALENT	16	UG/L
BAN C-04	30-Dec-15	CHROMIUM, HEXAVALENT	17	UG/L
BAN C-04	29-Mar-16	CHROMIUM, HEXAVALENT	10	UG/L
BAN C-04	24-Jun-16	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-04	22-Sep-16	CHROMIUM, HEXAVALENT	15	UG/L
BAN C-04	04-Jan-17	CHROMIUM, HEXAVALENT	13	UG/L
BAN C-04	27-Dec-11	COPPER	< 50	UG/L
BAN C-04	22-Mar-14	COPPER	< 50	UG/L
BAN C-04	13-Mar-17	COPPER	< 50	UG/L
BAN C-04	27-Dec-11	DBCP	< 0.01	UG/L
BAN C-04	22-Mar-14	DBCP	< 0.01	UG/L
BAN C-04	08-Mar-17	DBCP	< 0.01	UG/L
BAN C-04	27-Dec-11	FLUORIDE (F)	0.3	MG/L
BAN C-04	22-Mar-14	FLUORIDE (F)	0.3	MG/L
BAN C-04	13-Mar-17	FLUORIDE (F)	0.4	MG/L
BAN C-04	27-Dec-11	HARDNESS AS CACO3	130	MG/L
BAN C-04	22-Mar-14	HARDNESS AS CACO3	120	MG/L
BAN C-04	13-Mar-17	HARDNESS AS CACO3	67	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 26	06-Jan-13	CALCIUM	33	MG/L
BCVWD 26	06-Jan-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 26	06-Jan-13	CHLORIDE	7	MG/L
BCVWD 26	06-Jan-13	CHROMIUM (TOTAL)	17	UG/L
BCVWD 26	22-Oct-14	CHROMIUM, HEXAVALENT	14	UG/L
BCVWD 26	01-Apr-15	CHROMIUM, HEXAVALENT	13	UG/L
BCVWD 26	06-Jan-13	COPPER	< 50	UG/L
BCVWD 26	06-Jan-13	FLUORIDE	0.4	MG/L
BCVWD 26	06-Jan-13	HARDNESS (AS CACO3)	120	MG/L
BCVWD 26	06-Jan-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 26	06-Jan-13	IRON	< 100	UG/L
BCVWD 26	06-Jan-13	LEAD	< 5	UG/L
BCVWD 26	06-Jan-13	MAGNESIUM	9.7	MG/L
BCVWD 26	06-Jan-13	MANGANESE	< 20	UG/L
BCVWD 26	15-Dec-11	NITRATE (AS NO3)	4.7	MG/L
BCVWD 26	06-Jan-13	NITRATE (AS NO3)	4.3	MG/L
BCVWD 26	23-Oct-13	NITRATE (AS NO3)	4.7	MG/L
BCVWD 26	06-Jan-13	NITRITE (AS N)	< 100	MG/L
BCVWD 26	06-Jan-13	POTASSIUM	1.4	MG/L
BCVWD 26	06-Jan-13	SODIUM	26	MG/L
BCVWD 26	06-Jan-13	SPECIFIC CONDUCTANCE	340	US
BCVWD 26	06-Jan-13	SULFATE	8.3	MG/L
BCVWD 26	06-Jan-13	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 26	06-Jan-13	TOTAL DISSOLVED SOLIDS	190	MG/L
BCVWD 26	06-Jan-13	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 26	06-Jan-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 26	06-Jan-13	ZINC	< 50	UG/L
BCVWD 29	06-Jan-13	ALKALINITY (AS CACO3)	150	MG/L
BCVWD 29	09-Dec-16	ALKALINITY (AS CACO3)	160	MG/L
BCVWD 29	06-Jan-13	ALUMINUM	< 50	UG/L
BCVWD 29	15-Dec-16	ALUMINUM	< 50	UG/L
BCVWD 29	06-Jan-13	ARSENIC	< 2	UG/L
BCVWD 29	14-Dec-16	ARSENIC	< 2	UG/L
BCVWD 29	06-Jan-13	BICARBONATE ALKALINITY	180	MG/L
BCVWD 29	09-Dec-16	BICARBONATE ALKALINITY	190	MG/L
BCVWD 29	06-Jan-13	CALCIUM	42	MG/L
BCVWD 29	15-Dec-16	CALCIUM	42	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-04	27-Dec-11	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-04	22-Mar-14	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-04	13-Mar-17	HYDROXIDE ALKALINITY	< 3	MG/L
BAN C-04	27-Dec-11	IRON	< 100	UG/L
BAN C-04	22-Mar-14	IRON	< 100	UG/L
BAN C-04	13-Mar-17	IRON	< 100	UG/L
BAN C-04	27-Dec-11	LEAD	< 5	UG/L
BAN C-04	22-Mar-14	LEAD	< 5	UG/L
BAN C-04	13-Mar-17	LEAD	< 5	UG/L
BAN C-04	27-Dec-11	MAGNESIUM	8.9	MG/L
BAN C-04	22-Mar-14	MAGNESIUM	7.4	MG/L
BAN C-04	13-Mar-17	MAGNESIUM	3.1	MG/L
BAN C-04	27-Dec-11	MANGANESE	< 20	UG/L
BAN C-04	22-Mar-14	MANGANESE	< 20	UG/L
BAN C-04	13-Mar-17	MANGANESE	< 20	UG/L
BAN C-04	27-Apr-16	NITRATE (AS N)	0.89	MG/L
BAN C-04	06-Mar-17	NITRATE (AS N)	0.79	MG/L
BAN C-04	26-Apr-17	NITRATE (AS N)	0.91	MG/L
BAN C-04	13-Apr-11	NITRATE (AS NO3)	6.6	MG/L
BAN C-04	27-Dec-11	NITRATE (AS NO3)	6.7	MG/L
BAN C-04	14-Jun-12	NITRATE (AS NO3)	5.2	MG/L
BAN C-04	12-Jun-13	NITRATE (AS NO3)	4	MG/L
BAN C-04	22-Mar-14	NITRATE (AS NO3)	4.9	MG/L
BAN C-04	29-May-14	NITRATE (AS NO3)	4.7	MG/L
BAN C-04	30-Apr-15	NITRATE (AS NO3)	5	MG/L
BAN C-04	27-Dec-11	NITRITE (AS N)	< 100	MG/L
BAN C-04	17-Jul-13	NITRITE (AS N)	< 100	MG/L
BAN C-04	22-Mar-14	NITRITE (AS N)	< 100	MG/L
BAN C-04	27-Apr-16	NITRITE (AS N)	< 0.1	MG/L
BAN C-04	07-Mar-17	NITRITE (AS N)	< 0.1	MG/L
BAN C-04	26-Apr-17	NITRITE (AS N)	< 0.1	MG/L
BAN C-04	27-Dec-11	POTASSIUM	1.3	MG/L
BAN C-04	22-Mar-14	POTASSIUM	1.5	MG/L
BAN C-04	13-Mar-17	POTASSIUM	1.4	MG/L
BAN C-04	27-Dec-11	SODIUM	25	MG/L
BAN C-04	22-Mar-14	SODIUM	27	MG/L
BAN C-04	13-Mar-17	SODIUM	37	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 29	06-Jan-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 29	09-Dec-16	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 29	06-Jan-13	CHLORIDE	12	MG/L
BCVWD 29	09-Dec-16	CHLORIDE	13	MG/L
BCVWD 29	06-Jan-13	CHROMIUM (TOTAL)	8.7	UG/L
BCVWD 29	15-Dec-16	CHROMIUM (TOTAL)	7.6	UG/L
BCVWD 29	22-Oct-14	CHROMIUM, HEXAVALENT	8.1	UG/L
BCVWD 29	06-Jan-13	COPPER	< 50	UG/L
BCVWD 29	15-Dec-16	COPPER	< 50	UG/L
BCVWD 29	09-Dec-16	DBCP	< 0.01	UG/L
BCVWD 29	06-Jan-13	FLUORIDE	0.6	MG/L
BCVWD 29	16-Dec-16	FLUORIDE	0.4	MG/L
BCVWD 29	06-Jan-13	HARDNESS (AS CACO3)	170	MG/L
BCVWD 29	15-Dec-16	HARDNESS (AS CACO3)	170	MG/L
BCVWD 29	06-Jan-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 29	09-Dec-16	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 29	06-Jan-13	IRON	< 100	UG/L
BCVWD 29	15-Dec-16	IRON	< 100	UG/L
BCVWD 29	06-Jan-13	LEAD	< 5	UG/L
BCVWD 29	14-Dec-16	LEAD	< 5	UG/L
BCVWD 29	06-Jan-13	MAGNESIUM	15	MG/L
BCVWD 29	15-Dec-16	MAGNESIUM	15	MG/L
BCVWD 29	06-Jan-13	MANGANESE	< 20	UG/L
BCVWD 29	15-Dec-16	MANGANESE	< 20	UG/L
BCVWD 29	09-Dec-16	NITRATE (AS N)	2.3	MG/L
BCVWD 29	15-Dec-11	NITRATE (AS NO3)	7	MG/L
BCVWD 29	06-Jan-13	NITRATE (AS NO3)	8.2	MG/L
BCVWD 29	23-Oct-13	NITRATE (AS NO3)	9.3	MG/L
BCVWD 29	06-Jan-13	NITRITE (AS N)	< 100	MG/L
BCVWD 29	08-Dec-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 29	06-Jan-13	POTASSIUM	1.6	MG/L
BCVWD 29	15-Dec-16	POTASSIUM	1.5	MG/L
BCVWD 29	06-Jan-13	SODIUM	19	MG/L
BCVWD 29	15-Dec-16	SODIUM	19	MG/L
BCVWD 29	06-Jan-13	SPECIFIC CONDUCTANCE	390	US
BCVWD 29	06-Jan-13	SULFATE	10	MG/L
BCVWD 29	09-Dec-16	SULFATE	11	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN C-04	27-Dec-11	SPECIFIC CONDUCTANCE	360	US
BAN C-04	22-Mar-14	SPECIFIC CONDUCTANCE	360	US
BAN C-04	09-Mar-17	SPECIFIC CONDUCTANCE	290	US
BAN C-04	27-Dec-11	SULFATE	9.4	MG/L
BAN C-04	22-Mar-14	SULFATE	11	MG/L
BAN C-04	06-Mar-17	SULFATE	13	MG/L
BAN C-04	27-Dec-11	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-04	22-Mar-14	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-04	07-Mar-17	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN C-04	27-Dec-11	TOTAL DISSOLVED SOLIDS	240	MG/L
BAN C-04	22-Mar-14	TOTAL DISSOLVED SOLIDS	180	MG/L
BAN C-04	08-Mar-17	TOTAL DISSOLVED SOLIDS	190	MG/L
BAN C-04	27-Dec-11	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-04	22-Mar-14	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-04	07-Mar-17	TRICHLOROETHYLENE	< 0.5	UG/L
BAN C-04	27-Dec-11	TURBIDITY, LABORATORY	< 0.2	NTU
BAN C-04	22-Mar-14	TURBIDITY, LABORATORY	< 0.2	NTU
BAN C-04	06-Mar-17	TURBIDITY, LABORATORY	< 0.1	NTU
BAN C-04	27-Dec-11	ZINC	< 50	UG/L
BAN C-04	22-Mar-14	ZINC	< 50	UG/L
BAN C-04	13-Mar-17	ZINC	< 50	UG/L
BAN M-3	20-Mar-12	ALKALINITY (AS CACO3)	180	MG/L
BAN M-3	24-Mar-15	ALKALINITY (AS CACO3)	150	MG/L
BAN M-3	20-Mar-12	ALUMINUM	< 50	UG/L
BAN M-3	24-Mar-15	ALUMINUM	< 50	UG/L
BAN M-3	20-Mar-12	ARSENIC	< 2	UG/L
BAN M-3	24-Mar-15	ARSENIC	< 2	UG/L
BAN M-3	20-Mar-12	BICARBONATE ALKALINITY	220	MG/L
BAN M-3	24-Mar-15	BICARBONATE ALKALINITY	190	MG/L
BAN M-3	20-Mar-12	CALCIUM	41	MG/L
BAN M-3	24-Mar-15	CALCIUM	39	MG/L
BAN M-3	20-Mar-12	CARBONATE ALKALINITY	< 3	MG/L
BAN M-3	24-Mar-15	CARBONATE ALKALINITY	< 3	MG/L
BAN M-3	20-Mar-12	CHLORIDE	15	MG/L
BAN M-3	24-Mar-15	CHLORIDE	14	MG/L
BAN M-3	20-Mar-12	CHROMIUM (TOTAL)	10	UG/L
BAN M-3	24-Mar-15	CHROMIUM (TOTAL)	8.5	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 29	06-Jan-13	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 29	12-Dec-16	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 29	06-Jan-13	TOTAL DISSOLVED SOLIDS	280	MG/L
BCVWD 29	13-Dec-16	TOTAL DISSOLVED SOLIDS	220	MG/L
BCVWD 29	06-Jan-13	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 29	12-Dec-16	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 29	06-Jan-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 29	08-Dec-16	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 29	06-Jan-13	ZINC	< 50	UG/L
BCVWD 29	15-Dec-16	ZINC	< 50	UG/L
Plantation 01	22-Mar-11	ALKALINITY (AS CACO3)	180	MG/L
Plantation 01	25-Mar-14	ALKALINITY (AS CACO3)	200	MG/L
Plantation 01	23-Mar-17	ALKALINITY (AS CACO3)	200	MG/L
Plantation 01	22-Mar-11	ALUMINUM	< 50	UG/L
Plantation 01	25-Mar-14	ALUMINUM	< 50	UG/L
Plantation 01	23-Mar-17	ALUMINUM	< 50	UG/L
Plantation 01	22-Mar-11	ARSENIC	< 2	UG/L
Plantation 01	25-Mar-14	ARSENIC	< 2	UG/L
Plantation 01	27-Mar-17	ARSENIC	< 2	UG/L
Plantation 01	22-Mar-11	BICARBONATE ALKALINITY	230	MG/L
Plantation 01	25-Mar-14	BICARBONATE ALKALINITY	240	MG/L
Plantation 01	23-Mar-17	BICARBONATE ALKALINITY	240	MG/L
Plantation 01	22-Mar-11	CALCIUM	45	MG/L
Plantation 01	25-Mar-14	CALCIUM	53	MG/L
Plantation 01	23-Mar-17	CALCIUM	50	MG/L
Plantation 01	22-Mar-11	CARBONATE ALKALINITY	< 3	MG/L
Plantation 01	25-Mar-14	CARBONATE ALKALINITY	< 3	MG/L
Plantation 01	23-Mar-17	CARBONATE ALKALINITY	< 3	MG/L
Plantation 01	22-Mar-11	CHLORIDE	13	MG/L
Plantation 01	25-Mar-14	CHLORIDE	14	MG/L
Plantation 01	20-Mar-17	CHLORIDE	14	MG/L
Plantation 01	22-Mar-11	CHROMIUM (TOTAL)	5.7	UG/L
Plantation 01	25-Mar-14	CHROMIUM (TOTAL)	4.8	UG/L
Plantation 01	22-Mar-17	CHROMIUM (TOTAL)	5.4	UG/L
Plantation 01	26-Dec-14	CHROMIUM, HEXAVALENT	4.9	UG/L
Plantation 01	22-Mar-11	COPPER	< 50	UG/L
Plantation 01	25-Mar-14	COPPER	< 50	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN M-3	09-Dec-14	CHROMIUM, HEXAVALENT	9.3	UG/L
BAN M-3	24-Mar-15	CHROMIUM, HEXAVALENT	9.7	UG/L
BAN M-3	27-Jun-15	CHROMIUM, HEXAVALENT	10	UG/L
BAN M-3	01-Oct-15	CHROMIUM, HEXAVALENT	10	UG/L
BAN M-3	30-Dec-15	CHROMIUM, HEXAVALENT	9.9	UG/L
BAN M-3	29-Mar-16	CHROMIUM, HEXAVALENT	9.4	UG/L
BAN M-3	24-Jun-16	CHROMIUM, HEXAVALENT	9.1	UG/L
BAN M-3	22-Sep-16	CHROMIUM, HEXAVALENT	9.3	UG/L
BAN M-3	04-Jan-17	CHROMIUM, HEXAVALENT	9.4	UG/L
BAN M-3	20-Mar-12	COPPER	< 50	UG/L
BAN M-3	24-Mar-15	COPPER	< 50	UG/L
BAN M-3	20-Mar-12	DBCP	< 0.01	UG/L
BAN M-3	24-Mar-15	DBCP	< 0.01	UG/L
BAN M-3	20-Mar-12	FLUORIDE	0.4	MG/L
BAN M-3	24-Mar-15	FLUORIDE	0.3	MG/L
BAN M-3	20-Mar-12	HARDNESS (AS CACO3)	160	MG/L
BAN M-3	24-Mar-15	HARDNESS (AS CACO3)	150	MG/L
BAN M-3	20-Mar-12	HYDROXIDE ALKALINITY	< 3	MG/L
BAN M-3	24-Mar-15	HYDROXIDE ALKALINITY	< 3	MG/L
BAN M-3	20-Mar-12	IRON	< 100	UG/L
BAN M-3	24-Mar-15	IRON	< 100	UG/L
BAN M-3	20-Mar-12	LEAD	< 5	UG/L
BAN M-3	24-Mar-15	LEAD	< 5	UG/L
BAN M-3	20-Mar-12	MAGNESIUM	14	MG/L
BAN M-3	24-Mar-15	MAGNESIUM	13	MG/L
BAN M-3	20-Mar-12	MANGANESE	< 20	UG/L
BAN M-3	24-Mar-15	MANGANESE	< 20	UG/L
BAN M-3	27-Apr-16	NITRATE (AS N)	2.1	MG/L
BAN M-3	27-Apr-17	NITRATE (AS N)	2.2	MG/L
BAN M-3	13-Apr-11	NITRATE (AS NO3)	8	MG/L
BAN M-3	20-Mar-12	NITRATE (AS NO3)	7.9	MG/L
BAN M-3	23-Jul-13	NITRATE (AS NO3)	8.1	MG/L
BAN M-3	20-Jun-14	NITRATE (AS NO3)	8	MG/L
BAN M-3	24-Mar-15	NITRATE (AS NO3)	7.2	MG/L
BAN M-3	22-Apr-15	NITRATE (AS NO3)	7.8	MG/L
BAN M-3	20-Mar-12	NITRITE (AS N)	< 100	MG/L
BAN M-3	23-Jul-13	NITRITE (AS N)	< 100	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
Plantation 01	23-Mar-17	COPPER	< 50	UG/L
Plantation 01	25-Mar-14	DBCP	< 0.01	UG/L
Plantation 01	22-Mar-11	FLUORIDE	0.4	MG/L
Plantation 01	25-Mar-14	FLUORIDE	0.5	MG/L
Plantation 01	24-Mar-17	FLUORIDE	0.5	MG/L
Plantation 01	22-Mar-11	HARDNESS (AS CACO3)	180	MG/L
Plantation 01	25-Mar-14	HARDNESS (AS CACO3)	210	MG/L
Plantation 01	23-Mar-17	HARDNESS (AS CACO3)	200	MG/L
Plantation 01	22-Mar-11	HYDROXIDE ALKALINITY	< 3	MG/L
Plantation 01	25-Mar-14	HYDROXIDE ALKALINITY	< 3	MG/L
Plantation 01	23-Mar-17	HYDROXIDE ALKALINITY	< 3	MG/L
Plantation 01	22-Mar-11	IRON	< 100	UG/L
Plantation 01	25-Mar-14	IRON	< 100	UG/L
Plantation 01	23-Mar-17	IRON	< 100	UG/L
Plantation 01	22-Mar-11	LEAD	< 5	UG/L
Plantation 01	25-Mar-14	LEAD	< 5	UG/L
Plantation 01	27-Mar-17	LEAD	< 5	UG/L
Plantation 01	22-Mar-11	MAGNESIUM	16	MG/L
Plantation 01	25-Mar-14	MAGNESIUM	18	MG/L
Plantation 01	23-Mar-17	MAGNESIUM	17	MG/L
Plantation 01	22-Mar-11	MANGANESE	< 20	UG/L
Plantation 01	25-Mar-14	MANGANESE	< 20	UG/L
Plantation 01	23-Mar-17	MANGANESE	< 20	UG/L
Plantation 01	22-Oct-16	NITRATE (AS N)	1.8	MG/L
Plantation 01	20-Mar-17	NITRATE (AS N)	1.8	MG/L
Plantation 01	22-Mar-11	NITRATE (AS NO3)	8.4	MG/L
Plantation 01	13-Mar-12	NITRATE (AS NO3)	8	MG/L
Plantation 01	27-Mar-13	NITRATE (AS NO3)	7.5	MG/L
Plantation 01	25-Mar-14	NITRATE (AS NO3)	8.6	MG/L
Plantation 01	31-May-14	NITRATE (AS NO3)	1.8	MG/L
Plantation 01	22-Mar-11	NITRITE (AS N)	< 100	MG/L
Plantation 01	25-Mar-14	NITRITE (AS N)	< 100	MG/L
Plantation 01	21-Mar-17	NITRITE (AS N)	< 0.1	MG/L
Plantation 01	22-Mar-11	POTASSIUM	1.7	MG/L
Plantation 01	22-Mar-11	SODIUM	18	MG/L
Plantation 01	25-Mar-14	SODIUM	20	MG/L
Plantation 01	23-Mar-17	SODIUM	20	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BAN M-3	24-Mar-15	NITRITE (AS N)	< 100	MG/L
BAN M-3	27-Apr-16	NITRITE (AS N)	< 0.1	MG/L
BAN M-3	26-Apr-17	NITRITE (AS N)	< 0.1	MG/L
BAN M-3	20-Mar-12	POTASSIUM	2.3	MG/L
BAN M-3	24-Mar-15	POTASSIUM	2	MG/L
BAN M-3	20-Mar-12	SODIUM	38	MG/L
BAN M-3	24-Mar-15	SODIUM	39	MG/L
BAN M-3	20-Mar-12	SPECIFIC CONDUCTANCE	470	US
BAN M-3	24-Mar-15	SPECIFIC CONDUCTANCE	460	US
BAN M-3	20-Mar-12	SULFATE	36	MG/L
BAN M-3	24-Mar-15	SULFATE	35	MG/L
BAN M-3	20-Mar-12	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN M-3	24-Mar-15	TETRACHLOROETHYLENE	< 0.5	UG/L
BAN M-3	20-Mar-12	TOTAL DISSOLVED SOLIDS	290	MG/L
BAN M-3	24-Mar-15	TOTAL DISSOLVED SOLIDS	300	MG/L
BAN M-3	20-Mar-12	TRICHLOROETHYLENE	< 0.5	UG/L
BAN M-3	24-Mar-15	TRICHLOROETHYLENE	< 0.5	UG/L
BAN M-3	20-Mar-12	TURBIDITY, LABORATORY	< 0.2	NTU
BAN M-3	24-Mar-15	TURBIDITY, LABORATORY	< 0.2	NTU
BAN M-3	20-Mar-12	ZINC	< 50	UG/L
BAN M-3	24-Mar-15	ZINC	< 50	UG/L
BCVWD 01	15-Dec-11	NITRATE (AS NO3)	4.4	MG/L
BCVWD 01	20-Dec-12	NITRATE (AS NO3)	2.7	MG/L
BCVWD 03	31-Oct-13	ALKALINITY (AS CACO3)	150	MG/L
BCVWD 03	23-Aug-16	ALKALINITY (AS CACO3)	150	MG/L
BCVWD 03	31-Oct-13	ALUMINUM	< 50	UG/L
BCVWD 03	25-Aug-16	ALUMINUM	< 50	UG/L
BCVWD 03	31-Oct-13	ARSENIC	< 2	UG/L
BCVWD 03	25-Aug-16	ARSENIC	< 2	UG/L
BCVWD 03	31-Oct-13	BICARBONATE ALKALINITY	180	MG/L
BCVWD 03	23-Aug-16	BICARBONATE ALKALINITY	190	MG/L
BCVWD 03	31-Oct-13	CALCIUM	37	MG/L
BCVWD 03	25-Aug-16	CALCIUM	37	MG/L
BCVWD 03	31-Oct-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 03	23-Aug-16	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 03	31-Oct-13	CHLORIDE	7.6	MG/L
BCVWD 03	19-Aug-16	CHLORIDE	13	MG/L
Plantation 01	22-Mar-11	SPECIFIC CONDUCTANCE	440	US
Plantation 01	25-Mar-14	SPECIFIC CONDUCTANCE	440	US
Plantation 01	21-Mar-17	SPECIFIC CONDUCTANCE	450	US
Plantation 01	22-Mar-11	SULFATE	12	MG/L
Plantation 01	25-Mar-14	SULFATE	12	MG/L
Plantation 01	20-Mar-17	SULFATE	10	MG/L
Plantation 01	22-Mar-11	TOTAL DISSOLVED SOLIDS	240	MG/L
Plantation 01	25-Mar-14	TOTAL DISSOLVED SOLIDS	250	MG/L
Plantation 01	21-Mar-17	TOTAL DISSOLVED SOLIDS	270	MG/L
Plantation 01	22-Mar-11	TURBIDITY, LABORATORY	< 0.2	NTU
Plantation 01	25-Mar-14	TURBIDITY, LABORATORY	0.28	NTU
Plantation 01	20-Mar-17	TURBIDITY, LABORATORY	< 0.1	NTU
Plantation 01	22-Mar-11	ZINC	< 50	UG/L
Plantation 01	25-Mar-14	ZINC	< 50	UG/L
Plantation 01	23-Mar-17	ZINC	< 50	UG/L
RCMHP 01	08-Feb-11	ALKALINITY (AS CACO3)	180	MG/L
RCMHP 01	09-Feb-16	ALKALINITY (AS CACO3)	170	MG/L
RCMHP 01	08-Feb-11	ALUMINUM	< 50	UG/L
RCMHP 01	10-Feb-16	ALUMINUM	< 50	UG/L
RCMHP 01	08-Feb-11	ARSENIC	< 2	UG/L
RCMHP 01	10-Feb-16	ARSENIC	< 2	UG/L
RCMHP 01	08-Feb-11	BICARBONATE ALKALINITY	220	MG/L
RCMHP 01	09-Feb-16	BICARBONATE ALKALINITY	210	MG/L
RCMHP 01	08-Feb-11	CALCIUM	46	MG/L
RCMHP 01	10-Feb-16	CALCIUM	44	MG/L
RCMHP 01	08-Feb-11	CARBONATE ALKALINITY	< 3	MG/L
RCMHP 01	09-Feb-16	CARBONATE ALKALINITY	< 3	MG/L
RCMHP 01	08-Feb-11	CHLORIDE	18	MG/L
RCMHP 01	06-Feb-16	CHLORIDE	14	MG/L
RCMHP 01	08-Feb-11	CHROMIUM (TOTAL)	6.2	UG/L
RCMHP 01	09-Feb-16	CHROMIUM (TOTAL)	6	UG/L
RCMHP 01	06-Aug-14	CHROMIUM, HEXAVALENT	5.3	UG/L
RCMHP 01	09-Feb-16	CHROMIUM, HEXAVALENT	6	UG/L
RCMHP 01	08-Feb-11	COPPER	< 50	UG/L
RCMHP 01	10-Feb-16	COPPER	< 50	UG/L
RCMHP 01	08-Feb-11	FLUORIDE	0.5	MG/L
RCMHP 01	05-Feb-16	FLUORIDE	0.5	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 03	31-Oct-13	CHROMIUM (TOTAL)	11	UG/L
BCVWD 03	25-Aug-16	CHROMIUM (TOTAL)	8.4	UG/L
BCVWD 03	07-Nov-13	CHROMIUM, HEXAVALENT	12	UG/L
BCVWD 03	22-Oct-14	CHROMIUM, HEXAVALENT	11	UG/L
BCVWD 03	01-Apr-15	CHROMIUM, HEXAVALENT	9.5	UG/L
BCVWD 03	23-Aug-16	CHROMIUM, HEXAVALENT	7.3	UG/L
BCVWD 03	31-Oct-13	COPPER	< 50	UG/L
BCVWD 03	25-Aug-16	COPPER	< 50	UG/L
BCVWD 03	22-Dec-11	DBCP	< 0.01	UG/L
BCVWD 03	19-Aug-16	DBCP	< 0.01	UG/L
BCVWD 03	31-Oct-13	FLUORIDE	0.3	MG/L
BCVWD 03	25-Aug-16	FLUORIDE	0.5	MG/L
BCVWD 03	31-Oct-13	HARDNESS (AS CACO3)	130	MG/L
BCVWD 03	31-Oct-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 03	23-Aug-16	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 03	31-Oct-13	IRON	< 100	UG/L
BCVWD 03	25-Aug-16	IRON	450	UG/L
BCVWD 03	31-Oct-13	LEAD	< 5	UG/L
BCVWD 03	25-Aug-16	LEAD	< 5	UG/L
BCVWD 03	31-Oct-13	MAGNESIUM	9.4	MG/L
BCVWD 03	25-Aug-16	MAGNESIUM	13	MG/L
BCVWD 03	31-Oct-13	MANGANESE	< 20	UG/L
BCVWD 03	25-Aug-16	MANGANESE	< 20	UG/L
BCVWD 03	19-Aug-16	NITRATE (AS N)	1.7	MG/L
BCVWD 03	22-Dec-11	NITRATE (AS NO3)	3.4	MG/L
BCVWD 03	19-Dec-12	NITRATE (AS NO3)	2.8	MG/L
BCVWD 03	31-Oct-13	NITRATE (AS NO3)	3.9	MG/L
BCVWD 03	31-Oct-13	NITRITE (AS N)	< 100	MG/L
BCVWD 03	18-Aug-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 03	31-Oct-13	POTASSIUM	1.7	MG/L
BCVWD 03	25-Aug-16	POTASSIUM	1.5	MG/L
BCVWD 03	31-Oct-13	SODIUM	25	MG/L
BCVWD 03	25-Aug-16	SODIUM	24	MG/L
BCVWD 03	31-Oct-13	SPECIFIC CONDUCTANCE	350	US
BCVWD 03	19-Aug-16	SPECIFIC CONDUCTANCE	380	US
BCVWD 03	31-Oct-13	SULFATE	11	MG/L
BCVWD 03	19-Aug-16	SULFATE	11	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
RCMHP 01	08-Feb-11	HARDNESS (AS CACO3)	190	MG/L
RCMHP 01	10-Feb-16	HARDNESS (AS CACO3)	180	MG/L
RCMHP 01	08-Feb-11	HYDROXIDE ALKALINITY	< 3	MG/L
RCMHP 01	09-Feb-16	HYDROXIDE ALKALINITY	< 3	MG/L
RCMHP 01	08-Feb-11	IRON	< 100	UG/L
RCMHP 01	10-Feb-16	IRON	< 100	UG/L
RCMHP 01	08-Feb-11	LEAD	5.8	UG/L
RCMHP 01	10-Feb-16	LEAD	< 5	UG/L
RCMHP 01	08-Feb-11	MAGNESIUM	17	MG/L
RCMHP 01	10-Feb-16	MAGNESIUM	16	MG/L
RCMHP 01	08-Feb-11	MANGANESE	< 20	UG/L
RCMHP 01	10-Feb-16	MANGANESE	< 20	UG/L
RCMHP 01	05-Jan-16	NITRATE (AS N)	4.6	MG/L
RCMHP 01	06-Feb-16	NITRATE (AS N)	4.1	MG/L
RCMHP 01	17-Jan-17	NITRATE (AS N)	4.6	MG/L
RCMHP 01	07-Jan-11	NITRATE (AS NO3)	18	MG/L
RCMHP 01	02-Jul-11	NITRATE (AS NO3)	19	MG/L
RCMHP 01	07-Oct-11	NITRATE (AS NO3)	19	MG/L
RCMHP 01	06-Jan-12	NITRATE (AS NO3)	20	MG/L
RCMHP 01	05-Jan-13	NITRATE (AS NO3)	17	MG/L
RCMHP 01	04-Jan-14	NITRATE (AS NO3)	19	MG/L
RCMHP 01	05-Apr-14	NITRATE (AS NO3)	28	MG/L
RCMHP 01	02-Jan-15	NITRATE (AS NO3)	19	MG/L
RCMHP 01	08-Feb-11	NITRITE (AS N)	< 100	MG/L
RCMHP 01	05-Feb-16	NITRITE (AS N)	< 0.1	MG/L
RCMHP 01	08-Feb-11	SODIUM	24	MG/L
RCMHP 01	10-Feb-16	SODIUM	22	MG/L
RCMHP 01	08-Feb-11	SPECIFIC CONDUCTANCE	730	US
RCMHP 01	05-Feb-16	SPECIFIC CONDUCTANCE	440	US
RCMHP 01	08-Feb-11	SULFATE	10	MG/L
RCMHP 01	06-Feb-16	SULFATE	9	MG/L
RCMHP 01	06-Feb-16	TETRACHLOROETHYLENE	< 0.5	UG/L
RCMHP 01	08-Feb-11	TOTAL DISSOLVED SOLIDS	280	MG/L
RCMHP 01	10-Feb-16	TOTAL DISSOLVED SOLIDS	260	MG/L
RCMHP 01	06-Feb-16	TRICHLOROETHYLENE	< 0.5	UG/L
RCMHP 01	08-Feb-11	TURBIDITY, LABORATORY	0.58	NTU
RCMHP 01	05-Feb-16	TURBIDITY, LABORATORY	0.11	NTU

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 03	22-Dec-11	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 03	19-Aug-16	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 03	15-Nov-13	TOTAL DISSOLVED SOLIDS	210	MG/L
BCVWD 03	22-Aug-16	TOTAL DISSOLVED SOLIDS	240	MG/L
BCVWD 03	22-Dec-11	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 03	19-Aug-16	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 03	31-Oct-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 03	18-Aug-16	TURBIDITY, LABORATORY	1.7	NTU
BCVWD 03	31-Oct-13	ZINC	< 50	UG/L
BCVWD 03	25-Aug-16	ZINC	< 50	UG/L
BCVWD 16	31-Oct-13	ALKALINITY (AS CACO3)	180	MG/L
BCVWD 16	09-Dec-16	ALKALINITY (AS CACO3)	180	MG/L
BCVWD 16	31-Oct-13	ALUMINUM	< 50	UG/L
BCVWD 16	15-Dec-16	ALUMINUM	< 50	UG/L
BCVWD 16	31-Oct-13	ARSENIC	< 2	UG/L
BCVWD 16	14-Dec-16	ARSENIC	< 2	UG/L
BCVWD 16	31-Oct-13	BICARBONATE ALKALINITY	220	MG/L
BCVWD 16	09-Dec-16	BICARBONATE ALKALINITY	220	MG/L
BCVWD 16	31-Oct-13	CALCIUM	52	MG/L
BCVWD 16	15-Dec-16	CALCIUM	53	MG/L
BCVWD 16	31-Oct-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 16	09-Dec-16	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 16	31-Oct-13	CHLORIDE	16	MG/L
BCVWD 16	09-Dec-16	CHLORIDE	20	MG/L
BCVWD 16	31-Oct-13	CHROMIUM (TOTAL)	11	UG/L
BCVWD 16	15-Dec-16	CHROMIUM (TOTAL)	4.1	UG/L
BCVWD 16	22-Oct-14	CHROMIUM, HEXAVALENT	4.4	UG/L
BCVWD 16	05-Nov-15	CHROMIUM, HEXAVALENT	4.6	UG/L
BCVWD 16	31-Oct-13	COPPER	< 50	UG/L
BCVWD 16	15-Dec-16	COPPER	< 50	UG/L
BCVWD 16	31-Oct-13	DBCP	< 0.01	UG/L
BCVWD 16	31-Oct-13	FLUORIDE	0.8	MG/L
BCVWD 16	16-Dec-16	FLUORIDE	0.8	MG/L
BCVWD 16	31-Oct-13	HARDNESS (AS CACO3)	200	MG/L
BCVWD 16	15-Dec-16	HARDNESS (AS CACO3)	210	MG/L
BCVWD 16	31-Oct-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 16	09-Dec-16	HYDROXIDE ALKALINITY	< 3	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
RCMHP 01	08-Feb-11	ZINC	250	UG/L
RCMHP 01	10-Feb-16	ZINC	< 50	UG/L
RCMHP 02	05-Feb-13	ALKALINITY (AS CACO3)	170	MG/L
RCMHP 02	09-Feb-16	ALKALINITY (AS CACO3)	170	MG/L
RCMHP 02	05-Feb-13	ALUMINUM	< 50	UG/L
RCMHP 02	10-Feb-16	ALUMINUM	< 50	UG/L
RCMHP 02	05-Feb-13	ARSENIC	< 2	UG/L
RCMHP 02	10-Feb-16	ARSENIC	< 2	UG/L
RCMHP 02	05-Feb-13	BICARBONATE ALKALINITY	210	MG/L
RCMHP 02	09-Feb-16	BICARBONATE ALKALINITY	210	MG/L
RCMHP 02	05-Feb-13	CALCIUM	41	MG/L
RCMHP 02	10-Feb-16	CALCIUM	40	MG/L
RCMHP 02	05-Feb-13	CARBONATE ALKALINITY	< 3	MG/L
RCMHP 02	09-Feb-16	CARBONATE ALKALINITY	< 3	MG/L
RCMHP 02	05-Feb-13	CHLORIDE	23	MG/L
RCMHP 02	06-Feb-16	CHLORIDE	20	MG/L
RCMHP 02	05-Feb-13	CHROMIUM (TOTAL)	7.5	UG/L
RCMHP 02	09-Feb-16	CHROMIUM (TOTAL)	13	UG/L
RCMHP 02	06-Aug-14	CHROMIUM, HEXAVALENT	6.7	UG/L
RCMHP 02	09-Feb-16	CHROMIUM, HEXAVALENT	12	UG/L
RCMHP 02	30-Aug-16	CHROMIUM, HEXAVALENT	7	UG/L
RCMHP 02	03-Dec-16	CHROMIUM, HEXAVALENT	8.3	UG/L
RCMHP 02	24-Jan-17	CHROMIUM, HEXAVALENT	10	UG/L
RCMHP 02	05-Feb-13	COPPER	62	UG/L
RCMHP 02	10-Feb-16	COPPER	< 50	UG/L
RCMHP 02	05-Feb-13	FLUORIDE	0.8	MG/L
RCMHP 02	05-Feb-16	FLUORIDE	0.7	MG/L
RCMHP 02	05-Feb-13	HARDNESS (AS CACO3)	170	MG/L
RCMHP 02	10-Feb-16	HARDNESS (AS CACO3)	170	MG/L
RCMHP 02	05-Feb-13	HYDROXIDE ALKALINITY	< 3	MG/L
RCMHP 02	09-Feb-16	HYDROXIDE ALKALINITY	< 3	MG/L
RCMHP 02	05-Feb-13	IRON	< 100	UG/L
RCMHP 02	10-Feb-16	IRON	< 100	UG/L
RCMHP 02	05-Feb-13	LEAD	< 5	UG/L
RCMHP 02	10-Feb-16	LEAD	< 5	UG/L
RCMHP 02	05-Feb-13	MAGNESIUM	17	MG/L
RCMHP 02	10-Feb-16	MAGNESIUM	16	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 16	31-Oct-13	IRON	< 100	UG/L
BCVWD 16	15-Dec-16	IRON	< 100	UG/L
BCVWD 16	31-Oct-13	LEAD	< 5	UG/L
BCVWD 16	14-Dec-16	LEAD	< 5	UG/L
BCVWD 16	31-Oct-13	MAGNESIUM	18	MG/L
BCVWD 16	15-Dec-16	MAGNESIUM	18	MG/L
BCVWD 16	31-Oct-13	MANGANESE	< 20	UG/L
BCVWD 16	15-Dec-16	MANGANESE	< 20	UG/L
BCVWD 16	15-Dec-15	NITRATE (AS N)	5.7	MG/L
BCVWD 16	12-Jan-16	NITRATE (AS N)	5.9	MG/L
BCVWD 16	10-Feb-16	NITRATE (AS N)	5.8	MG/L
BCVWD 16	13-Apr-16	NITRATE (AS N)	6.2	MG/L
BCVWD 16	26-May-16	NITRATE (AS N)	5.9	MG/L
BCVWD 16	15-Jun-16	NITRATE (AS N)	5.8	MG/L
BCVWD 16	15-Jun-16	NITRATE (AS N)	5.8	MG/L
BCVWD 16	21-Sep-16	NITRATE (AS N)	5.3	MG/L
BCVWD 16	09-Dec-16	NITRATE (AS N)	6.1	MG/L
BCVWD 16	01-Feb-17	NITRATE (AS N)	6.9	MG/L
BCVWD 16	14-Jan-11	NITRATE (AS NO3)	14	MG/L
BCVWD 16	26-May-11	NITRATE (AS NO3)	28	MG/L
BCVWD 16	21-Jun-11	NITRATE (AS NO3)	28	MG/L
BCVWD 16	20-Jul-11	NITRATE (AS NO3)	27	MG/L
BCVWD 16	25-Aug-11	NITRATE (AS NO3)	29	MG/L
BCVWD 16	20-Sep-11	NITRATE (AS NO3)	23	MG/L
BCVWD 16	19-Oct-11	NITRATE (AS NO3)	22	MG/L
BCVWD 16	30-Nov-11	NITRATE (AS NO3)	23	MG/L
BCVWD 16	20-Jun-12	NITRATE (AS NO3)	22	MG/L
BCVWD 16	08-Aug-12	NITRATE (AS NO3)	17	MG/L
BCVWD 16	18-Sep-12	NITRATE (AS NO3)	19	MG/L
BCVWD 16	30-Oct-12	NITRATE (AS NO3)	26	MG/L
BCVWD 16	19-Dec-12	NITRATE (AS NO3)	25	MG/L
BCVWD 16	22-May-13	NITRATE (AS NO3)	21	MG/L
BCVWD 16	13-Jun-13	NITRATE (AS NO3)	21	MG/L
BCVWD 16	20-Aug-13	NITRATE (AS NO3)	23	MG/L
BCVWD 16	17-Sep-13	NITRATE (AS NO3)	22	MG/L
BCVWD 16	16-Oct-13	NITRATE (AS NO3)	22	MG/L
BCVWD 16	31-Oct-13	NITRATE (AS NO3)	21	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
RCMHP 02	05-Feb-13	MANGANESE	< 20	UG/L
RCMHP 02	10-Feb-16	MANGANESE	< 20	UG/L
RCMHP 02	05-Jan-16	NITRATE (AS N)	4.9	MG/L
RCMHP 02	06-Feb-16	NITRATE (AS N)	4.9	MG/L
RCMHP 02	01-Jul-16	NITRATE (AS N)	5.5	MG/L
RCMHP 02	03-Dec-16	NITRATE (AS N)	6.2	MG/L
RCMHP 02	17-Jan-17	NITRATE (AS N)	6.1	MG/L
RCMHP 02	07-Jan-11	NITRATE (AS NO3)	36	MG/L
RCMHP 02	09-Apr-11	NITRATE (AS NO3)	36	MG/L
RCMHP 02	02-Jul-11	NITRATE (AS NO3)	37	MG/L
RCMHP 02	07-Oct-11	NITRATE (AS NO3)	37	MG/L
RCMHP 02	06-Jan-12	NITRATE (AS NO3)	35	MG/L
RCMHP 02	07-Apr-12	NITRATE (AS NO3)	30	MG/L
RCMHP 02	07-Jul-12	NITRATE (AS NO3)	31	MG/L
RCMHP 02	05-Oct-12	NITRATE (AS NO3)	32	MG/L
RCMHP 02	05-Jan-13	NITRATE (AS NO3)	31	MG/L
RCMHP 02	05-Feb-13	NITRATE (AS NO3)	31	MG/L
RCMHP 02	08-Apr-13	NITRATE (AS NO3)	31	MG/L
RCMHP 02	06-Jul-13	NITRATE (AS NO3)	32	MG/L
RCMHP 02	11-Oct-13	NITRATE (AS NO3)	30	MG/L
RCMHP 02	04-Jan-14	NITRATE (AS NO3)	29	MG/L
RCMHP 02	12-Jul-14	NITRATE (AS NO3)	28	MG/L
RCMHP 02	11-Oct-14	NITRATE (AS NO3)	27	MG/L
RCMHP 02	02-Jan-15	NITRATE (AS NO3)	25	MG/L
RCMHP 02	04-Apr-15	NITRATE (AS NO3)	26	MG/L
RCMHP 02	10-Jul-15	NITRATE (AS NO3)	23	MG/L
RCMHP 02	17-Oct-15	NITRATE (AS NO3)	27	MG/L
RCMHP 02	05-Feb-13	NITRITE (AS N)	< 100	MG/L
RCMHP 02	05-Feb-16	NITRITE (AS N)	< 0.1	MG/L
RCMHP 02	01-Jul-16	NITRITE (AS N)	< 0.1	MG/L
RCMHP 02	05-Feb-13	POTASSIUM	1.4	MG/L
RCMHP 02	05-Feb-13	SODIUM	35	MG/L
RCMHP 02	10-Feb-16	SODIUM	32	MG/L
RCMHP 02	05-Feb-13	SPECIFIC CONDUCTANCE	470	US
RCMHP 02	05-Feb-16	SPECIFIC CONDUCTANCE	470	US
RCMHP 02	05-Feb-13	SULFATE	10	MG/L
RCMHP 02	06-Feb-16	SULFATE	10	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 16	26-Nov-13	NITRATE (AS NO3)	21	MG/L
BCVWD 16	11-Dec-13	NITRATE (AS NO3)	24	MG/L
BCVWD 16	26-Feb-14	NITRATE (AS NO3)	26	MG/L
BCVWD 16	19-Mar-14	NITRATE (AS NO3)	28	MG/L
BCVWD 16	16-Apr-14	NITRATE (AS NO3)	27	MG/L
BCVWD 16	13-May-14	NITRATE (AS NO3)	24	MG/L
BCVWD 16	10-Jun-14	NITRATE (AS NO3)	25	MG/L
BCVWD 16	23-Jul-14	NITRATE (AS NO3)	25	MG/L
BCVWD 16	13-Aug-14	NITRATE (AS NO3)	22	MG/L
BCVWD 16	18-Sep-14	NITRATE (AS NO3)	24	MG/L
BCVWD 16	08-Oct-14	NITRATE (AS NO3)	24	MG/L
BCVWD 16	08-Dec-14	NITRATE (AS NO3)	28	MG/L
BCVWD 16	22-Jan-15	NITRATE (AS NO3)	33	MG/L
BCVWD 16	19-Feb-15	NITRATE (AS NO3)	26	MG/L
BCVWD 16	18-Mar-15	NITRATE (AS NO3)	27	MG/L
BCVWD 16	22-Apr-15	NITRATE (AS NO3)	26	MG/L
BCVWD 16	13-May-15	NITRATE (AS NO3)	26	MG/L
BCVWD 16	09-Jun-15	NITRATE (AS NO3)	25	MG/L
BCVWD 16	30-Jul-15	NITRATE (AS NO3)	27	MG/L
BCVWD 16	01-Sep-15	NITRATE (AS NO3)	25	MG/L
BCVWD 16	30-Sep-15	NITRATE (AS NO3)	28	MG/L
BCVWD 16	27-Oct-15	NITRATE (AS NO3)	27	MG/L
BCVWD 16	04-Nov-15	NITRATE (AS NO3)	27	MG/L
BCVWD 16	03-Dec-15	NITRATE (AS NO3)	26	MG/L
BCVWD 16	31-Oct-13	NITRITE (AS N)	< 100	MG/L
BCVWD 16	08-Dec-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 16	31-Oct-13	POTASSIUM	1.3	MG/L
BCVWD 16	15-Dec-16	POTASSIUM	1.2	MG/L
BCVWD 16	31-Oct-13	SODIUM	36	MG/L
BCVWD 16	15-Dec-16	SODIUM	38	MG/L
BCVWD 16	31-Oct-13	SPECIFIC CONDUCTANCE	540	US
BCVWD 16	31-Oct-13	SULFATE	46	MG/L
BCVWD 16	09-Dec-16	SULFATE	46	MG/L
BCVWD 16	31-Oct-13	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 16	12-Dec-16	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 16	31-Oct-13	TOTAL DISSOLVED SOLIDS	370	MG/L
BCVWD 16	13-Dec-16	TOTAL DISSOLVED SOLIDS	330	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
RCMHP 02	07-Feb-16	TETRACHLOROETHYLENE	< 0.5	UG/L
RCMHP 02	05-Feb-13	TOTAL DISSOLVED SOLIDS	320	MG/L
RCMHP 02	09-Feb-16	TOTAL DISSOLVED SOLIDS	270	MG/L
RCMHP 02	07-Feb-16	TRICHLOROETHYLENE	< 0.5	UG/L
RCMHP 02	05-Feb-13	TURBIDITY, LABORATORY	< 0.2	NTU
RCMHP 02	05-Feb-16	TURBIDITY, LABORATORY	0.33	NTU
RCMHP 02	05-Feb-13	ZINC	< 50	UG/L
RCMHP 02	10-Feb-16	ZINC	< 50	UG/L
SMHOA 01	08-Feb-11	ALKALINITY (AS CACO3)	230	MG/L
SMHOA 01	14-Jul-15	ALKALINITY (AS CACO3)	200	MG/L
SMHOA 01	08-Feb-11	ALUMINUM	< 50	UG/L
SMHOA 01	14-Jul-15	ALUMINUM	< 50	UG/L
SMHOA 01	08-Feb-11	ARSENIC	< 2	UG/L
SMHOA 01	14-Jul-15	ARSENIC	< 2	UG/L
SMHOA 01	08-Feb-11	BICARBONATE ALKALINITY	280	MG/L
SMHOA 01	14-Jul-15	BICARBONATE ALKALINITY	240	MG/L
SMHOA 01	08-Feb-11	CALCIUM	55	MG/L
SMHOA 01	14-Jul-15	CALCIUM	43	MG/L
SMHOA 01	08-Feb-11	CARBONATE ALKALINITY	< 3	MG/L
SMHOA 01	14-Jul-15	CARBONATE ALKALINITY	< 3	MG/L
SMHOA 01	08-Feb-11	CHLORIDE	29	MG/L
SMHOA 01	14-Jul-15	CHLORIDE	20	MG/L
SMHOA 01	08-Feb-11	CHROMIUM (TOTAL)	5.6	UG/L
SMHOA 01	14-Jul-15	CHROMIUM (TOTAL)	6.2	UG/L
SMHOA 01	06-Aug-14	CHROMIUM, HEXAVALENT	5.4	UG/L
SMHOA 01	08-Feb-11	COPPER	< 50	UG/L
SMHOA 01	14-Jul-15	COPPER	< 50	UG/L
SMHOA 01	08-Feb-11	FLUORIDE	0.5	MG/L
SMHOA 01	14-Jul-15	FLUORIDE	0.5	MG/L
SMHOA 01	08-Feb-11	HARDNESS (AS CACO3)	230	MG/L
SMHOA 01	14-Jul-15	HARDNESS (AS CACO3)	170	MG/L
SMHOA 01	08-Feb-11	HYDROXIDE ALKALINITY	< 3	MG/L
SMHOA 01	14-Jul-15	HYDROXIDE ALKALINITY	< 3	MG/L
SMHOA 01	08-Feb-11	IRON	< 100	UG/L
SMHOA 01	14-Jul-15	IRON	< 100	UG/L
SMHOA 01	08-Feb-11	LEAD	< 5	UG/L
SMHOA 01	14-Jul-15	LEAD	< 5	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 16	31-Oct-13	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 16	12-Dec-16	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 16	31-Oct-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 16	08-Dec-16	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 16	31-Oct-13	ZINC	< 50	UG/L
BCVWD 16	15-Dec-16	ZINC	< 50	UG/L
BCVWD 21	06-Jan-13	ALKALINITY (AS CACO3)	140	MG/L
BCVWD 21	04-Dec-15	ALKALINITY (AS CACO3)	180	MG/L
BCVWD 21	06-Jan-13	ALUMINUM	< 50	UG/L
BCVWD 21	04-Dec-15	ALUMINUM	< 50	UG/L
BCVWD 21	06-Jan-13	ARSENIC	< 2	UG/L
BCVWD 21	07-Dec-15	ARSENIC	< 2	UG/L
BCVWD 21	06-Jan-13	BICARBONATE ALKALINITY	170	MG/L
BCVWD 21	04-Dec-15	BICARBONATE ALKALINITY	220	MG/L
BCVWD 21	06-Jan-13	CALCIUM	45	MG/L
BCVWD 21	04-Dec-15	CALCIUM	49	MG/L
BCVWD 21	06-Jan-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 21	04-Dec-15	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 21	06-Jan-13	CHLORIDE	13	MG/L
BCVWD 21	03-Dec-15	CHLORIDE	14	MG/L
BCVWD 21	06-Jan-13	CHROMIUM (TOTAL)	5.4	UG/L
BCVWD 21	08-Dec-15	CHROMIUM (TOTAL)	6.4	UG/L
BCVWD 21	22-Oct-14	CHROMIUM, HEXAVALENT	6.8	UG/L
BCVWD 21	12-Nov-15	CHROMIUM, HEXAVALENT	6.7	UG/L
BCVWD 21	06-Jan-13	COPPER	< 50	UG/L
BCVWD 21	04-Dec-15	COPPER	< 50	UG/L
BCVWD 21	31-Oct-13	DBCP	< 0.01	UG/L
BCVWD 21	06-Jan-13	FLUORIDE	1	MG/L
BCVWD 21	06-Dec-15	FLUORIDE	0.5	MG/L
BCVWD 21	06-Jan-13	HARDNESS (AS CACO3)	180	MG/L
BCVWD 21	04-Dec-15	HARDNESS (AS CACO3)	200	MG/L
BCVWD 21	06-Jan-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 21	04-Dec-15	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 21	06-Jan-13	IRON	< 100	UG/L
BCVWD 21	04-Dec-15	IRON	< 100	UG/L
BCVWD 21	06-Jan-13	LEAD	< 5	UG/L
BCVWD 21	07-Dec-15	LEAD	< 5	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
SMHOA 01	08-Feb-11	MAGNESIUM	23	MG/L
SMHOA 01	14-Jul-15	MAGNESIUM	16	MG/L
SMHOA 01	08-Feb-11	MANGANESE	< 20	UG/L
SMHOA 01	14-Jul-15	MANGANESE	< 20	UG/L
SMHOA 01	05-Jan-16	NITRATE (AS N)	4.3	MG/L
SMHOA 01	01-Jul-16	NITRATE (AS N)	4.3	MG/L
SMHOA 01	04-Oct-16	NITRATE (AS N)	4.3	MG/L
SMHOA 01	03-Dec-16	NITRATE (AS N)	4.9	MG/L
SMHOA 01	07-Jan-17	NITRATE (AS N)	5.2	MG/L
SMHOA 01	08-Apr-17	NITRATE (AS N)	2.5	MG/L
SMHOA 01	07-Jan-11	NITRATE (AS NO3)	18	MG/L
SMHOA 01	07-Jan-11	NITRATE (AS NO3)	31	MG/L
SMHOA 01	06-May-11	NITRATE (AS NO3)	21	MG/L
SMHOA 01	07-Oct-11	NITRATE (AS NO3)	22	MG/L
SMHOA 01	06-Jan-12	NITRATE (AS NO3)	24	MG/L
SMHOA 01	06-Apr-12	NITRATE (AS NO3)	23	MG/L
SMHOA 01	10-Nov-12	NITRATE (AS NO3)	22	MG/L
SMHOA 01	04-Jan-13	NITRATE (AS NO3)	27	MG/L
SMHOA 01	08-Apr-13	NITRATE (AS NO3)	21	MG/L
SMHOA 01	06-Jul-13	NITRATE (AS NO3)	21	MG/L
SMHOA 01	07-Dec-13	NITRATE (AS NO3)	23	MG/L
SMHOA 01	04-Jan-14	NITRATE (AS NO3)	22	MG/L
SMHOA 01	05-Apr-14	NITRATE (AS NO3)	23	MG/L
SMHOA 01	12-Jul-14	NITRATE (AS NO3)	21	MG/L
SMHOA 01	11-Oct-14	NITRATE (AS NO3)	21	MG/L
SMHOA 01	02-Jan-15	NITRATE (AS NO3)	27	MG/L
SMHOA 01	06-May-15	NITRATE (AS NO3)	18	MG/L
SMHOA 01	14-Jul-15	NITRATE (AS NO3)	19	MG/L
SMHOA 01	17-Oct-15	NITRATE (AS NO3)	22	MG/L
SMHOA 01	08-Feb-11	NITRITE (AS N)	< 100	MG/L
SMHOA 01	14-Jul-15	NITRITE (AS N)	< 100	MG/L
SMHOA 01	08-Feb-11	SODIUM	43	MG/L
SMHOA 01	14-Jul-15	SODIUM	43	MG/L
SMHOA 01	08-Feb-11	SPECIFIC CONDUCTANCE	630	US
SMHOA 01	14-Jul-15	SPECIFIC CONDUCTANCE	500	US
SMHOA 01	08-Feb-11	SULFATE	20	MG/L
SMHOA 01	14-Jul-15	SULFATE	16	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 21	06-Jan-13	MAGNESIUM	16	MG/L
BCVWD 21	04-Dec-15	MAGNESIUM	18	MG/L
BCVWD 21	06-Jan-13	MANGANESE	< 20	UG/L
BCVWD 21	04-Dec-15	MANGANESE	< 20	UG/L
BCVWD 21	15-Dec-15	NITRATE (AS N)	3.3	MG/L
BCVWD 21	12-Jan-16	NITRATE (AS N)	3.2	MG/L
BCVWD 21	13-Apr-16	NITRATE (AS N)	3.4	MG/L
BCVWD 21	26-May-16	NITRATE (AS N)	3.2	MG/L
BCVWD 21	14-Jun-16	NITRATE (AS N)	3.1	MG/L
BCVWD 21	21-Sep-16	NITRATE (AS N)	2.8	MG/L
BCVWD 21	02-Dec-16	NITRATE (AS N)	3.4	MG/L
BCVWD 21	01-Feb-17	NITRATE (AS N)	3.6	MG/L
BCVWD 21	26-May-11	NITRATE (AS NO3)	33	MG/L
BCVWD 21	21-Jun-11	NITRATE (AS NO3)	28	MG/L
BCVWD 21	20-Jul-11	NITRATE (AS NO3)	21	MG/L
BCVWD 21	25-Aug-11	NITRATE (AS NO3)	19	MG/L
BCVWD 21	21-Sep-11	NITRATE (AS NO3)	18	MG/L
BCVWD 21	19-Oct-11	NITRATE (AS NO3)	17	MG/L
BCVWD 21	30-Nov-11	NITRATE (AS NO3)	18	MG/L
BCVWD 21	22-Feb-12	NITRATE (AS NO3)	17	MG/L
BCVWD 21	30-Mar-12	NITRATE (AS NO3)	18	MG/L
BCVWD 21	30-Apr-12	NITRATE (AS NO3)	18	MG/L
BCVWD 21	18-May-12	NITRATE (AS NO3)	18	MG/L
BCVWD 21	20-Jun-12	NITRATE (AS NO3)	17	MG/L
BCVWD 21	08-Aug-12	NITRATE (AS NO3)	14	MG/L
BCVWD 21	19-Sep-12	NITRATE (AS NO3)	16	MG/L
BCVWD 21	30-Oct-12	NITRATE (AS NO3)	18	MG/L
BCVWD 21	06-Jan-13	NITRATE (AS NO3)	35	MG/L
BCVWD 21	06-Mar-13	NITRATE (AS NO3)	18	MG/L
BCVWD 21	22-May-13	NITRATE (AS NO3)	17	MG/L
BCVWD 21	13-Jun-13	NITRATE (AS NO3)	17	MG/L
BCVWD 21	20-Aug-13	NITRATE (AS NO3)	16	MG/L
BCVWD 21	17-Sep-13	NITRATE (AS NO3)	16	MG/L
BCVWD 21	16-Oct-13	NITRATE (AS NO3)	17	MG/L
BCVWD 21	31-Oct-13	NITRATE (AS NO3)	16	MG/L
BCVWD 21	26-Nov-13	NITRATE (AS NO3)	14	MG/L
BCVWD 21	11-Dec-13	NITRATE (AS NO3)	18	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
SMHOA 01	08-Mar-13	TETRACHLOROETHYLENE	< 0.5	UG/L
SMHOA 01	08-Feb-11	TOTAL DISSOLVED SOLIDS	360	MG/L
SMHOA 01	14-Jul-15	TOTAL DISSOLVED SOLIDS	260	MG/L
SMHOA 01	08-Mar-13	TRICHLOROETHYLENE	< 0.5	UG/L
SMHOA 01	08-Feb-11	TURBIDITY, LABORATORY	0.28	NTU
SMHOA 01	14-Jul-15	TURBIDITY, LABORATORY	0.53	NTU
SMHOA 01	08-Feb-11	ZINC	< 50	UG/L
SMHOA 01	14-Jul-15	ZINC	< 50	UG/L
SMHOA 02	08-Feb-11	ALKALINITY (AS CACO3)	190	MG/L
SMHOA 02	14-Jul-15	ALKALINITY (AS CACO3)	200	MG/L
SMHOA 02	08-Feb-11	ALUMINUM	< 50	UG/L
SMHOA 02	14-Jul-15	ALUMINUM	< 50	UG/L
SMHOA 02	08-Feb-11	ARSENIC	< 2	UG/L
SMHOA 02	14-Jul-15	ARSENIC	< 2	UG/L
SMHOA 02	08-Feb-11	BICARBONATE ALKALINITY	230	MG/L
SMHOA 02	14-Jul-15	BICARBONATE ALKALINITY	240	MG/L
SMHOA 02	08-Feb-11	CALCIUM	44	MG/L
SMHOA 02	14-Jul-15	CALCIUM	46	MG/L
SMHOA 02	08-Feb-11	CARBONATE ALKALINITY	< 3	MG/L
SMHOA 02	14-Jul-15	CARBONATE ALKALINITY	< 3	MG/L
SMHOA 02	08-Feb-11	CHLORIDE	28	MG/L
SMHOA 02	14-Jul-15	CHLORIDE	28	MG/L
SMHOA 02	08-Feb-11	CHROMIUM (TOTAL)	9.1	UG/L
SMHOA 02	14-Jul-15	CHROMIUM (TOTAL)	8.9	UG/L
SMHOA 02	06-Aug-14	CHROMIUM, HEXAVALENT	7.9	UG/L
SMHOA 02	08-Feb-11	COPPER	< 50	UG/L
SMHOA 02	14-Jul-15	COPPER	< 50	UG/L
SMHOA 02	08-Feb-11	FLUORIDE	0.6	MG/L
SMHOA 02	14-Jul-15	FLUORIDE	0.7	MG/L
SMHOA 02	08-Feb-11	HARDNESS (AS CACO3)	180	MG/L
SMHOA 02	14-Jul-15	HARDNESS (AS CACO3)	190	MG/L
SMHOA 02	08-Feb-11	HYDROXIDE ALKALINITY	< 3	MG/L
SMHOA 02	14-Jul-15	HYDROXIDE ALKALINITY	< 3	MG/L
SMHOA 02	08-Feb-11	IRON	< 100	UG/L
SMHOA 02	14-Jul-15	IRON	< 100	UG/L
SMHOA 02	08-Feb-11	LEAD	< 5	UG/L
SMHOA 02	14-Jul-15	LEAD	< 5	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 21	26-Feb-14	NITRATE (AS NO3)	15	MG/L
BCVWD 21	19-Mar-14	NITRATE (AS NO3)	16	MG/L
BCVWD 21	16-Apr-14	NITRATE (AS NO3)	16	MG/L
BCVWD 21	13-May-14	NITRATE (AS NO3)	16	MG/L
BCVWD 21	10-Jun-14	NITRATE (AS NO3)	16	MG/L
BCVWD 21	23-Jul-14	NITRATE (AS NO3)	16	MG/L
BCVWD 21	13-Aug-14	NITRATE (AS NO3)	14	MG/L
BCVWD 21	17-Sep-14	NITRATE (AS NO3)	15	MG/L
BCVWD 21	08-Oct-14	NITRATE (AS NO3)	15	MG/L
BCVWD 21	08-Dec-14	NITRATE (AS NO3)	16	MG/L
BCVWD 21	22-Jan-15	NITRATE (AS NO3)	16	MG/L
BCVWD 21	19-Feb-15	NITRATE (AS NO3)	15	MG/L
BCVWD 21	18-Mar-15	NITRATE (AS NO3)	16	MG/L
BCVWD 21	22-Apr-15	NITRATE (AS NO3)	15	MG/L
BCVWD 21	13-May-15	NITRATE (AS NO3)	15	MG/L
BCVWD 21	09-Jun-15	NITRATE (AS NO3)	14	MG/L
BCVWD 21	30-Jul-15	NITRATE (AS NO3)	15	MG/L
BCVWD 21	31-Aug-15	NITRATE (AS NO3)	14	MG/L
BCVWD 21	30-Sep-15	NITRATE (AS NO3)	15	MG/L
BCVWD 21	27-Oct-15	NITRATE (AS NO3)	14	MG/L
BCVWD 21	04-Nov-15	NITRATE (AS NO3)	15	MG/L
BCVWD 21	03-Dec-15	NITRATE (AS NO3)	14	MG/L
BCVWD 21	06-Jan-13	NITRITE (AS N)	< 100	MG/L
BCVWD 21	02-Dec-15	NITRITE (AS N)	< 100	MG/L
BCVWD 21	01-Dec-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 21	06-Jan-13	POTASSIUM	1.4	MG/L
BCVWD 21	04-Dec-15	POTASSIUM	1.6	MG/L
BCVWD 21	06-Jan-13	SODIUM	26	MG/L
BCVWD 21	04-Dec-15	SODIUM	25	MG/L
BCVWD 21	06-Jan-13	SPECIFIC CONDUCTANCE	460	US
BCVWD 21	04-Dec-15	SPECIFIC CONDUCTANCE	450	US
BCVWD 21	06-Jan-13	SULFATE	24	MG/L
BCVWD 21	03-Dec-15	SULFATE	26	MG/L
BCVWD 21	31-Oct-13	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 21	03-Dec-16	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 21	06-Jan-13	TOTAL DISSOLVED SOLIDS	280	MG/L
BCVWD 21	07-Dec-15	TOTAL DISSOLVED SOLIDS	290	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
SMHOA 02	08-Feb-11	MAGNESIUM	17	MG/L
SMHOA 02	14-Jul-15	MAGNESIUM	18	MG/L
SMHOA 02	08-Feb-11	MANGANESE	< 20	UG/L
SMHOA 02	14-Jul-15	MANGANESE	< 20	UG/L
SMHOA 02	05-Jan-16	NITRATE (AS N)	4.9	MG/L
SMHOA 02	07-Jan-17	NITRATE (AS N)	5.1	MG/L
SMHOA 02	07-Jan-11	NITRATE (AS NO3)	36	MG/L
SMHOA 02	07-Jan-11	NITRATE (AS NO3)	19	MG/L
SMHOA 02	06-May-11	NITRATE (AS NO3)	19	MG/L
SMHOA 02	02-Jul-11	NITRATE (AS NO3)	21	MG/L
SMHOA 02	07-Oct-11	NITRATE (AS NO3)	19	MG/L
SMHOA 02	06-Jan-12	NITRATE (AS NO3)	22	MG/L
SMHOA 02	07-Jul-12	NITRATE (AS NO3)	18	MG/L
SMHOA 02	04-Jan-13	NITRATE (AS NO3)	20	MG/L
SMHOA 02	04-Jan-14	NITRATE (AS NO3)	19	MG/L
SMHOA 02	02-Jan-15	NITRATE (AS NO3)	19	MG/L
SMHOA 02	14-Jul-15	NITRATE (AS NO3)	21	MG/L
SMHOA 02	08-Feb-11	NITRITE (AS N)	< 100	MG/L
SMHOA 02	14-Jul-15	NITRITE (AS N)	< 100	MG/L
SMHOA 02	08-Feb-11	SODIUM	38	MG/L
SMHOA 02	14-Jul-15	SODIUM	39	MG/L
SMHOA 02	08-Feb-11	SPECIFIC CONDUCTANCE	520	US
SMHOA 02	14-Jul-15	SPECIFIC CONDUCTANCE	510	US
SMHOA 02	08-Feb-11	SULFATE	12	MG/L
SMHOA 02	14-Jul-15	SULFATE	14	MG/L
SMHOA 02	08-Mar-13	TETRACHLOROETHYLENE	< 0.5	UG/L
SMHOA 02	08-Feb-11	TOTAL DISSOLVED SOLIDS	290	MG/L
SMHOA 02	14-Jul-15	TOTAL DISSOLVED SOLIDS	260	MG/L
SMHOA 02	08-Mar-13	TRICHLOROETHYLENE	< 0.5	UG/L
SMHOA 02	08-Feb-11	TURBIDITY, LABORATORY	< 0.2	NTU
SMHOA 02	14-Jul-15	TURBIDITY, LABORATORY	0.22	NTU
SMHOA 02	08-Feb-11	ZINC	< 50	UG/L
SMHOA 02	14-Jul-15	ZINC	< 50	UG/L
SMWC 04	08-Apr-13	ALKALINITY (AS CACO3)	100	MG/L
SMWC 04	12-Apr-16	ALKALINITY (AS CACO3)	110	MG/L
SMWC 04	08-Apr-13	ALUMINUM	< 0	UG/L
SMWC 04	15-Apr-16	ALUMINUM	< 0	UG/L

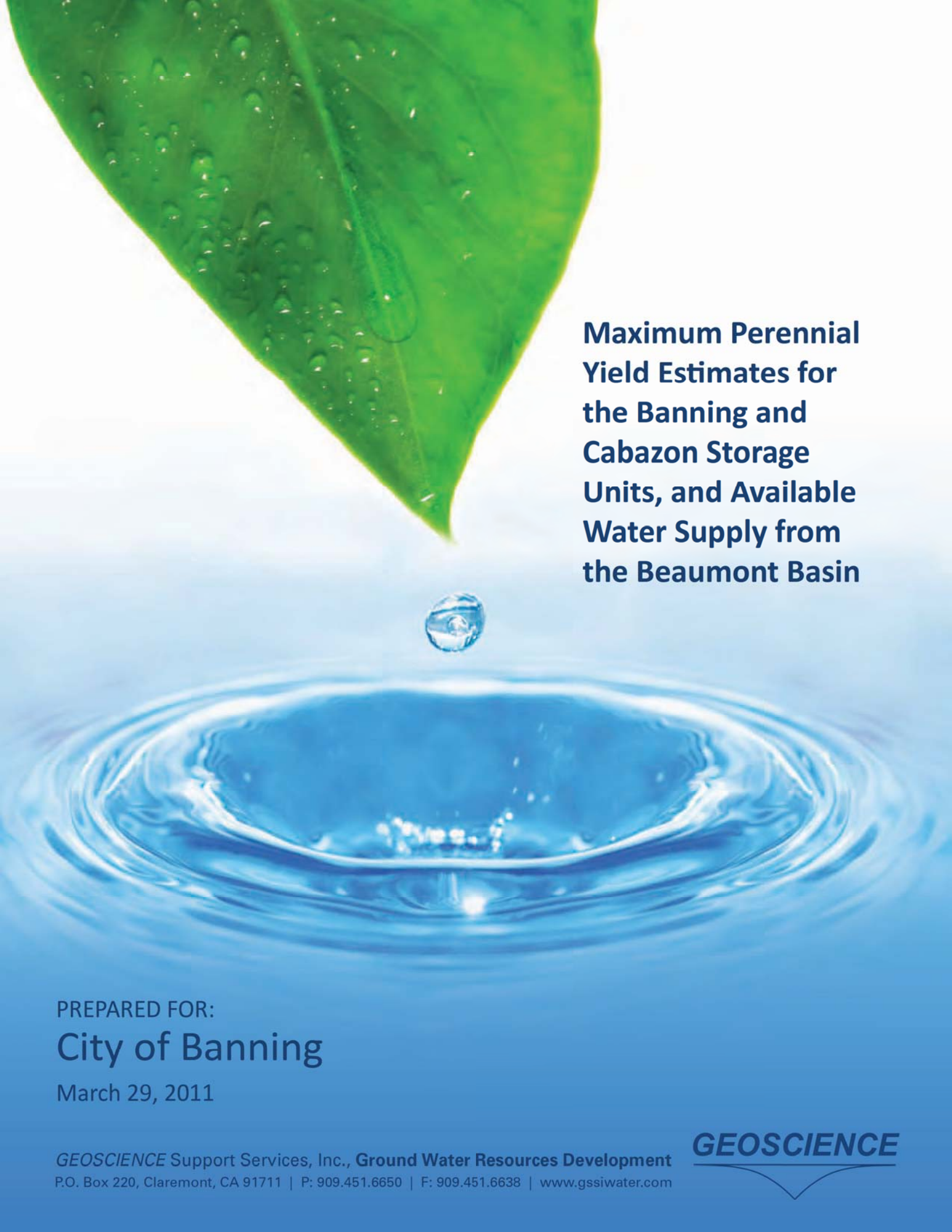
Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 21	31-Oct-13	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 21	03-Dec-16	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 21	06-Jan-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 21	03-Dec-15	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 21	06-Jan-13	ZINC	< 50	UG/L
BCVWD 21	04-Dec-15	ZINC	< 50	UG/L
BCVWD 22	31-Oct-13	ALKALINITY (AS CACO3)	170	MG/L
BCVWD 22	02-Dec-16	ALKALINITY (AS CACO3)	180	MG/L
BCVWD 22	31-Oct-13	ALUMINUM	< 50	UG/L
BCVWD 22	09-Dec-16	ALUMINUM	< 50	UG/L
BCVWD 22	31-Oct-13	ARSENIC	< 2	UG/L
BCVWD 22	06-Dec-16	ARSENIC	< 2	UG/L
BCVWD 22	31-Oct-13	BICARBONATE ALKALINITY	210	MG/L
BCVWD 22	02-Dec-16	BICARBONATE ALKALINITY	210	MG/L
BCVWD 22	31-Oct-13	CALCIUM	40	MG/L
BCVWD 22	09-Dec-16	CALCIUM	40	MG/L
BCVWD 22	31-Oct-13	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 22	02-Dec-16	CARBONATE ALKALINITY	< 3	MG/L
BCVWD 22	31-Oct-13	CHLORIDE	9.2	MG/L
BCVWD 22	02-Dec-16	CHLORIDE	7.6	MG/L
BCVWD 22	31-Oct-13	CHROMIUM (TOTAL)	6.9	UG/L
BCVWD 22	07-Dec-16	CHROMIUM (TOTAL)	7.9	UG/L
BCVWD 22	22-Oct-14	CHROMIUM, HEXAVALENT	7.1	UG/L
BCVWD 22	12-Nov-15	CHROMIUM, HEXAVALENT	7.2	UG/L
BCVWD 22	31-Oct-13	COPPER	< 50	UG/L
BCVWD 22	09-Dec-16	COPPER	< 50	UG/L
BCVWD 22	31-Oct-13	DBCP	< 0.01	UG/L
BCVWD 22	31-Oct-13	FLUORIDE	0.4	MG/L
BCVWD 22	07-Dec-16	FLUORIDE	0.4	MG/L
BCVWD 22	31-Oct-13	HARDNESS (AS CACO3)	170	MG/L
BCVWD 22	09-Dec-16	HARDNESS (AS CACO3)	170	MG/L
BCVWD 22	31-Oct-13	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 22	02-Dec-16	HYDROXIDE ALKALINITY	< 3	MG/L
BCVWD 22	31-Oct-13	IRON	< 100	UG/L
BCVWD 22	09-Dec-16	IRON	< 100	UG/L
BCVWD 22	31-Oct-13	LEAD	< 5	UG/L
BCVWD 22	06-Dec-16	LEAD	< 5	UG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
SMWC 04	15-Mar-12	ARSENIC	4.6	UG/L
SMWC 04	08-Apr-13	ARSENIC	5.2	UG/L
SMWC 04	21-Apr-16	ARSENIC	4.4	UG/L
SMWC 04	08-Apr-13	BICARBONATE ALKALINITY	89	MG/L
SMWC 04	12-Apr-16	BICARBONATE ALKALINITY	110	MG/L
SMWC 04	08-Apr-13	CALCIUM	6.8	MG/L
SMWC 04	25-Apr-16	CALCIUM	8.8	MG/L
SMWC 04	08-Apr-13	CARBONATE ALKALINITY	16	MG/L
SMWC 04	12-Apr-16	CARBONATE ALKALINITY	12	MG/L
SMWC 04	08-Apr-13	CHLORIDE	17	MG/L
SMWC 04	11-Apr-16	CHLORIDE	17	MG/L
SMWC 04	08-Apr-13	CHROMIUM (TOTAL)	< 0	UG/L
SMWC 04	21-Apr-16	CHROMIUM (TOTAL)	< 0	UG/L
SMWC 04	09-Dec-14	CHROMIUM, HEXAVALENT	2.7	UG/L
SMWC 04	08-Apr-13	COPPER	< 0	UG/L
SMWC 04	15-Apr-16	COPPER	< 0	UG/L
SMWC 04	23-Sep-15	DBCP	< 0	UG/L
SMWC 04	08-Apr-13	FLUORIDE	0.38	MG/L
SMWC 04	11-Apr-16	FLUORIDE	0.41	MG/L
SMWC 04	08-Apr-13	HARDNESS (AS CACO3)	22	MG/L
SMWC 04	25-Apr-16	HARDNESS (AS CACO3)	29	MG/L
SMWC 04	08-Apr-13	HYDROXIDE ALKALINITY	< 0	MG/L
SMWC 04	12-Apr-16	HYDROXIDE ALKALINITY	< 0	MG/L
SMWC 04	08-Apr-13	IRON	< 0	UG/L
SMWC 04	15-Apr-16	IRON	< 0	UG/L
SMWC 04	08-Apr-13	LEAD	< 0	UG/L
SMWC 04	20-Apr-16	LEAD	< 0	UG/L
SMWC 04	08-Apr-13	MAGNESIUM	1.1	MG/L
SMWC 04	25-Apr-16	MAGNESIUM	1.7	MG/L
SMWC 04	08-Apr-13	MANGANESE	< 0	UG/L
SMWC 04	15-Apr-16	MANGANESE	< 0	UG/L
SMWC 04	11-Apr-16	NITRATE (AS N)	3.2	MG/L
SMWC 04	01-Jun-16	NITRATE (AS N)	3	MG/L
SMWC 04	02-Sep-16	NITRATE (AS N)	3	MG/L
SMWC 04	01-Dec-16	NITRATE (AS N)	4	MG/L
SMWC 04	03-Mar-17	NITRATE (AS N)	3.8	MG/L
SMWC 04	13-Jul-11	NITRATE (AS NO3)	13	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
BCVWD 22	31-Oct-13	MAGNESIUM	17	MG/L
BCVWD 22	09-Dec-16	MAGNESIUM	17	MG/L
BCVWD 22	31-Oct-13	MANGANESE	< 20	UG/L
BCVWD 22	09-Dec-16	MANGANESE	< 20	UG/L
BCVWD 22	02-Dec-16	NITRATE (AS N)	3	MG/L
BCVWD 22	15-Dec-11	NITRATE (AS NO3)	4.3	MG/L
BCVWD 22	18-Dec-12	NITRATE (AS NO3)	3.4	MG/L
BCVWD 22	31-Oct-13	NITRATE (AS NO3)	5.1	MG/L
BCVWD 22	04-Dec-15	NITRATE (AS NO3)	3.7	MG/L
BCVWD 22	31-Oct-13	NITRITE (AS N)	< 100	MG/L
BCVWD 22	01-Dec-16	NITRITE (AS N)	< 0.1	MG/L
BCVWD 22	31-Oct-13	POTASSIUM	1.5	MG/L
BCVWD 22	09-Dec-16	POTASSIUM	1.4	MG/L
BCVWD 22	31-Oct-13	SODIUM	19	MG/L
BCVWD 22	09-Dec-16	SODIUM	18	MG/L
BCVWD 22	31-Oct-13	SPECIFIC CONDUCTANCE	390	US
BCVWD 22	02-Dec-16	SPECIFIC CONDUCTANCE	430	US
BCVWD 22	31-Oct-13	SULFATE	11	MG/L
BCVWD 22	02-Dec-16	SULFATE	24	MG/L
BCVWD 22	31-Oct-13	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 22	03-Dec-16	TETRACHLOROETHYLENE	< 0.5	UG/L
BCVWD 22	31-Oct-13	TOTAL DISSOLVED SOLIDS	210	MG/L
BCVWD 22	02-Dec-16	TOTAL DISSOLVED SOLIDS	260	MG/L
BCVWD 22	31-Oct-13	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 22	03-Dec-16	TRICHLOROETHYLENE	< 0.5	UG/L
BCVWD 22	31-Oct-13	TURBIDITY, LABORATORY	< 0.2	NTU
BCVWD 22	01-Dec-16	TURBIDITY, LABORATORY	< 0.1	NTU
BCVWD 22	31-Oct-13	ZINC	< 50	UG/L
BCVWD 22	09-Dec-16	ZINC	< 50	UG/L
YVWD 48	03-May-11	ALKALINITY (AS CACO3)	140	MG/L
YVWD 48	22-May-14	ALKALINITY (AS CACO3)	140	MG/L
YVWD 48	03-May-11	ALUMINUM	< 50	UG/L
YVWD 48	22-May-14	ALUMINUM	< 0	UG/L
YVWD 48	03-May-11	ARSENIC	< 2	UG/L
YVWD 48	22-May-14	ARSENIC	< 0	UG/L
YVWD 48	03-May-11	BICARBONATE ALKALINITY	170	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
SMWC 04	11-Jul-12	NITRATE (AS NO3)	12	MG/L
SMWC 04	08-Apr-13	NITRATE (AS NO3)	13	MG/L
SMWC 04	16-Jul-13	NITRATE (AS NO3)	13	MG/L
SMWC 04	14-Jul-14	NITRATE (AS NO3)	13	MG/L
SMWC 04	08-Jul-15	NITRATE (AS NO3)	18	MG/L
SMWC 04	08-Apr-13	NITRITE (AS N)	< 0	MG/L
SMWC 04	11-Apr-16	NITRITE (AS N)	< 0	MG/L
SMWC 04	08-Apr-13	POTASSIUM	< 0	MG/L
SMWC 04	25-Apr-16	POTASSIUM	1	MG/L
SMWC 04	08-Apr-13	SODIUM	62	MG/L
SMWC 04	25-Apr-16	SODIUM	61	MG/L
SMWC 04	08-Apr-13	SPECIFIC CONDUCTANCE	320	US
SMWC 04	12-Apr-16	SPECIFIC CONDUCTANCE	330	US
SMWC 04	08-Apr-13	SULFATE	16	MG/L
SMWC 04	11-Apr-16	SULFATE	16	MG/L
SMWC 04	14-Aug-13	TETRACHLOROETHYLENE	< 0	UG/L
SMWC 04	12-Aug-16	TETRACHLOROETHYLENE	< 0	UG/L
SMWC 04	08-Apr-13	TOTAL DISSOLVED SOLIDS	170	MG/L
SMWC 04	13-Apr-16	TOTAL DISSOLVED SOLIDS	190	MG/L
SMWC 04	14-Aug-13	TRICHLOROETHYLENE	< 0	UG/L
SMWC 04	12-Aug-16	TRICHLOROETHYLENE	< 0	UG/L
SMWC 04	08-Apr-13	TURBIDITY, LABORATORY	< 0	NTU
SMWC 04	11-Apr-16	TURBIDITY, LABORATORY	0.3	NTU
SMWC 04	08-Apr-13	VANADIUM	84	UG/L
SMWC 04	25-Apr-16	VANADIUM	100	UG/L
SMWC 04	08-Apr-13	ZINC	< 0	UG/L
SMWC 04	15-Apr-16	ZINC	< 0	UG/L
YVWD 48	03-May-11	NITRATE (AS NO3)	8	MG/L
YVWD 48	10-Aug-11	NITRATE (AS NO3)	8.9	MG/L
YVWD 48	21-Aug-12	NITRATE (AS NO3)	7.3	MG/L
YVWD 48	27-Feb-13	NITRATE (AS NO3)	11	MG/L
YVWD 48	15-Aug-13	NITRATE (AS NO3)	9.6	MG/L
YVWD 48	22-May-14	NITRATE (AS NO3)	9.9	MG/L
YVWD 48	15-Aug-14	NITRATE (AS NO3)	10	MG/L

Well_Name	Sample Date	Analyte	Concent.	Unit
YVWD 48	22-May-14	BICARBONATE ALKALINITY	170	MG/L
YVWD 48	03-May-11	CALCIUM	31	MG/L
YVWD 48	22-May-14	CALCIUM	31	MG/L
YVWD 48	03-May-11	CARBONATE ALKALINITY	< 3	MG/L
YVWD 48	22-May-14	CARBONATE ALKALINITY	< 0	MG/L
YVWD 48	03-May-11	CHLORIDE	9.7	MG/L
YVWD 48	22-May-14	CHLORIDE	12	MG/L
YVWD 48	03-May-11	CHROMIUM (TOTAL)	6.7	UG/L
YVWD 48	22-May-14	CHROMIUM (TOTAL)	< 0	UG/L
YVWD 48	27-Feb-13	CHROMIUM, HEXAVALENT	6.2	UG/L
YVWD 48	03-May-11	COPPER	< 50	UG/L
YVWD 48	22-May-14	COPPER	< 0	UG/L
YVWD 48	24-Mar-11	DBCP	< 0.01	UG/L
YVWD 48	21-Aug-12	DBCP	< 0	UG/L
YVWD 48	02-Sep-15	DBCP	< 0	UG/L
YVWD 48	03-May-11	FLUORIDE	0.3	MG/L
YVWD 48	22-May-14	FLUORIDE	0.43	MG/L
YVWD 48	03-May-11	HARDNESS (AS CACO3)	98	MG/L
YVWD 48	22-May-14	HARDNESS (AS CACO3)	96	MG/L
YVWD 48	03-May-11	HYDROXIDE ALKALINITY	< 3	MG/L
YVWD 48	22-May-14	HYDROXIDE ALKALINITY	< 0	MG/L
YVWD 48	03-May-11	IRON	< 100	UG/L
YVWD 48	22-May-14	IRON	< 0	UG/L
YVWD 48	03-May-11	LEAD	< 5	UG/L
YVWD 48	22-May-14	LEAD	< 0	UG/L
YVWD 48	03-May-11	MAGNESIUM	4.6	MG/L
YVWD 48	22-May-14	MAGNESIUM	4.5	MG/L
YVWD 48	03-May-11	MANGANESE	< 20	UG/L
YVWD 48	22-May-14	MANGANESE	< 0	UG/L
YVWD 48	23-Sep-16	NITRATE (AS N)	1.8	MG/L
YVWD 48	26-Aug-15	NITRATE (AS NO3)	9.9	MG/L
YVWD 48	03-May-11	NITRITE (AS N)	< 100	MG/L
YVWD 48	22-May-14	NITRITE (AS N)	< 0	MG/L
YVWD 48	03-May-11	POTASSIUM	1.9	MG/L
YVWD 48	22-May-14	POTASSIUM	2	MG/L
YVWD 48	03-May-11	SODIUM	33	MG/L
YVWD 48	22-May-14	SODIUM	36	MG/L
YVWD 48	03-May-11	SPECIFIC CONDUCTANCE	350	US
YVWD 48	22-May-14	SPECIFIC CONDUCTANCE	340	US
YVWD 48	03-May-11	SULFATE	12	MG/L
YVWD 48	22-May-14	SULFATE	16	MG/L
YVWD 48	21-Aug-12	TETRACHLOROETHYLENE	< 0	UG/L
YVWD 48	13-Dec-15	TETRACHLOROETHYLENE	< 0	UG/L
YVWD 48	26-Jun-16	TETRACHLOROETHYLENE	< 0	UG/L
YVWD 48	03-May-11	TOTAL DISSOLVED SOLIDS	200	MG/L
YVWD 48	10-Aug-11	TOTAL DISSOLVED SOLIDS	220	MG/L
YVWD 48	23-Apr-12	TOTAL DISSOLVED SOLIDS	170	MG/L
YVWD 48	21-Aug-12	TOTAL DISSOLVED SOLIDS	210	MG/L
YVWD 48	27-Feb-13	TOTAL DISSOLVED SOLIDS	230	MG/L
YVWD 48	15-Aug-13	TOTAL DISSOLVED SOLIDS	200	MG/L
YVWD 48	22-May-14	TOTAL DISSOLVED SOLIDS	220	MG/L
YVWD 48	15-Aug-14	TOTAL DISSOLVED SOLIDS	210	MG/L
YVWD 48	27-Aug-15	TOTAL DISSOLVED SOLIDS	210	MG/L
YVWD 48	29-Sep-16	TOTAL DISSOLVED SOLIDS	130	MG/L
YVWD 48	21-Aug-12	TRICHLOROETHYLENE	< 0	UG/L
YVWD 48	13-Dec-15	TRICHLOROETHYLENE	< 0	UG/L
YVWD 48	26-Jun-16	TRICHLOROETHYLENE	< 0	UG/L
YVWD 48	03-May-11	TURBIDITY, LABORATORY	< 0.2	NTU
YVWD 48	22-May-14	TURBIDITY, LABORATORY	< 0	NTU
YVWD 48	22-May-14	VANADIUM	25	UG/L
YVWD 48	03-May-11	ZINC	< 50	UG/L
YVWD 48	22-May-14	ZINC	< 0	UG/L



Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and Available Water Supply from the Beaumont Basin

PREPARED FOR:

City of Banning

March 29, 2011

GEOSCIENCE Support Services, Inc., **Ground Water Resources Development**
P.O. Box 220, Claremont, CA 91711 | P: 909.451.6650 | F: 909.451.6638 | www.gssiwater.com

GEOSCIENCE

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN

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MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN

1.0 EXECUTIVE SUMMARY

This report presents the data, findings and conclusions of a geohydrologic study to evaluate the maximum perennial yield for ground water storage units within the City of Banning water resource area. The City of Banning water resource area is located within the San Gorgonio Pass Area, in Riverside County, California. *The maximum perennial yield* is defined as, the long-term average quantity of ground water that can be extracted from a ground water basin on an average annual basis without causing undesirable results, including the gradual reduction of natural ground water in storage over long-term hydrologic cycles, and adverse impact to ground water quality.

Specifically, the Study Area includes an approximately 158-square mile watershed area encompassing the Banning, Banning Bench, Banning Canyon and Cabazon Storage Units. In addition, for water supply planning purposes, this report provides an estimate of long-term supply available from the Beaumont Basin--an adjudicated basin located at the western portion of the City of Banning. The scope of the study included:

1) Comprehensive analysis of previous studies, and collection of current data;
2) Evaluation of data to delineate the aquifer systems in the City of Banning area;
3) Preparation of a geohydrologic basemap;
4) Evaluation of the maximum perennial yield using multiple methods;
5) Assessment of anticipated available water supply from the Beaumont Basin; and
6) Preparation of this report.

Data reviewed to conduct the study and prepare this report included previous investigations in the area, which comprised boring logs, water level data, ground water production data, precipitation, streamflow and ground water quality data. Data were obtained from multiple sources including the City of Banning

Public Works (CBPW), the San Gorgonio Pass Water Agency (SGPWA) the United States Geological Survey (USGS), and the Beaumont Basin Watermaster.

The project area overlies the San Gorgonio Pass Subbasin. The San Gorgonio Pass Subbasin is bounded on the north by the San Bernardino Mountains and on the south by the San Jacinto Mountains. The western boundary of the ground water basin is defined by the surface drainage divide which separates the Whitewater River Drainage Basin on the east from the Santa Ana River Watershed on the west. This divide also forms the basis for the boundary between the Regional Water Quality Control Board designated South Coastal Hydrologic Area on the west from the Colorado River Hydrologic Area on the east. The eastern boundary of the ground water basin is formed by a bedrock constriction at the western boundary of the Indio Subbasin (DWR Bulletin 118).

The San Gorgonio Pass Groundwater Basin includes five hydraulically-connected ground water storage units, which constitute the City of Banning ground water resource area: the Banning Storage Unit, the Banning Bench Storage Unit, the Banning Canyon Storage Unit, the Cabazon Storage Unit, and the Beaumont Storage Unit. A map showing the location of the project area is provided as Figure 1. For purposes of this report, the Beaumont Storage Unit, which was adjudicated in 2004, will not be assessed for maximum perennial yield since the available water supply to the City of Beaumont is set by the Judgment and is to be re-evaluated every 10 years. However, a discussion of potential available water supply from City of Banning water rights in the Beaumont Basin will be provided in Section 8.0 of this report.

The current Storage Unit boundaries used in this analysis are those most recently defined in the 2006 USGS Scientific Investigations Report 2006-5026[1]. The ground water storage units are defined by ground water levels, bedrock outcrops and geologic faults, which were delineated based on significant differences in static water levels between wells or lack of pumping effects observed across storage unit boundaries (USGS 2006). The effect of the faults on ground water movement is not well defined.

[1] The storage unit boundaries were not changed in the previous GEOSCIENCE 2009 report, because the report was an update of the 2003 Safe-Yield Study for the Banning Storage Units only. The current evaluation also addresses the Cabazon Storage Unit and the Beaumont Storage Unit, and for that reason the USGS (2006) boundaries were used.

However, it is generally known that they impede normal flow causing a difference in ground water levels across the fault, but do not prevent flow from crossing the fault.

Ground water recharge to the Banning area is obtained from precipitation infiltrating into the ground within the surface water catchments and particularly in the canyons north of the city. An additional source of recharge is subsurface inflow (i.e. underflow) from storage unit to storage unit, infiltration of Whitewater River diversions in the Banning Canyon, and from percolation of wastewater into the Cabazon Storage Unit.

Analysis of maximum perennial yield for the study area was conducted using the following methods:

- Zero Net Draft Method,
- Hill Method, and
- Hydrologic Budget

For purposes of this study, previous maximum perennial yield values will not be compared to values from this analysis. The reason for this is the ground water storage unit boundaries have been modified, as defined in the 2006 USGS Scientific Investigations Report 2006-5026; therefore, the values representing previous investigations would not be applicable to the current storage unit boundaries.

The following table provides a summary of maximum perennial yield estimates using hydrologic information updated to 2010. The supporting technical data for these values is provided in the following sections of this report.

MAXIMUM PERENNIAL YIELD

[Acre-ft/year]

Storage Unit	Zero Net Draft	Hill Method	Hydrologic Budget	Average
Banning	1,580	680	N/A	**1,130**
Banning Bench	1,980	1,930	N/A	**1,960**
Banning Canyon	4,310	3,830	N/A	**4,070**
Cabazon	N/A	N/A	5,265	**5,265**
Total	**7,870**	**6,440**	**5,265**	**12,425**

Based on the average of maximum perennial yield estimates for the Banning Storage Units (Banning, Banning Bench, and Banning Canyon) and the Cabazon Storage Unit is 7,160 acre-ft/yr and 5,265 acre-ft/yr respectively, for a total of 12,425 acre-ft/yr.

2.0 INTRODUCTION

2.1 Purpose and Scope

This report presents the data, findings and conclusions of a geohydrologic study prepared for the City of Banning by GEOSCIENCE Support Services, Inc. (GEOSCIENCE). The study was conducted to determine the maximum perennial yield of the City of Banning water resource area (see Figure 1 for location) and to determine the anticipated future available water supply from the Beaumont Basin.

Specifically, the study consisted of the following principal phases of work:

1) Comprehensive analysis of previous studies, and collection of current data;
2) Evaluation of data to delineate the aquifer systems in the ground water resource area of the City of Banning;
3) Preparation of a detailed geohydrologic basemap;
4) Evaluation of the maximum perennial yield using multiple methods for the Banning Storage Units;
5) Evaluation of the maximum perennial yield using the hydrologic budget method for the Cabazon Storage Unit;
6) Assessment of anticipated available water supply from the Beaumont Basin; and
7) Preparation of this report.

While the scope of this work focused on the City of Banning area, data from the adjacent areas (such as Beaumont) were also used for areas in which the potential for hydrologic communication between storage units existed. Data reviewed included:

- Driller's logs;
- Geophysical borehole logs;
- Well completion data including total casing depths and screen intervals;
- Pumping test data;
- Well production data;
- Water level data;

- Water quality data;
- Wastewater percolation data;
- Climatic data;
- Geologic reports and maps;
- Previous geohydrologic investigations in the Banning, Beaumont and Cabazon areas; and
- Beaumont Basin Ground Water Adjudication.

2.2 Previous Investigations

Numerous investigations of the water resources of the City of Banning and San Gorgonio Pass have been conducted. One of the earliest investigations of the Beaumont Basin hydrology was conducted in 1938 (Rule, 1938). Several later investigations by the United States Department of Agriculture (USDA) assessed the impact of the Colorado River Aqueduct's San Jacinto Tunnel to the ground water of the San Jacinto Basin (USDA, 1941). In 2006 the USGS issued a *Scientific Investigations Report* which summarized the findings of a calibrated ground-water flow model. The USGS updated ground water storage boundaries previously delineated by Bloyd in 1971 (USGS, 1971) for the Banning and Cabazon Storage Units. Other relevant studies include:

- A Water Resources Investigation and Water System Master Plan for the City of Banning conducted by VTN Consulting in 1973.
- A Water Report for the City of Banning was prepared by C.M. Engineering Associates (1978). This report reviewed the entire water system and outlined improvements, as well as a long-term water plan.
- Boyle Engineering Corporation (1988) carried out a Ground Water Dependable Yield investigation for the San Gorgonio Pass Water Agency.
- GEOSCIENCE Support Services, Inc. (1990) conducted a geohydrologic investigation and well site evaluation in the City of Banning area.
- GEOSCIENCE Support Services, Inc. (1991) prepared the results of drilling, construction, testing, and pump design for four new wells for the City of Banning.
- A Safe Yield Study of the adjacent Beaumont Unit was conducted by Boyle Engineering Corporation (1995).

- San Gorgonio Pass Water Agency's 2000 – 2001 Engineer's Report on water conditions.
- GEOSCIENCE Support Services, Inc. (2003) conducted a geohydrologic investigation to determine maximum perennial yield for the Banning Storage Units.
- An Urban Water Management Plan was prepared by Wildermuth Environmental in 2005.
- San Gorgonio Pass Water Agency's 2008 Annual Report on Water Conditions.
- Riverside County Regional Detention Center Environmental Impact Report prepared by LSA, Associates, Inc. in 2009.
- GEOSCIENCE Support Services, Inc. (GEOSCIENCE, 2009) conducted a geohydrologic investigation to update the maximum perennial yield for the East and West Banning and Banning Bench Storage Units.

Since GEOSCIENCE conducted its 2009 geohydrologic investigation in the City of Banning area, additional water level and production histories have become available. Additional driller's logs have been collected, supplementing lithologic and hydrologic data for the area. Additionally, the storage unit boundaries presented in the 2006 USGS report have become accepted as the refined boundaries by the SGPWA, as evidenced by these boundaries being reflected in their most recent reports.

2.3 Sources of Data

Sources of data used in the present study included driller's logs, geophysical borehole logs, production data, water level data, weather data, pumping test data, wastewater percolation data and water quality data. These were obtained mostly from the City of Banning and other public agencies. Production data for the Cabazon Storage Unit were obtained from SGPWA Conditions of the Basin 2008 report. The Morongo Indian Tribe which pumps water from the Cabazon Storage Unit does not report annual pumping volumes. The pumping data for the Morongo Tribe used for this report was obtained from the Water Supply Assessment conducted for the Riverside County Regional Detention Center prepared by LSA Associates Inc., dated 2009. The data analysis task involved tabulating and summarizing information from documented and undocumented reports, public and private files, as well as personal communication with local and state agencies. Detailed references to sources of data and information are presented in Section 10.0.

3.0 OVERVIEW OF STUDY AREA

3.1 Study Area

The City of Banning and its surrounding water resource area encompass an area of approximately 158-square miles, in the San Gorgonio Pass and within the immediate highland areas of the San Bernardino and San Jacinto Mountains, in Riverside County, California (see Figure 1).

The study area has defined geohydrologic and hydrologic regions. Previous investigations have referred to geologic storage units (such as the Banning, Beaumont, Banning Bench and Cabazon storage units), which were delineated by Bloyd in 1971 based on geologic faults and bedrock outcrops. Since Bloyd's study in 1971, new data has been collected allowing refinement of the storage unit boundaries. The current storage unit boundaries, as defined in the USGS Scientific Investigations Report 2006-5026, are defined by bedrock outcrops and geologic faults, which were delineated based on significant differences in static water levels between wells or lack of pumping effects observed across storage unit boundaries (USGS 2006). The effect of the faults on ground water movement is not well defined; however, it is generally known that they impede but do not completely prevent flow across them.

3.2 Topography and Physiography

The City of Banning is situated at an elevation of approximately 2,500 feet above mean sea level (amsl) in the San Gorgonio Pass between the Transverse and Peninsular Ranges of Southern California (see Figure 1). The City includes portions of Banning Canyon and the Banning Bench[2], and is located north of the San Jacinto Mountains. The tallest mountain peaks in the area are Mt. San Jacinto to the southeast (10,834 feet amsl) and Mt. San Gorgonio to the north (11,502 ft amsl). Surface water flows from the slopes of the steep mountain front drainages out of the canyons to the lowlands of the San Gorgonio Pass. Surface flow is primarily from the San Bernardino Mountains to the north, but also from drainages coming from the San Jacinto Mountains to the south. Surface drainages conduct flow to the San Gorgonio River (see Figure 1).

[2] The Banning Bench comprises tectonically uplifted remnants of an older fan exiting Banning Canyon.

3.3 Climate

The Banning area is generally characterized by a typical Mediterranean climate of hot, dry summers and short, mild, moist winters.

3.3.1 Temperature

Air temperature in the City of Banning area follows a pattern of high summer and low winter temperatures. Winter temperatures are lower than those recorded in the lower basin areas of Southern California as the City of Banning is further inland and lacks the buffering effect from the Pacific Ocean. Average winter temperatures range from high daily temperatures of 60 to 69 degrees Fahrenheit to lows between 39 and 43 degrees Fahrenheit (see Table 1). The summer maximum average temperatures range from 88 to 96 degrees Fahrenheit with the lows from 53 to 59 degrees Fahrenheit (see Table 1).

3.3.2 Precipitation

Long-term annual precipitation in the Banning area is based on data collected at three representative weather stations in and around the Banning water resource area. Long-term annual precipitation was based on the Beaumont station rain gauge from 1888 through 2009 (see Figure 2 and Appendix A). Annual precipitation ranges from a minimum of 6.4 inches (1999) to a maximum of 36.37 inches (1978). The average annual precipitation is 17.77 inches per year. The average annual precipitation at the Banning Bench gauge is 22.31 inches per year (see Figure 2 and Appendix A). The average annual precipitation at the Cabazon gauge is 12.49 inches per year (see Figure 2 and Appendix A). Precipitation in the western portion of the San Gorgonio Pass is slightly higher than in the eastern portion (see Figure 2). This precipitation distribution pattern is due to the rain-shadow effect of the mountains on storms migrating inland from the Pacific Ocean.

Historical annual precipitation and cumulative departure from mean annual precipitation for the above mentioned stations are shown on Figures 3 through 5. The severity and extent of dry and wet periods can be readily observed from the plot of the cumulative summation of departures of annual precipitation from the long-term mean annual precipitation. The data indicate seven cyclical variations in the precipitation pattern from 1888 to 2009 (see Figure 3):

(1) 1893-1904: a dry period,

(2) 1905-1946: a prolonged overall wet period;

(3) 1947 to 1977: a dry period;

(4) 1978 to 1983: a wet period;

(5) 1984 to 1990: a dry period;

(6) 1991-1998: a wet period; and

(7) 1999 to present: a relatively dry period.

3.3.3 Evaporation

Evaporation rates for the Banning area are measured using an evaporation pan located at Beaumont 1E Station (see Figure 2) and are summarized in Table 1. Evaporation at this station is typically highest during the hot and dry summer months (9 to 11 inches) and lower (3 to 4 inches) in the winter months. No significant proportion of days with evaporation data occurred during freezing temperatures so these estimates were not necessary.

3.4 Existing Water Purveyors and Wells

Figure 6 shows the City of Banning production well locations[3]. The table below summarizes the known groundwater users within each ground water storage unit.

[3] Due to the close proximity of wells in some areas, only the section/subsection designations are shown on the Figure. Therefore please note the Township and Range lines shown on the Figure to determine the complete State Well Identification.

GROUND WATER USERS BY STORAGE UNIT

Storage Unit	Groundwater Users
Banning	City of Banning
Banning Bench	City of Banning Private users
Banning Canyon	City of Banning Banning Heights Mutual Water Company Private users
Cabazon	City of Banning Cabazon Water District Desert Hills Premium Outlets Mission Springs Water District Robertson's Ready Mix Morongo Indian Tribe Arrowhead Jenson's Water Company Private users

Source: SGPWA Report on Water Conditions, 2008.

The City of Banning currently operates 21 ground water production wells (personal communication with Mr. Perry Gerdes, 2010). The City also co-owns 3 production wells within the Beaumont Storage Unit. These wells are co-owned and operated by Banning and BCVWD. The City is entitled to half of the water produced from these wells. An additional five wells are available but are not equipped, and one well is abandoned (total of 29 wells). The table below summarizes the number of operable wells owned by the City reported by storage unit.

**SUMMARY OF CITY OF BANNING
ACTIVE PRODUCTION WELLS
(AS OF MAY 2010)**

Storage Unit	Number of Active Wells
Banning	4
Banning Bench	3
Banning Canyon	8
Cabazon	1
Beaumont	8

3.5 Ground Water Production

Table 2 shows annual production values for the City of Banning water resource area by storage unit for Banning, Banning Bench, Banning Canyon, and Cabazon Storage Units which includes extraction by municipal and private users.

Ground water production over the entire Banning water resource area has been increasing steadily since 1959 at an average rate of approximately 92 acre-ft/year (see Figure 7a). Currently, most production for the City of Banning takes place in the Canyon Storage Unit. See Table 2 for annual production values by storage unit.

Well production by the City of Banning within the Banning Storage Unit began in 1992, with the extraction of 406 acre-ft of water. Between 1992 and 2009, the annual extraction from the Banning Storage Unit has increased (on average) approximately 102 acre-ft/yr (see Figure 7b). The greatest amount of production occurred in 2003 with the extraction of approximately 2,381 acre-ft of water in that year. Ground water extraction is the result of production from Wells C-5, M-10, M-11, and M-12.

Annual ground water extraction from the Banning Bench Storage Unit between 1959 and 2009 has decreased at an average rate of approximately 14 acre-ft/yr (Figure 7c). The greatest amount of production occurred in 1983 with the extraction of approximately 4,036 acre-ft of water in that year. Ground water extraction is the result of production from Wells 1, 2, and 3 as well as private producers.

Annual ground water extraction from the Banning Canyon Storage Unit between 1959 and 2009 has increased at an average rate of approximately 13 acre-ft/yr (Figure 7d). The greatest amount of production occurred in 2001 with the extraction of approximately 5,604 acre-ft of water in that year. Ground water extraction is the result of production from the City of Banning Wells 4, 5, 7, 8, 9, 10, 11, and 12, Banning Heights Mutual Water Company and private producers.

Annual ground water extraction from the Cabazon Storage Unit between 1989 and 2009 has increased at an average rate of approximately 217 acre-ft/yr (Figure 7e). The greatest amount of production occurred in 2007 with the extraction of approximately 4,100 acre-ft of water in that year (see Table 2).

Ground water extraction by the City of Banning is the result of production from the City of Banning Well C6. Well C-6 began extraction from the Cabazon Storage Unit in 2004. In addition to City of Banning pumping, Cabazon Water District, Mission Springs Water District as well as private producers also pump from the Cabazon Storage Unit. A summary of ground water producers in the Cabazon Storage Units is provided on Table 3.

4.0 GEOLOGY

4.1 Regional Geology

The City of Banning is located in the San Gorgonio Pass between the Transverse and Peninsular Mountains of Southern California. Faulting and subsequent erosion has resulted in continental alluvial deposits, ranging in age from Tertiary to Quaternary, overlying consolidated basement complex. The basement complex is composed of igneous and metamorphic rocks, specifically the San Jacinto granodiorite, gneisses, schists, and quartz monzonite of pre-Tertiary age. The surrounding mountains in the area are composed of these basement rocks.

The Banning Fault is an important structure within the City of Banning water resource area. The Banning Fault forms the boundary between the Banning Canyon and the Banning Bench Storage Units (see Figure 8a). The Banning Fault zone was characterized by a right-lateral strike-slip displacement during the late Miocene (approximately 10 to 5 million years ago) (USGS, 2006). The USGS describes another fault zone, The San Gorgonio Pass Fault Zone, which includes a group of reverse, thrust, and tear faults which extend westward from the Whitewater area to the Calimesa area. According to the USGS, the fault zone exhibits the same general attitude as the Banning Fault but has no evolutionary relationship. The San Gorgonio Pass Fault Zone has a distinctive zig-zag geometry, which is illustrated by the mapped locations of the Banning, Central Banning and Eastern Banning Barrier Faults (see Figures 8a and 8c). These three concealed faults are delineated based on differences in ground water elevations and lack of observed effects during pumping of wells on the other side of the barrier (USGS, 2006). The Banning, Central and Eastern Banning Barrier Faults bound the Banning Storage unit and form the Banning and Cabazon Storage Unit boundaries reflected in this report.

4.2 Study Area Geology

4.2.1 Bedrock Complex

The bedrock in the Banning area predominantly consists of slightly gneissic granite of pre-Cretaceous age (Ransome, 1932). The consolidated rocks (pTb) in the area are comprised primarily of gneiss, schist, and quartz monzonite (see Figure 8a). Cross-section A-A' presented on Figure 8b depicts the subsurface

relationship between the geologic units described below. The explanation for the geologic symbols shown on Figure 8a and Figure 8b is provided on Figure 8c.

4.2.2 Quaternary Alluvial Deposits

The alluvial deposits in the vicinity of the City of Banning consist of many hundreds of feet of Quaternary and upper Tertiary gravels that were washed from the adjacent San Gorgonio highlands. These alluvial materials are generally poorly sorted sands and gravels, intermingled with silts and clays. Although the material near the surface is comparatively young, true recent alluvium is limited almost entirely to the areas immediately adjacent to washes and gullies. The recent alluvium contains no ground water except in areas where the water table is perched near the surface. Coarser-grained beds within the San Timoteo formation yield significant quantities of water.

Alluvial deposits in the Banning area include three general groups: Quaternary younger alluvium (Qya), Tertiary to Quaternary older alluvium (Qoa), and Tertiary to Quaternary Continental deposits (Qtcv) (see Figures 8a, 8b, and 8c).

The most recent alluvial deposits in the Banning area occur in the valley floor of the Banning Storage Units as younger alluvium (Qya). The younger alluvium consists of unconsolidated, angular boulders, sand and cobbles, and small quantities of silt, clay, and aeolian sand. Depths range from several feet to a maximum of approximately 50 feet.

Older alluvial deposits (Qoa) underlie the Qya. These deposits consist of poorly sorted, unconsolidated clay, silt, sand, and gravel ranging from approximately 10 ft to a maximum of approximately 450 ft in thickness. Qoa deposits are found in stream channels, valley floors, and flood plains over the majority of the Beaumont and Banning Bench Storage Units. Qoa deposits include the old (Qo) and very old deposits (Qvo) shown on Figure 8b. The subsurface units designated as Qsu and Qsl on Figure 8b are not exposed within the study area but are exposed to the northwest near Calimesa. Units Qsu and Qsl are the primary water-bearing units in the study area.

Tertiary to Quaternary Continental deposits (Qtcv) consist of poorly sorted cobbles, sand, silt and clay, and include the San Timoteo Beds of Frick (1921) and some volcanic rocks north of the Banning-Cabazon area.

5.0 GEOHYDROLOGY

5.1 Hydrologic Subunits

The surface water drainage catchment or hydrologic subunits encompassing the City of Banning are present in an area of approximately 158 square miles and include the surface flows from surrounding mountain runoff (see Figure 9). The significance of this hydrologic subunit area is that precipitation falling anywhere within the hydrologic subunit has the potential to contribute to the recharge of the ground water storage units which ultimately supplies water to the City of Banning.

The total drainage catchment tributary to the ground water storage units was delineated using a USGS 10 m x 10 m digital elevation model (DEM) in ESRI ArcView 9.3[4] (ESRI ArcView 9.3 is a Geographic Information System (GIS) software package). Specifically, the drainage catchment was delineated by computing flow directions from the DEM, which was then used by Arc Hydro. Arc Hydro is an ArcGIS-based system geared to support water resources applications to automatically delineate the hydrologic subunits within an area of study.

The area of the watershed catchment was used to calculate the potential water crop specifically for the Cabazon Storage Unit based on the weighted average annual precipitation for each contributing watershed (i.e. Potrero Subunit, Millard Subunit, One Horse Subunit, etc.).

5.2 Ground Water Storage Units

Ground water storage units which have been referred to in numerous investigations have been delineated in the San Gorgonio Pass area of the City of Banning by Bloyd in 1971, which were delineated based on water level differences between wells. Since Bloyd's study in 1971, more data has become available, resulting in refined storage unit boundaries by the USGS in 2006.

[4] ESRI ArcView 9.3 is a Geographic Information System (GIS) software package.

Figure 9 shows the Banning Storage Units, (Banning, Banning Bench and Banning Canyon), and the Cabazon Storage Unit as reflected in the 2006 USGS report in relationship to the hydrologic units. These boundaries, as presented in the 2006 USGS report, have been generally accepted as the refined boundaries by the USGS and SGPWA, as these boundaries are reflected in their most recent reports.

The ground water storage units are hydraulically connected generally across fault boundaries, which imply that the faults which form the storage unit boundaries leak, allowing movement of ground water from one storage unit into the adjacent storage unit. Values of leakance used by the USGS for modeling ground water flow across barriers in the study area were used in this study to estimate flow from the Banning Storage Unit into the Cabazon Storage Unit and for a portion of the underflow from the Banning Bench Storage Unit into the Cabazon Storage Unit. However, a portion of the underflow from the Banning Canyon Storage Unit into Banning Bench Storage Unit and subsequently into the Cabazon Storage Unit occurs through alluvial channel and across the fault mapped at the boundary of the Banning Bench and Cabazon Storage units.

5.3 Surface Water

Surface water in the City of Banning water resource area has an intermittent nature. Temporary runoff occurs after precipitation, ranging from small trickles to flash flooding which occurs usually in winter. Although some streamflow does occur in the steep mountain areas, it percolates rapidly into the sands and gravels in the canyons and San Gorgonio Pass area.

Surface water flow in the watersheds located both north and south of San Gorgonio Pass is tributary to the San Gorgonio River which joins the Whitewater River approximately four miles east of the Cabazon Storage Unit in the Coachella Valley. The San Gorgonio River has two USGS surface water gages (see Figure 2). The upper gage (10256200) has data for the period October 1975 to September 1977; and the lower gage (10256300) only has data for the period February 1981 to September 1981. These data sets did not contain enough data to characterize streamflow patterns for the San Gorgonio River.

Diversion of surface water from the upper reaches of the Whitewater River Drainage into Banning Canyon (Banning Canyon Storage Unit) was initiated in 1913. The diverted water flows along steep mountain slopes for approximately 14 miles in a mostly concrete lined conveyance system known as The

Flume (see Figure 9). Portions of the flume have significantly deteriorated over the years and are in need of repair. Along the flume system, Southern California Edison historically operated two powerhouses to generate hydroelectric power. Banning Heights Mutual Water Company utilizes approximately 1,000 acre-ft/year from below the second powerhouse (see Figure 2). The remainder of the diverted water flows into the San Gorgonio River below the Banning Heights Mutual Water Company abstraction point. Flows have diminished since the 1980's due to a loss of canal system capacity due to deterioration (C.M. Engineering Associates, 1978; San Gorgonio Pass Water Agency, 2002). Since 1961, on average, 1,500 acre-ft/year had been diverted into the Canyon subunit from the Whitewater River (San Gorgonio Pass Water Agency, 2002). Due to damage along sections of the flume, currently, surface flow is diverted into Burnt Canyon to the north, and then back to the Flume upstream of Powerhouse No. 1 where it continues downstream through Powerhouse No. 2 to the reservoir operated by Banning Heights Mutual Water Company. It is uncertain exactly how much of the diverted water is currently recharged into the aquifer of the Canyon subunit as the flows are not metered (personal communication with Mr. Perry Gerdes, 2010).

5.4 Ground Water

5.4.1 Aquifer Systems

The water-bearing rocks in the vicinity of Banning consist of many hundreds of feet of Quaternary and upper Tertiary gravels washed down from the adjacent San Gorgonio highlands. These alluvial materials are generally poorly sorted sand and gravels intermingled with silts and clays. Although the material near the surface is comparatively young, younger alluvium (Qya on Figure 8a) is limited almost entirely to the immediate areas around the washes and gullies. The younger alluvium contains no ground water except in areas where the water table is near the surface.

The older alluvium (Qoa on Figure 8a) occurring at the surface in the Banning areas is of Plio-Pleistocene age and unconformably overlies coarse sand and gravel layers of the San Timoteo Formation (Qtcv). Ground water is present in an upper and lower aquifer system shown as Qsu and Qsl on Figure 8b. The San Timoteo Formation dips underneath the older alluvium at low angles towards the northeast. In general, stratification in the San Timoteo Formation is better developed than the older alluvium with the result of the coarser beds within the formation yielding good quantities of water to wells. The

transmissivity of the aquifers in the Banning Storage Unit is approximately 15,000 - 34,000 gpd/ft based on pumping test data from well C-5. The aquifer ranges in thickness from 40 - 1,200 ft with an average thickness of 600 ft. The hydraulic conductivity ranges from 15 - 60 gpd/ft^2 (2 - 8 ft/day; GEOSCIENCE, 1991). DWR estimates that wells in the San Gorgonio Pass Subbasin can yield 1,000 from the San Timoteo formation. Aquifer transmissivity or hydraulic conductivity data in the Canyon and Banning Bench Storage Units was not available. However, saturated thickness ranges from 30 ft to 160 ft.

5.4.2 Ground Water Occurrence and Movement

The majority of ground water in the Banning area occurs in the permeable alluvial sediments that underlies the valley floors and canyon beds. The aquifers within the younger alluvial sediments are generally unconfined to semi-confined, while ground water within the older alluvial sediments is generally confined beneath sediments of recent deposits.

Ground water flows by gravity drainage from areas of high elevation (the canyons and mountain slopes) into areas of low elevation (see Figure 10), ultimately collecting in the sediments beneath the valley floor. Hydraulic gradients in the canyon areas are relatively steep (approximately 300-500 ft/mile) but flatten out in the valley areas (approximately 90 ft/mile) (see Figure 10).

Ground water in the Banning and Banning Bench subunits generally flows southeast into the west portion of the Cabazon Storage Unit and to a lesser degree enters fractures and joints in the San Jacinto Mountains. Ground water flows east within the Cabazon Storage Unit to the Indio Subbasin.

Due to construction of the San Jacinto tunnel for the Colorado Aqueduct, ground water from the southwest portion of the Cabazon Storage Unit near the vicinity of the east portal of the San Jacinto Tunnel and from crystalline rocks in the San Jacinto Mountains flows into the tunnel through joints and fractures as well as through a series of southeast-trending geologic faults (see Figure 8a). Although the tunnel has been constructed in bedrock and is lined with concrete, an estimated 1,500 acre-ft/year of ground water seeps into the tunnel from the west portion of the Cabazon storage unit (33% of the total 5,000 acre-ft per year tunnel seepage; Boyle, 1995; personal communication, FlowScience, 2001).

5.4.3 Historical Ground Water Level Trends

Historical ground water level hydrographs for wells in the Banning Storage Units and Cabazon Storage Unit are provided in Appendix B. The locations of wells discussed in this investigation are shown on Figure 6. Figure 10 contains insets which show selected hydrographs for the storage units. Static water level elevations have been observed to fluctuate as much as 80 to 100 feet, and when plotted against the cumulative departure from mean precipitation, it is observed that there is a direct relationship of precipitation trends and ground water elevation trends. An increase in cumulative departure is mirrored by an increase in water level elevations, and a decrease in cumulative departure from mean precipitation is mirrored by a decrease in ground water elevations.

5.4.4 Recharge and Discharge

Ground water recharge in the Banning area occurs through infiltration and percolation of rainfall and surface runoff in stream channels that flow from local mountains and hills. Recharge to the Banning and Cabazon Storage Units occurs through underflow from the Beaumont Storage Unit in the western part of the study area. Additionally, underflow from the Banning Canyon Storage Unit flows into the Banning Bench, and from the Banning Bench to the Cabazon Storage Unit.

The majority of the rainfall in the lower basin elevations (valleys) is evaporated or taken up by plants before it enters the ground water system. The primary sources of replenishment to the ground water basins are infiltration of precipitation at the higher watershed elevations and surface water infiltration in the streams and drainages during major storm events or prolonged periods of high precipitation.

Recharge rates are generally highest during spring runoff when soils are saturated, temperatures are low and vegetation is inactive. Recharge is minimal during summer when most precipitation is transpired back to the atmosphere. In the fall, recharge rates increase again as photosynthesis shuts down. Frost during the winter months precludes recharge.

The primary source of ground water discharge in the storage units is pumping, and subsurface outflow into the downstream storage units; a minor amount of ground water discharge is lost by evapotranspiration. Ground water flows out of the eastern end of the Cabazon Storage Unit at a bedrock constriction at the boundary with the Indio Subbasin. The amount of ground water outflow is a

function of the saturated thickness or depth to water. As discussed in the previous section, ground water levels follow the trend of rainfall. Therefore ground water level rises occurring during wet climactic cycles would result in increased outflow at the eastern end of the Cabazon Storage Unit. In addition to subsurface outflow, water is lost from the Cabazon Storage Unit through the San Jacinto Mountains (through joints and fractures).

5.4.4.1 Infiltration of Treated Wastewater, Cabazon Storage Unit

The City of Banning operates recycled water infiltration basins in the Cabazon Storage Unit. The infiltration basins receive secondary effluent water from the wastewater treatment plant which was constructed in 1968[5] and is operated by United Water Service, a public/private partnership. The average amount of effluent infiltrated between 2000 and 2009 is 2,655 acre-ft/yr. The following table is a summary of effluent discharges to the infiltration basins from 2000 to 2009.

SECONDARY EFFLUENT DISCHARGES INTO THE CABAZON STORAGE UNIT

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Acre-ft/yr	2,568	2,532	2,538	2,547	2,602	2,974	2,955	2,737	2,639	2,461

Source: City of Banning Public Works, 2010

The Wastewater infiltration basins are located approximately 1,500 feet southwest of Well R-1 (see Figure 6). Well R-1 was constructed with the intent of capture and distribution of secondary treated effluent after it has had residence time in the subsurface sediments. Discharge from the well will be placed into a recycled water system for use within the City of Banning.

[5] Page 3 of Initial Study/Mitigated Negative Declaration Wastewater Treatment Plant Expansion and Phase I Recycled Water System, May, 2008

5.4.4.2 Infiltration of Surface Water in Banning Canyon

When surface flow is present in Banning Canyon, flows are diverted by the City of Banning into off-stream recharge basins to facilitate ground water recharge (see Figure 2). According to the City of Banning, Department of Public Works (personal communication with Mr. Perry Gerdes, 2008), the off-stream infiltration basins are located in Banning Canyon approximately one mile north of the Banning Bench Storage Unit (see Figure 6). The basin surfaces were scarified (breaking up the surface of topsoil) in 2006 and surface water from San Gorgonio River has been diverted into the basins since that time. The basins are un-gauged and there has been no recordation of the volume of water that has been infiltrated into the basins. The infiltration basins are located north of the Banning Fault which forms the north boundary of the Banning Bench Storage Unit. The contribution of the infiltration basins to subsurface flow into the Banning Bench Storage unit is unknown since no gauge is currently present at the percolation basins. It is estimated that approximately 350 acre-ft/yr exit the Banning Canyon and Banning Bench Storage Units into the Cabazon Storage unit in the form of subsurface flow, or underflow.

5.4.5 Ground Water Storage

The amount of ground water in storage within the City of Banning water resource area (not including Beaumont Storage Unit) is estimated to be approximately 1.1 – 1.2 million acre-ft. This volume was estimated using ArcView GIS 10 Spatial Analyst[6] to calculate the saturated thickness within each storage unit and multiply by the estimated effective porosity (i.e. specific yield). The table below summarizes the ground water storage available to the City.

[6] ArcView GIS 10 Spatial Analyst is a Geographic Information System (GIS) software package.

GROUND WATER STORAGE AVAILABLE TO THE CITY OF BANNING

IN BANNING AND CABAZON STORAGE UNITS

Ground Water Storage Unit	Ground Water Basin Area [acres]	Average Saturated Thickness [ft]	Effective Porosity [%]	Ground Water Storage [acre-ft][7]
Banning	2,489	600	15 – 17	211,000 – 240,000
Banning Bench	3,753	30	15 – 17	1,200– 1,500
Banning Canyon	1,058	161	15 – 17	12,000 – 13,500
Cabazon[8]	17,222	350	15 – 17	880,000 – 1,000,000

The surface area of the ground water basins (excluding bedrock) was calculated using the polygonal area feature of the geographic information system (GIS) from the Storage Unit boundaries (USGS, 2006). Saturated thickness was estimated based on the depth between the current (2010) ground water levels and depth to bedrock. Depth to bedrock was estimated from lithology logs, of which only two encountered bedrock. Wells in the central parts of the basin do not intercept bedrock; as such, it is assumed that the depth to bedrock is (1) greater than the total depth of known wells in these locations, and (2) decreases towards the edges of the basin. In the Banning Storage Unit, bedrock was encountered at a depth of approximately 1,400 ft below ground surface (ft bgs). In the Cabazon Storage Unit, wells did not encounter bedrock but ranged in total depth from 500 to 1,200 ft bgs. Depth to bedrock in the Banning Canyon and Banning Bench are anticipated to be approximately 110-150 ft bgs. Water level elevations used to calculate storage are shown on Figure 10. Based on these data, the conservative saturated thickness for the Banning Storage Unit is estimated to average approximately 600 ft ranging between thicknesses of 35 – 1,170 ft. Estimates for the Banning Bench saturated thickness averages approximately 30 ft, ranging from 1 – 60 ft. The City' Banning Bench wells are

[7] As a reference, the full capacity of MWD's Diamond Valley Reservoir is 800,000 acre-ft.

[8] The volume of storage is approximate since the data confirming the depth to the base of the aquifer in the Cabazon Storage Unit is lacking.

located in Banning Canyon in the Banning Bench Storage Unit, saturated thickness may be greater outside the canyon area. Saturated thickness in the Banning Canyon Storage Unit averages approximately 160 ft, ranging from 2 – 360 ft. The average saturated thickness in the Cabazon Storage Unit is approximately 350 ft, ranging from 1 – 700 ft thick.

The effective porosity for the saturated sediments was determined by calculating the sand/clay ratio based on lithologic logs from seven wells in different parts of the Banning and Cabazon Storage Units. The average sand/clay ratio is approximately 60/40 which when weighted to the corresponding aquifer materials results in an average effective porosity of approximately 17 to 20 percent. A conservative value of effective porosity of 15 to 17 percent was used to estimate ground water storage volume (see above table).

5.4.6 Water Quality

Water quality is considered very good in the Banning area, with current total dissolved solids (TDS) concentrations (Spring 2009) ranging from approximately 140 to 250 milligrams per liter (mg/L). Figure 11 shows the spatial distribution of TDS in the City of Banning water resource area. The variation of TDS concentrations in wells within close proximity to one another can likely be explained by storm events flushing out the surrounding valleys which have a variation in rock type and TDS concentrations. (See Appendix C for summary of selected water quality tabulated parameters).

Most other water quality concentrations, including nitrate (as NO_3), are currently under the maximum contaminant level (MCL) or action levels. Historically, the only constituents occurring above MCLs were iron and aluminum in most wells. Lead was also detected in Wells 5, 8, 11, 12 and C3 above the US EPA Treatment Technique value which requires systems to control the corrosiveness of their water. If more than 10% percent of tap water samples exceed the action level, water systems must take additional steps. Lead has not been detected above the Treatment Technique value in any wells since 2006 (see Appendix C). Fluoride was also detected above the Secondary MCL in Well C3 in March of 1994.

Water quality samples were taken during drilling and construction of Well R-1 in 1990 (see Figure 6 for location). Well R-1 is located 1,500 feet southeast of the City's Wastewater Treatment Plant. Four aquifer zone tests were conducted within the following intervals:

Zone 1 - 600 to 620 ft bgs,
Zone 2 - 550 to 570 ft bgs,
Zone 3 - 480 to 500 ft bgs, and
Zone 4 - 410 to 430 ft bgs.

The results of the water quality testing were reviewed for this investigation to assess whether secondary effluent from the WWTP was impacting the ground water quality in the aquifer. The results of the water quality testing are provided in Appendix C. Total dissolved solids (TDS) concentration in the lower three intervals is similar to that of other City of Banning Wells [which is lower than 250 mg/L]. TDS in Zone 4 (shallowest zone at 410-430 feet bgs) had a concentration exceeding the maximum contaminant level (MCL) of 500 mg/L. Additionally Iron exceeds the MCL in all zones and Manganese exceeds the MCL in Zone 4. However, the high iron and manganese concentrations may in part be due to adsorption onto fine sediment particles[9] due to sample collection from the zones. The USGS installed a nested monitoring well system (multiple wells screened at various depths) north of the City of Banning Wastewater Treatment Plant near the Interstate 10 Freeway (see Figure 6 for location). Ground water collected from Well 3S/1E - 11F4 screened between 600 and 610 feet bgs had a TDS concentration of 338 mg/L and elevated nitrate, iron, and manganese concentrations. (See water quality results in Appendix C). Ground water samples collected from screens below this depth had decreasing TDS concentrations with depth. The TDS concentrations ranged from 296 mg/L (680 ft bgs) to 232 mg/L (1,060 ft bgs).

According to Parsons (Parsons, 2008), the TDS ranged from 336 to 461 mg/L between 2004 and 2007 with an average of 379 mg/L during that period. These values are below the values detected during shallow zone testing suggesting that either TDS concentrations from the effluent were greater prior to 1990 or there is another source for the elevated TDS in the shallow portion of the aquifer. The incomplete record of ground water levels in City of Banning Well R1 does not allow assessment of the affect on ground water levels due to infiltration of wastewater in the Cabazon Storage Unit.

[9] More recent zone testing protocol developed by GEOSCIENCE uses 0.45 micron filters during field sample collection to eliminate the potential for elevated metals due to sediment in the sample water.

6.0 METHODOLOGY FOR DETERMINATION OF MAXIMUM PERENNIAL YIELD

Maximum perennial yield is defined as the maximum amount of ground water that can be extracted on an average annual basis without causing environmental damage or adverse impacts. This maximum amount is a function of the amount of ground water recharge that the aquifers receive from precipitation, underflow, artificial recharge, local irrigation and return flows on an average annual basis.

Calculation of maximum perennial yield involves relating geohydrologic and operational factors in a quantitative form. It requires a detailed understanding of the basin's inflow terms (including precipitation, infiltration, and other recharge), and outflow terms (including exploitation, evapotranspiration, and losses to the surface and/or adjacent ground water reservoirs). The reliability of any maximum perennial yield calculation is a direct function of the accuracy and comprehensiveness of the data available for the area, and any assumptions upon which the various calculations are based.

The methodology used to calculate the maximum perennial yield relied upon:

1) Complete and correct geohydrologic data (current and historical);
2) A thorough understanding of the geologic and hydrologic parameters for the study area; and
3) Independent maximum perennial yield calculations based on two methods, thereby allowing a comparison of safe yield estimates.

The following sections describe in detail the methodology used in determining the final safe yield estimates.

6.1 Data Collection

The data collection and compilation procedures were designed to ensure data accuracy and thoroughness. For this project, data collection consisted of two phases:

1) Obtaining historic data for municipal water purveyors and private water users within the study area (data obtained from CBPW, SGPWA and DHS); and
2) Supplementing the information with data from previous investigations (geologic and hydrologic) and other agencies within the area.

A rigorous date analysis and review was conducted. Where possible, both the original field data and the resulting tabular compilations and reports were obtained. This was done in order to identify mistakes and/or inconsistencies within the original data as well as to analyze estimations used during the original data collection. Data compilation consisted of three principal phases:

- Data entry (including updating and revising GEOSCIENCE's existing City of Banning area data);
- Data checking (to minimize typographical or data entry errors); and
- Analysis of data for incongruous and statistically inconsistent data.

The analysis phase of data compilation included identification of missing data and incorporation of estimates where actual data was not available.

6.2 Field Investigations

In 2003, GEOSCIENCE conducted a field investigation to accurately determine the coordinates of all the City of Banning wells. The well locations were determined using a global positioning system (GPS) which recorded the coordinates in North American Datum (NAD) of 1983. Two GPS units were utilized in order to verify each other, and thus ensure greater accuracy.

6.3 Initial Data Analysis

Initial data analysis consisted of delineation of hydrologic subunits (watersheds) and aquifers within the study area, and preparation of the geohydrologic basemap.

The hydrologic subunits were delineated using the hydrologic modeling extension for ArcView GIS. This hydrologic modeling extension provides functionality to delineate watersheds from a DEM (a grid data source representing elevation), and calculates physical and geometric properties of the subunits. The subunits to be used for this study have been named according to the associated creek (see Figure 9).

6.4 Calculation of Maximum Perennial Yield – Banning Storage Units

To estimate the amount of ground water development possible in the Banning Storage Units (Banning, Banning Bench and Banning Canyon), two methods of calculating maximum perennial yield were used in

the assessment for the City of Banning water resource area. Each method represents a varied approach, thereby resulting in a cross check on the final safe yield estimate.

The methods considered during the assessment of the maximum perennial yield were:

- Zero Net Draft Method; and
- Hill Method

The Zero Net Draft and Hill methods consider total production and its effect on water level elevations and are direct means to evaluation of the ground water conditions assessed based on extensive historical pumping and ground water level data.

6.4.1 Method of Zero Net Draft

The Method of Zero Net Draft (Chow, 1964) is a useful technique for estimating maximum perennial yield. This method involves plotting average depth to water for a selected period of time and comparing it to ground water production for the same period. If the mean ground water elevation at the beginning and end of the period is the same, the production during the period is taken as a measure of the maximum perennial yield.

6.4.2 Hill Method

The Hill Method (Chow, 1964) is a simplification of the Equation of Hydrologic Equilibrium. By plotting annual change in ground water elevations against annual draft, Hill measured the maximum perennial yield as the draft corresponding to a zero change in elevation. For the maximum perennial yield to be representative, using the Hill Method, the precipitation should approximate the long-term mean.

6.5 Calculation of Maximum Perennial Yield – Cabazon Storage Unit

The Zero Net Draft Method and the Hill Method were not used to evaluate the maximum perennial yield for the Cabazon Storage Unit because of the limited available historical pumping data and the limited availability of ground water level data representative of the entire storage unit. Therefore, an

Estimate of the maximum perennial yield for the Cabazon Storage Unit was developed using the equation of hydrologic equilibrium[10] namely:

INFLOW = OUTFLOW +/- CHANGE IN STORAGE

The hydrologic period selected for the water balance was the long term average represented by hydrologic conditions for the year 2003 (USGS, 2006). However, as data were available for the ground water pumping and recharge of treated wastewater from 2003 through 2009, these values were used. As this period was somewhat below normal, to be conservative, the highest values of pumping and average annual recharge of treated wastewater were used in the balance. As was done for the Banning Storage Units, the boundary for the Cabazon Storage Unit (used for this analysis) was obtained from the USGS - SIR 2006-5026 dated 2006.

6.5.1 Inflow terms for Water Balance

Inflow from Cabazon Basin consists of subsurface inflow from the Banning and Banning bench Storage Units, Mountain front and areal recharge from the upstream tributary drainages, and percolation of treated wastewater at the City of Banning Wastewater Treatment Plant.

6.5.1.1 Subsurface Inflow Banning Storage Unit

The underflow was calculated using the continuity equation and Darcian velocity:

$$Q=Av=Lb(K'/b')\,\Delta h / 119.34$$

where:

Q = subsurface flow [acre-ft/yr]

A = cross sectional area of flow area of flow [ft^2]

$v = K'\Delta h/b'$

L= length along boundary (ft) = 11,500 ft

b = saturated thickness (ft) = 740 ft

K'/b' = leakance[11] = 6.0×10^{-4} /day (Layer 1, at thickness 420 ft)

[10] Also known as a water balance, a hydrologic balance, or a water budget.

[11] Leakance values were obtained from USGS model values for Layers 1 and 2 along ground water barrier F6 (see Figure 39 and Table 10, USGS,2006)

$= 7.0 \times 10^{-4}$ (Layer 2 at thickness 320 ft)

Δh = change in hydraulic head across boundary (50 ft)

Using the above relationship and values, the underflow from the Banning Storage Unit to the Cabazon Storage Unit was calculated to be approximately 2,300 acre-ft/yr.

6.5.1.2 Subsurface Inflow Banning Bench Storage Unit

Underflow estimates through the alluvium at the mouth of Banning Canyon and across the fault which forms the eastern storage unit boundary between Banning Bench and Cabazon Storage Units was again, calculated using continuity equation and Darcian velocity for calculating underflow.

The underflow at the mouth of Banning Canyon at the boundary of the Cabazon Storage Unit:

$$Q = Av / 119.34,$$

where:

Q = subsurface flow [acre-ft/yr]

v = Kdh/dx

K = hydraulic conductivity (10 ft/day)[12]

dh/dx = hydraulic gradient (0.05)

A = cross sectional area of flow (60,000 ft^2)

Using the relationship and values above, the subsurface outflow from the Banning Bench Storage Unit at the mouth of Banning Canyon was estimated to be approximately 250 acre-ft/yr.

Subsurface outflow leaking across the fault at the storage unit boundary east of the mouth of Banning Canyon was estimated using the continuity equation and Darcian velocity:

$$Q=Av=Lb(K'/b')\,\Delta h / 119.34$$

[12] Table 10, USGS 2006

where: Q = subsurface flow [acre-ft/yr]

A = cross sectional area of flow (L x b)[ft^2]

v = K'Δh/b'

L= length of fault boundary (11,500 ft)

b = saturated thickness (40 ft)

K'/b' = leakance (6.5×10^{-4}/day)[13]

Δh = change in hydraulic head across boundary (40 ft)

Using the above equation and values, the underflow along the eastern portion of the Banning Bench Storage Unit to the Cabazon Storage Unit was estimated to be approximately 100 acre-ft/yr. The total underflow from the Banning Bench into the Cabazon Storage Unit was estimated to be approximately 350 acre-ft/yr (250 acre-ft/yr + 100 acre-ft/yr).

6.5.1.3 Mountain Front Runoff and Areal Recharge from Upstream Tributary Drainages

Mountain front runoff and areal recharge were estimated based on the weighted average precipitation falling within the Cabazon Storage Unit and tributary catchment areas. The Calibrated USGS model (SIR-2006-5026) estimated mountain front recharge within the USGS model area to be 2,674 acre-ft/yr over a catchment area of 17,442 acres. This is approximately 8% of the weighted average annual rainfall for the model watershed area (21.9 inches per year).

The watershed areas for the upstream drainages were determined using GIS (see Section 5.1) and are shown on Figure 9. The area of each tributary watershed is tabulated on Table 4. The weighted average annual rainfall for the total watershed areas tributary to Cabazon Storage Unit was calculated to be 130,755 acre-ft[14]. The mountain front and areal recharge contribution to the water balance was estimated as 8% of the weighted average annual precipitation over the watershed, or 10,460 acre-ft/yr.

[13] Average of 6.0×10^{-4}/day for Layer 1 and 7.0×10^{-4}/day for Layer 2.

[14] Although the Banning Canyon Watershed is tributary to the Cabazon Storage Unit, it was not included in this calculation since underflow from Banning Canyon/ Banning Bench is treated as a separate underflow inflow term to the Cabazon Storage Unit.

6.5.1.4 Infiltration of Wastewater Flows

For the years 2000 through 2009, the average annual volumes of wastewater flows of 2,655 acre-ft/yr was used as the inflow term in the water balance (See Section 3.3.3).

6.5.2 Outflow Terms for Water Balance

Outflow from Cabazon Basin consists of ground water pumping and subsurface outflow to the Indio Subbasin and outflow to the San Jacinto Tunnel.

6.5.2.1 Ground Water Pumping

Table 3 provides a tabulation of ground water pumping from the Cabazon Storage Unit, including pumping from Potrero and Millard Canyons which are tributary to the Cabazon Storage Unit. The greatest amount of pumping from the Cabazon Unit occurred in 2007 and was approximately 4,160 acre-ft. Average production for the period from 2003-2009 is approximately 3,360 acre-ft/yr. The ground water pumping values are approximate, as the Morongo Tribe does not report their annual pumping volumes.

6.5.2.2 Subsurface Outflow to Indio Subbasin

The California Department of Water Resources estimates that underflow from the Cabazon Storage Unit to the Indio Subbasin is approximately 9,000 acre-ft/yr (USGS, 1978, 1992, DWR, 2004).

6.5.2.3 Subsurface Outflow to San Jacinto Tunnel

As stated previously, although the tunnel has been constructed in bedrock and is lined with concrete, an estimated 1,500 acre-ft/year of ground water seeps into the tunnel from the west portion of the Cabazon storage unit (33% of the total 5,000 acre-ft per year tunnel seepage; Boyle, 1995; personal communication, FlowScience, 2001).

7.0 ESTIMATES OF MAXIMUM PERENNIAL YIELD

This section presents the summary of analyses and the results of the maximum perennial yield estimates for the four Storage Units included in this study:

1) Banning Storage Unit,
2) Beaumont Storage Unit,
3) Banning Bench Storage Unit, and
4) Cabazon Storage Unit.

7.1 Banning Storage Unit

The Banning Storage unit lies south of the Banning Bench Storage Unit and east of the Beaumont Storage Unit (see Figure 1). The total surface area is approximately 2,489 acres. The area is underlain by alluvial sediments, with bedrock occurring to the north in the San Bernardino Mountains. The City of Banning currently operates four active production wells within the Banning Storage Unit, Wells M10, M11, M12 and C-5. The City of Banning estimates a design capacity of 3,500 gpm for the above mentioned wells based on historical water use records (Banning, 2010).

7.1.1 Zero Net Draft Method – Banning Storage Unit

Figure 12 shows a plot of ground water levels and annual pumping from wells in the Banning Storage Unit (Wells M10, M11, M12 and C-5). A review of Figure 12 indicates that ground water levels in December 2003 were similar to levels in December 2009 (see Appendix B). During this period, the average annual ground water production was 1,582 acre-ft/year.

7.1.2 Hill Method – Banning Storage Unit

Figure 13 shows a plot of the average annual change in ground water elevations in the Banning Storage Unit Production Wells (Well M10, M11, M12 and C-5) versus annual extraction within the Storage Unit. As shown on the figure, the maximum perennial yield was calculated using the best-fit line through the data, namely:

$$y = -0.0067x + 4.5282$$

where:

y = Annual Change in Ground Water Elevation [ft]

x = Annual Extraction [acre-ft]

Using this method, the maximum perennial yield is estimated as the production for an average water level change of zero (i.e. y = 0), or 676 acre-ft/year (4.5282/0.0067).

7.2 Banning Bench Storage Unit

The Banning Bench Storage Unit is located to the north of the Banning Storage Unit (see Figure 1). The total surface area of the storage unit is approximately 3,753 acres. The City of Banning currently operates three production wells within the Banning Bench, Wells 1, 2 and 3 with a total design capacity of 3,650 gpm, based on historical water use records (Banning, 2010)..

7.2.1 Zero Net Draft Method – Banning Bench Storage Unit

Ground water levels from City of Banning Wells 1, 2 and 3 located within the Banning Bench Storage Unit were used to evaluate the historic time period when the ground water levels were similar. City of Banning Wells 1, 2 and 3 indicate that ground water elevations in January 1979 and December 2009 were similar (see Appendix B). The average annual ground water production within the Banning Bench Storage Unit during this time period was approximately 1,982 acre-ft/year (see Figure 14).

7.2.2 Hill Method – Banning Bench Storage Unit

Figure 15 shows a plot of the average annual change in ground water elevations in the Banning Bench Storage Unit Production Wells (Well 1, 2, and 3,) versus annual extraction within the Storage Unit. As shown on the figure, the maximum perennial yield was calculated from the best-fit line through the data:

y = -0.0046x + 8.8834

where:

y = Annual Change in Ground Water Elevation [ft]

x = Annual Extraction [acre-ft]

The maximum perennial yield was estimated as the annual extraction corresponding to a zero change in ground water elevation, or approximately 1,931 acre-ft/year (8.8834/0.0046).

7.3 Banning Canyon Storage Unit

The Banning Canyon Storage Unit is located to the north of the Banning Bench Storage Unit (see Figure 1). The total surface area of the Storage Unit is approximately 1,058 acres. The primary surface water drainage feature within this Storage Unit is the San Gorgonio River. The canyon bottom comprises alluvium and the canyon sides are bedrock. Most of the City of Banning's ground water is produced from the aquifer within this subunit. The City of Banning estimates a design capacity of 8,600 gpm for the above mentioned wells based on historical water use records (Banning, 2010).

7.3.1 Zero Net Draft Method - Banning Canyon Storage Unit

Representative wells within the Banning Canyon Storage Unit were used to evaluate the time period when the ground water levels were similar. Ground water level plots for City of Banning Wells 4, 5, 6, 7, 8, 9, 10, 11 and 12 indicate that the ground water elevations in January 1984 and December 2000 were similar (see Appendix B). The average annual ground water production within the Storage Unit during this time period was approximately 4,310 acre-ft/year (see Figure 16).

7.3.2 Hill Method – Banning Canyon Storage Unit

Figure 17 shows a plot of the average annual change in ground water elevations in the Banning Canyon Storage Unit Production Wells (Well 4, 5, 6, 7, 8, 9, 10, 11 and 12) versus annual extraction within the Storage Unit. As shown on the figure, the maximum perennial yield was calculated from the best-fit line through the data:

$$y = -0.0054x + 20.678$$

where:

y = Annual Change in Ground Water Elevation [ft]

x = Annual Extraction [acre-ft]

The maximum perennial yield was estimated as the annual extraction corresponding to a zero change in ground water elevation, or approximately 3,829 acre-ft/year (20.678/0.0054).

7.4 Hydrologic Budget – Cabazon Storage Unit

Ground water recharge to the Cabazon Storage Unit is obtained from precipitation infiltrating into the ground within the surface water catchments tributary to the unit and from subsurface inflow from the Banning and Banning Bench/Canyon Storage Units. Percolation of secondary treated wastewater from the City of Banning Wastewater Treatment Plant in also included as a recharge term. Outflow terms include pumping, and subsurface outflow to the Indio area.

7.4.1 Inflow Terms – Cabazon Storage Unit

Ground water recharge to the Cabazon Storage Unit is from precipitation infiltrating within surface water catchments tributary to the unit as well as subsurface inflow from the Banning and Banning Bench/Canyon Storage Units. Percolation of secondary treated wastewater from the City of Banning's Wastewater Treatment Plant in also included as a recharge term.

7.4.1.1 Inflow Terms

- Subsurface inflow from the Banning Storage Unit was calculated using hydrologic parameters provided in USGS (2006) for 2003 average year conditions (approximately 2,300 acre-ft/yr).
- Subsurface inflow from the Banning Bench/Canyon Storage Units (was estimated from an underflow calculation through the alluvium of Banning Canyon) (approximately 350 acre-ft/yr).
- Mountain front runoff and areal recharge to all watersheds tributary to the Cabazon Storage Unit was estimated based on 8% of the weighted average annual precipitation for the Cabazon Storage Unit and tributary drainage areas (10,460 acre-ft/yr).
- Percolation of treated wastewater (i.e. secondary Effluent from the City of Banning Wastewater Treatment Plant between 1999 - 2009 (2,655 acre-ft/yr).

TOTAL AVERAGE INFLOW = approximately 15,765 acre-ft/yr

7.4.2 Outflow Terms – Cabazon Storage Unit

Ground water outflow from the Cabazon Storage Unit includes ground water pumping, subsurface outflow to the Indio Subbasin, and subsurface outflow to the San Jacinto Tunnel. The ground water outflow terms are summarized below:

7.4.2.1 Outflow Terms

- Annual ground water pumping for the Cabazon Storage Unit, and Millard and Potrero Canyons (3,460 acre-ft/yr)[15].
- Subsurface outflow to the Indio Subbasin (9,000 acre-ft/yr).
- Outflow to the San Jacinto Tunnel (1,500 acre-ft/yr).

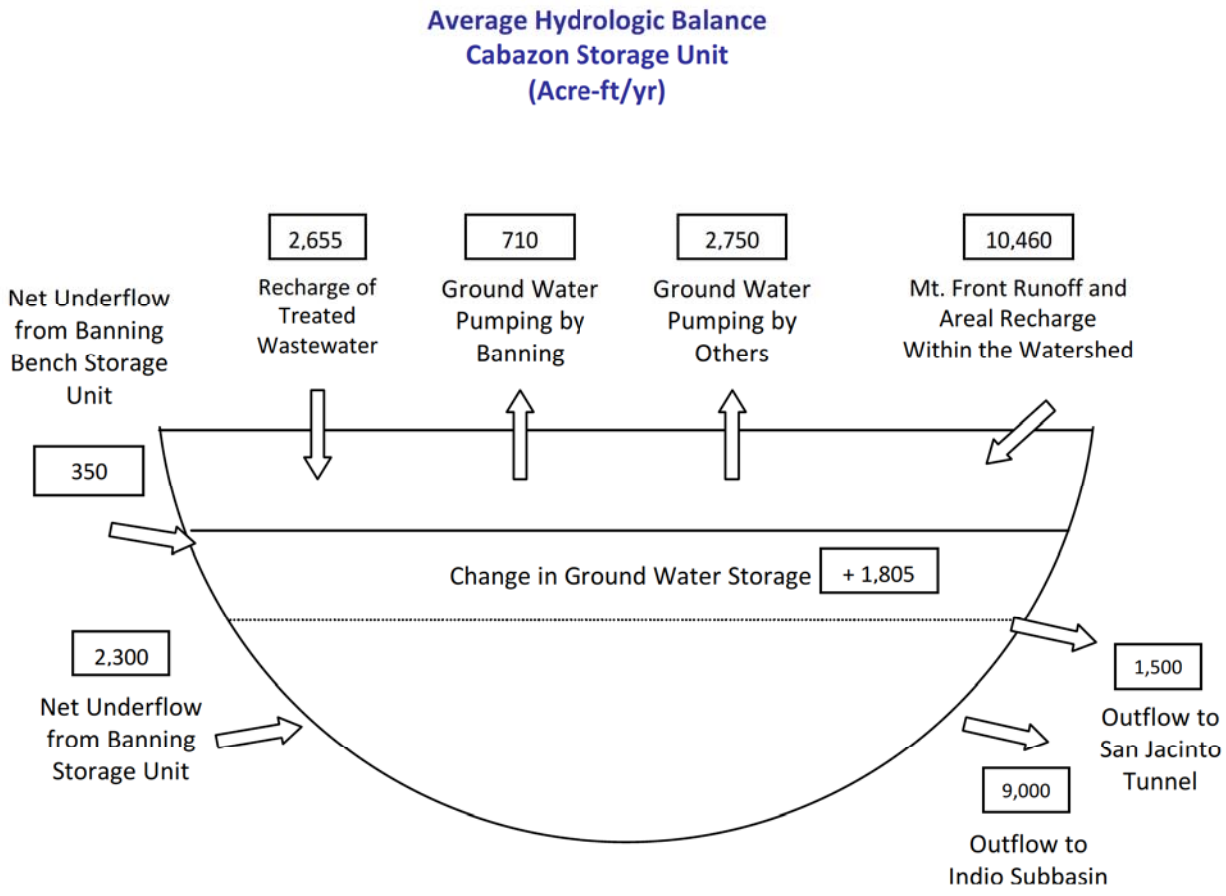
TOTAL AVERAGE OUTFLOW = 14,600 acre-ft/yr

Hydrologic Budget - Cabazon Storage Unit
Acre-ft/yr

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
INFLOW					OUTFLOW			
Underflow from Banning Storage Unit	Underflow from Banning Bench Storage Unit	Mountain Front Runoff and Areal recharge	Recharge of Treated Wastewater	Total Inflow	Subsurface Outflow to Indio Subbasin and the San Jacinto Tunnel	Ground Water Pumping	Total Outflow	Average Annual Change in Storage
2,300	350	10,460	2,655	15,765	10,500	3,460	13,960	1,805

Note:
[1] Determined from 2003 USGS Modeled outflow for the Banning Storage Unit.
[2] Calculated underflow across the storage unit boundary at Banning Canyon and underflow across the mountain front fault along the storage unit boundary.
[3] Basin recharge estimated as 8% of the average annual precipitation in the Cabazon Storage Unit and the upstream watersheds.
[4] Percolation of secondary treated wastewater from the City of Banning Wastewater Treatment Plant.
[5] = [1] + [2] + [3] + [4].
[6] DWR Bulletin 118 *San Gorgonio Pass Ground Water Basin 2004.*
[7] Average ground water extraction from the Cabazon Storage Unit, and Millard and Potrero Canyons.
[8] = [6] + [7].
[9] = [5] - [8].

[15] Based on the average pumping during the period 2003 to 2009.



7.4.3 Change in Storage

Review of historical ground water levels and historical precipitation for the Cabazon Storage Unit indicates that ground water levels closely follow the pattern of rainfall (see Figure 10 and Hydrographs in Appendix B). Ground water level records for Wells 3S/3E–7M1 and 8M1 for periods ranging from 1946 through 2009 (which includes wet, dry and average precipitation) show that ground water levels decline during dry periods and rise during wet periods. Overall, the long-term change in ground water in storage (based on the hydrographs and precipitation – see Appendix B) appears to remain the same (i.e. no long-term declines or increases).

7.4.4 Additional Water Supply from the Cabazon Storage Unit

Available water supply from the Cabazon Storage Unit above existing production is approximately 1,805 acre-ft/yr (on average). The City of Banning Well C-6 annually extracts approximately 710 acre-ft/yr on average since it came online in 2004. The City estimates that the total design capacity for Well C-6 is 900 gpm or 1,450 acre-ft/yr based on historical production records (City of Banning, 2010). If the City utilizes Well C-6 at full capacity (1,450 ac-ft/yr) an additional 350 acre-ft/yr is available if an additional well is constructed. The closest non-City of Banning pumping well to Well R-1 is located approximately one mile away. Based on a storage coefficient of between 0.15 and 0.17 and a transmissivity of 49,900 gpd/ft[16], additional pumping from R-1 could result in an drawdown at the closest well of approximately 1.2 to 1.4 feet after one year of continuous pumping from R-1. This additional drawdown would not result any significant impact to the well or operation of the well. If an additional well is constructed to maximize use of the Cabazon Storage Unit for ground water development, the well can be located so as to not result in impacts to existing wells.

Additional water supply for the Cabazon Storage Unit may also be developed by reducing subsurface outflow to the Indio Subbasin. This could be achieved using a series of wells which changes hydraulic gradients near the eastern Cabazon Storage Unit boundary and reduces ground water flowing eastward to the Indio Subbasin. For example, if hydraulic control is achieved whereby an average subsurface outflow to the Indio Subbasin is reduced by 25%, an additional 2,250 acre-ft/yr of potential production could be available in the Cabazon Storage Unit. This amounts to an additional annual extraction of approximately 4,055 acre-ft/yr above the existing production without causing a long-term decline in storage.

[16] GEOSCIENCE, 1991

8.0 ANTICIPATED FUTURE WATER SUPPLY BEAUMONT BASIN

Pursuant to the Beaumont Basin Judgment (Superior Court of the State of California for the County of Riverside, 2004), the City has the right to pump 5,910 acre-ft annually (see Appendix D) until the year 2014 at which time the Beaumont Basin Watermaster shall re-evaluate the safe yield of the basin. The allotted 5,910 acre-ft/yr pumping rights to the City of Banning is comprised of:

- 882 acre-ft/yr which is 31.43% of the remainder of the Beaumont Basin safe yield (8,650 acre-ft/yr) is an initial estimate of appropriative rights (see Column 4 of Exhibit C of the Judgment) after appropriations by overlying producers (5,845 acre-ft/yr) and,
- 5,029 acre-ft/yr which is 31.43% of the controlled overdraft/temporary surplus or annual operating yield of 16,000 acre-ft/yr for a total of 160,000 acre-ft over the ten year period of 2004 to 2014.

If the overlying producers increase or reduce production in the future, or if water districts provide direct service to the appropriators within their service areas, then the City's 882 acre-ft/yr will change. In the Sixth Annual Report of the Beaumont Basin Watermaster, dated April 2010, it was reported that less water has been extracted from the basin than anticipated. In addition, the Beaumont Basin Watermaster Biennial Engineer's Report – July 2003 through June 2008, states that the estimated safe yield of the basin may be approximately 10,290 acre-ft/yr[17] rather than the 8,650 acre-ft/yr, which was stipulated as the initial estimate in the Judgment for the first 10-year period. However, a change in the safe yield for Beaumont Storage Unit can only occur after re-evaluation of the basin by the Watermaster scheduled every 10 years.

Table 5 of the Sixth Annual Beaumont Basin Watermaster Report, 2010 states that the City of Banning has an allocation of unused overlying water of 1,405, 1,645, 1,659, 1,618, 1,830, and 1,805 acre-ft for the years 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, and 2013/14 respectively. These values are derived from 31.43% of the actual amount produced by the overlying producers from the period 2003/04 to 2007/08 (5 years) and applied at the beginning of the subsequent 5- year period. The

[17] Page 4-4, Biennial Engineers Report – July 2003 through June 2008, Beaumont Basin Watermaster

following table provides an estimate of the projected volume of the City of Banning ground water in storage within the Beaumont Basin which is their estimated production right.

The City of Banning's
Ground Water in Storage within the Beaumont Basin (Production Right)

Year	Appropriative Rights After Overlying Producers[1]	Controlled Overdraft of Annual Operating Yield[2]	Recharge of SWP[3]	Banning Production from Beaumont Storage Unit[4]	Transfers Among Appropriators[5]	Estimated Total Water in Storage[6] (Production Right)
2004	0	5,029	0	3,605		1,424
2005	0	5,029	0	1,879		4,575
2006	0	5,029	0	2,012	1,500	9,092
2007	0	5,029	0	2,962		11,159
2008	0	5,029	0	3,417		12,771
2009	1,492	5,029	1,200	2,355		18,138
2010	1,645	5,029	1,200	1,372		24,640
2011	1,659	5,029	1,298	2,514		30,111
2012	1,618	5,029	1,298	2,514		35,541
2013	1,830	5,029	1,298	2,514		41,184
2014	1,805	0	2,595	2,514		43,069
2015	1,805	0	2,595	2,514		44,955
2016	1,805	0	2,595	2,514		46,841
2017	1,805	0	2,595	2,514		48,726
2018	1,805	0	2,595	2,514		50,612
2019	1,805	0	2,595	2,514		52,498
2020	1,635	0	2,595	2,514		54,214
2021	1,613	0	2,595	2,514		55,907
2022	1,591	0	2,595	2,514		57,579
2023	1,569	0	2,595	2,514		59,229
2024	1,547	0	2,595	2,514		60,856
2025	1,478	0	2,595	2,514		62,415
2026	1,456	0	2,595	2,514		63,952
2027	1,434	0	2,595	2,514		65,466
2028	1,411	0	2,595	2,514		66,958
2029	1,389	0	2,595	2,514		68,428
2030	1,328	0	2,595	2,514		69,837
2031	1,306	0	2,595	2,514		71,223
2032	1,284	0	2,595	2,514		72,588
2033	1,262	0	2,595	2,514		73,931
2034	1,240	0	2,595	2,514		75,251
2035	1,194	0	2,595	2,514		76,526

- It should be noted that there is a discrepancy between the reported City of Banning unused overlying water right allocation in 2009 as reported by the Sixth Annual Beaumont Basin Watermaster Report (1,405 acre-ft) and the value of 1,492 acre-ft as listed in the Draft Beaumont Management Zone Maximum Benefits Program Modeling Scenarios, 2011 Appendix A-3.

1 Projected allocation of pumping rights per Appendix A-3 ("Projected Allocation of Pumping Rights for the 2004 Beaumont Basin Judgment") of the Draft Beaumont Management Zone Maximum Benefits Program Modeling Scenarios, prepared by Wildemuth Environmental, Inc. dated March 18, 2011.

[2] Controlled overdraft assigned by the Beaumont Basin Judgment for the ten year period 2004 through 2012 (Exhibit C in Appendix D).

[3] State Water project purchases reported by Watermaster for 2009 year. Values for purchases for 2010 year provided by the City of Banning. Projected Purchases (2011-2035) assumed to be 25% of annual delivery to SGPWA anticipated by the SWP Reliability Report (60% of the maximum annual delivery of 8,650 acre-ft per year until 2013, when EBXII is assumed be online, 17,300 will be accessible).

[4] City of Banning production as reported by the City of Banning for years 2004-2010 which includes water received from BCVWD, extracted from the Beaumont Storage Unit. For years 2011 through 2020, City of Banning pumping is assumed at the average annual pumping value 2,514 acre-ft/yr.

[5] Transfer reported by Watermaster in the Sixth Annual Report of the Beaumont Basin Watermaster dated 2010.

[6] Sum of columns 1, 2, 3 and 5 minus column 4, the product is added to the previous year Estimated Total Water in Storage.

For the purposes of providing projected water supplies from the Beaumont Basin, it is anticipated that the City will extract an average of 2,514 ac-ft/yr, (average City production since adjudication in 2004, as reported by the City of Banning, 2011) however, as demand increases, additional water will be extracted as needed from the Beaumont Storage Unit to meet demand.

Watermaster is required by law[18] to re-determine the safe-yield of the Beaumont basin at least every 10 years beginning 10 years after the date of the entry of the Judgment (2004) or at the year 2014. Pursuant to the Judgment, the City is allowed to pump sufficient water from the Beaumont Basin in order to meet its water demand. Should this amount exceed the City's rights, the Beaumont Basin Watermaster has an obligation to replenish the overproduction.

8.1 The City of Banning's Current and Projected Ground Water Supply

The following table summarizes the current and projected available water supply from the Banning, Cabazon and Beaumont Storage Units available to the City of Banning as well as projected available water supply in 2014. Available water supply for the Beaumont Basin beyond 2014 will be a function of:

1. Ground water recharge credit,
2. The amount of pumping by overlying producers, and
3. The remaining operating yield available to the City.

[18] Beaumont Basin Judgment, VI Administration (5)(Y)

However, the following table provides an estimate of potential water supply from the Beaumont Storage Unit based on accruing an amount of ground water in storage from the un-used portion of ground water from adjudicated rights in the Beaumont Storage Unit.

CITY OF BANNING CURRENT AND PROJECTED GROUND WATER SUPPLY

(AVERAGE YEAR CONDITIONS)

Storage Unit	Year 2010	Year 2015
Banning	1,130	1,130
Banning Bench	1,960	1,960
Banning Canyon	4,070	4,070
Cabazon	2,515[19]	2,515
Beaumont	2,514[20]	2,514
Beaumont Basin - Recharge (SWP)	**1,200**[21]	**2,595**[22]
Total Ground Water Supply Per Year	**13,368**	**14,793**

[19] Cabazon Production includes approximately 1,805 acre-ft/yr of potential additional pumping reported in this technical memorandum and 710 acre-ft/yr which has been the average annual production from the City of Banning Well C-6 (as reported by the City of Banning)
[20] City of Banning production as reported by Watermaster in the Sixth Annual Report of the Beaumont Basin Watermaster dated 2010. For years 2011 through 2035, City of Banning pumping is assumed at the average annual pumping value (2,514 acre-ft/yr).
[21] 2010 City of Banning purchases of SWP water from SGPWA to recharge in the BCVWD spreading grounds on Noble Creek.
[22] Projected values assume Banning will receive 25% of SWP water received by the SGPWA, DWR SWP Reliability Report estimates SGPWA will receive 60% of the maximum annual delivery. SGPWA is entitled to 8,650 acre-ft per year until 2013 (when EBXII is assumed to be online) when the full allotment of 17,300 acre-ft/yr can be utilized.

9.0 SUMMARY AND RECOMMENDATIONS

9.1 Summary

The table below provides a summary of the available water supply to the City of Banning. The water supply from the Banning Storage Units (Banning, Banning Bench, and Banning Canyon) represents the maximum perennial yield for those storage units since the City of Banning is the major producer in those storage units. The available water supply from the Cabazon Storage unit represents additional water supply that can be developed from the storage unit as determined from this study (see Section 7.4).

AVAILABLE WATER SUPPLY FROM BANNING STORAGE UNITS

AND CABAZON STORAGE UNIT

Acre-ft/year

Storage Unit	Zero Net Draft	Hill Method	Hydrologic Budget	Average
Banning	1,580	680	N/A	1,130
Banning Bench	1,980	1,930	N/A	1,960
Banning Canyon	4,310	3,830	N/A	4,070
Total of All Banning Storage Units	**7,870**	**6,440**	**N/A**	**7,160**
Cabazon	**N/A**	**N/A**	**2,515**[23]	**2,515**

[23] The water supply available to the City of Banning from the Cabazon Storage Unit equals average production from Well C-6 (710 acre-ft/yr) plus the average annual change in storage of 1,805 acre-ft/yr.

- The average maximum perennial yield for the Banning Storage Units (Banning, Banning Bench and Banning Canyon) is approximately 7,160 acre-ft/yr. Production within these Storage Units for 2009 is approximately 6,500 acre-ft.
- The Hydrologic Budget for the Cabazon Storage Unit indicates that approximately 1,805 acre-ft/yr above current ground water production might be available for future development. Current production within the Cabazon Storage Unit is approximately 3,460 acre-ft for 2009, of which 710 acre-ft/yr is by the City of Banning.
- Ground water level records taken from the Cabazon Storage Unit for periods ranging from 1946 through 2009 (which includes wet, dry and average precipitation) show that ground water levels decline during dry periods and rise during wet periods.
- Overall, the long-term change in ground water in storage for the Cabazon Storage Unit (based on the hydrographs and precipitation) appears to remain the same (i.e. no long-term declines or increases).
- Further ground water development can take place in the Cabazon Storage Unit to achieve hydraulic control to decrease the amount of outflow to the Indio Subbasin.
- The Beaumont Basin Watermaster report, dated April 2010, reported that less water has been extracted from the basin than anticipated. An estimated safe yield of the basin may be approximately 10,290 acre-ft/yr, which could result in a greater allocation of water to the City of Banning.
- The amount of ground water in storage within the City of Banning area, not including the Beaumont Storage Unit which falls within the City of Banning water resource area, is estimated to be approximately between 1.1 – 1.2 million acre-ft.

9.2 Recommendations

- To increase the available water supply, continuing and/or increasing the diversion of water from the Whitewater River into the Banning Canyon from the Flume (Canyon subunit) should be pursued. A maximum water right of 13.26 cfs exists for the diversion.
- Diversions to Banning Canyon should be gauged as well as diversion from the San Gorgonio River into the off-stream recharge basins in Banning Canyon.

- The ground water levels in Well R-1 should be included as part of the monitoring effort of the City of Banning. In addition, ground water quality data should be collected on an annual basis to allow development of ground water quality trends in this area of the Cabazon Storage Unit.
- Ground water pumping should be managed in order to develop a continuing history of ground water extractions in the unadjudicated storage units of the San Gorgonio Pass Ground Water Basin (Banning, Banning Bench, Banning Canyon, and Cabazon Storage Units).
- Potential capture of stormwater run-off from mountain front watersheds as well as capture of urban run-off should be included in long-term planning for development of additional water supply.
- For the future, managing the ground water basin through an annual ground water audit should be considered for long-term planning and operation. This process involves evaluating ground water level trends, production rates, ground water quality or other aquifer/well/pump considerations from the previous year (through use of a on-going ground water monitoring and data collection system). The water audit should be performed six months prior to the start of the water accounting year, and information from this audit will be used to make recommendations for pumping in the following year.[24] This management approach focuses more on maintaining ground water levels within acceptable limits rather than maintaining pumping within a predetermined safe yield; although refinement of the safe yield is part of the audit process.
- Future ground water management strategy should include development of a ground water model to allow accurate simulation of ground water flow and ground water quality (including potential impacts by recharge of recycled water) in the City of Banning ground water resource area.

[24] Typical water accounting years may be the "actual" water year, October 1 to September 30 or, fiscal years such as July 1 to June 30.

10.0 REFERENCES

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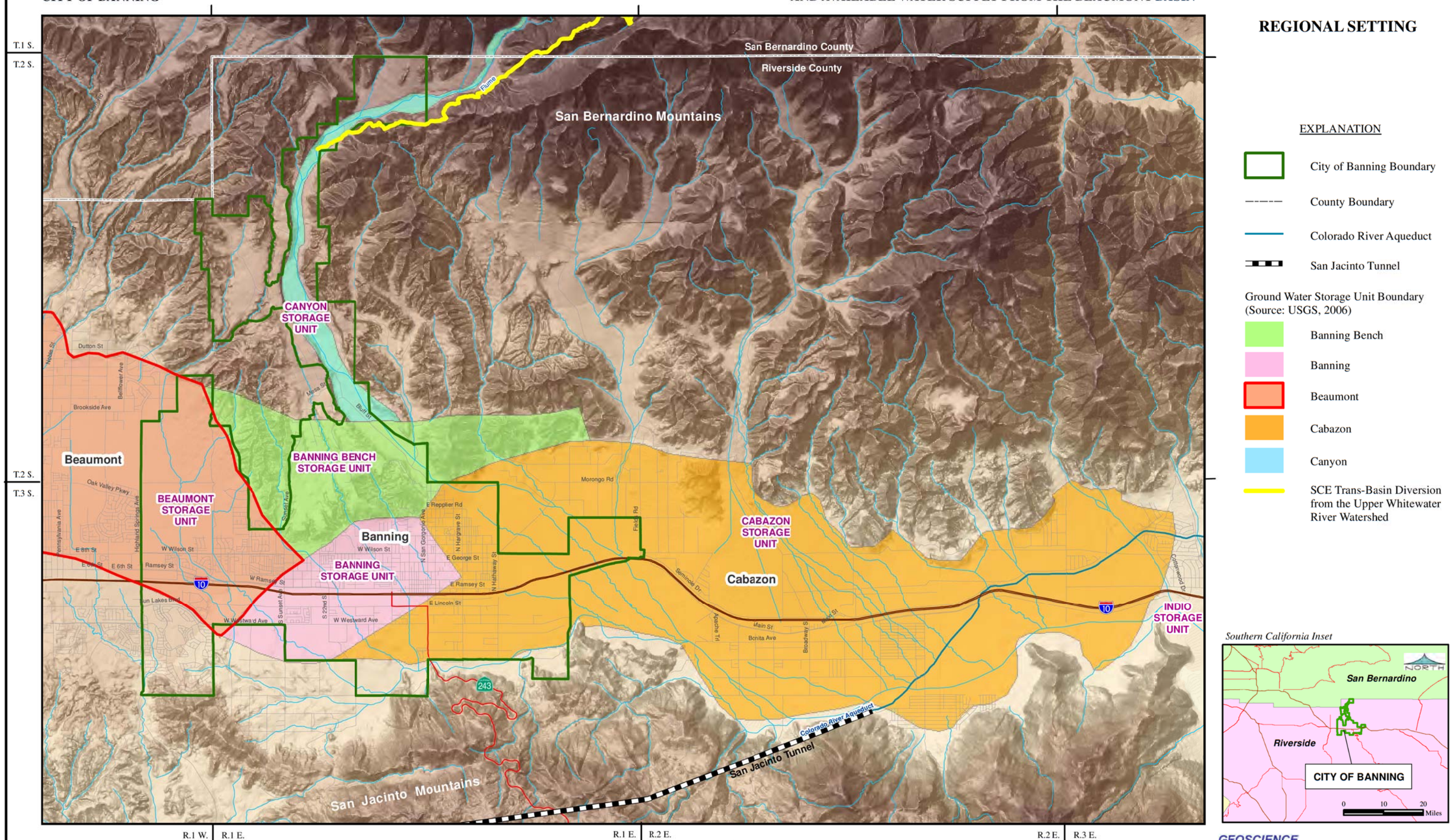
FIGURES

CITY OF BANNING

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN



29-Mar-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

Source of Data:
Faults Modified from R.M. Bloyd, Jr.
USGS Water Supply Paper 1999-D, Plate 1, 1971., and
USGS Scientific Investigation Report 2006-5026, Figure 2, 2006.

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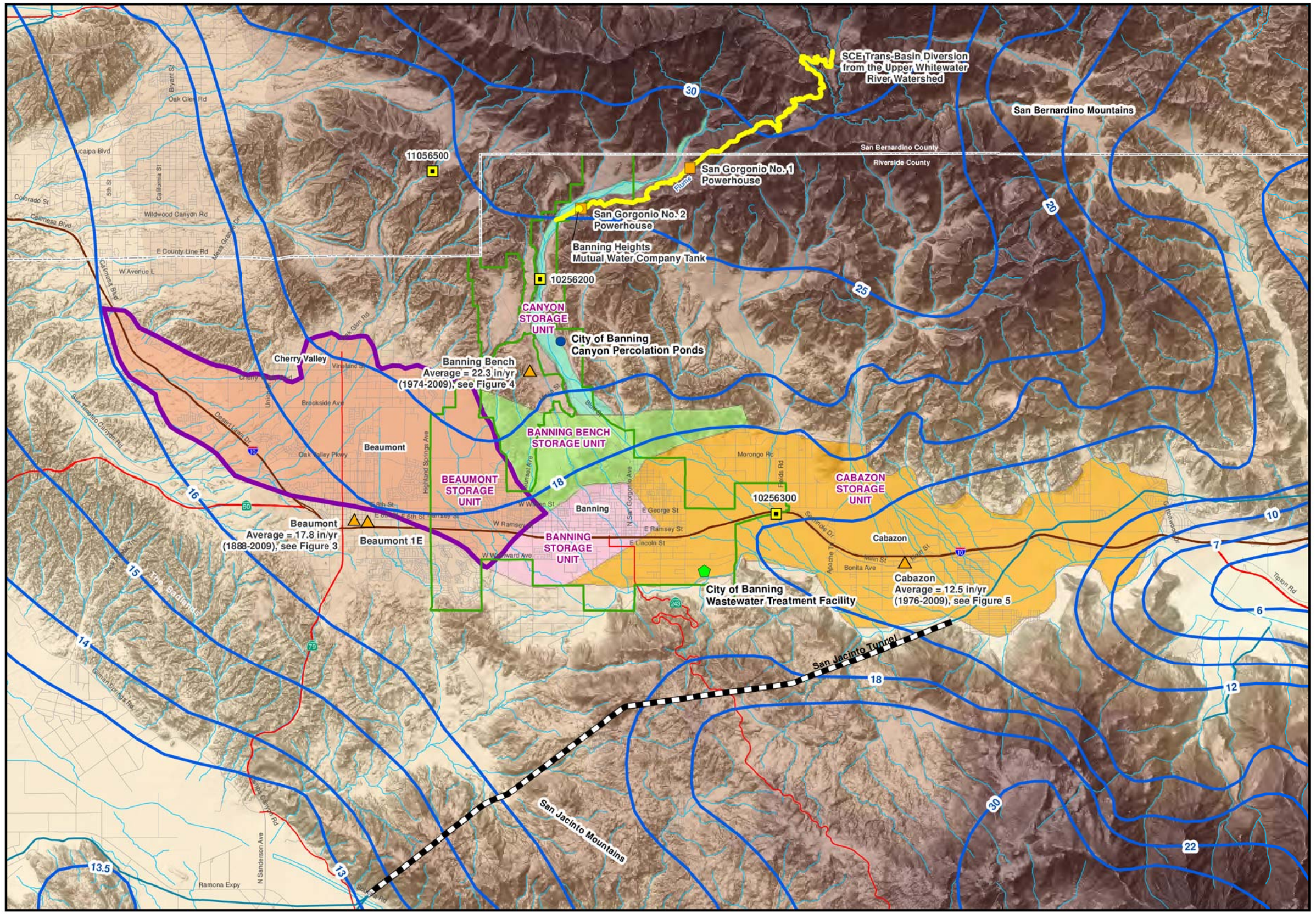
Figure 1

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_1_regional_setting_3-11.mxd

CITY OF BANNING

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN



AVERAGE ANNUAL ISOHYETALS PRECIPITATION AND GAGING STATIONS

EXPLANATION

14 — Mean Annual Precipitation (inches)

Note: Isohyetal map was generated using data from water years 1955-56 to 1979-1980 (Riverside County Flood Control and Water Conservation District, 1983).

Note: See Appendix A for annual precipitation and Figures 3-5 for cumulative departure from mean precipitation for Beaumont Weather Stations.

Cabazon — Riverside County Flood Control and Water Conservation District Weather Station

10256200 — USGS Gaging Station and Site Number

City of Banning Boundary

Ground Water Storage Unit Boundary (Source: USGS, 2006)

- Banning Bench
- Banning
- Beaumont
- Cabazon
- Canyon

Adjudicated Ground Water Boundary

County Boundary

Aqueduct

San Jacinto Tunnel

SCE Trans-Basin Diversion from the Upper Whitewater River Watershed

29-Mar-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 5,500 11,000 Feet

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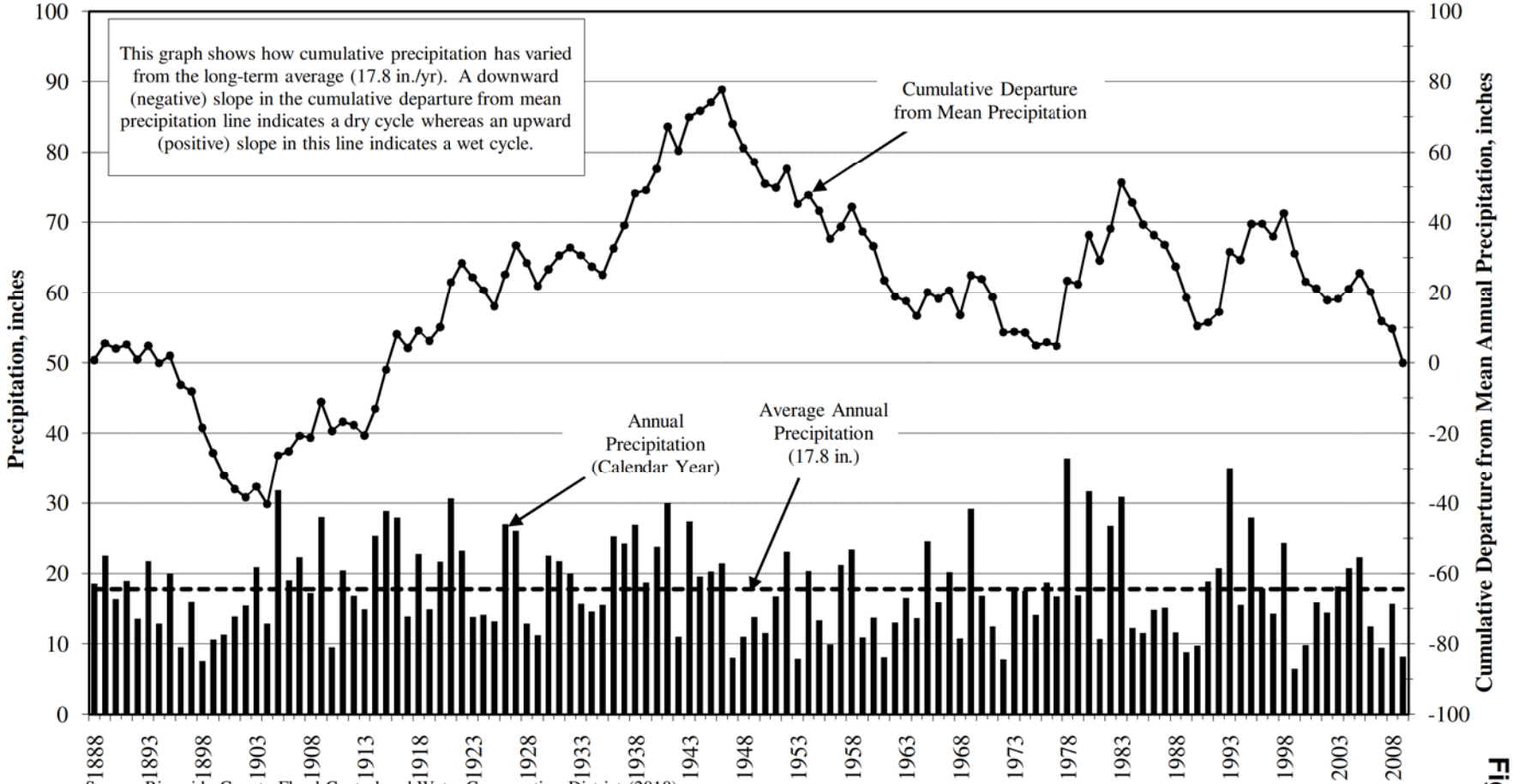
Figure 2

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_4_isohyetals_3-11.mxd

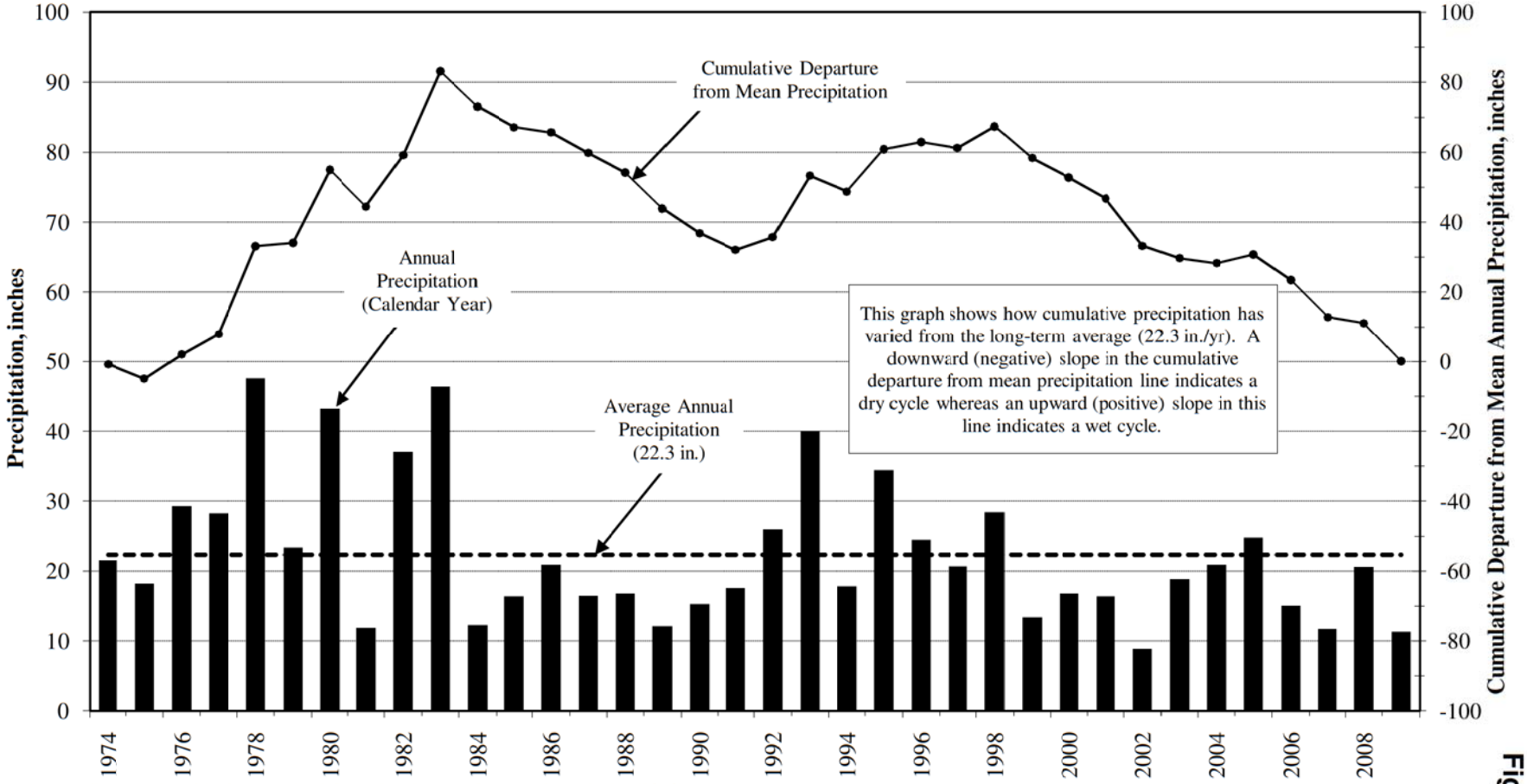
Annual Precipitation and Cumulative Departure From Mean Annual Precipitation
Beaumont Weather Station #013
(1888 to 2009)



Source: Riverside County Flood Control and Water Conservation District (2010).
Note: Data are presented in calendar years.

Figure 3

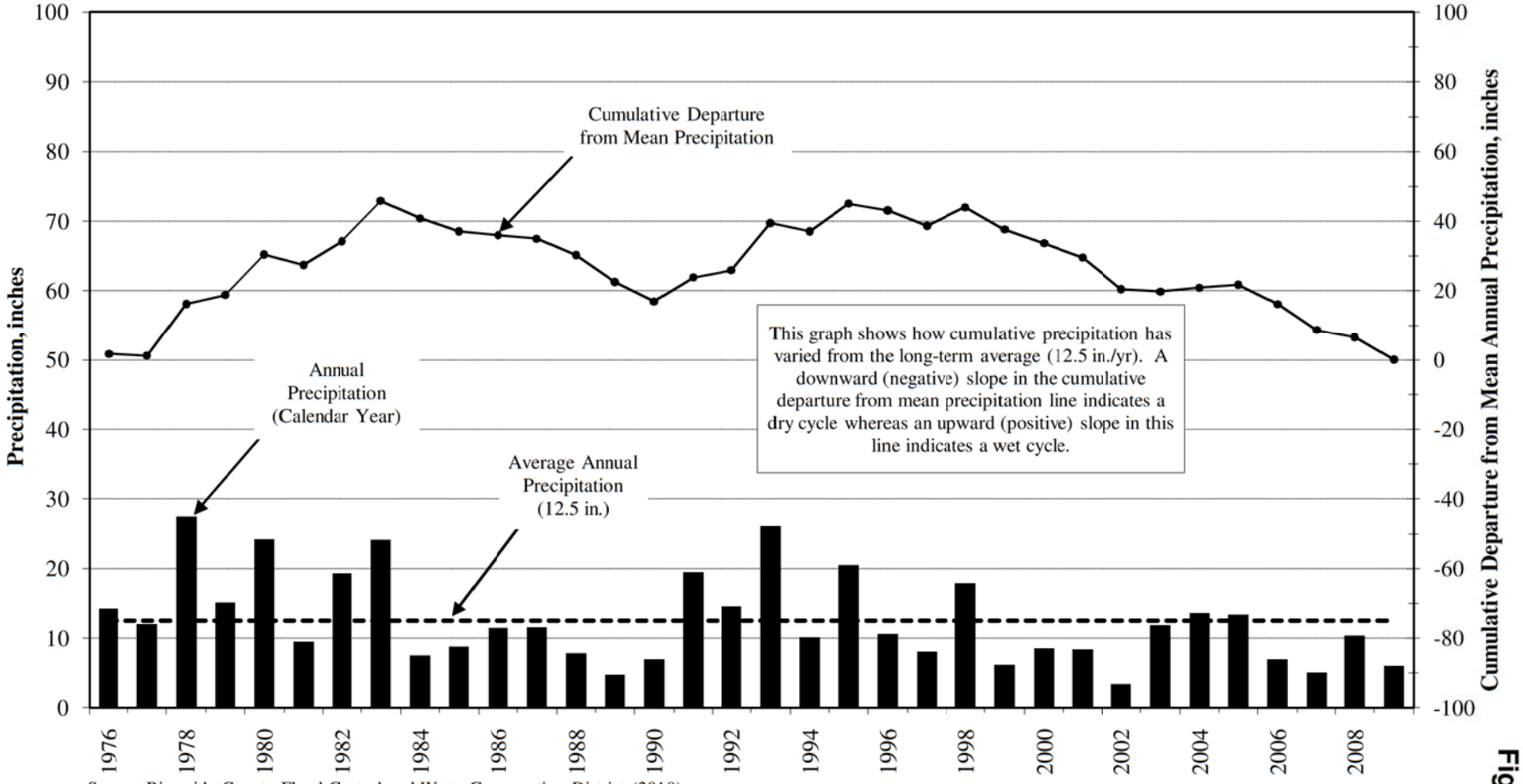
Annual Precipitation and Cumulative Departure From Mean Annual Precipitation
Banning Bench Weather Station #011
(1974 to 2009)



Source: Riverside County Flood Control and Water Conservation District (2010).
Note: Data are presented in calendar years.

Figure 4

Annual Precipitation and Cumulative Departure From Mean Annual Precipitation
Cabazon Weather Station #025
(1976 to 2009)

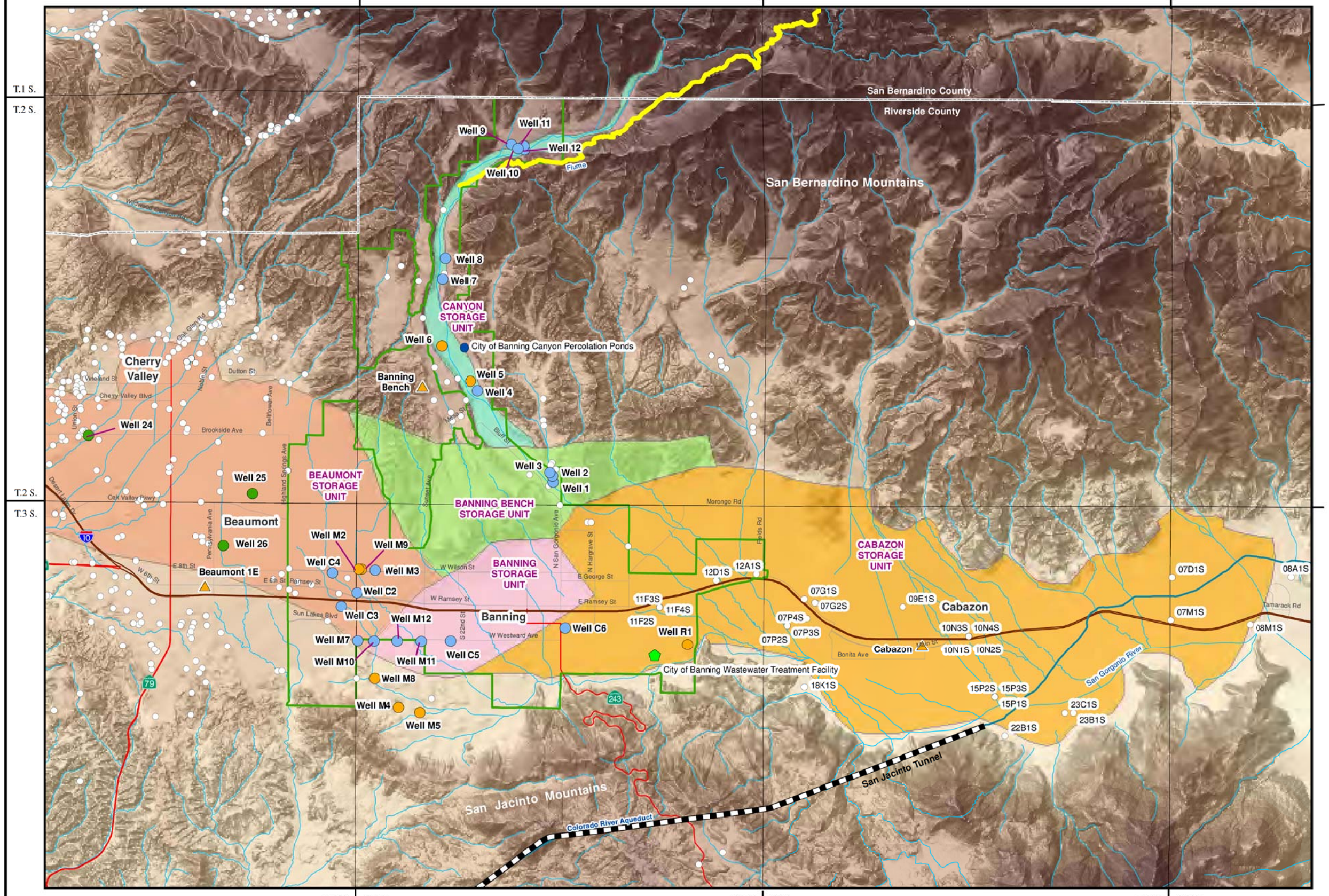


Source: Riverside County Flood Control and Water Conservation District (2010).
Note: Data are presented in calendar years.

Figure 5

CITY OF BANNING

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN



WELL LOCATIONS

EXPLANATION

- Active City of Banning Well
- Inactive City of Banning Well
- Active Wells Co-Owned by the City of Banning and Beaumont Cherry Valley Water District
- Other Wells
- Cabazon — Riverside County Flood Control and Water Conservation District Weather Station
- City of Banning Boundary
- Colorado River Aqueduct
- San Jacinto Tunnel

Ground Water Storage Unit Boundary (Source: USGS, 2006)

- Banning Bench
- Banning
- Beaumont
- Cabazon
- Canyon

- SCE Trans-Basin Diversion from the Upper Whitewater River Watershed

NORTH

0 4,000 8,000 Feet

29-Mar-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

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Figure 6

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_6_well_locations_3-11.mxd

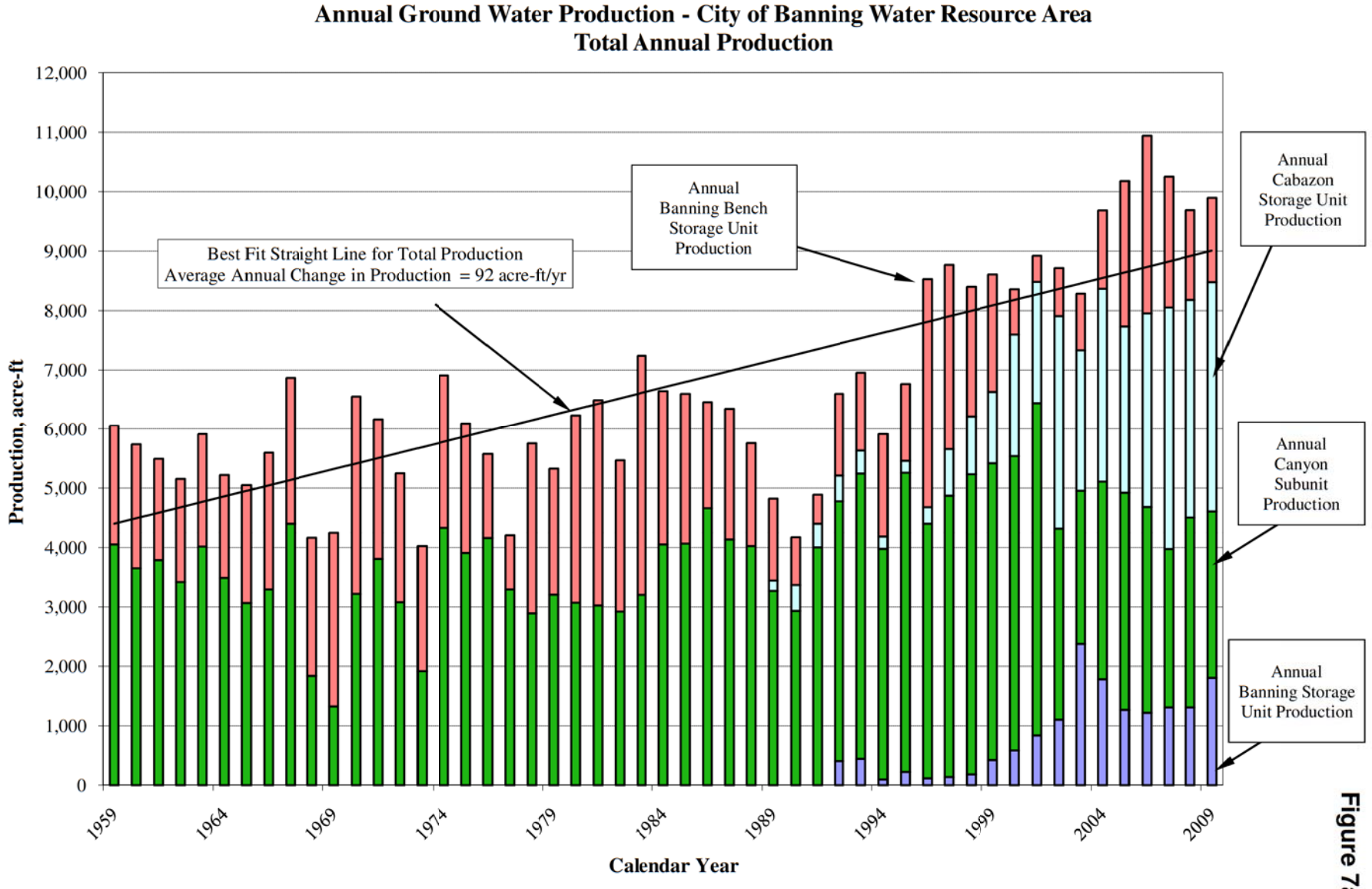

Annual Ground Water Production - City of Banning Water Resource Area
Total Annual Production
Production, acre-ft
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1959
1964
1969
1974
1979
1984
1989
1994
1999
2004
2009
Calendar Year
Best Fit Straight Line for Total Production
Average Annual Change in Production = 92 acre-ft/yr
Annual Banning Bench Storage Unit Production
Annual Cabazon Storage Unit Production
Annual Canyon Subunit Production
Annual Banning Storage Unit Production

Figure 7a

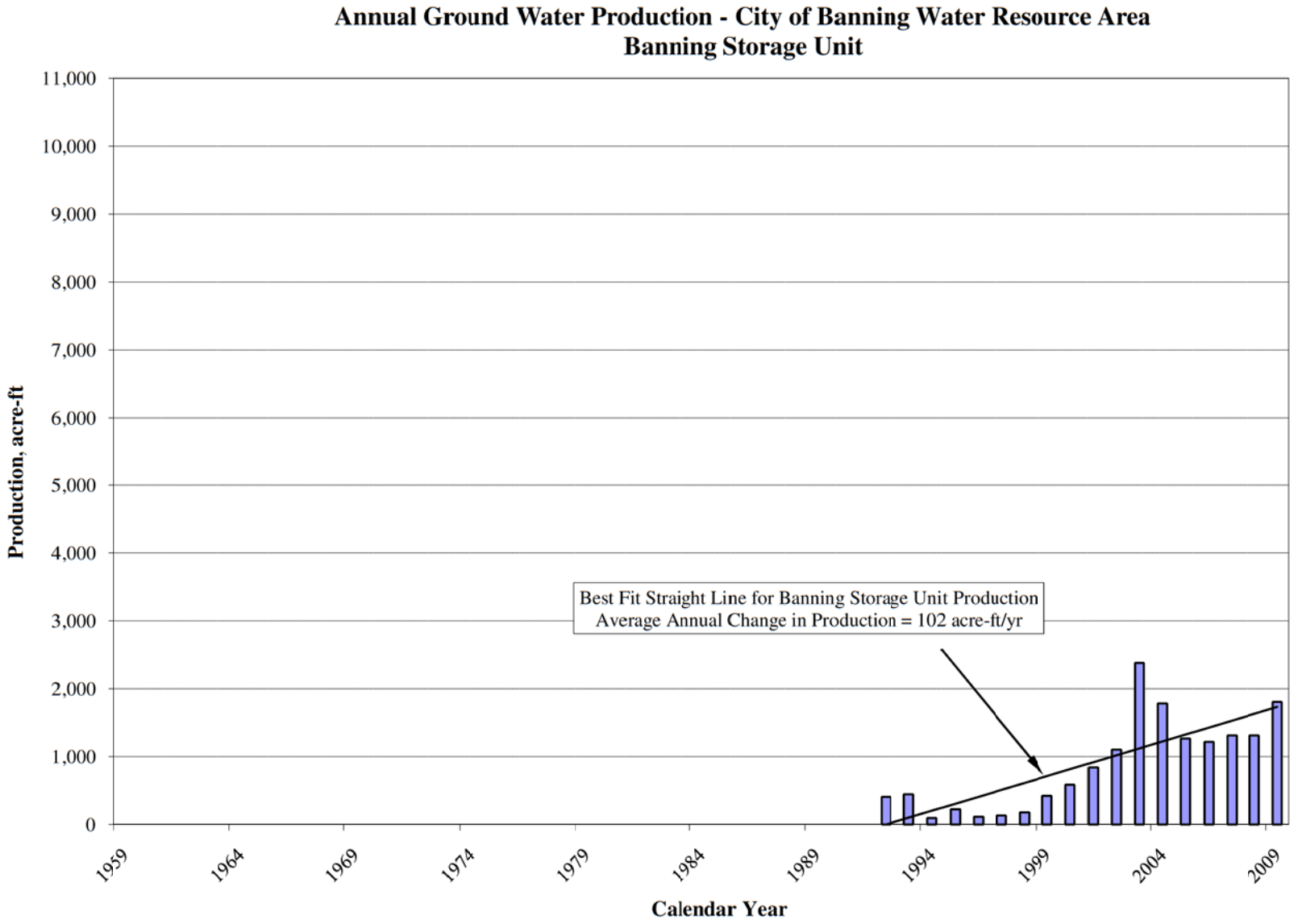

Annual Ground Water Production - City of Banning Water Resource Area
Banning Storage Unit
Production, acre-ft
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Best Fit Straight Line for Banning Storage Unit Production
Average Annual Change in Production = 102 acre-ft/yr
1959
1964
1969
1974
1979
1984
1989
1994
1999
2004
2009
Calendar Year

Figure 7b

City of Banning
Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and
Available Water Supply From the Beaumont Basin

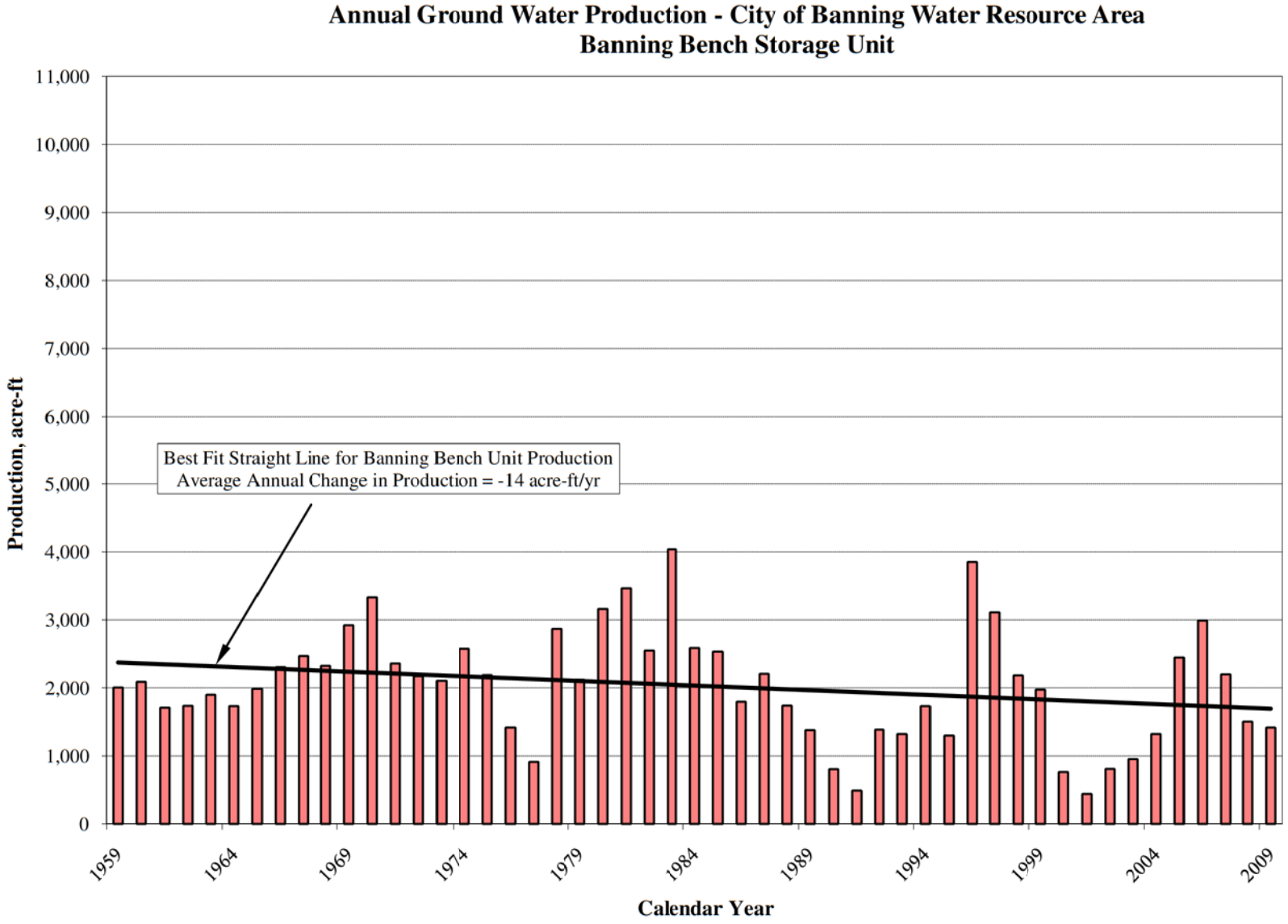


Figure 7c

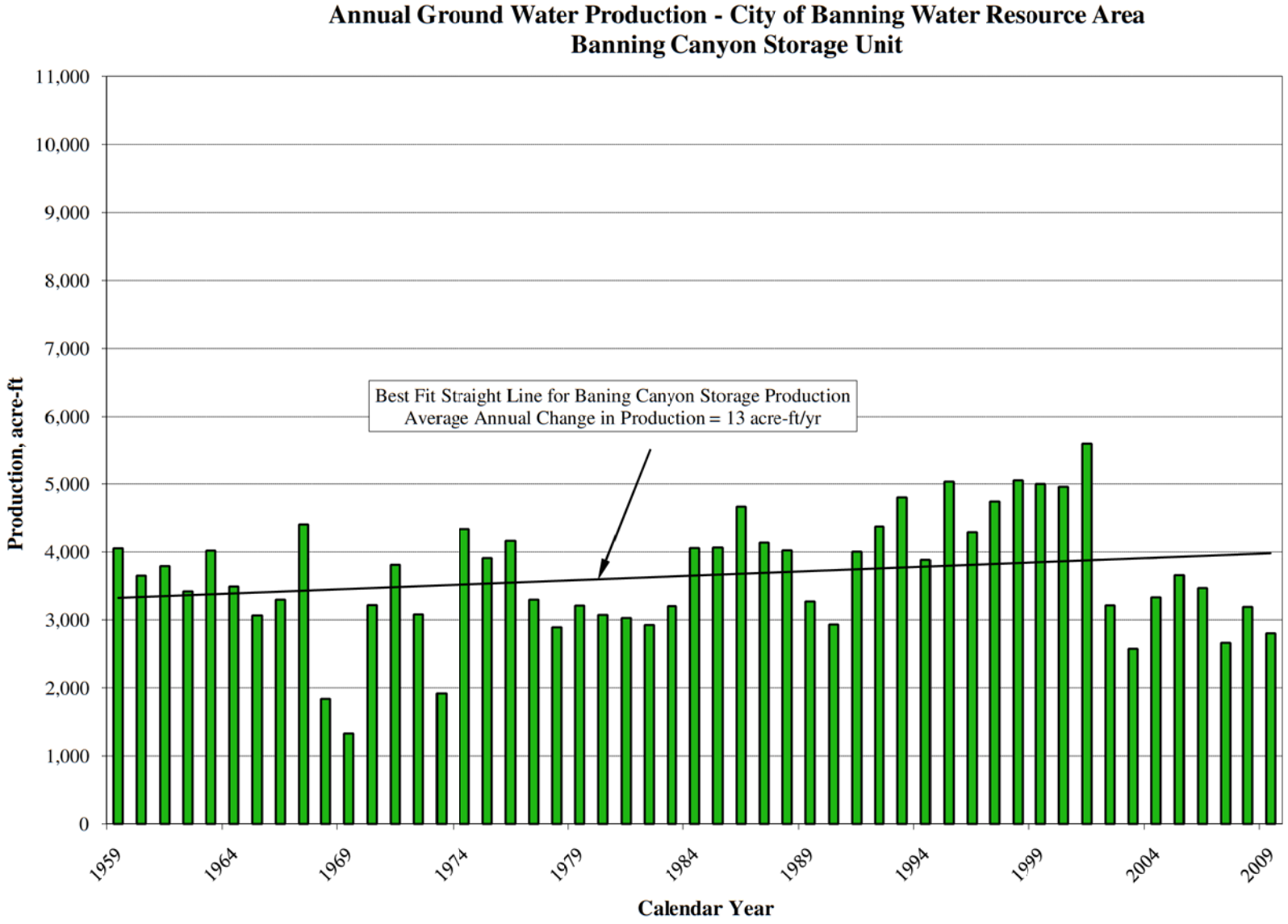

Annual Ground Water Production - City of Banning Water Resource Area
Banning Canyon Storage Unit
Best Fit Straight Line for Baning Canyon Storage Production
Average Annual Change in Production = 13 acre-ft/yr
Production, acre-ft
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1959
1964
1969
1974
1979
1984
1989
1994
1999
2004
2009
Calendar Year

Figure 7d

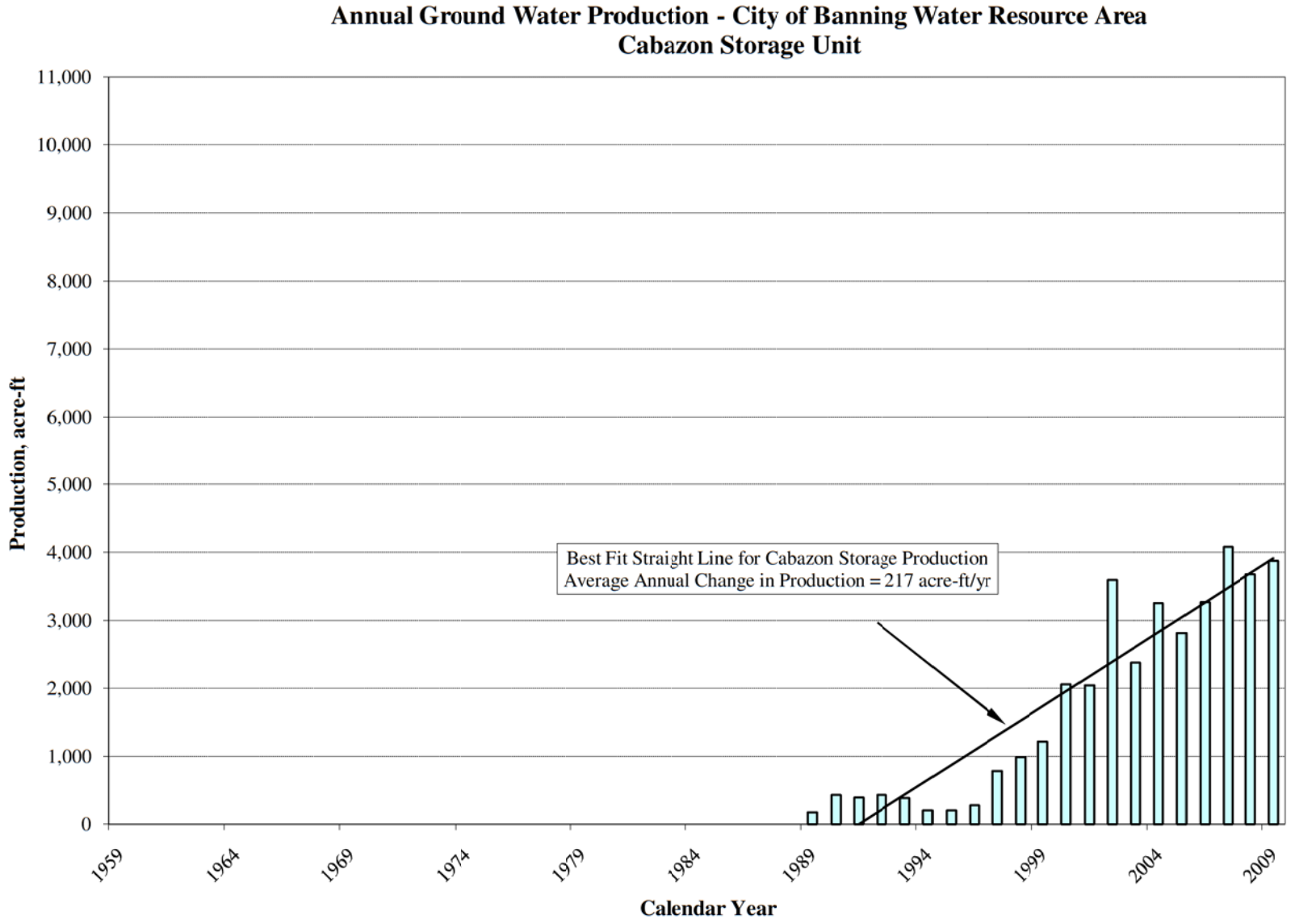
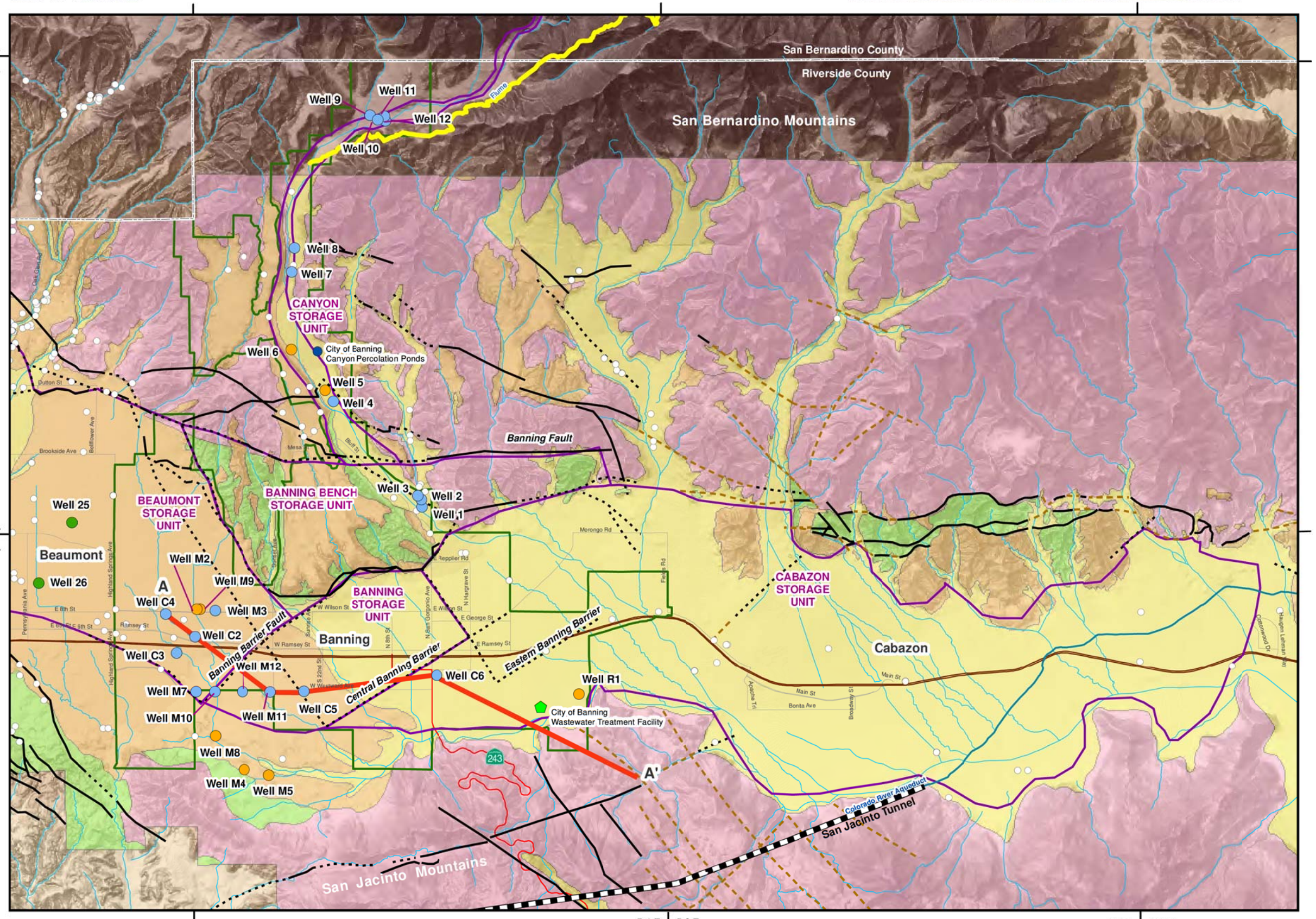

Annual Ground Water Production - City of Banning Water Resource Area
Cabazon Storage Unit
Production, acre-ft
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1959
1964
1969
1974
1979
1984
1989
1994
1999
2004
2009
Calendar Year
Best Fit Straight Line for Cabazon Storage Production
Average Annual Change in Production = 217 acre-ft/yr

Figure 7e

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN

CITY OF BANNING



R.1 W. | R.1 E. | R.1 E. | R.2 E. | R.2 E. | R.3 E.

SURFICIAL GEOLOGY

EXPLANATION

- Active City of Banning Well
- Inactive City of Banning Well
- Active Wells Co-Owned by the City of Banning and Beaumont Cherry Valley Water District
- Other Wells

Geologic Classifications:

- Qya - Quaternary Younger Alluvium
- Qoa - Tertiary to Quaternary Older Alluvium (equivelent to Qvo and Qo of Fig 8b and 8c)
- Qtcv - Tertiary to Quaternary Continental Formation
- pTb - Pre-Tertiary Basement Complex

Source of Geology:
Modified from R.M. Bloyd, Jr. USGS Water Supply Paper 1999-D, Plate 1, 1971.
(Note: Units Qsu and Qsl shown on Figure 8b and 8c are not exposed in study area)

- Cross Section A-A'
- Ground Water Storage Unit Boundary (Source: USGS, 2006)
- City of Banning Boundary
- County Boundary

Fault Classification

- Surface Fault
- Concealed Fault
- Approximate / Inferred Fault
- Colorado River Aqueduct
- San Jacinto Tunnel
- SCE Trans-Basin Diversion from the Upper Whitewater River Watershed

29-Mar-11
Prepared by: DWB
Map Projection: UTM 1927 (Zone 11)

Source of Data:
Faults Modified from R.M. Bloyd, Jr.
USGS Water Supply Paper 1999-D, Plate 1, 1971., and
USGS Scientific Investigation Report 2006-5026, Figure 2, 2006.

NORTH
0 3,500 7,000 Feet

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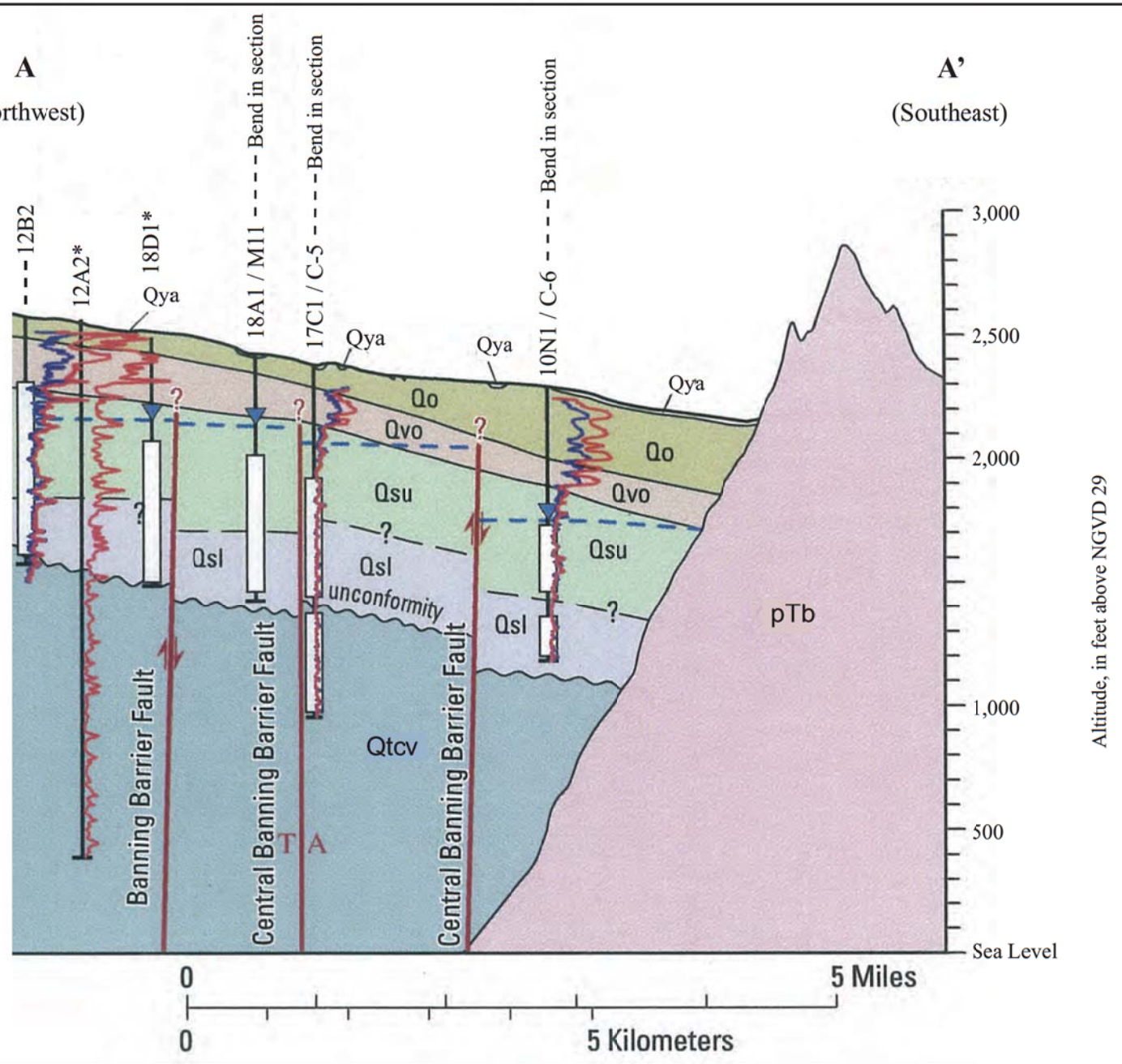
Figure 8a

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_8_geology_3-11.mxd



See Figure 8a for Geologic Map
See Figure 8c for Generalized Geologic Cross Section A-A' Legend

Source: Modified from USGS Geology, Ground-water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside County, California, Figure 6. Scientific Investigation Report 2006-5026, 2006.

Note: Geologic classification titles have been modified from the 2006 USGS report for purposes of this report. It should be noted that the descriptions are similar in characteristic.

Projects\City_of_Banning\01) Max_Perennial_Yield Estimates\01) Comprehensive_safe_yield_2010_(also look in 02)\02) Figures\Fig_8b_8c_geologic_x-sec\Fig_8b_usgs_x_sec_11-10.ai

Figure 8b

Drawn:	
Checked:	
Approved:	
Date: 29-Mar-11	

CITY OF BANNING

SCHEMATIC SHOWING
GENERALIZED GEOLOGIC CROSS SECTION A-A'

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EXPLANATION

Surficial deposits
(Holocene to Pleistocene)

- Qya — **Younger deposits**[1]
- Qo — **Older deposits**[1]
- Qvo — **Very old deposits**[1]

Younger sedimentary deposits
(Pleistocene)

- Qsu — **Sedimentary deposits**[1] **(upper)**
- Qsl — **Sedimentary deposits**[2] **(lower)**

Older sedimentary deposits
(Pleistocene to Pliocene)

- Qtcv — **Older sedimentary deposits**

Crystalline basement rocks
(Pre-Tertiary)

- pTb — **Peninsular Ranges-type**

[1] **Upper aquifer in Beaumont and Banning storage units**

[2] **Lower aquifer in Beaumont and Banning storage units**



Well and identifier—Perforated interval shown as white box. Asterisk (*) indicates well projected to cross section
Water level in well (2000)
Short normal (blue) and long normal (red) resistivity logs

Water level—2000



Fault—Arrows indicate direction of vertical displacement. Letters indicate direction of movement of strike-slip fault. **T**—towards the viewer, **A**—away from the viewer

See Figure 8b for Generalized Geologic Cross Section A-A' and Figure 8a for cross section location.

Source: USGS Geology, Ground-water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside County, California, Figure 6. Scientific Investigation Report 2006-5026. 2006

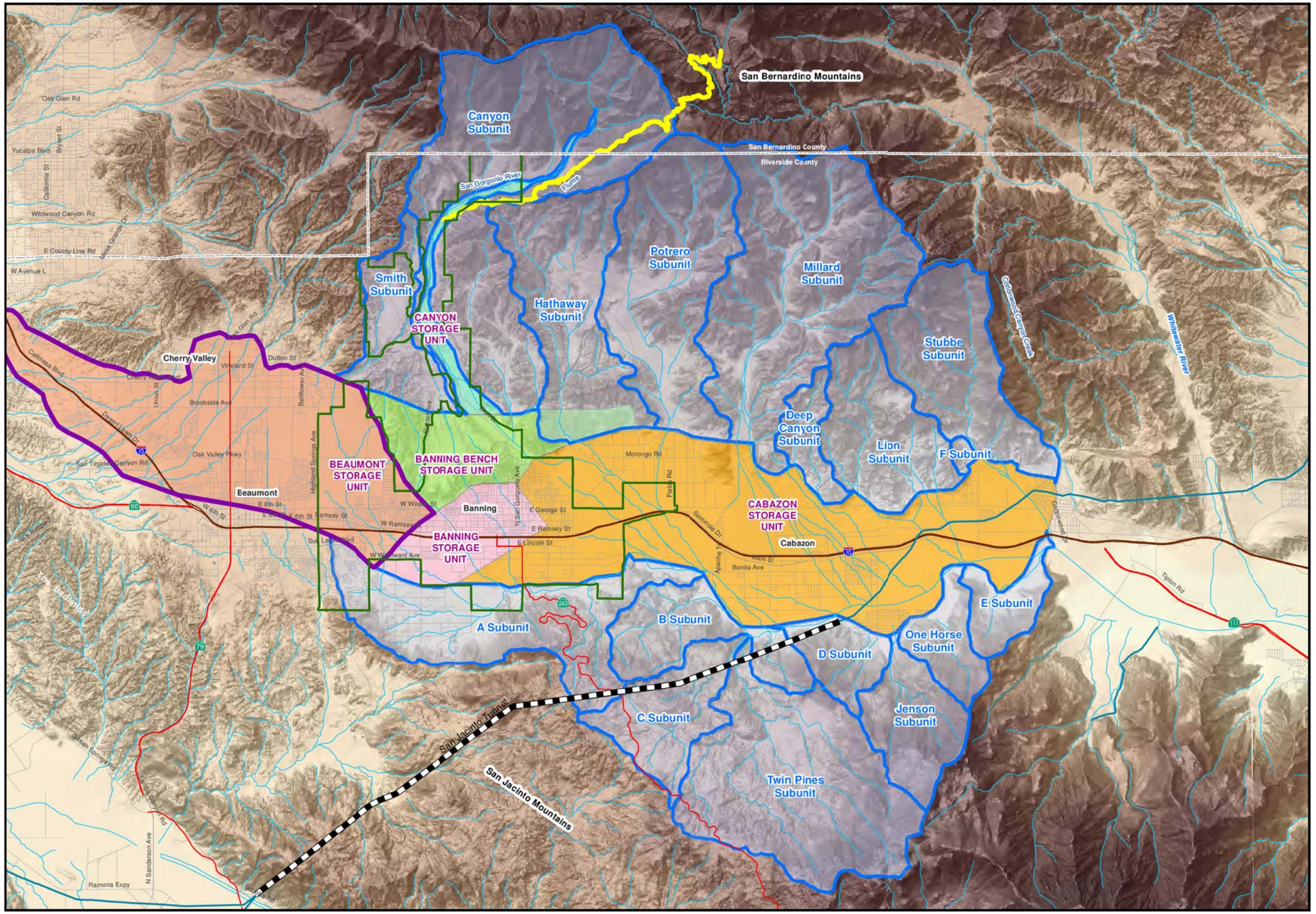
Note: Geologic classification titles have been modified from the 2006 USGS report for purposes of this report. It should be noted that the descriptions are similar in characteristic.

Projects\City_of_Banning\01) Max_Perennial_Yield Estimates\01) Comprehensive_safe_yield_2010_(also look in 02)\02) Figures\Fig_8b_8c_geologic_x-sec\Fig_8c_x_sec_legend_11-10.ai

Figure 8c	Drawn:	CITY OF BANNING	GEOSCIENCE
	Checked:	LEGEND FOR SCHEMATIC SHOWING GENERALIZED GEOLOGIC CROSS SECTION A-A'	GEOSCIENCE Support Services, Incorporated P.O. Box 220, Claremont, CA 91711 Te: (909) 451-6650 Fax: (909) 451-6638 www.gssiwater.com
	Approved:		
	Date: 29-Mar-11		

CITY OF BANNING

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN



CITY OF BANNING HYDROLOGIC SUBUNITS AND GROUND WATER STORAGE UNITS

EXPLANATION

- City of Banning Boundary
- Hydrologic Subunit Boundary and Designation
- Adjudicated Ground Water Boundary (source: Beaumont Basin Watermaster, 2009)
- Colorado River Aqueduct
- San Jacinto Tunnel

Ground Water Storage Unit Boundary (Source: USGS, 2006)

- Banning Bench
- Banning
- Beaumont
- Cabazon
- Canyon
- SCE Trans-Basin Diversion from the Upper Whitewater River Watershed

29-Mar-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 5,500 11,000 Feet

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Figure 9

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_9_study_area_w_watersheds_3-11.mxd

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN

CITY OF BANNING

T.1 S.
T.2 S.
T.2 S.
T.3 S.

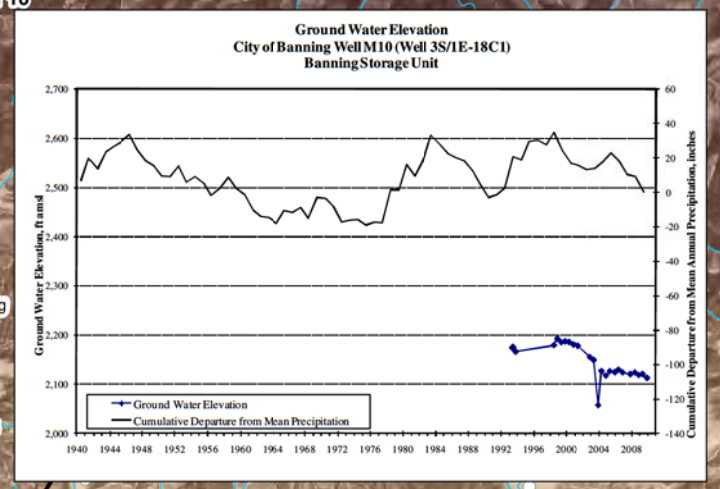
San Bernardino County
Riverside County
San Bernardino Mountains
San Jacinto Mountains
San Jacinto Tunnel
Colorado River Aqueduct
Plume

Well 9
Well 11
Well 12
Well 10
Well 8
Well 7
Well 5
Well 3
Well 2
Well 1
Well M2
Well M9
Well C4
Well M3
Well C2
Well C3
Well M12
Well M7
Well M10
Well M11
Well C5
Well C6
Well R1
Well M8
Well M4
Well M5

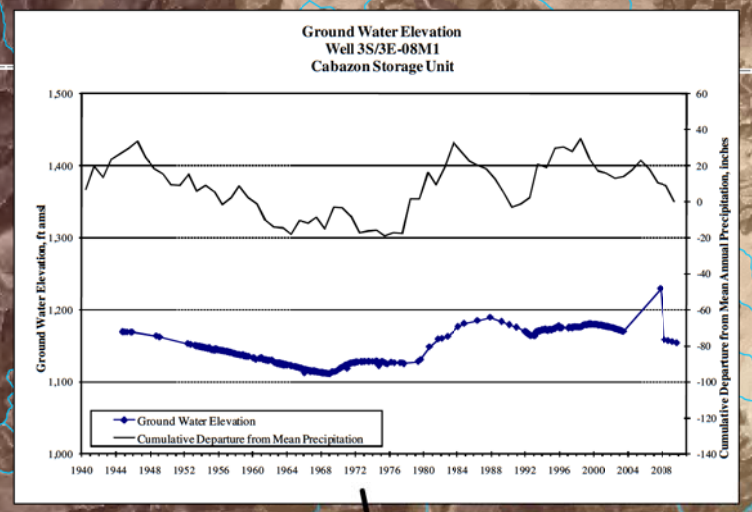
CANYON STORAGE UNIT
Cty of Banning Canyon Percolation Ponds
BEAUMONT STORAGE UNIT
BANNING BENCH STORAGE UNIT
BANNING STORAGE UNIT
CABAZON STORAGE UNIT
City of Banning Wastewater Treatment Facility

Beaumont
Banning
Cabazon

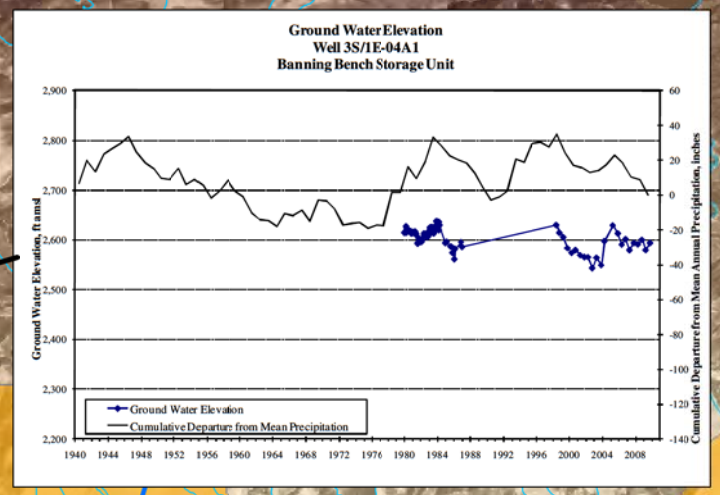
Ground Water Elevation
City of Banning Well M10 (Well 3S/1E-18C1)
Banning Storage Unit



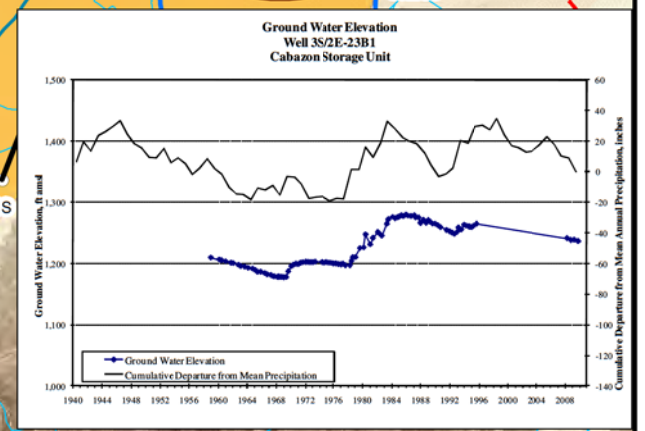
Ground Water Elevation
Well 3S/3E-08M1
Cabazon Storage Unit



Ground Water Elevation
Well 3S/1E-04A1
Banning Bench Storage Unit



Ground Water Elevation
Well 3S/2E-23B1
Cabazon Storage Unit



GROUND WATER ELEVATIONS WINTER 2009/10

EXPLANATION

- Winter 2009/10 Ground Water Elevations, ft amsl
- Water Level Well
- City of Banning Boundary
- Colorado River Aqueduct
- San Jacinto Tunnel

Ground Water Storage Unit Boundary (Source: USGS, 2006)

- Banning Bench
- Banning
- Beaumont
- Cabazon
- Canyon

- SCE Trans-Basin Diversion from the Upper Whitewater River Watershed

R.1 W. | R.1 E. | R.2 E. | R.3 E.

29-Mar-11
Prepared by: DWB
Map Projection: UTM 1927 (Zone 11)

Source of Data:
Faults Modified from R.M. Bloyd, Jr.
USGS Water Supply Paper 1999-D, Plate 1, 1971., and
USGS Scientific Investigation Report 2006-5026, Figure 2, 2006.

NORTH
0 3,500 7,000 Feet

GEOSCIENCE
GEOSCIENCE Support Services, Inc.
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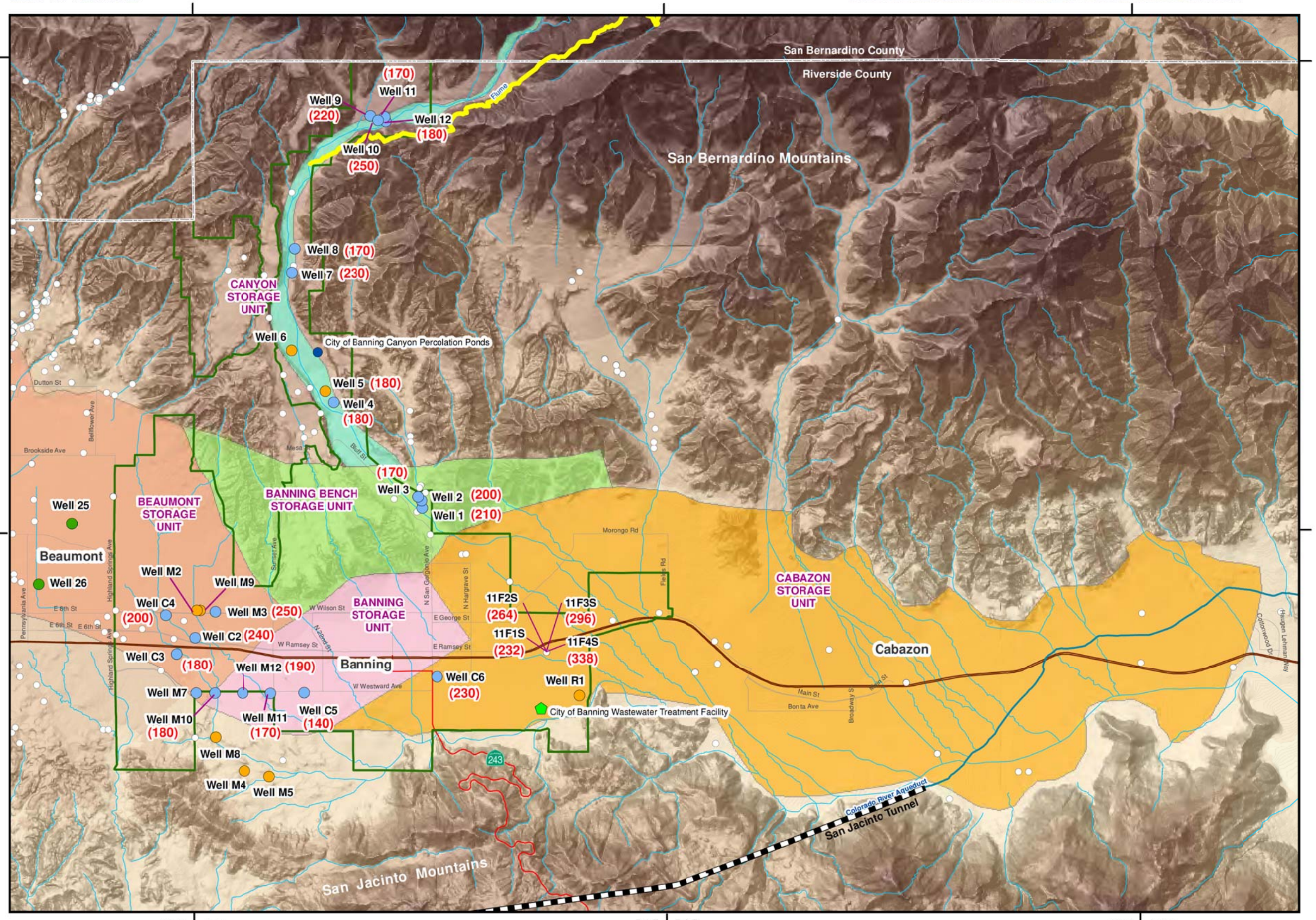
Tel: (909) 451-6650 Fax: (909) 451-6638
www.gssiwater.com

Figure 10

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_10_2010_WL_3-11.mxd

CITY OF BANNING

MAXIMUM PERENNIAL YIELD ESTIMATES FOR THE BANNING AND CABAZON STORAGE UNITS, AND AVAILABLE WATER SUPPLY FROM THE BEAUMONT BASIN



GROUND WATER TOTAL DISSOLVED SOLIDS SPRING 2009

EXPLANATION

- Active City of Banning Well
- Inactive City of Banning Well
- Active Wells Co-Owned by the City of Banning and Beaumont Cherry Valley Water District
- (180) Total Dissolved Solids (Spring 2009) (mg/L)
- Other Wells
- City of Banning Boundary
- Colorado River Aqueduct
- San Jacinto Tunnel

Ground Water Storage Unit Boundary (Source: USGS, 2006)

- Banning Bench
- Banning
- Beaumont
- Cabazon
- Canyon
- SCE Trans-Basin Diversion from the Upper Whitewater River Watershed

Note: Data was unavalible to the Eastern portion of the Cabazon Storage Unit

R.1 W. | R.1 E. | R.2 E. | R.3 E.

29-Mar-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 3,500 7,000 Feet

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Figure 11

GIS_proj/city_of_banning_per_yield_3-11/0_Fig_11_gw_quality_3-11.mxd

Estimate of Maximum Perennial Yield in the Banning Storage Unit
Wells C-5, M-10, M-11 and M-12
Zero-Net Draft Analysis

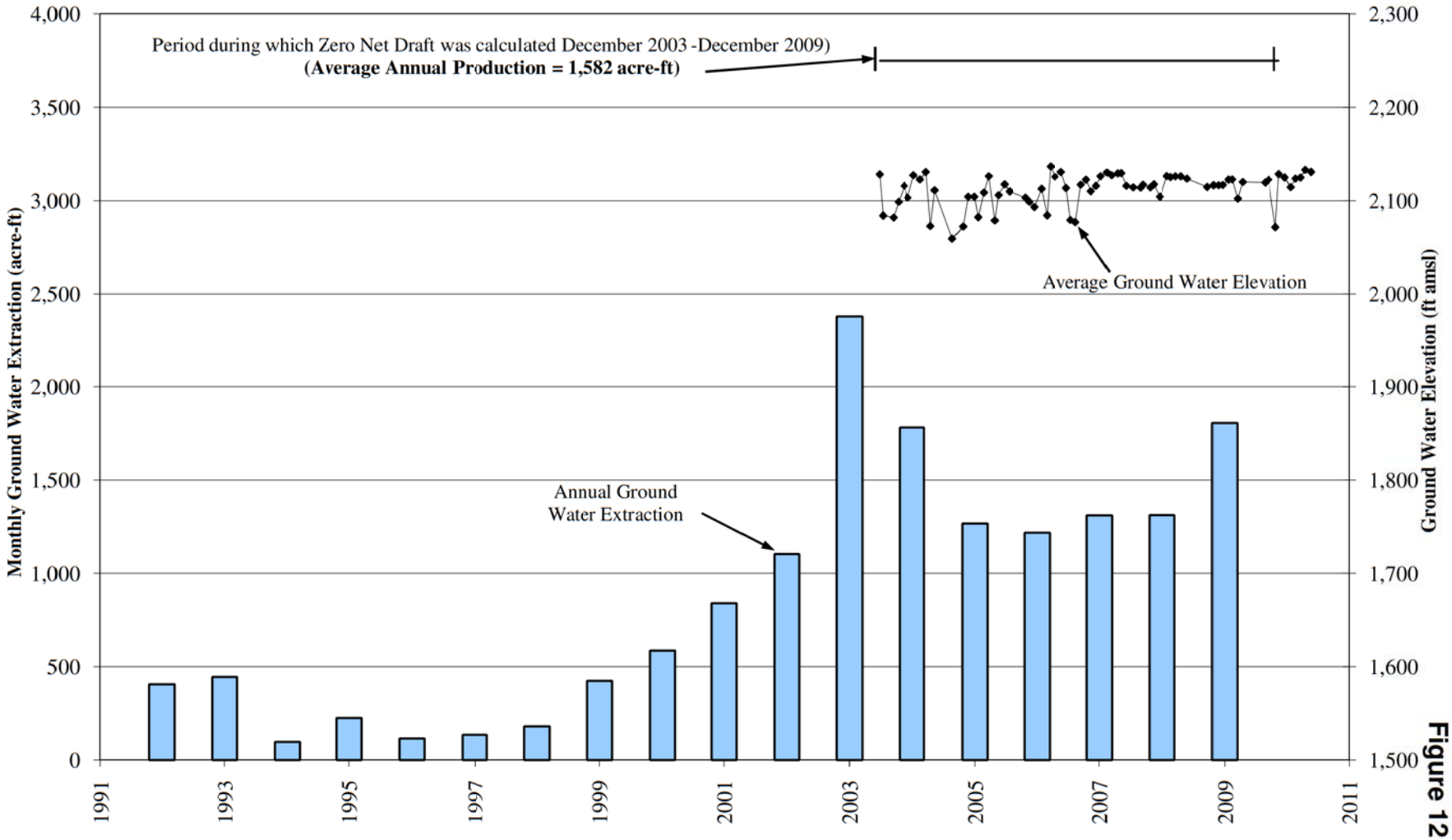

Figure 12

Estimate of Maximum Perennial Yield in the Banning Storage Unit
Wells M10, M11, M12, and C5
Hill Method Analysis
(1992 to 2010)

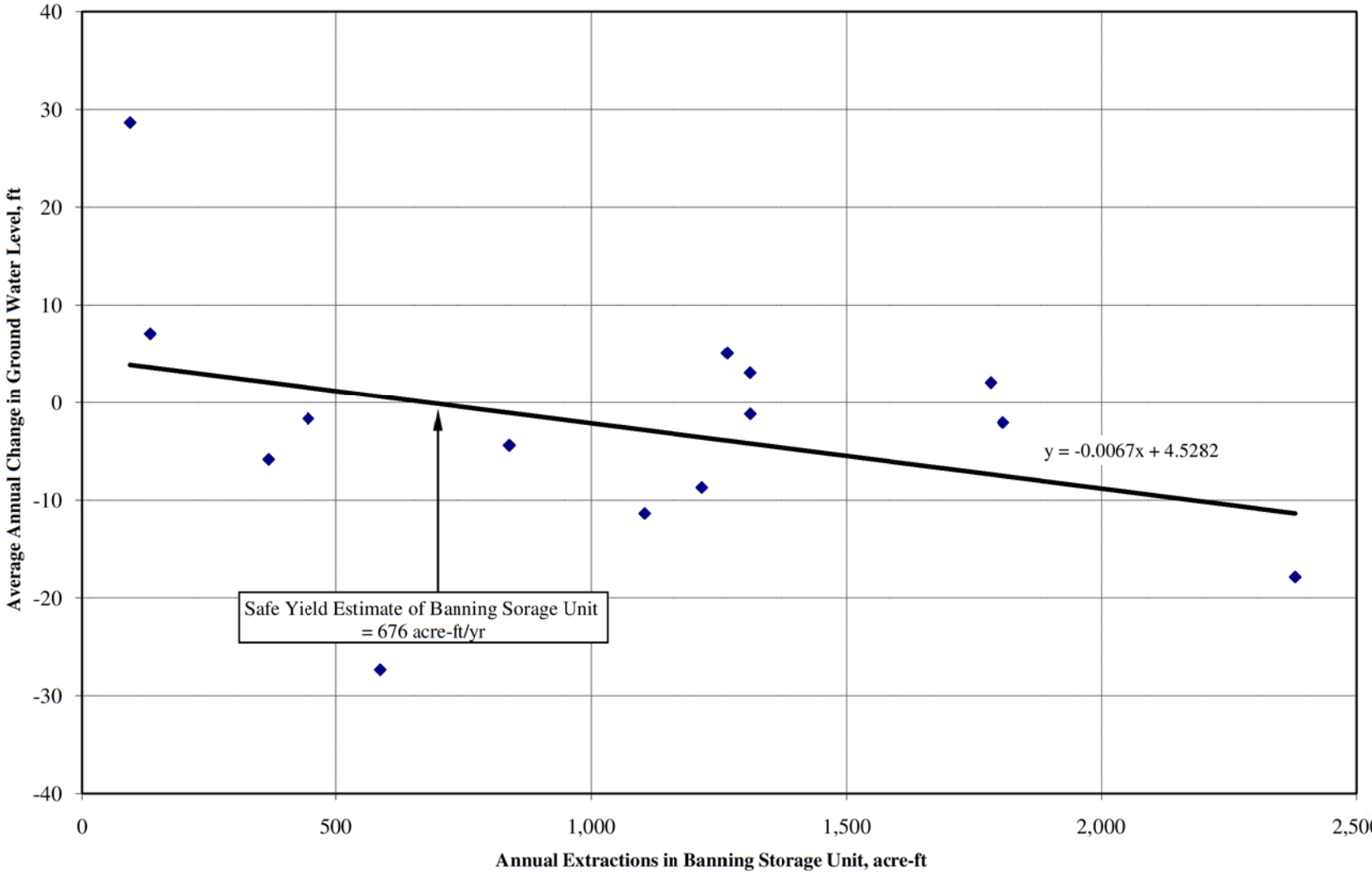

Figure 13

Estimate of Maximum Perennial Yield in the Banning Bench Storage Unit
Wells 1, 2, and 3
Zero-Net Draft Analysis

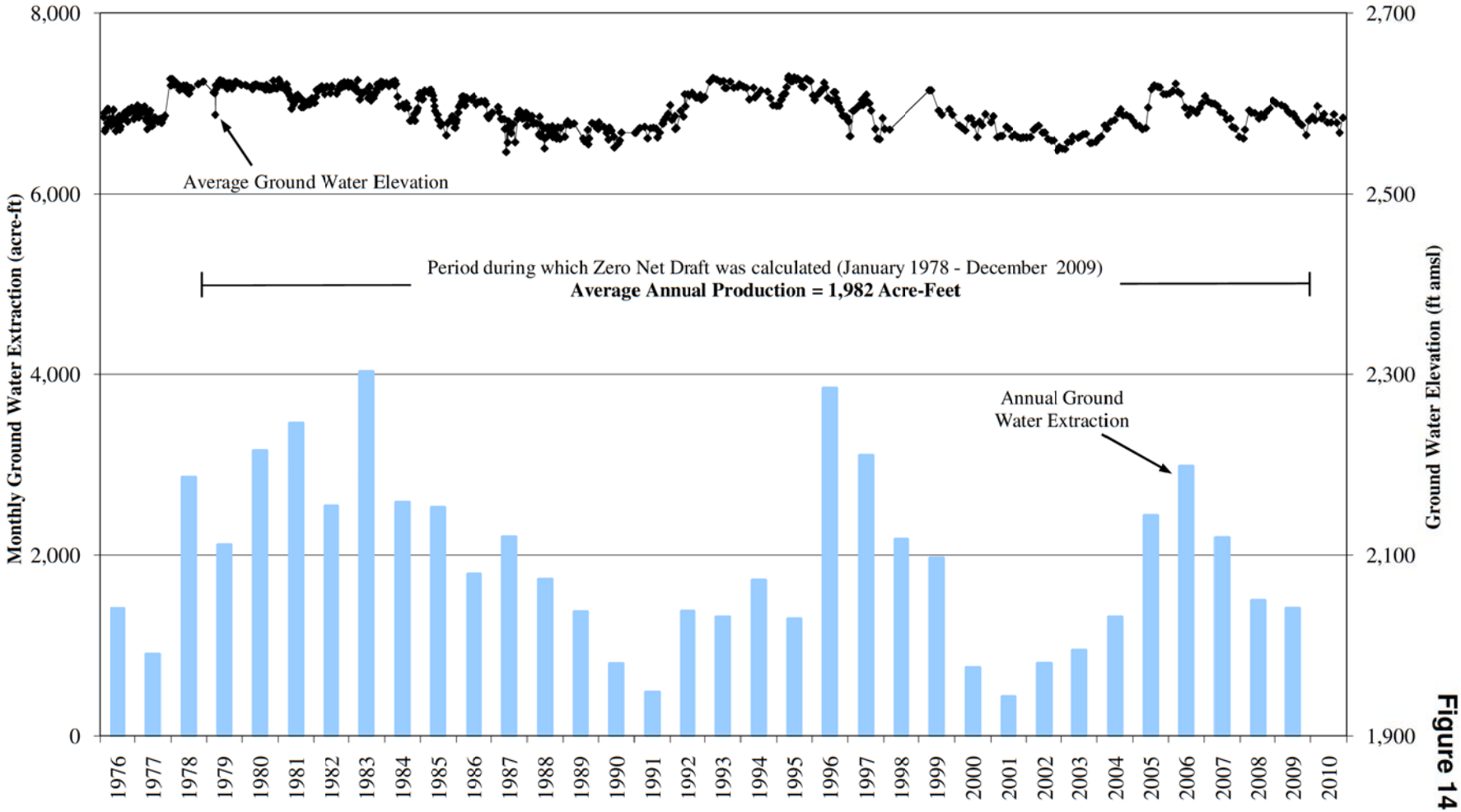

Figure 14

Estimate of Maximum Perennial Yield in the Banning Bench Storage Unit
Wells 1, 2, and 3
Hill Method Analysis
(1977 to 2009)

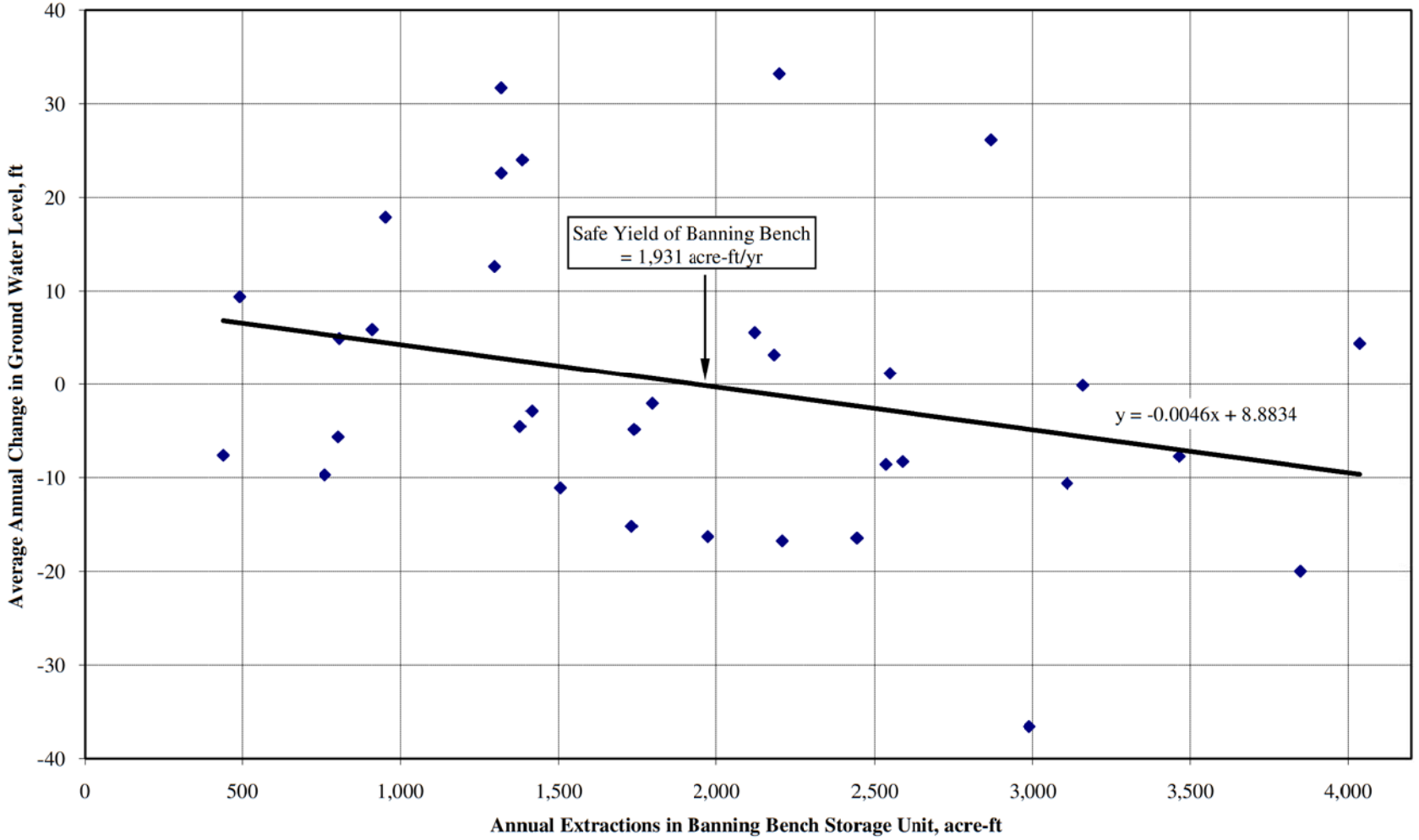

Figure 15

Estimate of Maximum Perennial Yield in the Banning Canyon Storage Unit
Wells 4 through 12
Zero-Net Draft Analysis

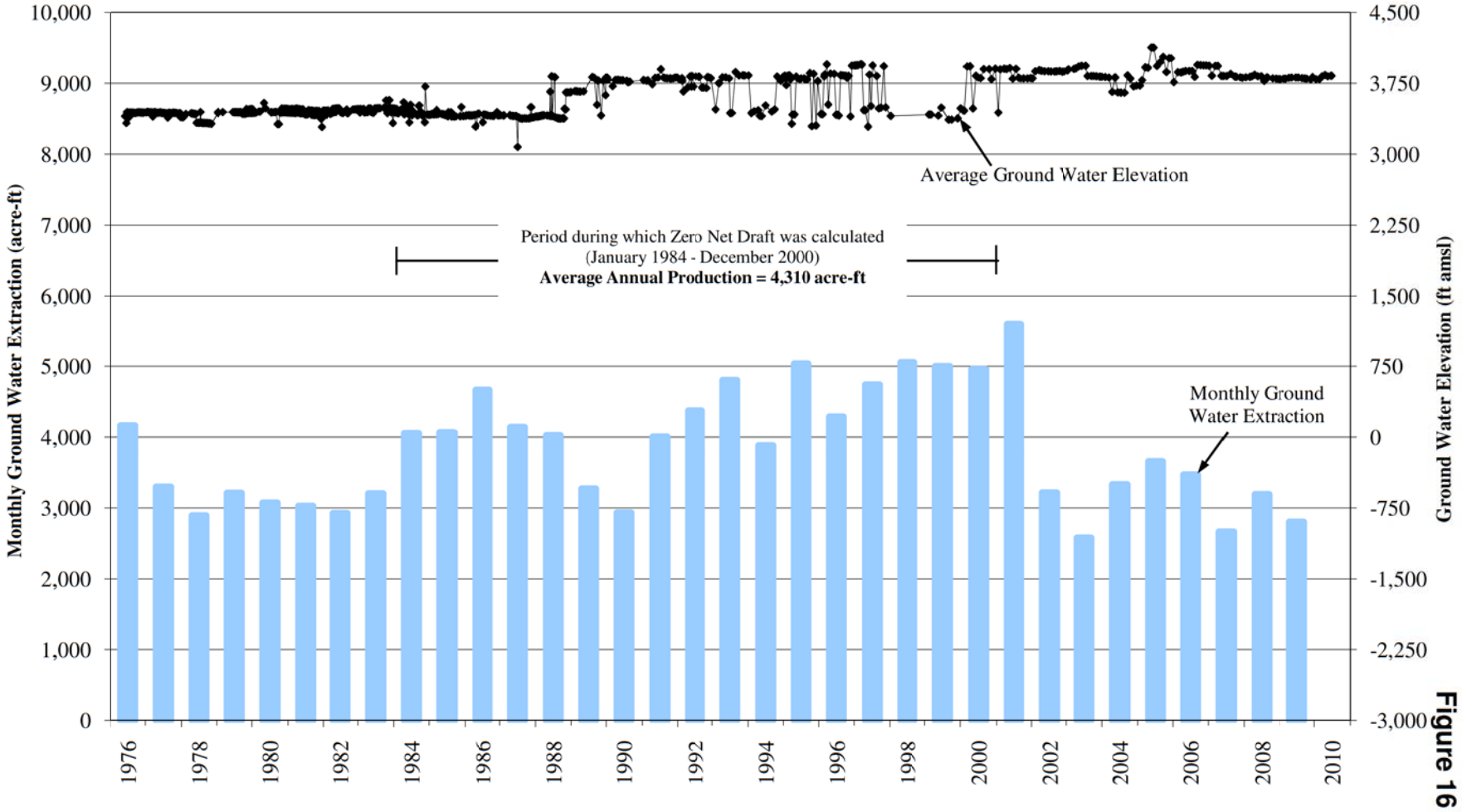

Figure 16

Estimate of Maximum Perennial Yield in the Banning Canyon Storage Unit
Wells 4-12
Hill Method Analysis
(1977 to 2009)

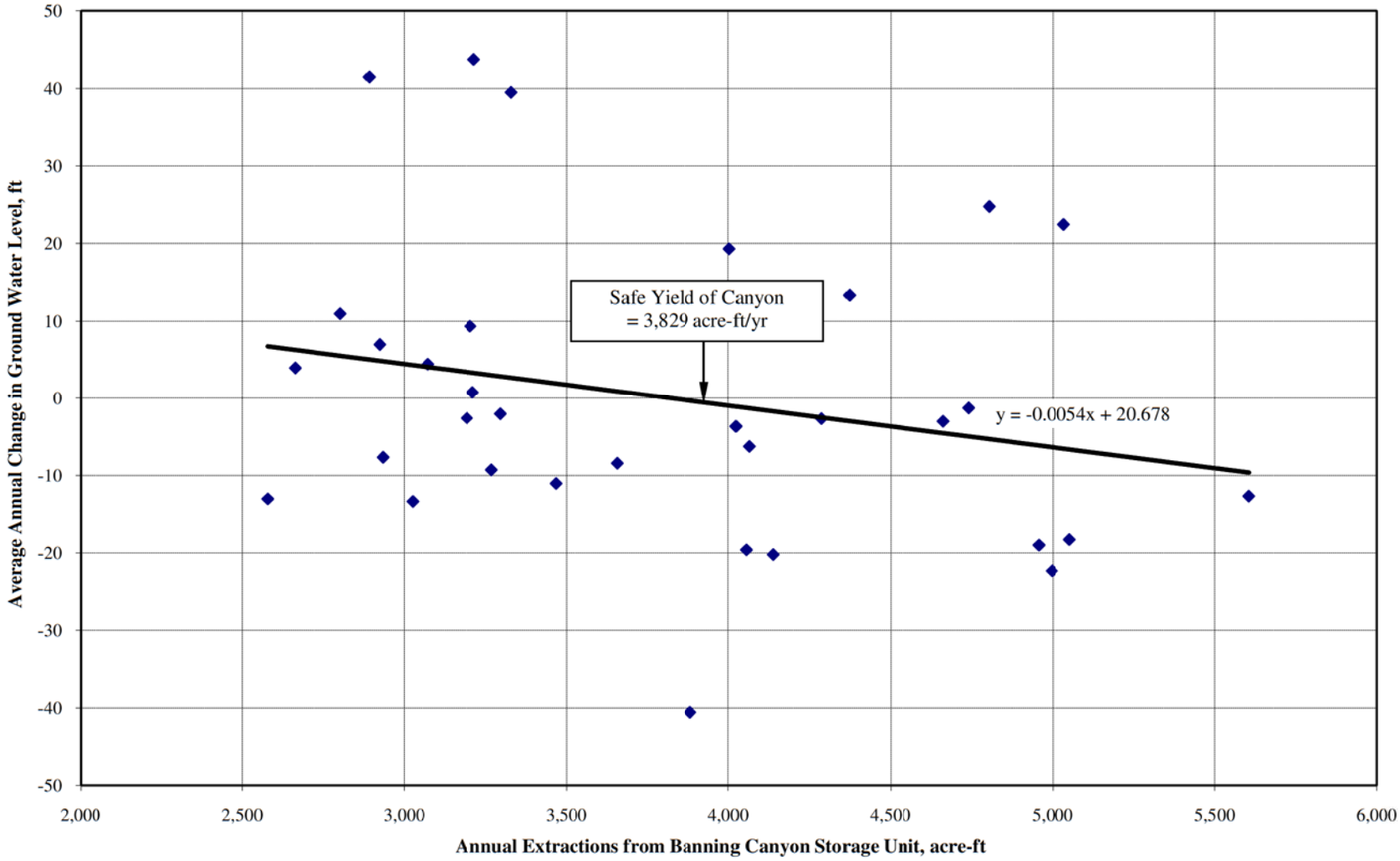

Figure 17

TABLES

Monthly Precipiation and Evaporation Summaries
Beaumont 1E Station

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Maximum Average Monthly Temperature (F)	60.5	63.6	66.2	72.4	78.7	88.1	95.6	95.5	90.4	80.6	69.3	62
Minimum Average Monthly Temperature (F)	38.6	39.1	40	42.7	47.6	52.6	58.4	58.9	55.8	49.3	43	39.2
Average Monthly Precipitation (in)	3.76	3.44	3.12	1.36	0.63	0.15	0.23	0.21	0.51	0.59	1.65	2.09
Average Maximum Monthly Precipitation (in)	20.37	13.2	11.44	6.53	4.14	1.98	3.06	2.49	4.6	4.6	9.02	10.88
Average Minimum Monthly Precipitation (in)	0	0	0	0	0	0	0	0	0	0	0	0
Average Monthly Evaporation (in)	2.97	3.56	4.79	5.06	7.6	9.14	10.97	10.47	8.85	6.46	5.16	3.56

Temperature and precipitation averaged during 1948 to 2001.

Evaporation averaged from 1948 to 1957

Table 1

Source: EarthInfo Inc. (2009)

City of Banning Water Resource Area Historical Production 1959-2009

	[1]	[2]		[3]		[4]		[5]
Year	Banning	Banning Bench		Banning Canyon Subunit		Cabazon		Total Production
		City of Banning	Private Producers	City of Banning	Other Producers	City of Banning	Other Producers	
	[acre-ft]							
1959	*	2,005	*	4,053	*	0	*	**6,058**
1960	*	2,089	*	3,651	*	0	*	**5,740**
1961	*	1,707	*	3,790	*	0	*	**5,497**
1962	*	1,736	*	3,420	*	0	*	**5,156**
1963	*	1,899	*	4,017	*	0	*	**5,916**
1964	*	1,731	*	3,491	*	0	*	**5,222**
1965	*	1,988	*	3,066	*	0	*	**5,054**
1966	*	2,304	*	3,297	*	0	*	**5,601**
1967	*	2,468	*	4,401	*	0	*	**6,869**
1968	*	2,326	*	1,839	*	0	*	**4,165**
1969	*	2,920	*	1,327	*	0	*	**4,247**
1970	*	3,333	*	3,219	*	0	*	**6,552**
1971	*	2,359	*	3,808	*	0	*	**6,167**
1972	*	2,171	*	3,080	*	0	*	**5,251**
1973	*	2,104	*	1,919	*	0	*	**4,023**
1974	*	2,576	*	4,333	*	0	*	**6,909**
1975	*	2,188	*	3,907	*	0	*	**6,095**
1976	*	1,415	*	4,162	*	0	*	**5,577**
1977	*	911	*	3,297	*	0	*	**4,208**
1978	*	2,867	*	2,892	*	0	*	**5,759**
1979	*	2,121	*	3,210	*	0	*	**5,331**
1980	*	3,161	*	3,072	*	0	*	**6,233**
1981	*	3,465	*	3,026	*	0	*	**6,491**
1982	*	2,548	*	2,924	*	0	*	**5,472**
1983	*	4,036	*	3,203	*	0	*	**7,239**
1984	*	2,588	*	4,055	*	0	*	**6,643**
1985	*	2,535	*	4,064	*	0	*	**6,599**
1986	*	1,689	76	4,663	0	0	*	**6,428**
1987	*	2,179	90	4,138	0	0	*	**6,407**
1988	*	1,635	90	4,024	0	0	*	**5,749**
1989	*	1,057	90	3,269	0	0	176	**4,592**
1990	*	561	90	2,934	305	0	434	**4,324**
1991	*	408	90	4,003	204	0	398	**5,103**
1992	406	1,266	90	4,373	230	0	434	**6,799**
1993	445	1,246	75	4,803	30	0	388	**6,987**
1994	96	1,657	75	3,925	31	0	208	**5,992**
1995	225	1,289	75	5,007	27	0	205	**6,827**
1996	115	3,785	65	4,245	42	0	278	**8,530**
1997	135	3,065	45	4,713	27	0	785	**8,769**
1998	180	2,117	65	4,925	128	0	986	**8,401**
1999	424	1,910	65	4,756	242	0	1,212	**8,608**
2000	586	696	65	4,837	120	0	2,055	**8,359**
2001	839	364	75	5,451	153	0	2,040	**8,922**

City of Banning

Table 2

Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and Available Water Supply From the Beaumont Basin

	[1]	[2]		[3]		[4]		[5]
Year	**Banning**	**Banning Bench**		**Banning Canyon Subunit**		**Cabazon**		**Total Production**
		City of Banning	**Private Producers**	**City of Banning**	**Other Producers**	**City of Banning**	**Other Producers**	
	[acre-ft]							
2002	1,103	733	75	2,940	275	0	3,592	**8,718**
2003	2,381	877	75	2,370	207	0	2,374	**8,284**
2004	1,782	1,245	75	3,291	39	323	2,932	**9,686**
2005	1,267	2,369	75	3,577	80	219	2,593	**10,180**
2006	1,217	2,924	65	3,445	22	612	2,655	**10,941**
2007	1,311	2,124	75	2,640	22	1,202	2,957	**10,331**
2008	1,311	1,430	75	3,161	31	914	2,844	**9,766**
2009	1,806	1,341	75	2,767	36	982	2,889	**9,896**

Sources of Data: City of Banning (2010), SGPWA Conditions of the Basin Report (various years) and Riverside County Regional Detention Center EIR, LSA Associates Inc., 2009 report.

Note:

* Values unknown

[1] Banning includes M10, M11, M12 and C-5.

[2] Banning Bench data includes City of Banning Wells 1 through 3 and private producers.

[3] Banning Canyon Storage Unit includes City of Banning Wells 4 through 12, Banning Heights Mutual Water Company and private producers.

[4] Cabazon includes extraction from City of Banning Well C6, Cabazon Water District, Mission Springs Water District as well as private producers within the Cabazon Storage Unit.

[5] Total annual production for the Banning water resource area.

City of Banning
Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and
Available Water Supply From the Beaumont Basin

Cabazon Storage Unit Historical Annual Production 1989 - 2009

Year	Mission Springs Water District[1]	Arrowhead[2]	Cabazon Water Dictrict[3]	Desert Hills Outlets[4]	Robertson's Ready Mix[5]	Morongo Tribe[6]	City of Banning (Well C-6)[7]	Jenson's Water Company[8]	Other[8]	Total
1989	No Data	No Data	No Data	No Data	No Data	No Data		114	62	176
1990	No Data	No Data	No Data	No Data	320	No Data		114		434
1991	No Data	No Data	No Data	No Data	56	No Data		114	228	398
1992	No Data	No Data	No Data	No Data	53	No Data		114	267	434
1993	No Data	No Data	No Data	No Data	56	No Data		114	218	388
1994	No Data	No Data	No Data	No Data	59	No Data		114	35	208
1995	No Data	No Data	No Data	No Data	56	No Data		114	35	205
1996	No Data	No Data	12	No Data	117	No Data		114	35	278
1997	No Data	No Data	441	No Data	195	No Data		114	35	785
1998	No Data	No Data	728	No Data	109	No Data		114	35	986
1999	No Data	No Data	949	No Data	114	No Data		114	35	1,212
2000	159	0	1,200	130	117	300		114	35	2,055
2001	139	256	1,042	136	4	314		114	35	2,040
2002	165	1,366	1,434	146	4	328		114	35	3,592
2003	169	675	882	153	4	342		114	35	2,374
2004	157	823	1,092	169	186	356	323	114	35	3,254
2005	171	595	915	154	139	470	219	114	35	2,812
2006	190	707	824	142	158	485	612	114	35	3,267
2007	206	842	780	143	337	500	1,202	114	35	4,159
2008	164	752	737	138	373	531	914	114	35	3,758
2009	169	752	919	146	192	563	982	114	35	3,871
Average Production [ac-ft/yr]	169	752	854	146	132	419	709	114	67	1,747

[1] Table 2 - San Gorgonio Pass Water Agency Report on Water Conditions (report period 2008) Data for 2009 is the average for previous years.

[2] Table 2 -San Gorgonio Pass Water Agency Report on Water Conditions (report period 2008) Arrowhead values for 2008-2009 are an average of 2001-2007 usage. The location of pumpage is assumed to be in the Morongo Indian Reservation in Potrero Canyon.

[3] Table 2 - San Gorgonio Pass Water Agency Report on Water Conditions (report period 2008) The 2009 value for the Cabazon WD is an average of values from 2000-2008.

[4] Table 2 - San Gorgonio Pass Water Agency Report on Water Conditions (report period 2008). Desert Hills Outlets usage for 2008-2009 were defined as an average from the 2000-2007 interval. 2000 Values obtained from Riverside County Regional Detention Center EIR, LSA Associates Inc., 2009 report.

[5] 1990 to 2008 values are from Table 2 - San Gorgonio Pass Water Agency Report on Water Conditions (various years). The 2009 value reflects an average of 1997-2000 and 2004-2007 values.

[6] Riverside County Regional Detention Center EIR, LSA Associates Inc., 2009 report. Per this report - Morongo tribe does not publish its GW extraction data. The source of water supply information for the 2009 LSA report is: Water Supply Assessment for the Riverside County Regional Detention Center, Krieger & Stewart, November 2009. Therefore, the values 2000-2007 are estimates from the LSA Associates 2009 report. A best fit straight line for data from 2000-2007 was used to determine 2008-2009 values.

[7] C-6 production from City of Banning (well became operational in 2004).

[8] Information for years 1994 to 2009 from Page 22 of Ron Barto and Associates, Hydrogeology of the Cabazon Basin, August 20, 1990. Data for previous years are compiled from various years of the San Gorgonio Pass Water Agency Report on Water Conditions.

Table 3

Watershed Areas Upstream From the Cabazon Storage Unit

Name	Area [acres]	Average Isoheytal Precip [in./yr]	Average Precip [ac-ft/yr]	Average Recharge as 8% of Precip [ac-ft/yr]
Cabazon Storage Unit	17,222	15.17	21771.48	1741.72
Hathaway Subunit	5,805	23.73	11479.39	918.35
Millard Watershed	10,360	24.6	21238.66	1699.09
Potrero Watershed	7,276	24.7	14970.99	1197.68
Deep Canyon Watershed	1,156	17.8	1718.81	137.50
Jenson Watershed	2,667	19.7	4375.54	350.04
Lion Watershed	3,876	18.0	5804.32	464.35
One Horse Watershed	1,574	12.5	1633.12	130.65
Stubbe Watershed	4,801	19.0	7601.88	608.15
Twin Watershed	8,804	25.0	18363.32	1469.07
A Watershed	6,343	17.9	9434.75	754.78
B Watershed	2,919	16.8	4096.11	327.69
C Watershed	2,930	20.7	5045.15	403.61
D Watershed	1,556	15.3	1979.69	158.38
E Watershed	1,366	8.9	1015.11	81.21
F Watershed	170	15.9	226.44	18.12
		Total	**130,755**	**10,460**

Table 4

APPENDICES

GEOSCIENCE

APPENDIX A

Annual Precipitation and Evaporation

GEOSCIENCE

Annual Precipitation and Evaporation

Year	Precipitation Beaumont Station [inches]	Precipitation Banning Bench Station [inches]	Precipitation Cabazon Station [inches]	Evaporation Beaumont 1 E Station [inches]
1888	18.53	-	-	-
1889	22.50	-	-	-
1890	16.29	-	-	-
1891	18.93	-	-	-
1892	13.51	-	-	-
1893	21.67	-	-	-
1894	12.80	-	-	-
1895	19.88	-	-	-
1896	9.48	-	-	-
1897	15.94	-	-	-
1898	7.48	-	-	-
1899	10.54	-	-	-
1900	11.27	-	-	-
1901	13.85	-	-	-
1902	15.40	-	-	-
1903	20.82	-	-	-
1904	12.78	-	-	-
1905	31.79	-	-	-
1906	18.96	-	-	-
1907	22.24	-	-	-
1908	17.18	-	-	-
1909	27.93	-	-	-
1910	9.49	-	-	-
1911	20.41	-	-	-
1912	16.83	-	-	-
1913	14.83	-	-	-
1914	25.33	-	-	-
1915	28.80	-	-	-
1916	27.89	-	-	-
1917	13.81	-	-	-
1918	22.72	-	-	-
1919	14.86	-	-	-
1920	21.66	-	-	-
1921	30.63	-	-	-
1922	23.18	-	-	-
1923	13.74	-	-	-
1924	14.04	-	-	-
1925	13.15	-	-	-
1926	26.92	-	-	-
1927	26.02	-	-	-
1928	12.83	-	-	-
1929	11.19	-	-	-
1930	22.49	-	-	-

Sources of Data: San Gorgonio Pass Water Agency (2003), EarthInfo (2009)

Annual Precipitation and Evaporation

Year	Precipitation Beaumont Station [inches]	Precipitation Banning Bench Station [inches]	Precipitation Cabazon Station [inches]	Evaporation Beaumont 1 E Station [inches]
1931	21.69	-	-	-
1932	20.01	-	-	-
1933	15.59	-	-	-
1934	14.55	-	-	-
1935	15.47	-	-	-
1936	25.25	-	-	-
1937	24.23	-	-	-
1938	26.84	-	-	-
1939	18.65	-	-	-
1940	23.77	-	-	-
1941	29.96	-	-	-
1942	10.94	-	-	-
1943	27.33	-	-	-
1944	19.53	-	-	-
1945	20.20	-	-	-
1946	21.40	-	-	-
1947	7.96	-	-	-
1948	10.91	-	-	-
1949	13.76	-	-	-
1950	11.50	-	-	89.23
1951	16.71	-	-	88.03
1952	23.03	-	-	83.68
1953	7.86	-	-	78.59
1954	20.28	-	-	-
1955	13.30	-	-	70.05
1956	9.89	-	-	66.62
1957	21.14	-	-	-
1958	23.38	-	-	-
1959	10.84	-	-	-
1960	13.65	-	-	-
1961	8.08	-	-	-
1962	13.00	-	-	-
1963	16.47	-	-	-
1964	13.59	-	-	-
1965	24.54	-	-	-
1966	15.88	-	-	-
1967	20.17	-	-	-
1968	10.71	-	-	-
1969	29.13	-	-	-

Sources of Data: San Gorgonio Pass Water Agency (2003), EarthInfo (2009)

Annual Precipitation and Evaporation

Year	Precipitation Beaumont Station [inches]	Precipitation Banning Bench Station [inches]	Precipitation Cabazon Station [inches]	Evaporation Beaumont 1 E Station [inches]
1970	16.82	-	-	-
1971	12.42	-	-	-
1972	7.77	-	-	-
1973	17.97	-	-	-
1974	17.50	21.50	-	-
1975	14.10	18.14	-	-
1976	18.70	29.28	14.19	-
1977	16.69	28.19	11.98	-
1978	36.37	47.56	27.44	-
1979	16.90	23.30	15.1	-
1980	31.61	43.19	24.15	-
1981	10.60	11.80	9.49	-
1982	26.70	36.97	19.26	-
1983	30.80	46.33	24.13	-
1984	12.17	12.21	7.46	-
1985	11.50	16.38	8.73	-
1986	14.80	20.85	11.41	-
1987	15.10	16.44	11.48	-
1988	11.60	16.70	7.77	-
1989	8.80	12.07	4.74	-
1990	9.70	15.27	6.93	-
1991	18.80	17.50	19.4	-
1992	20.70	25.94	14.53	-
1993	34.98	39.92	26.07	-
1994	15.50	17.75	10.09	-
1995	27.90	34.41	20.47	-
1996	17.80	24.38	10.53	-
1997	14.20	20.62	8.02	-
1998	24.32	28.41	17.83	-
1999	6.40	13.33	6.14	-
2000	9.78	16.72	8.53	-
2001	15.80	16.31	8.37	-
2002	14.40	8.80	3.39	-
2003	18.10	18.79	11.83	-
2004	20.68	20.89	13.58	-
2005	22.26	24.77	13.33	-
2006	12.40	15.03	6.9	-
2007	9.40	11.66	5.02	-
2008	15.62	20.55	10.34	-
2009	8.13	11.27	5.98	-
Minimum	**6.40**	**8.80**	**3.39**	**66.62**
Maximum	**36.37**	**47.56**	**27.44**	**89.23**
Average	**17.77**	**22.31**	**12.49**	**79.37**

Sources of Data: San Gorgonio Pass Water Agency (2003), EarthInfo (2009)

APPENDIX B

Well Hydrographs

GEOSCIENCE

APPENDIX B

HYDROGRAPHS

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Banning Storage Unit	B – 1
Banning Bench Storage Unit	B – 6
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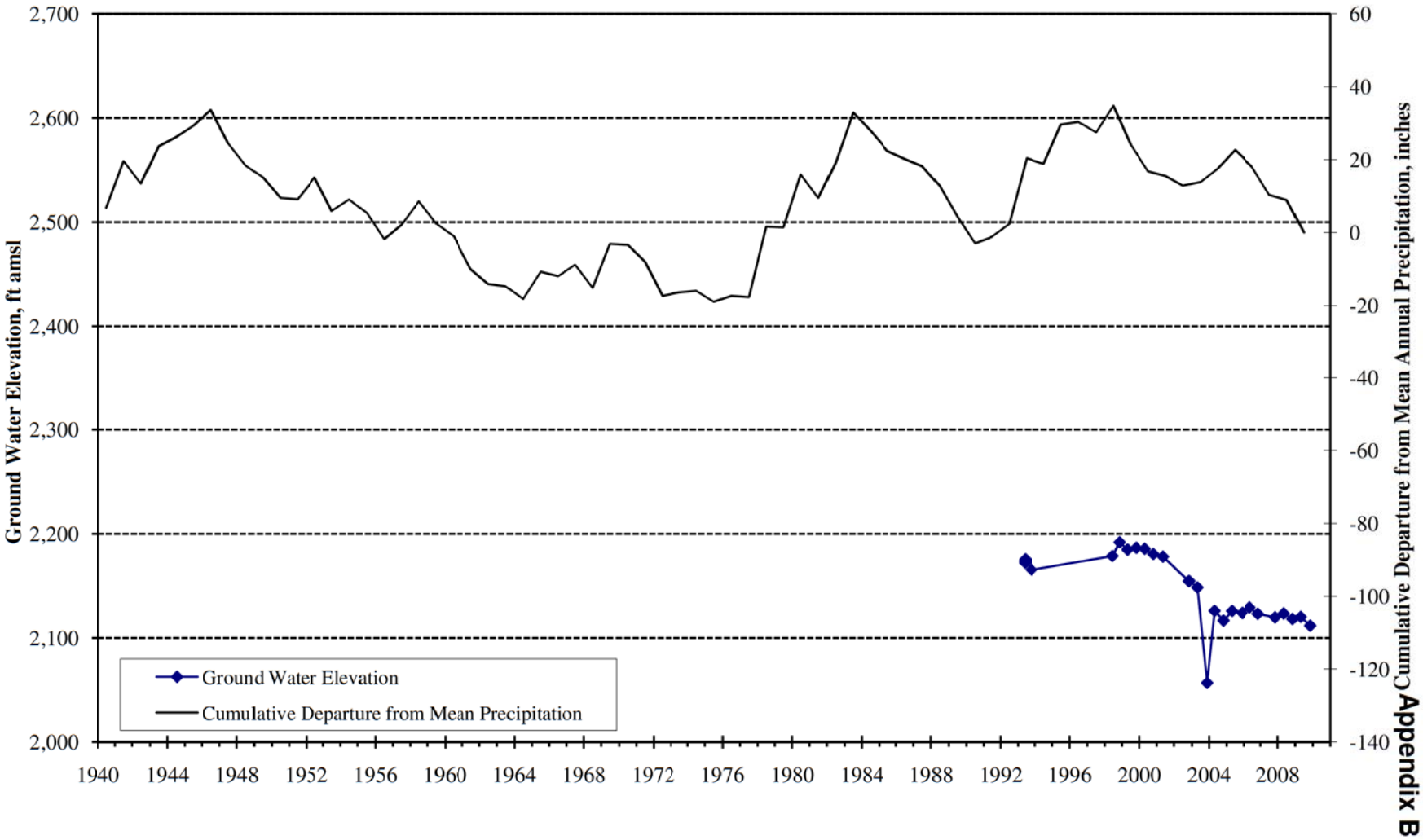
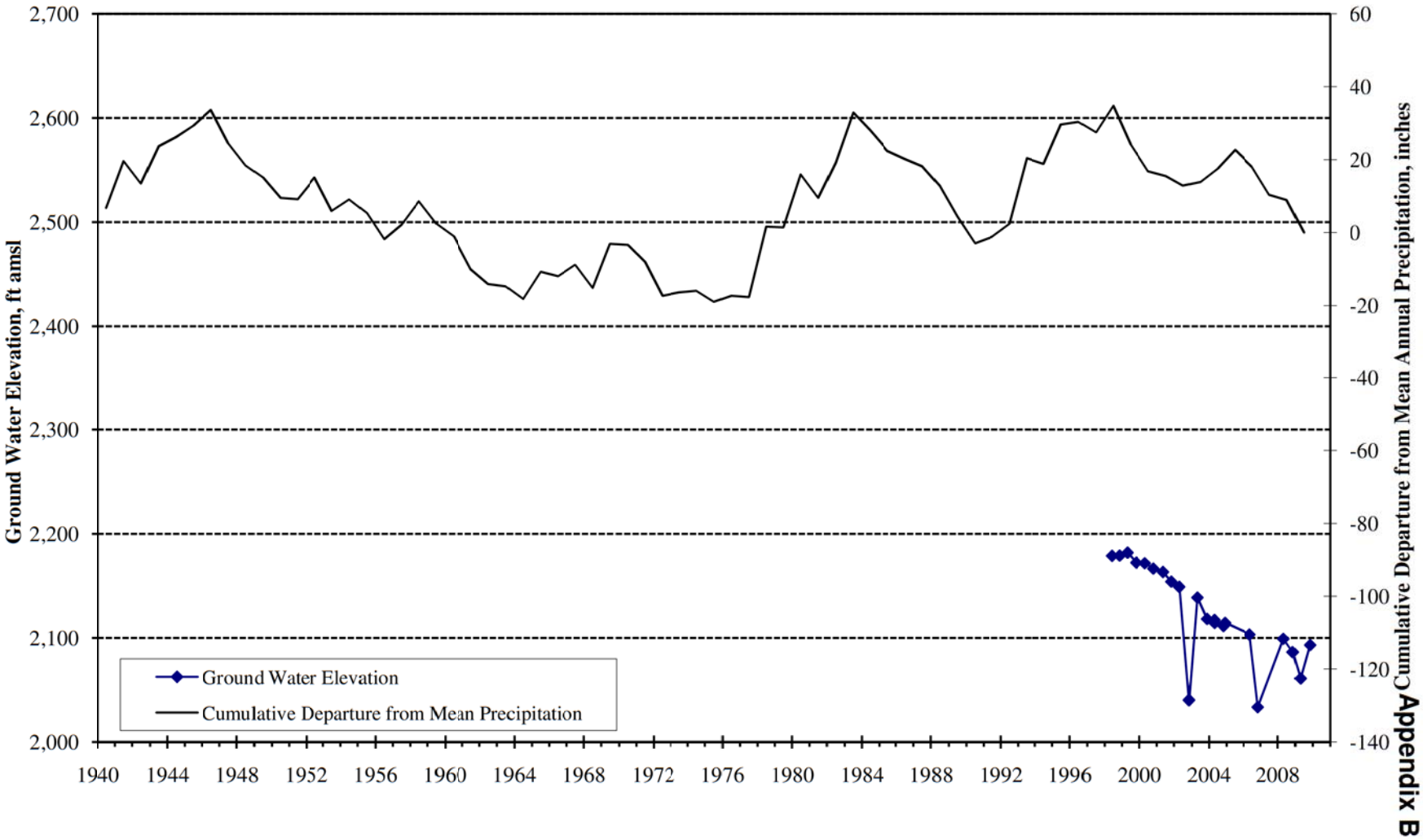
Ground Water Elevation
City of Banning Well M10 (3S/1E-18C1)
Banning Storage Unit



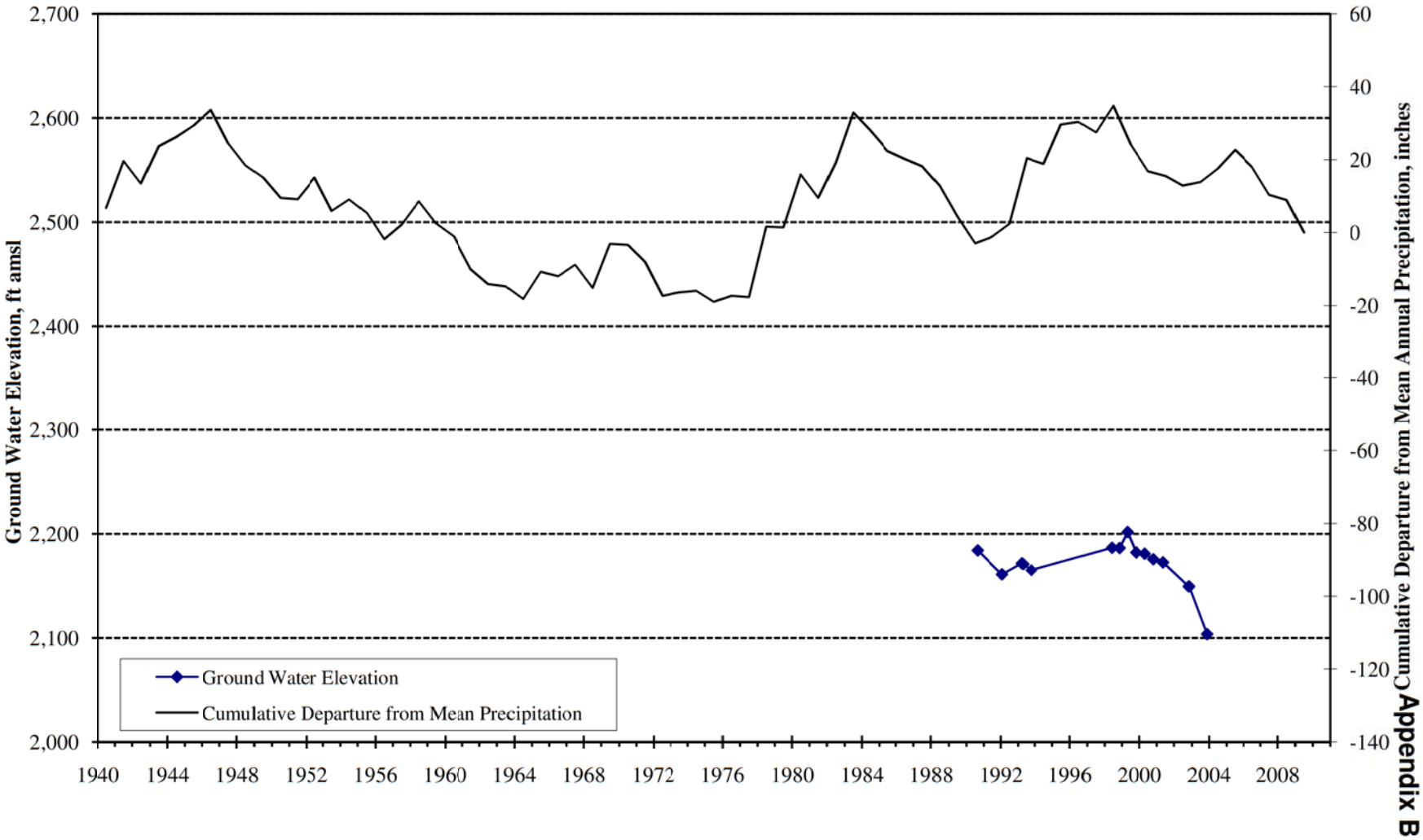
Appendix B

Ground Water Elevation
City of Banning Well M11 (3S/1E-18A1)
Banning Storage Unit



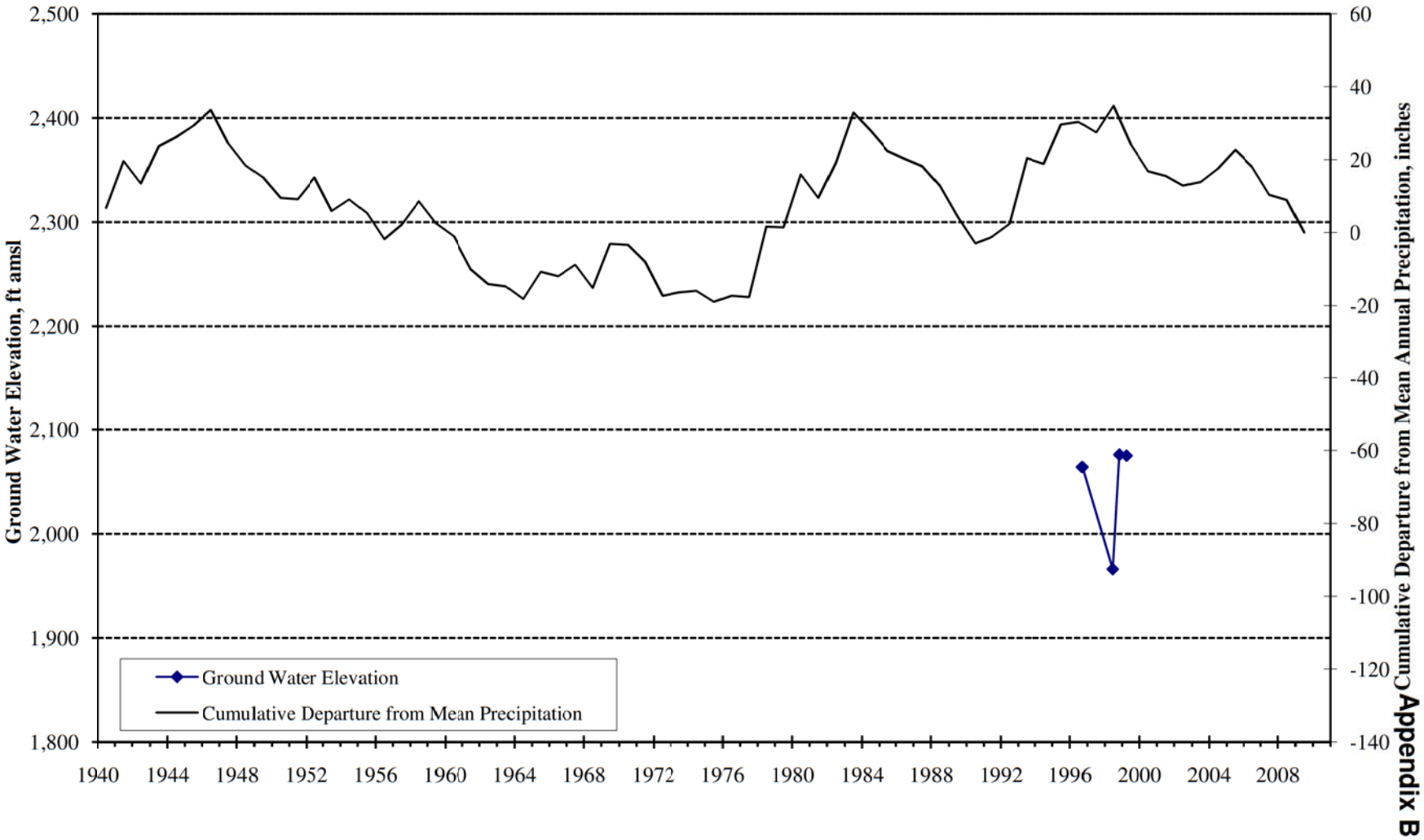
Appendix B

Ground Water Elevation
City of Banning Well M12 (3S/1E-18B1)
Banning Storage Unit



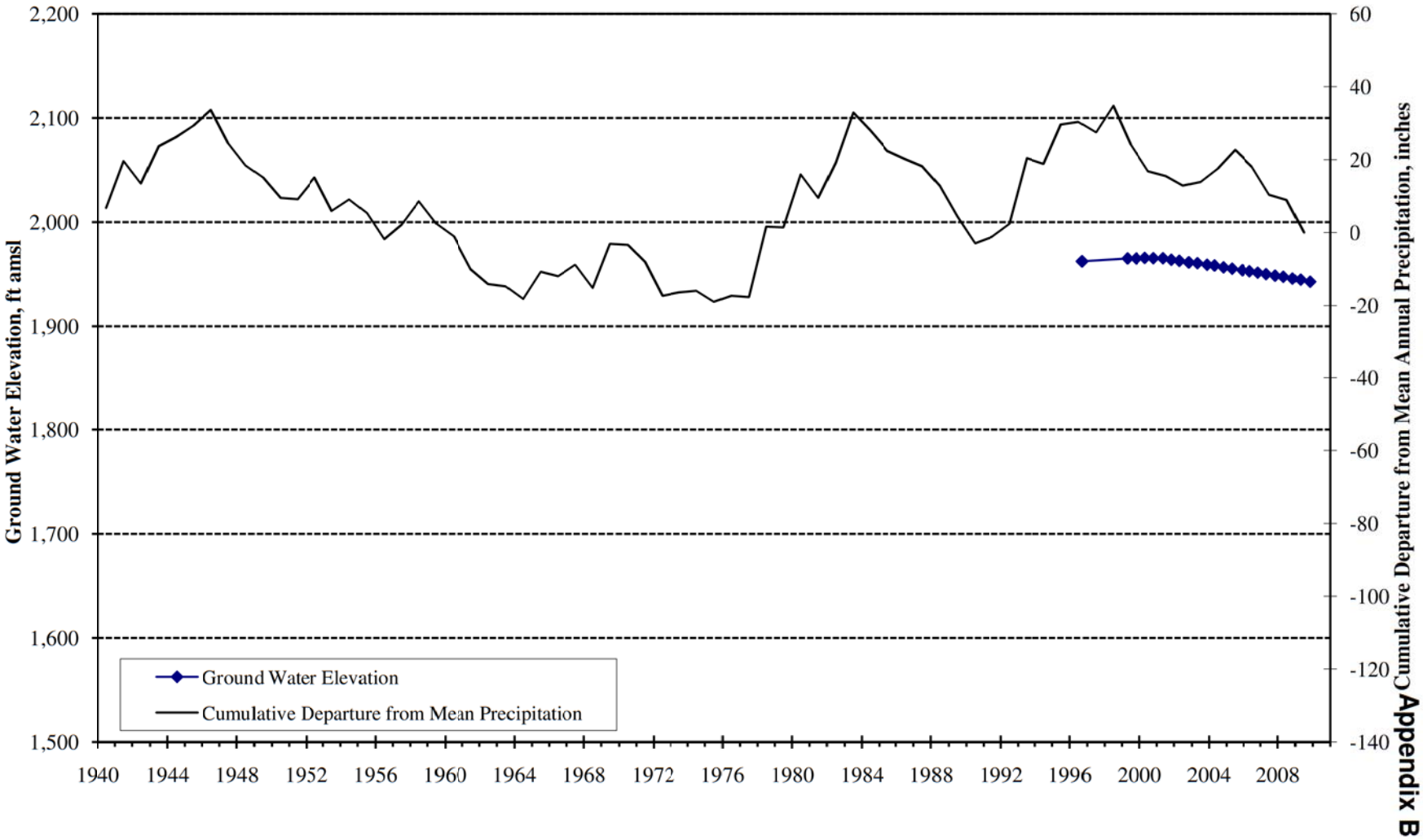
Appendix B

Ground Water Elevation
City of Banning Well C5 (3S/1E-17C1)
Banning Storage Unit



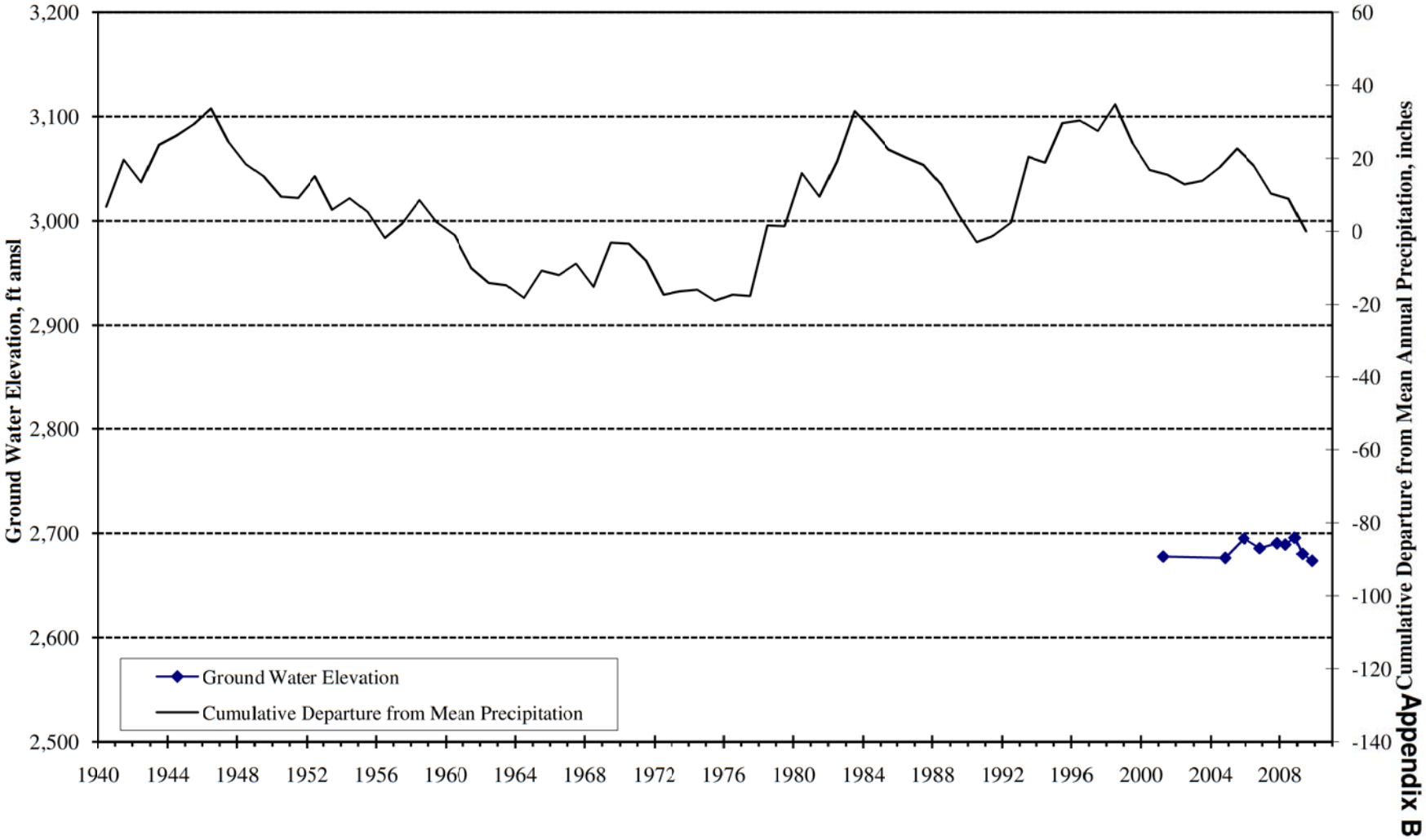
Appendix B

Ground Water Elevation
Well 3S/1E-08M1
Banning Storage Unit



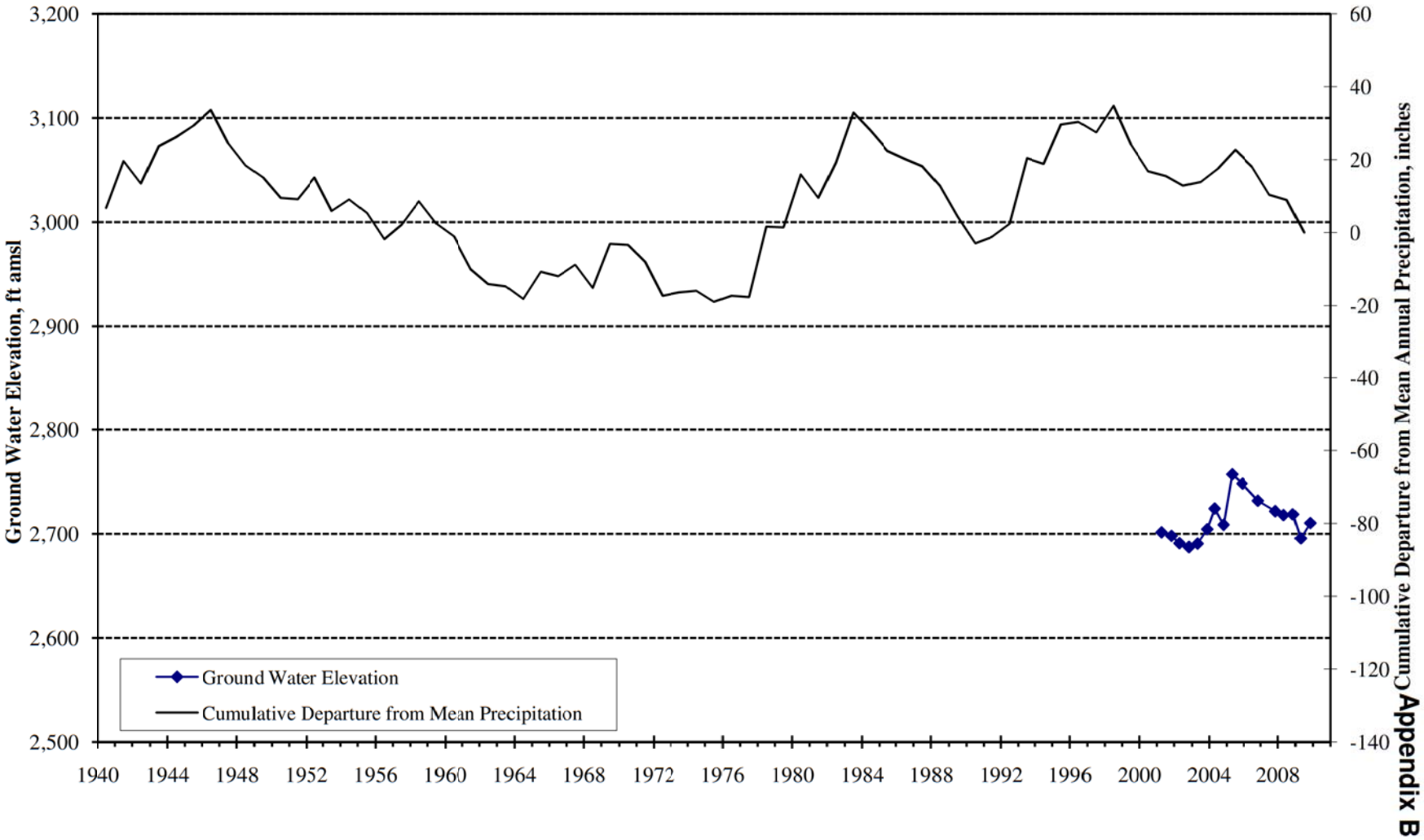
Appendix B

Ground Water Elevation
City of Banning Well 1 (2S/1E-33J1)
Banning Bench Storage Unit



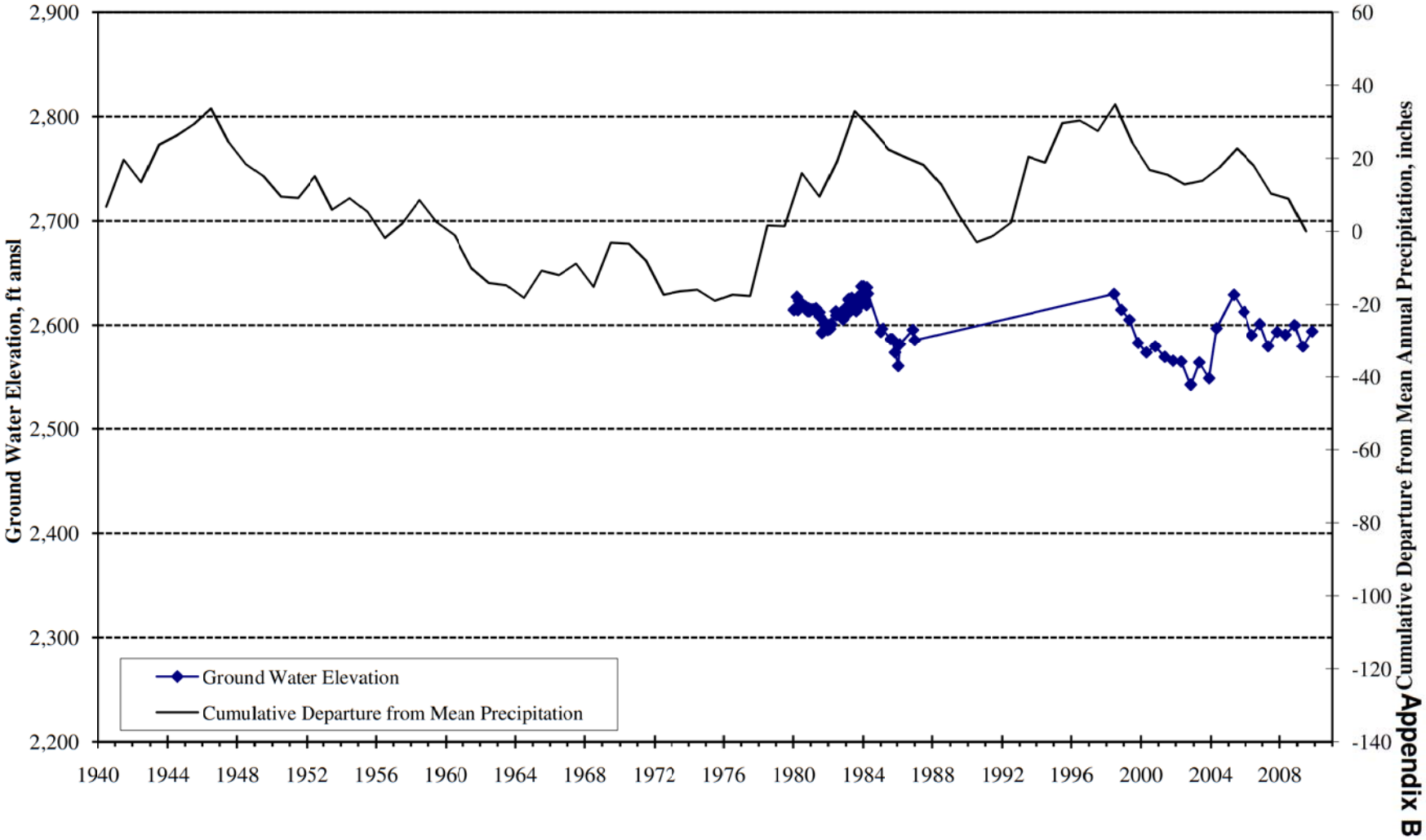
Appendix B

Ground Water Elevation
City of Banning Well 3 (2S/1E-33J2)
Banning Bench Storage Unit



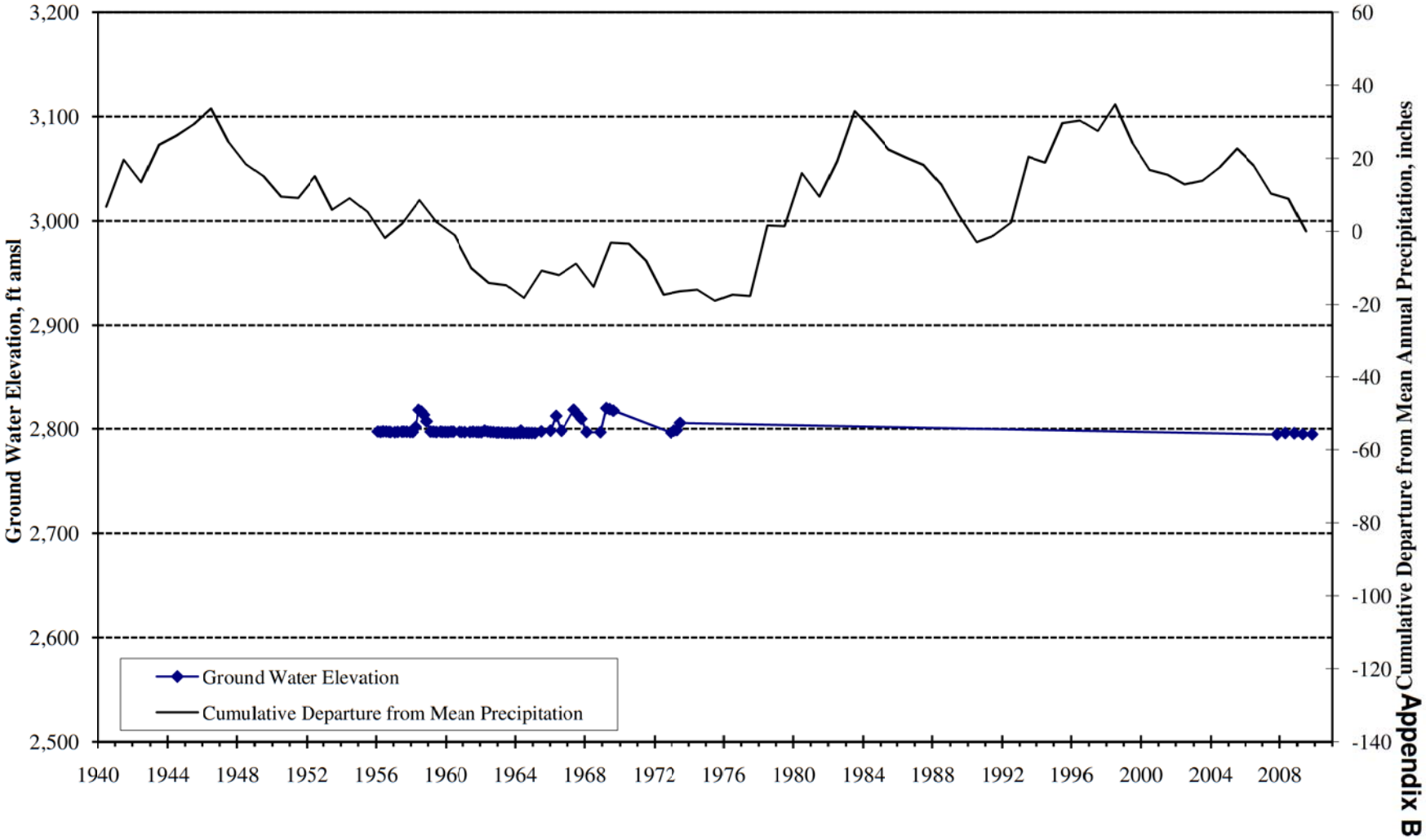
Appendix B

Ground Water Elevation
Well 3S/1E-04A1
Banning Bench Storage Unit



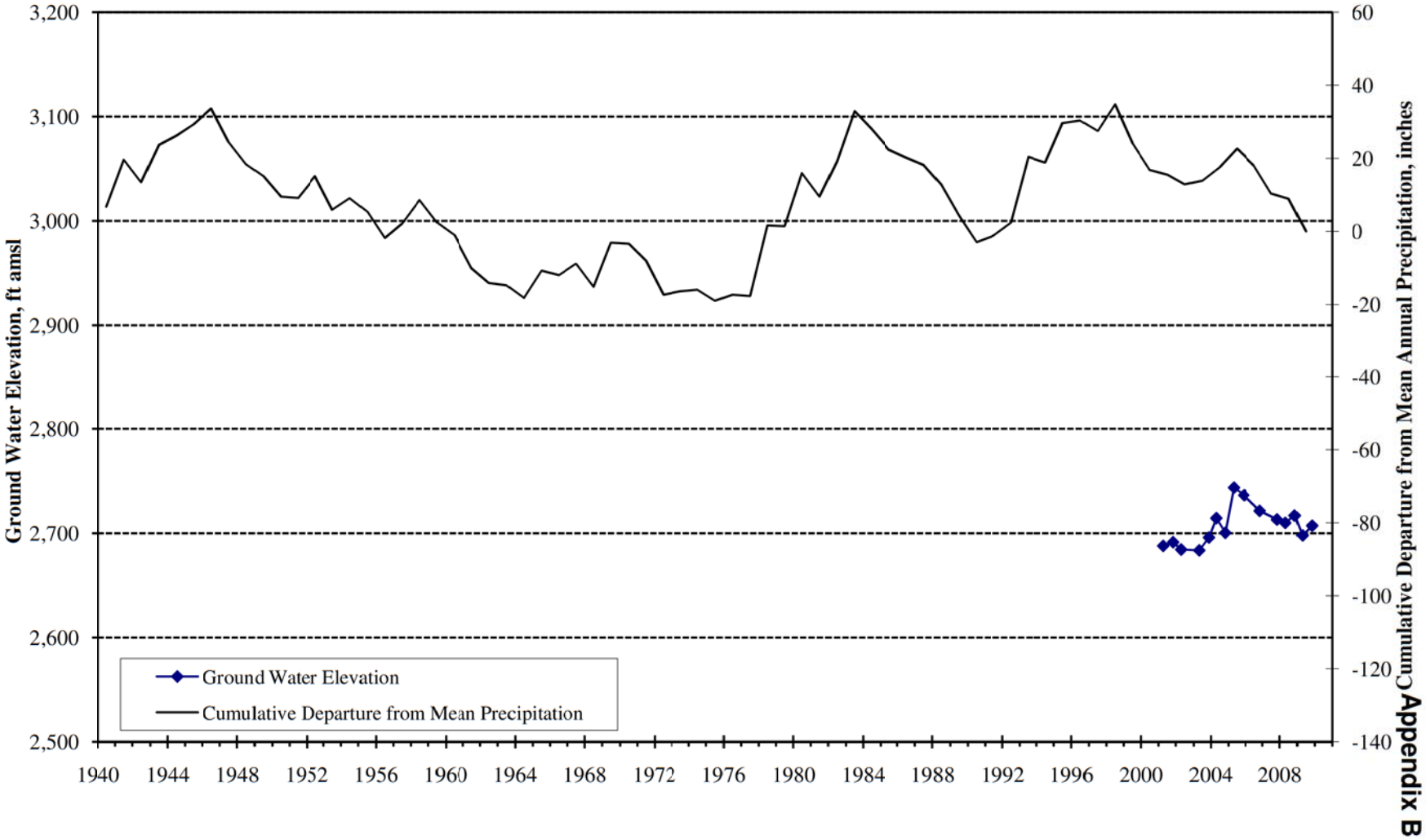
Appendix B

Ground Water Elevation
Well 2S/1E-33K1
Banning Bench Storage Unit



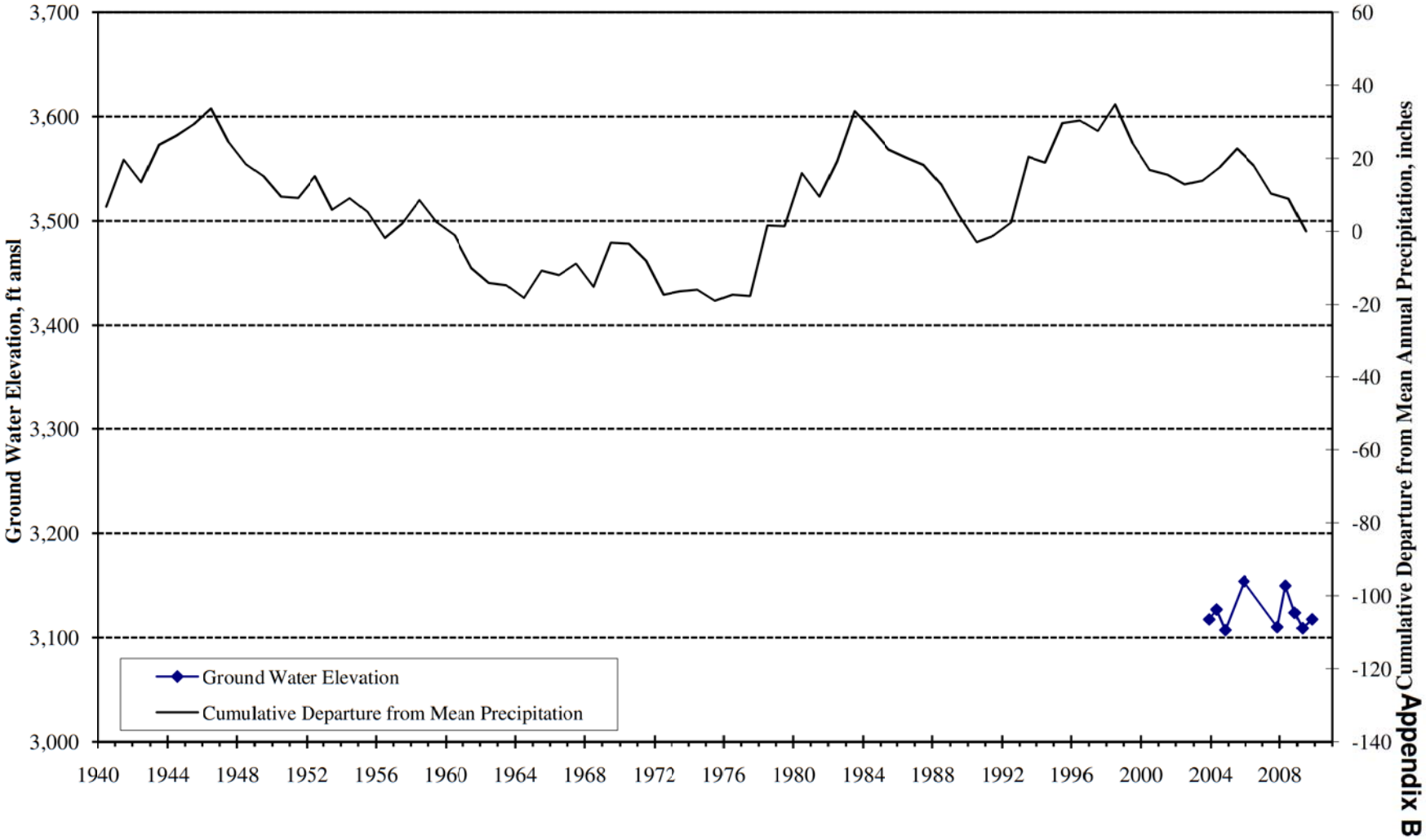
Appendix B

Ground Water Elevation
Well 2S/1E-33J4
Banning Bench Storage Unit



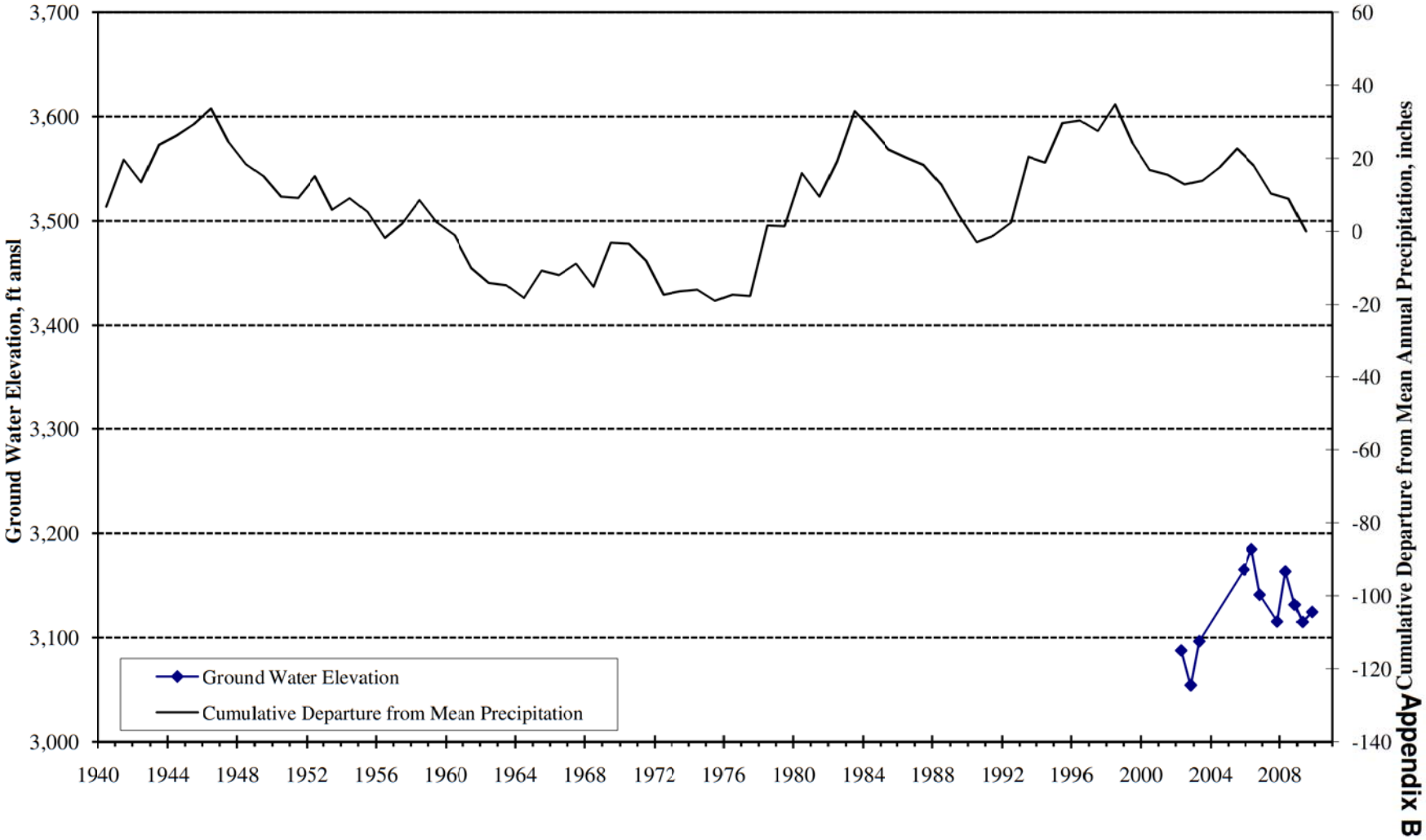
Appendix B

Ground Water Elevation
City of Banning Well 4 (2S/1E-29H1)
Banning Canyon Storage Unit



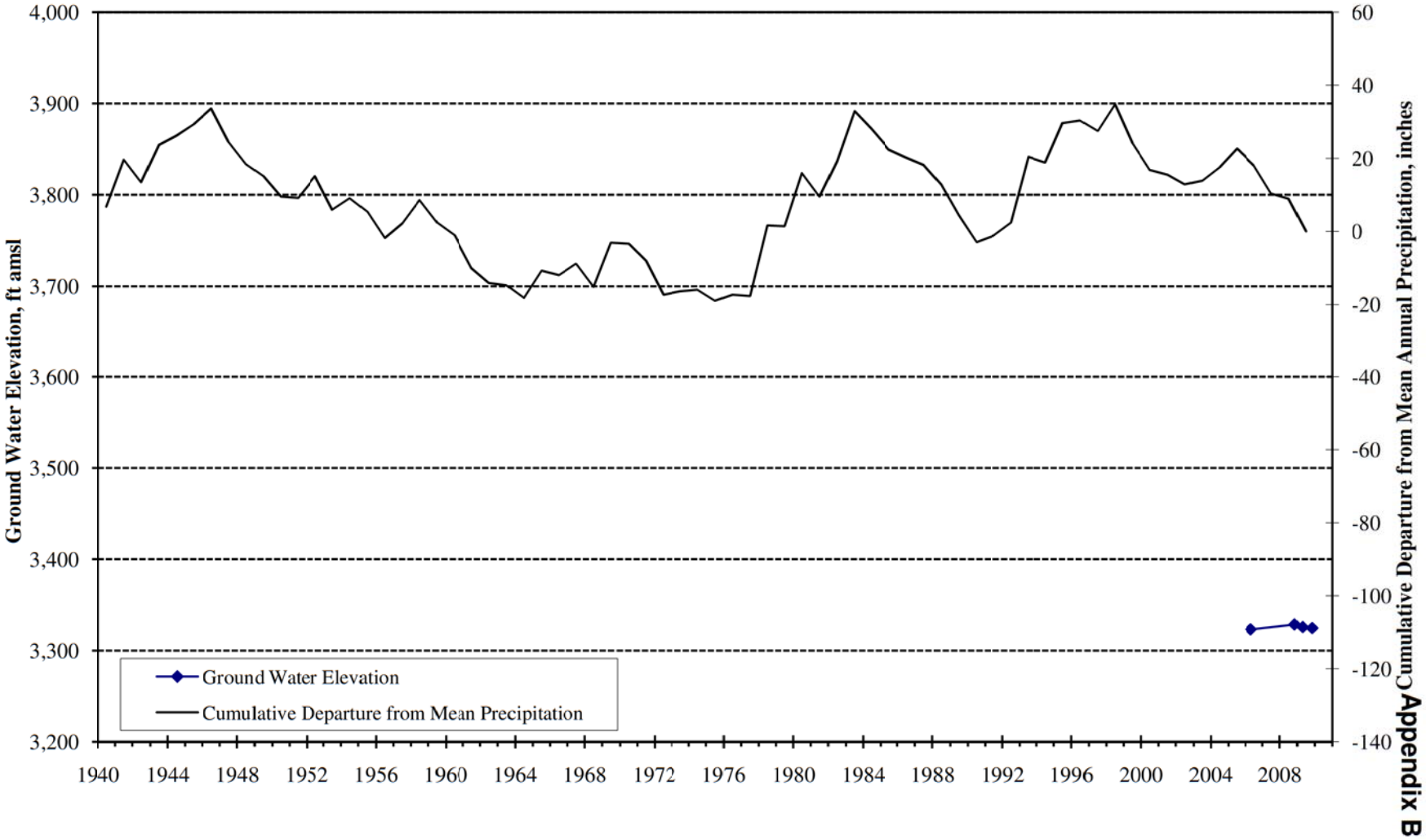
Appendix B

Ground Water Elevation
City of Banning Well 5 (2S/1E-29B1)
Banning Canyon Storage Unit



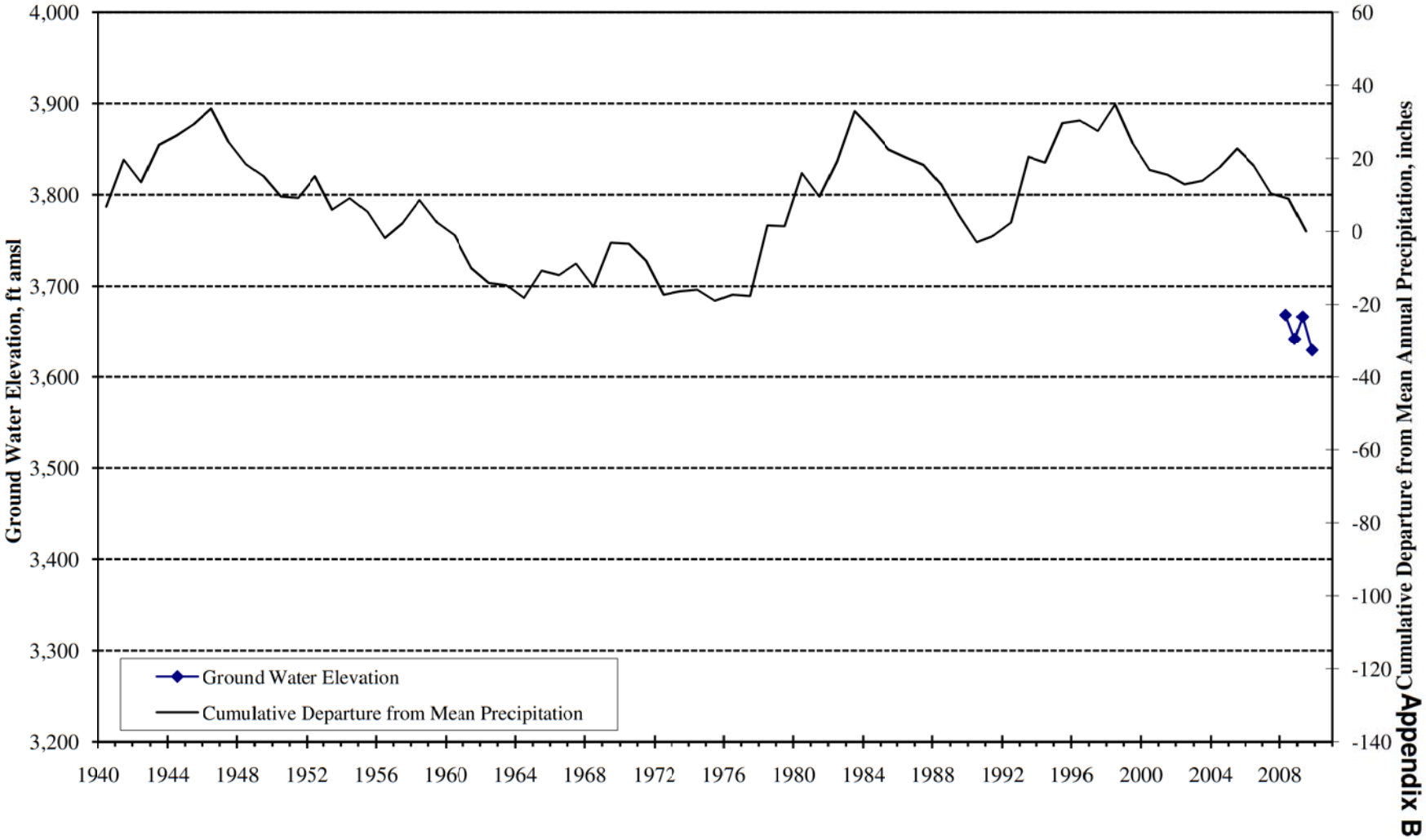
Appendix B

Ground Water Elevation
City of Banning Well 6 (2S/1E-20P1)
Banning Canyon Storage Unit



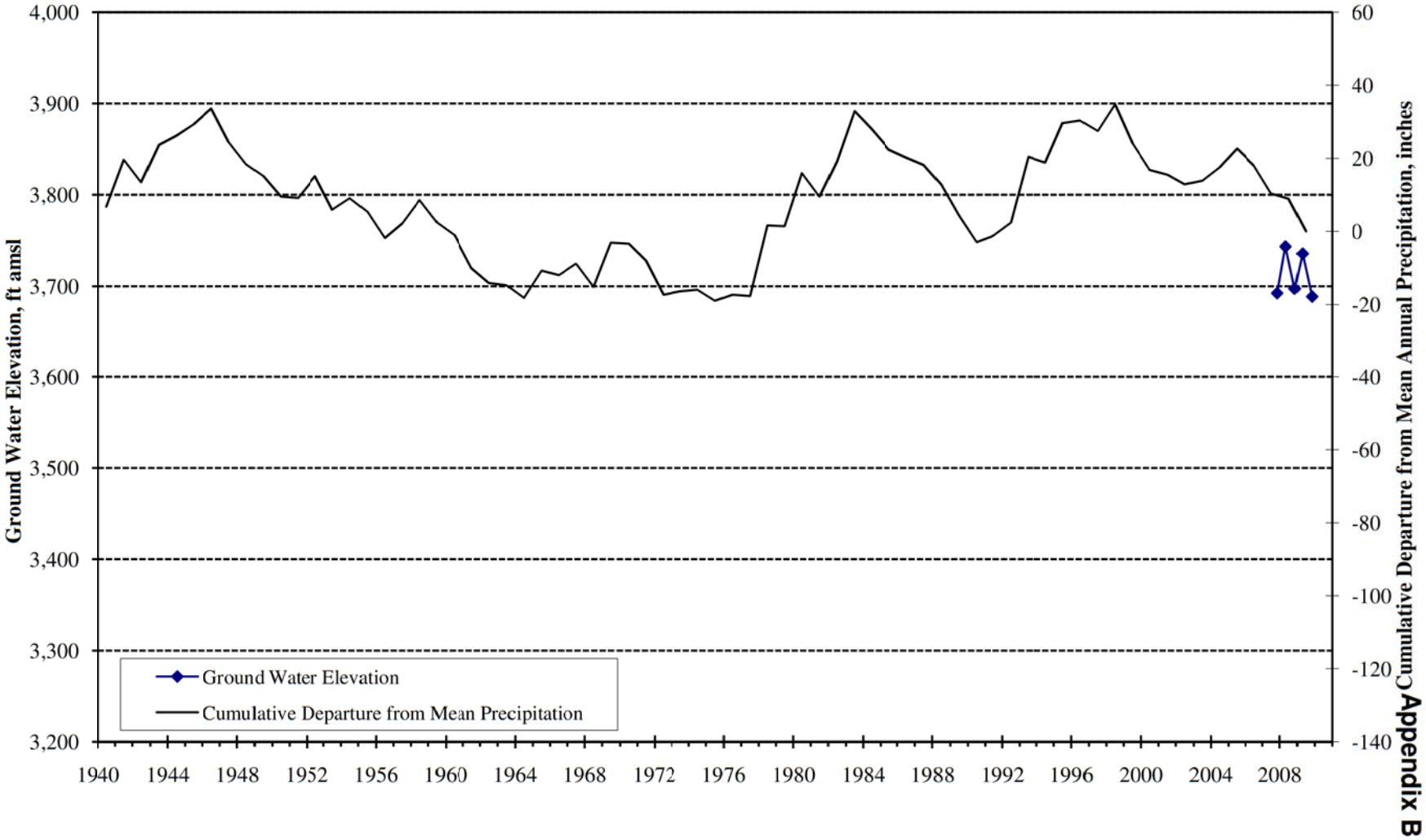
Appendix B

Ground Water Elevation
City of Banning Well 7 (2S/1E-17M1)
Banning Canyon Storage Unit



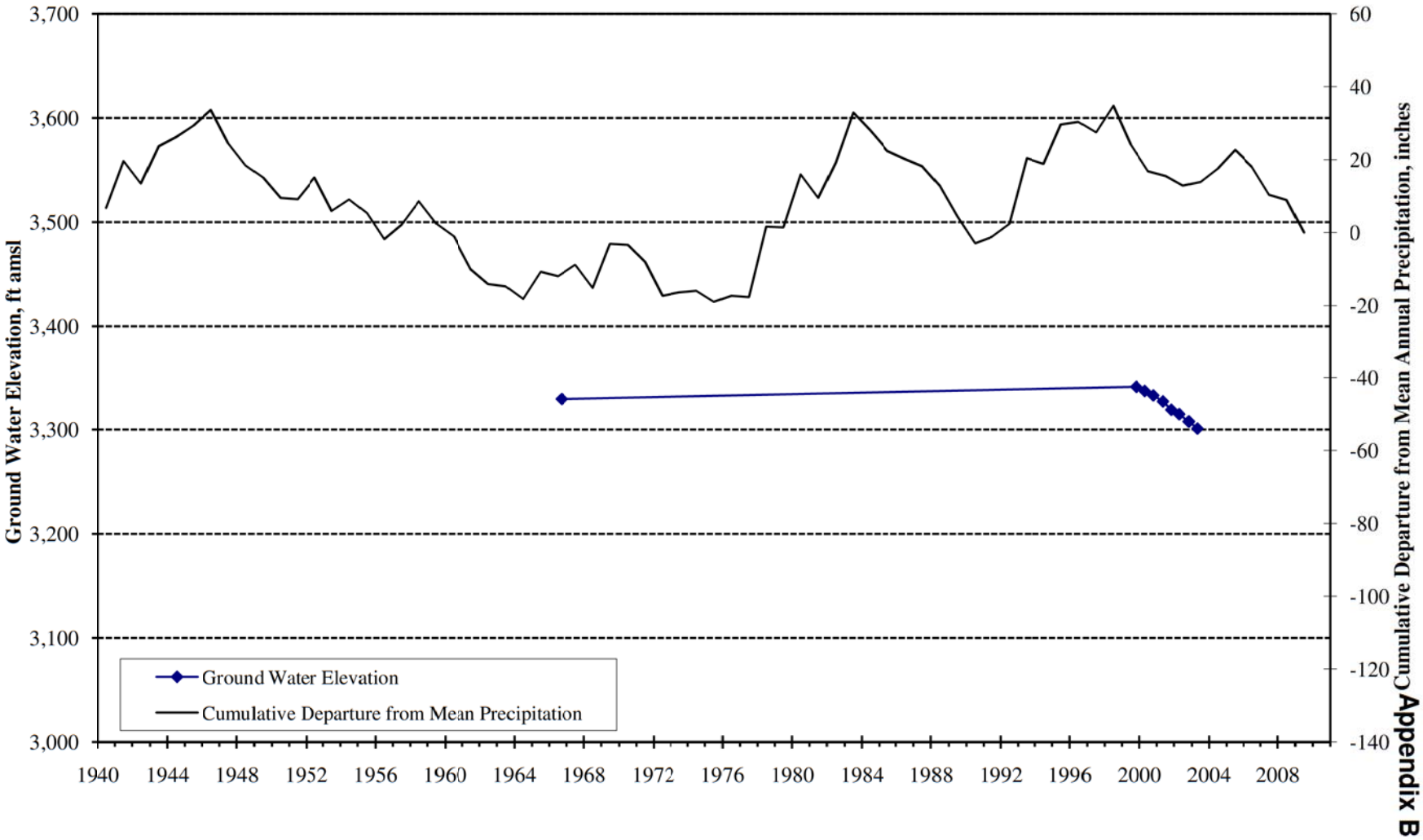
Appendix B

Ground Water Elevation
City of Banning Well 8 (2S/1E-17F2)
Banning Canyon Storage Unit



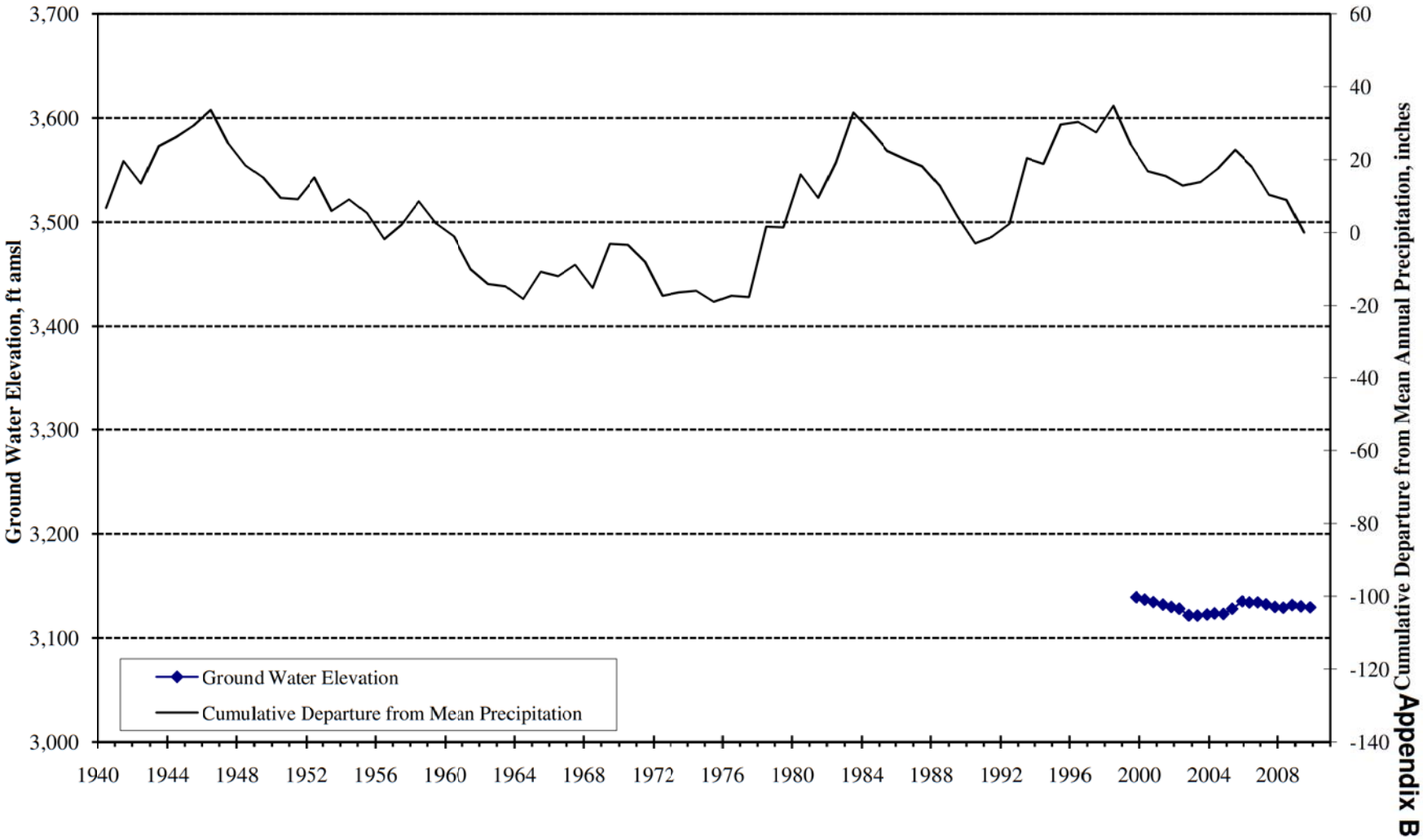
Appendix B

Ground Water Elevation
Banning Heights Mutual Water District Well 2 (2S/1E-29C1)
Banning Canyon Storage Unit



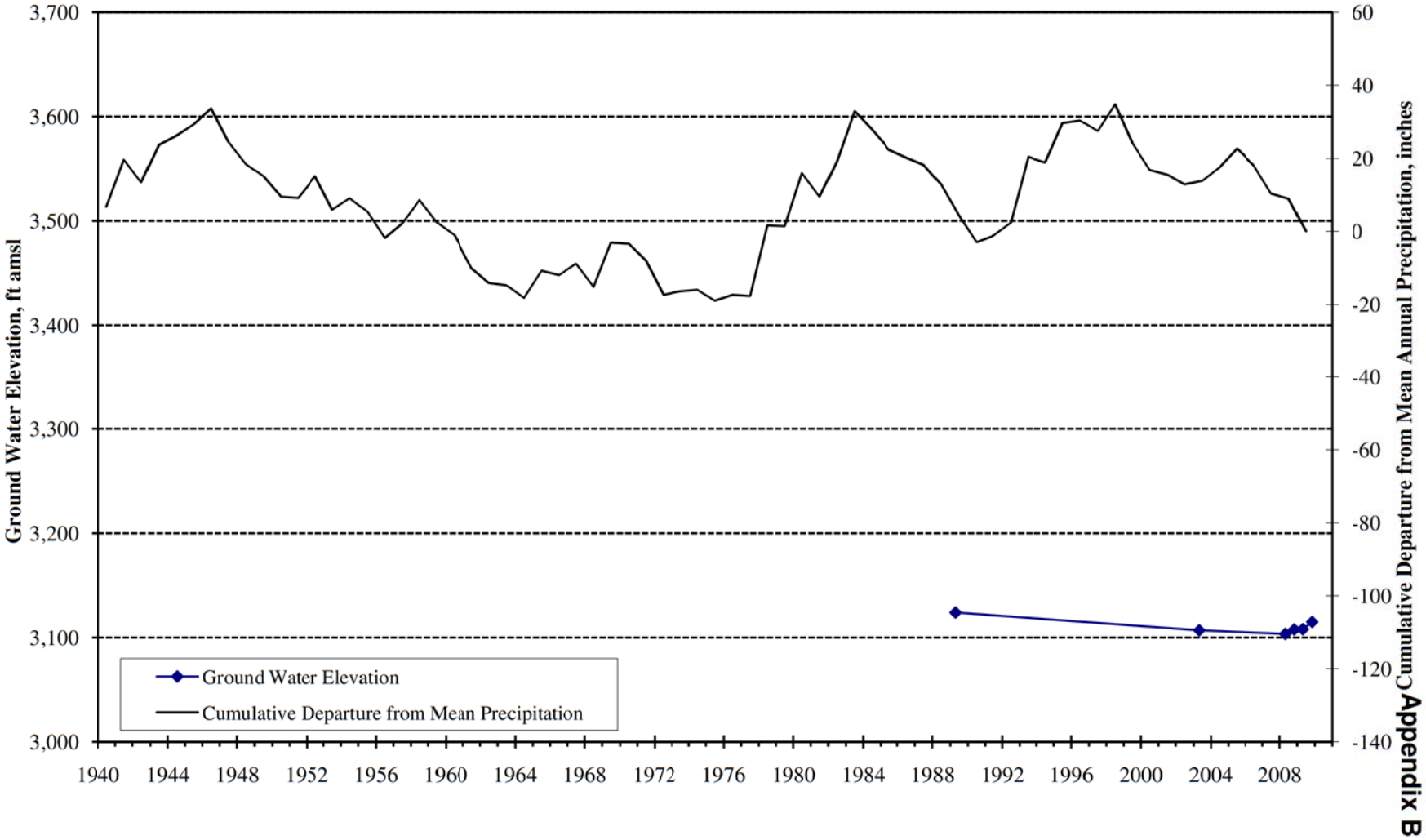
Appendix B

Ground Water Elevation
Banning Heights Mutual Water District Well 3 (2S/1E-29P1)
Banning Canyon Storage Unit



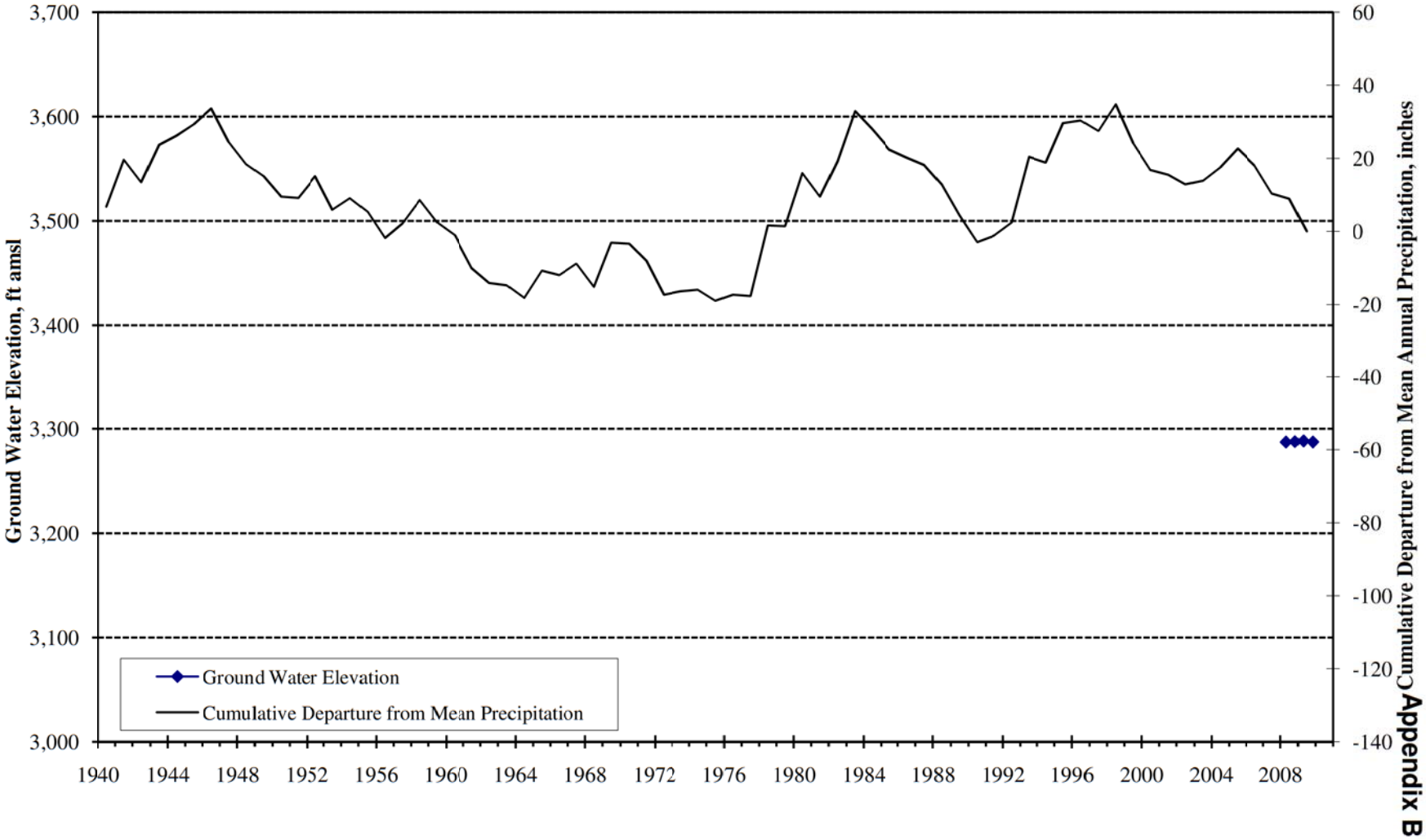
Appendix B

Ground Water Elevation
Well 2S/1E-29K2
Banning Canyon Storage Unit



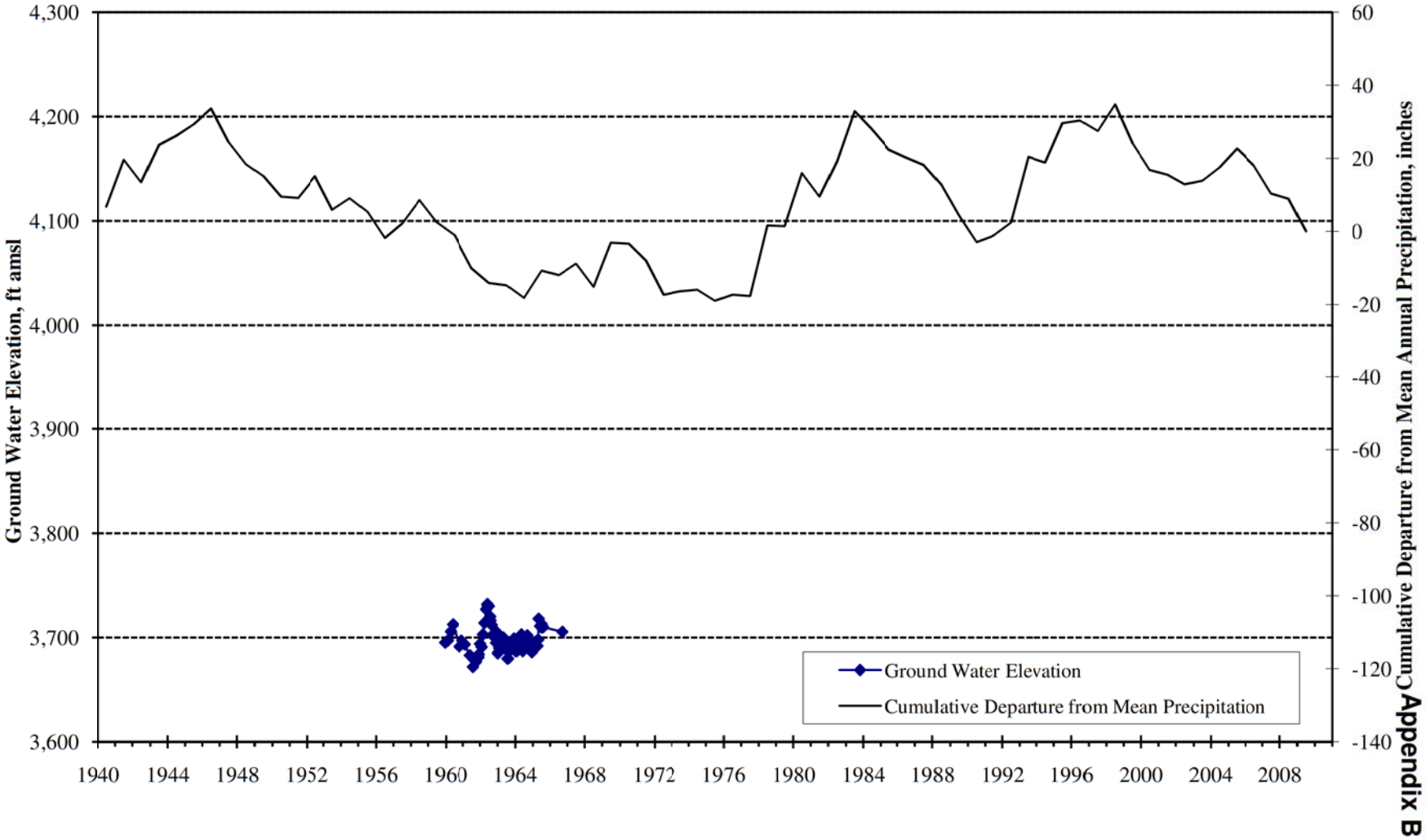
Appendix B

Ground Water Elevation
Well 2S/1E-29G1
Banning Canyon Storage Unit



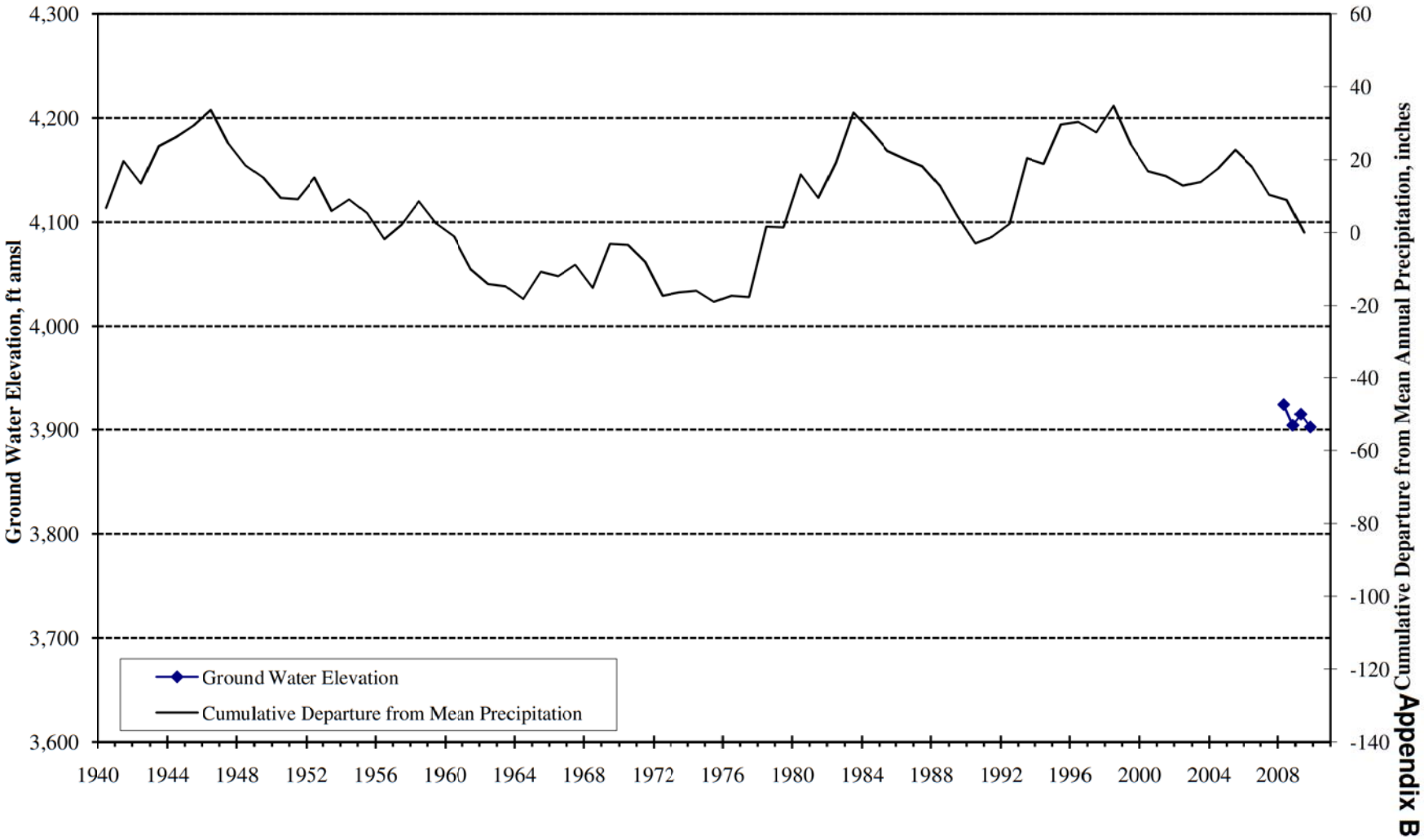
Appendix B

Ground Water Elevation
Well 2S/1E-17F1
Banning Canyon Storage Unit



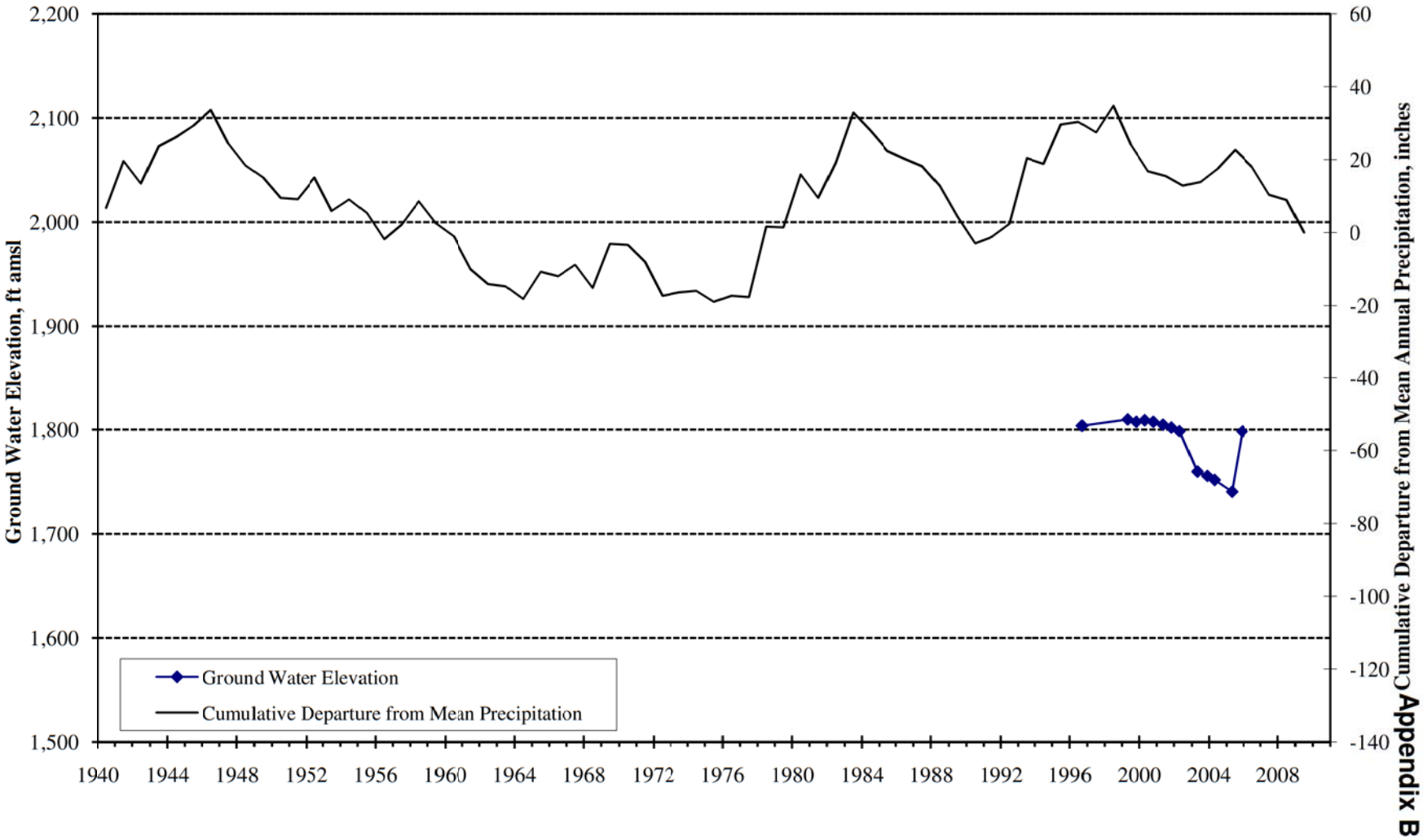
Appendix B

Ground Water Elevation
Well 2S/1E-08M1
Banning Canyon Storage Unit



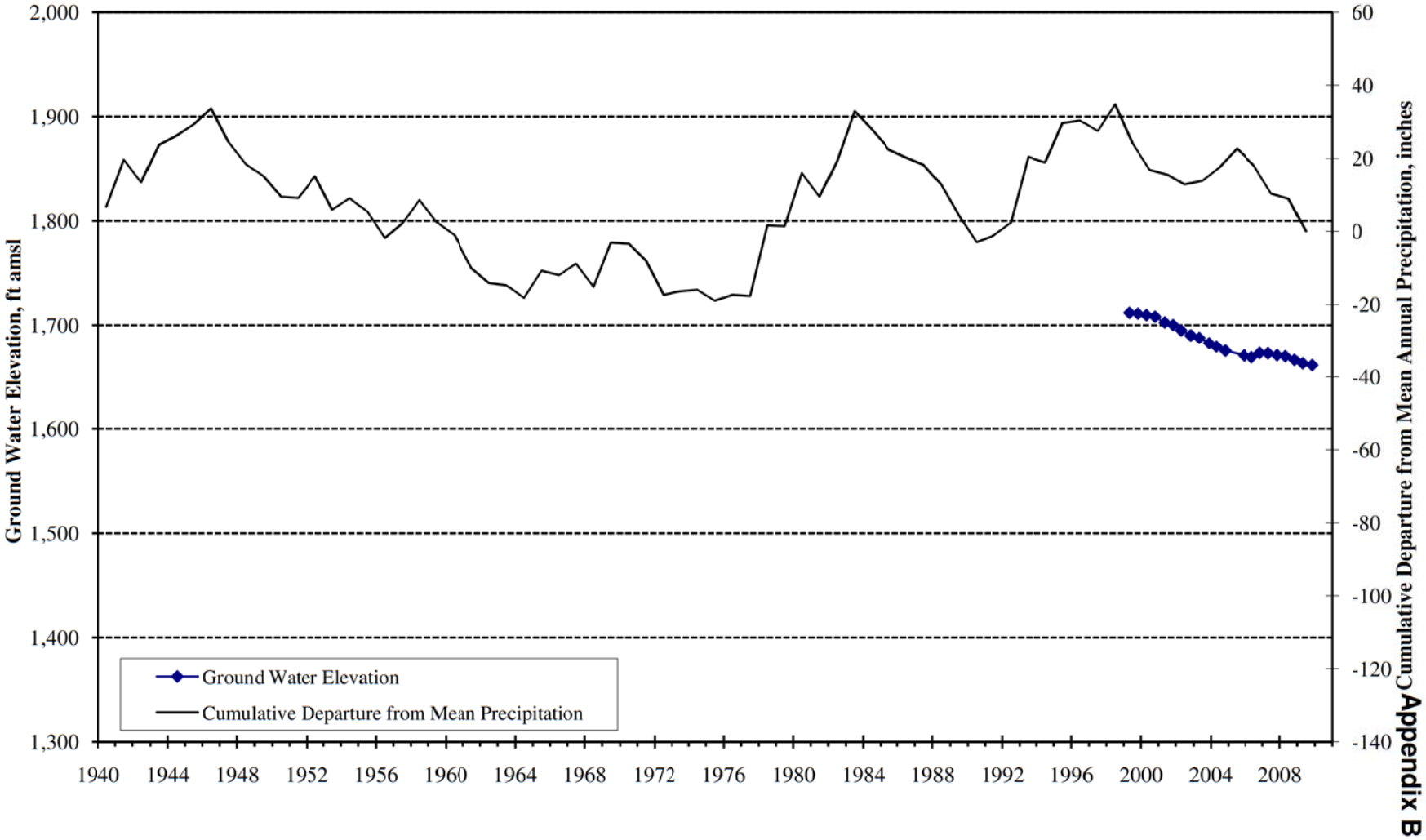
Appendix B

Ground Water Elevation
City of Banning Well C6 (3S/1E-10N1)
Cabazon Storage Unit



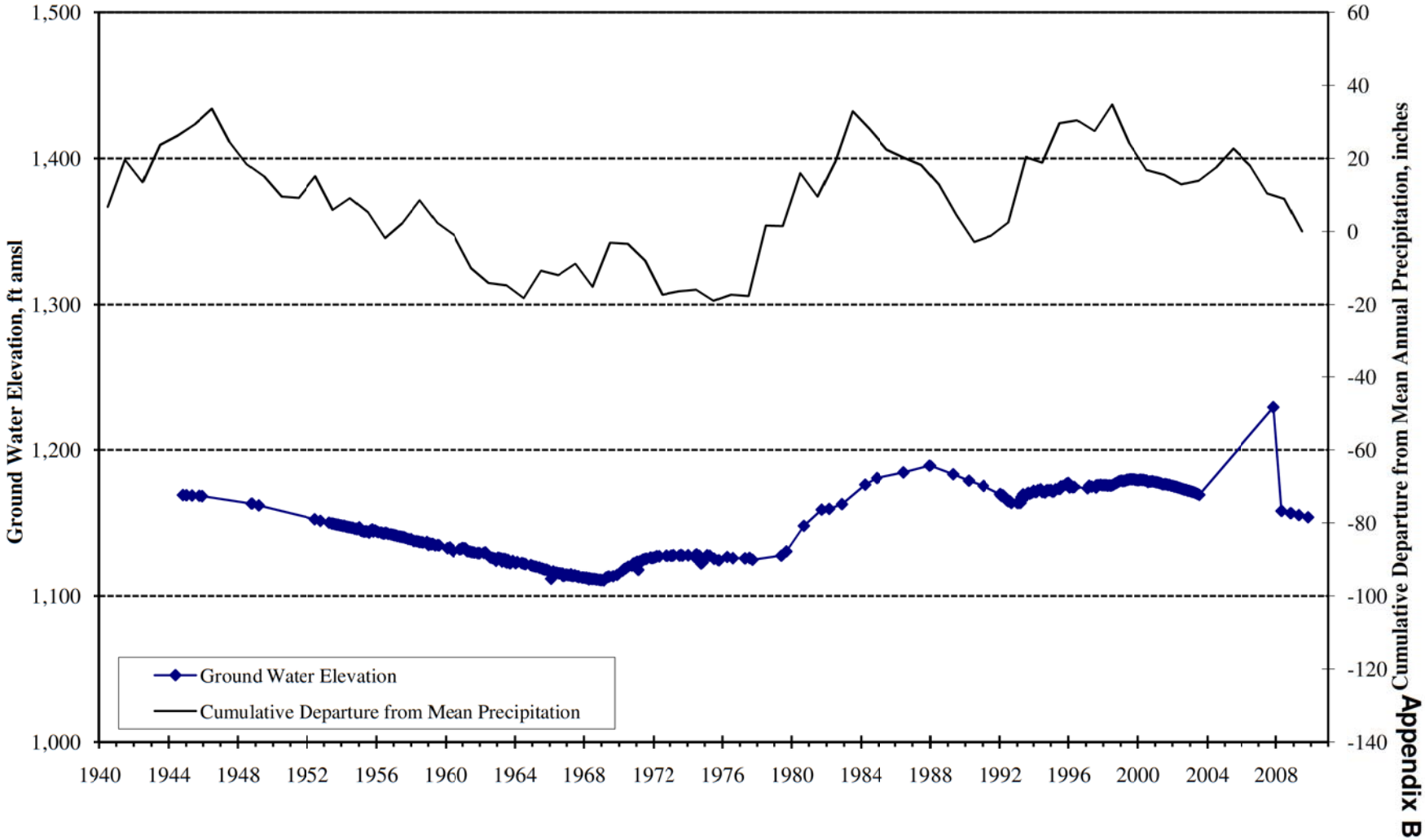
Appendix B

Ground Water Elevation
City of Banning Well R1 (3S/1E-14A1)
Cabazon Storage Unit



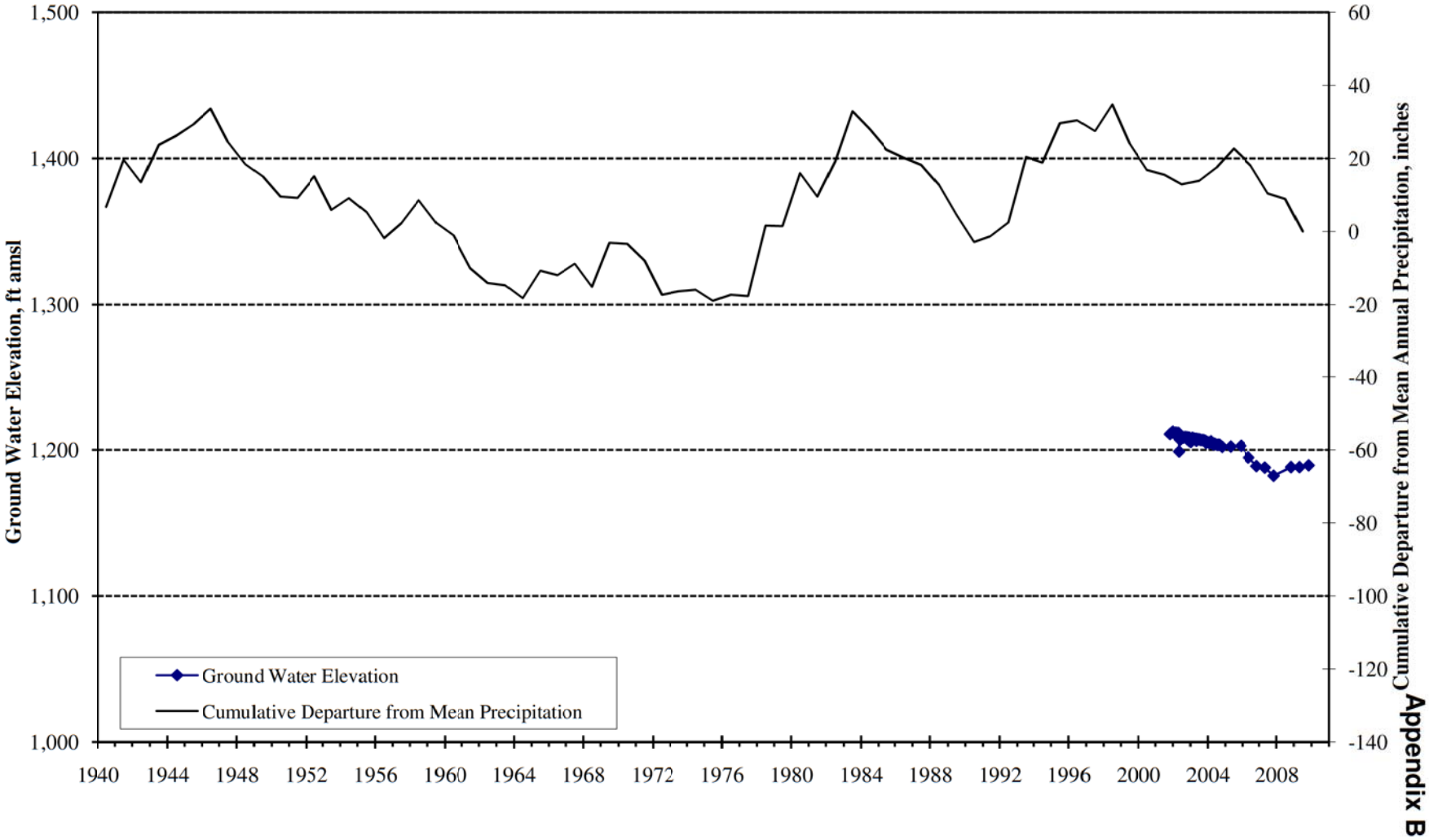
Appendix B

Ground Water Elevation
Well 3S/3E-08M1
Cabazon Storage Unit



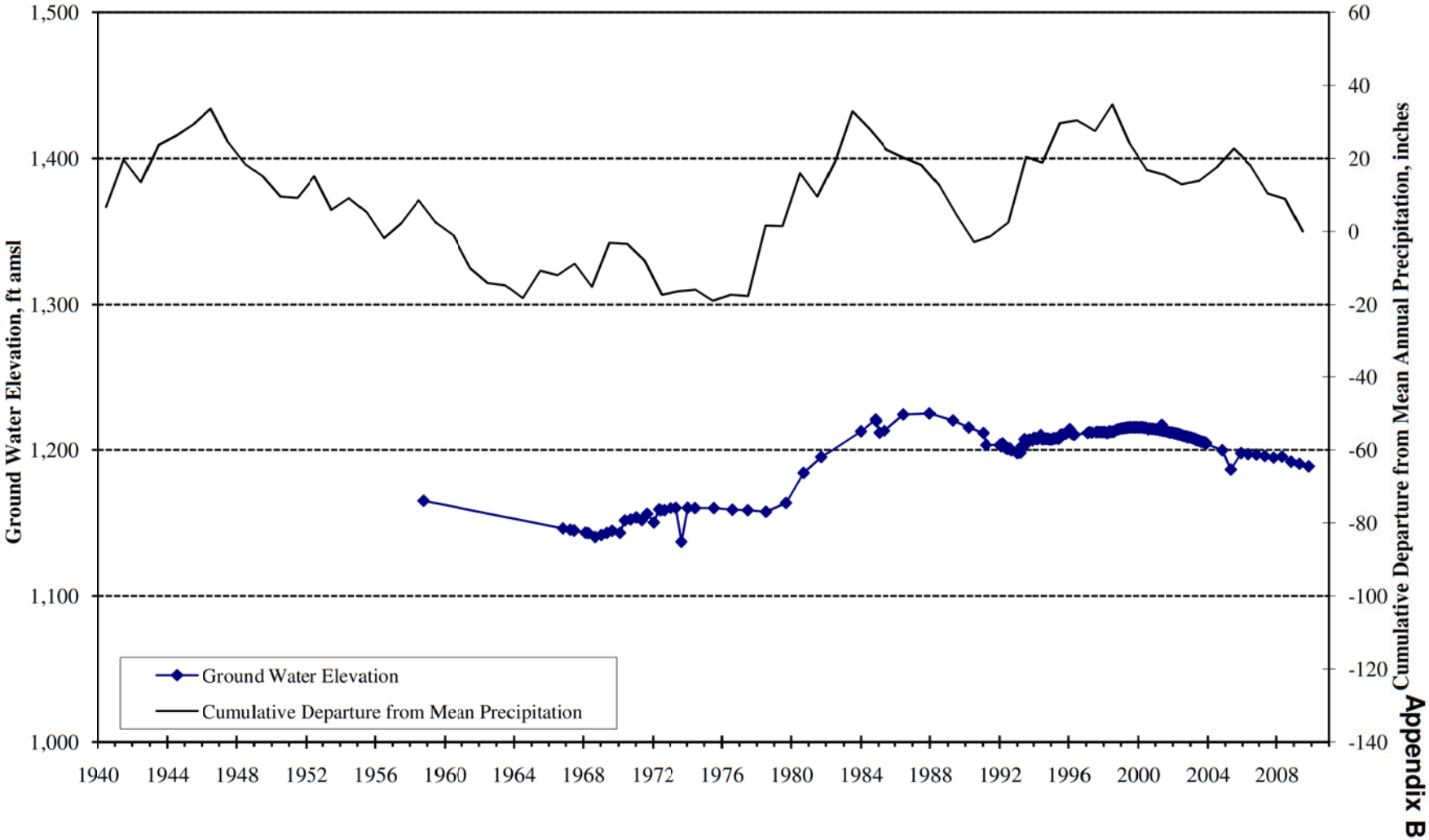
Appendix B

Ground Water Elevation
Well 3S/3E-08A1
Cabazon Storage Unit



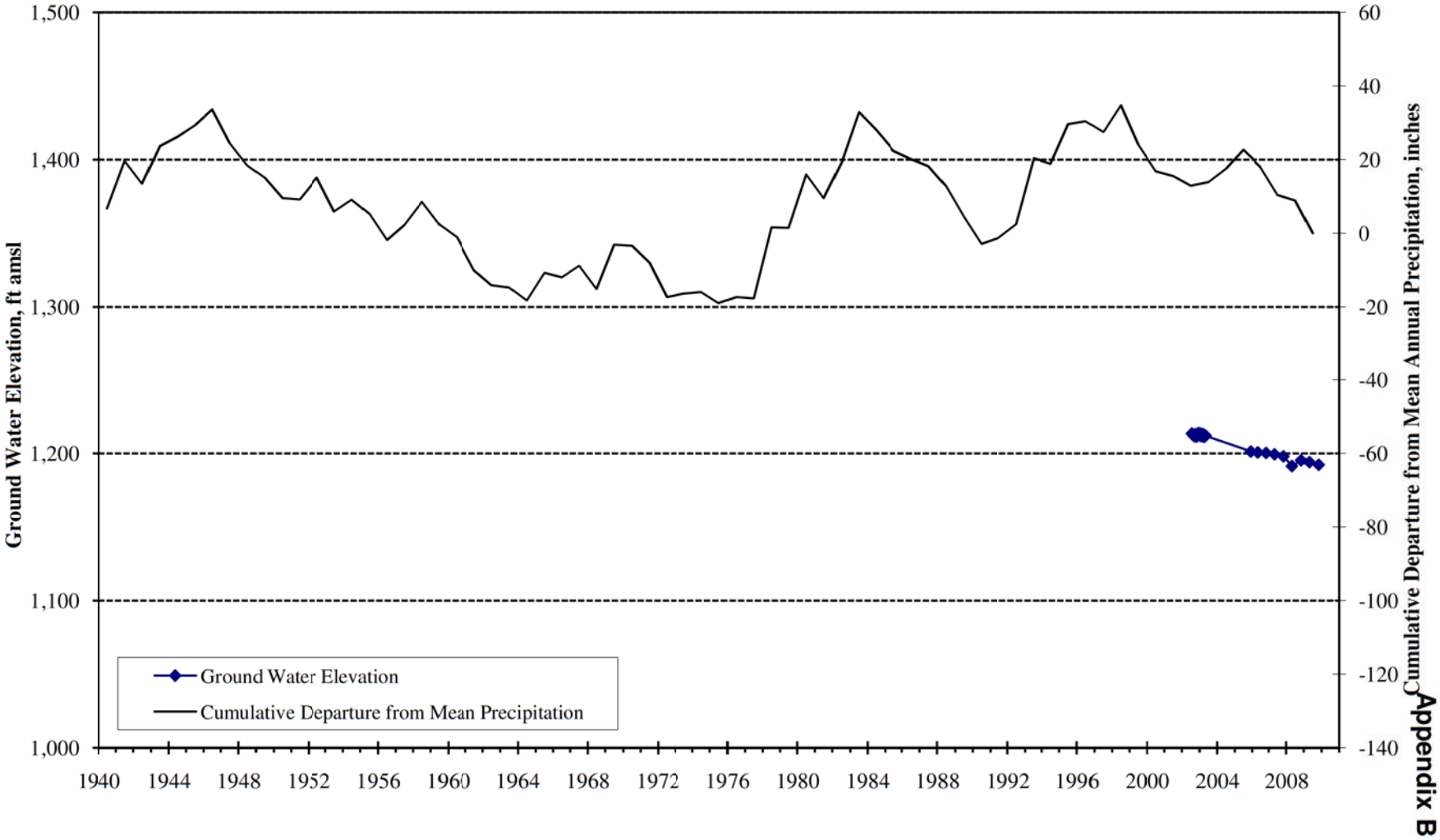
Appendix B

Ground Water Elevation
Well 3S/3E-07M1
Cabazon Storage Unit



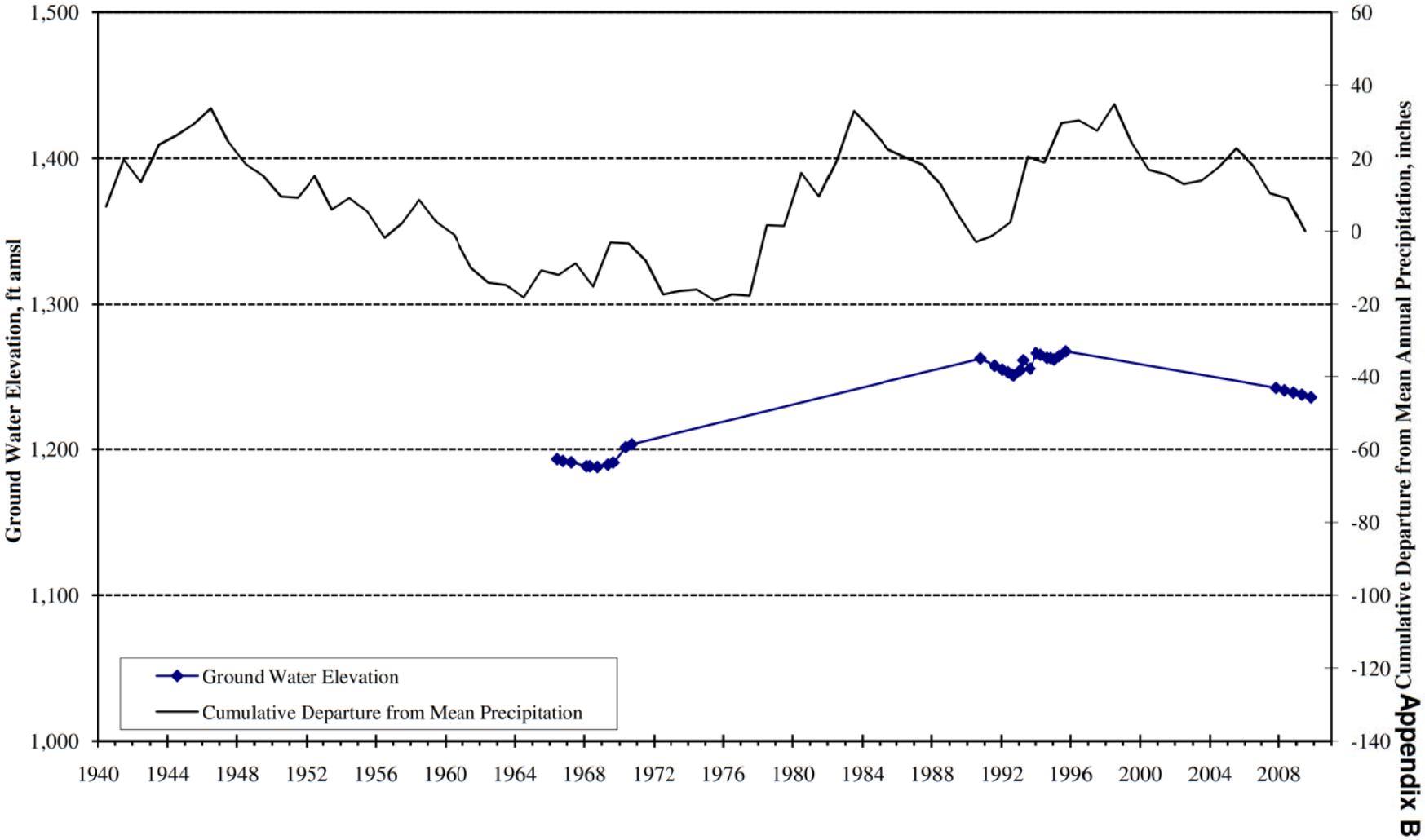
Appendix B

Ground Water Elevation
Well 3S/3E-07D1
Cabazon Storage Unit



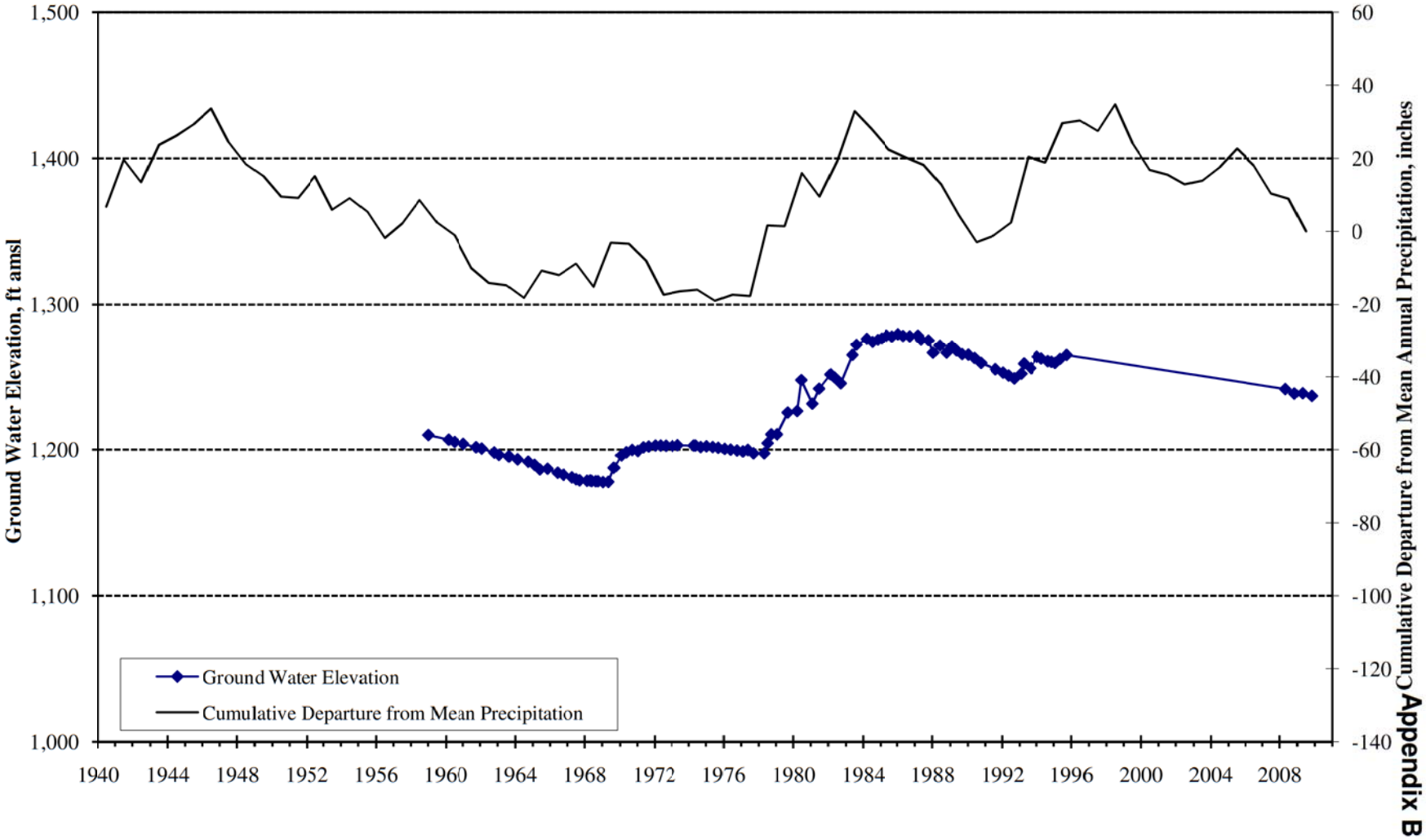
Appendix B

Ground Water Elevation
Well 3S/2E-23C1
Cabazon Storage Unit



Appendix B

Ground Water Elevation
Well 3S/2E-23B1
Cabazon Storage Unit



Appendix B

Ground Water Elevation
Well 3S/2E-22B1
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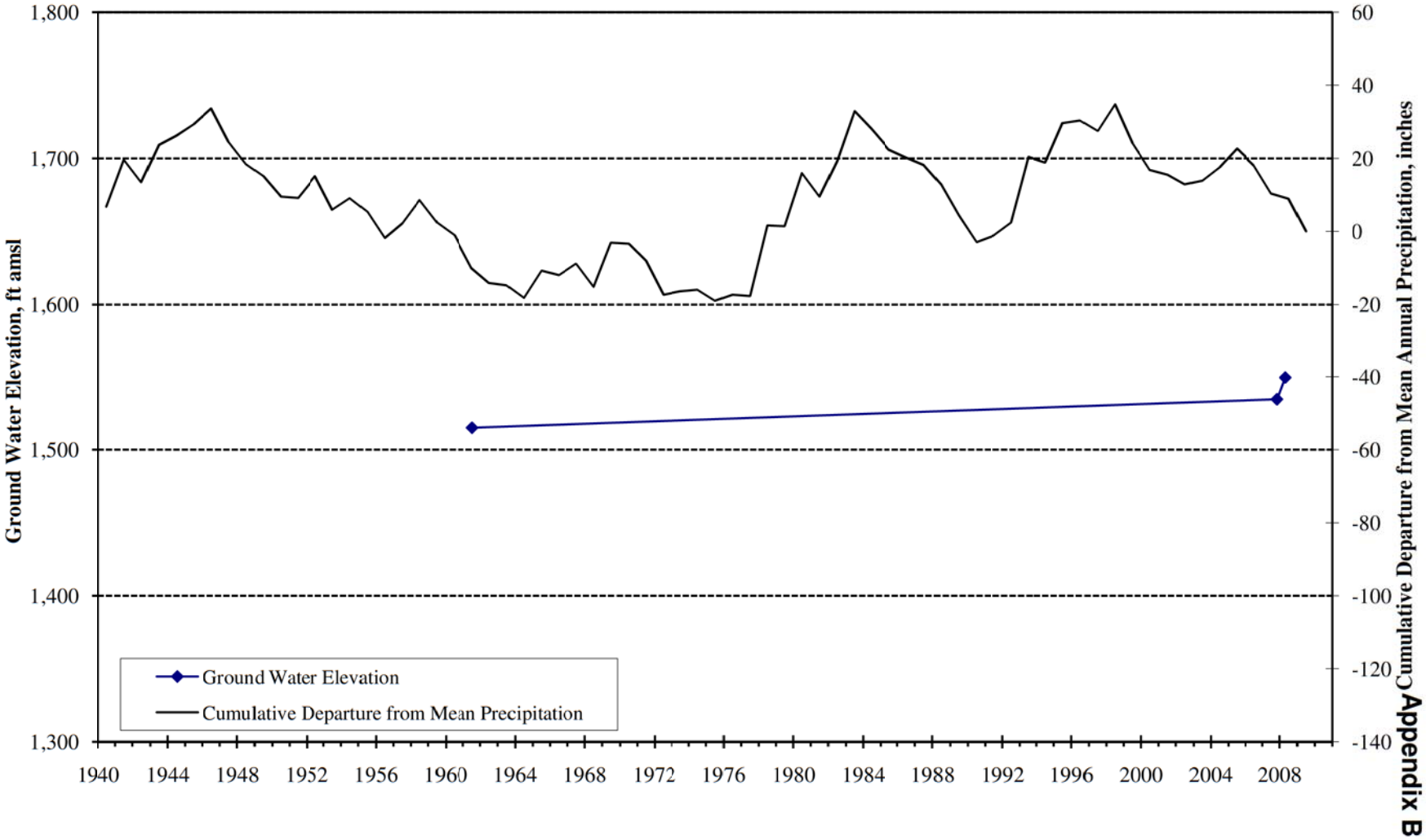
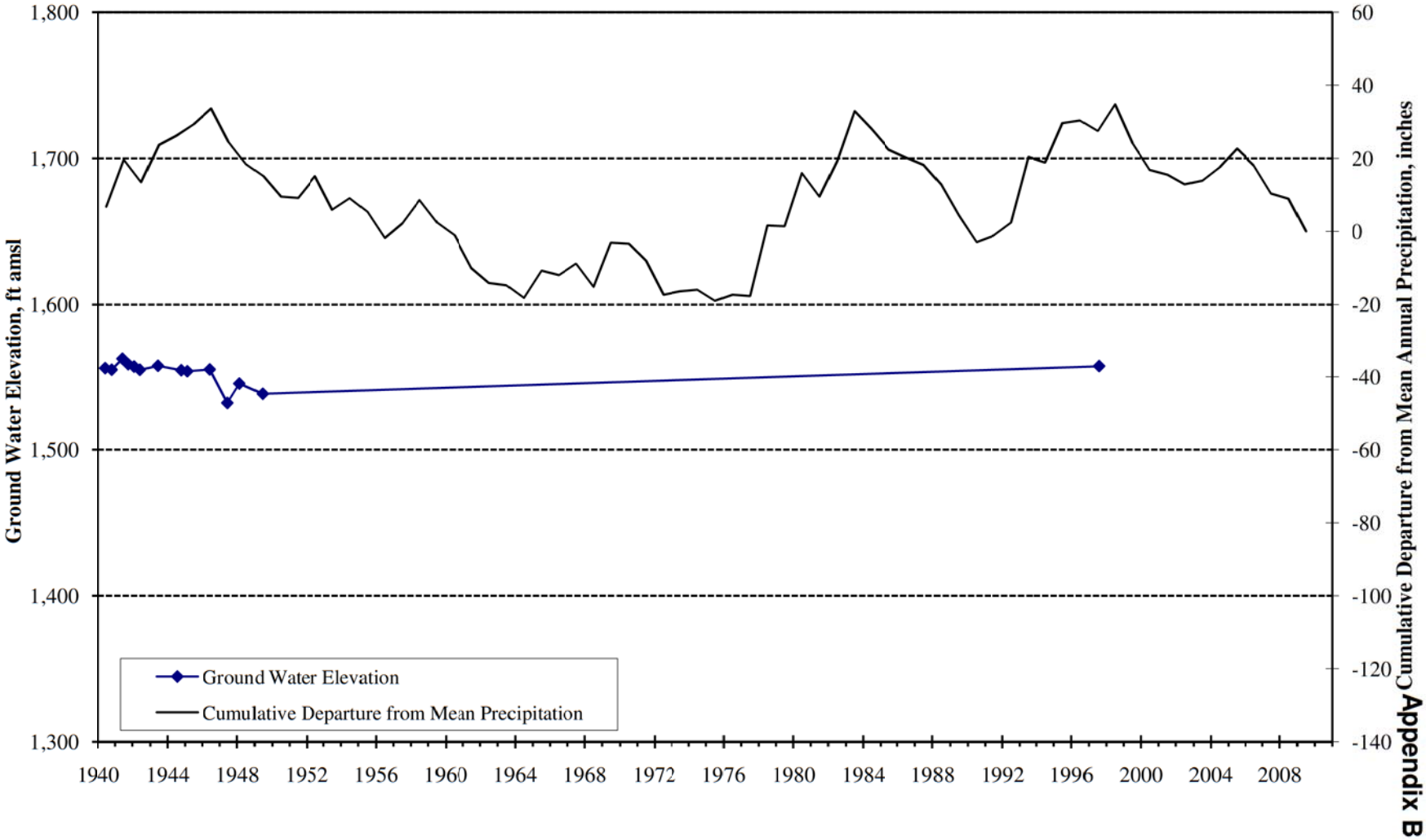


Appendix B

Ground Water Elevation
Well 3S/2E-18K1
Cabazon Storage Unit



Appendix B

Ground Water Elevation
Well 3S/2E-15P3
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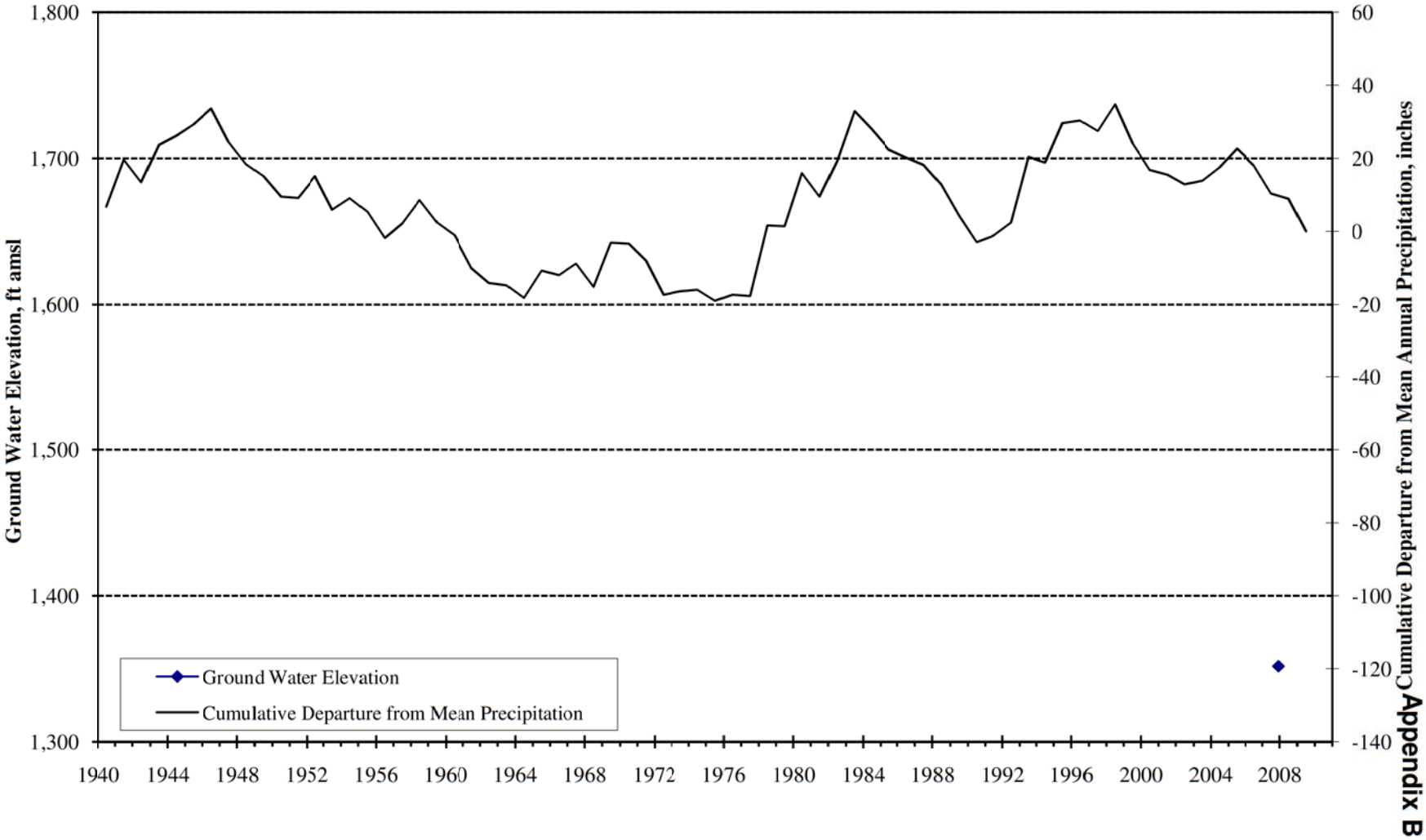
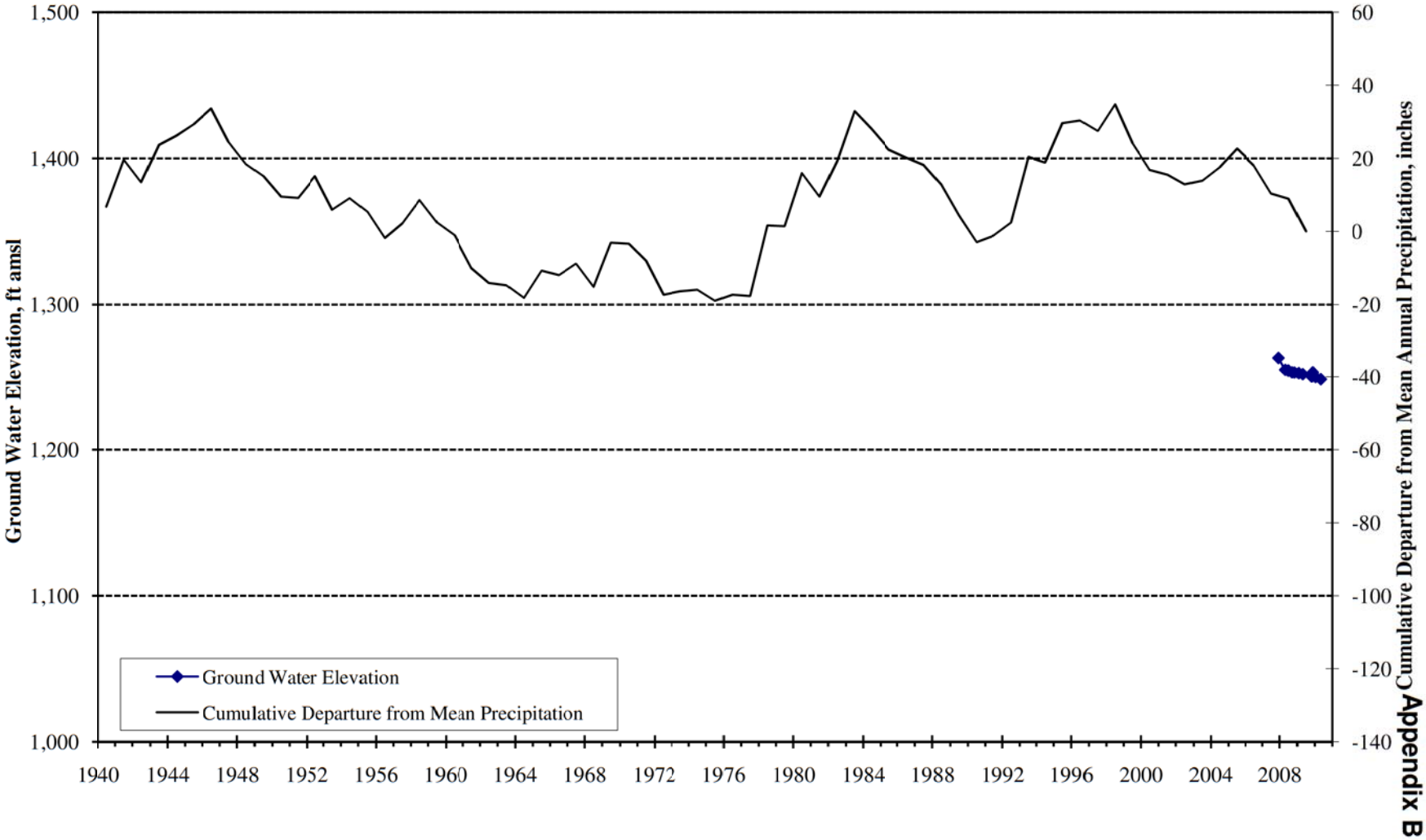


Appendix B

Ground Water Elevation
Well 3S/2E-15P2
Cabazon Storage Unit



Appendix B

Ground Water Elevation
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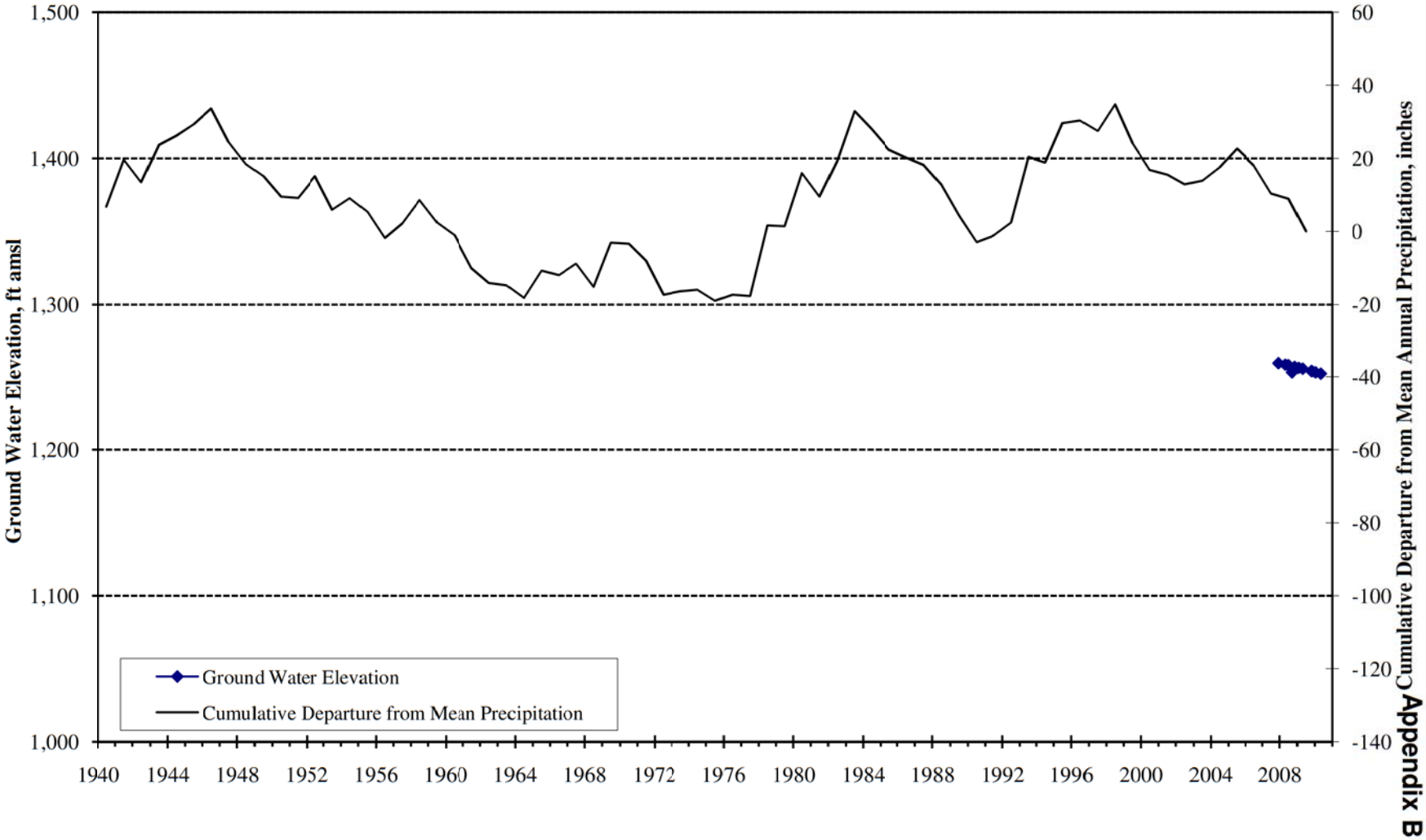
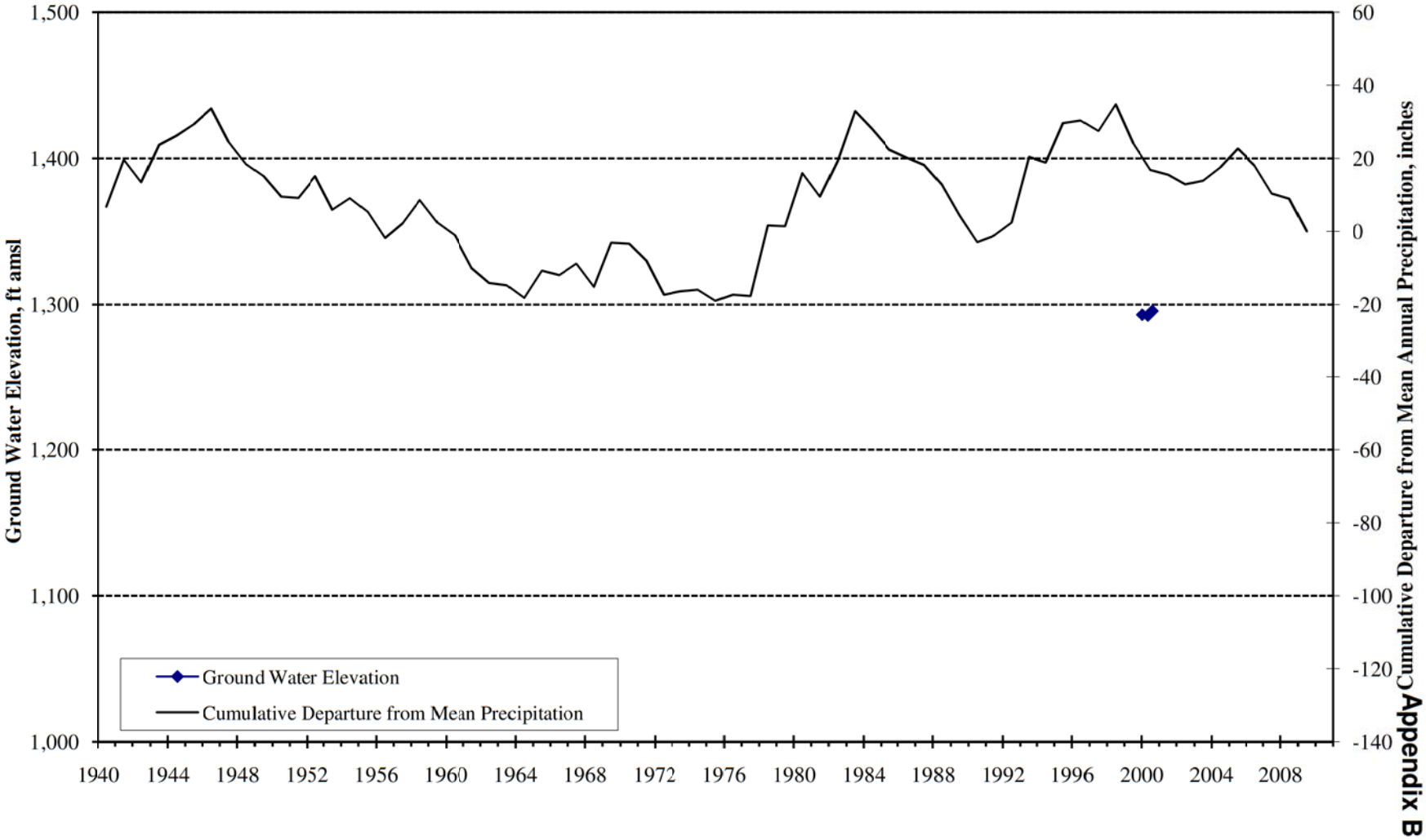


Appendix B

Ground Water Elevation
Well 3S/2E-10N4
Cabazon Storage Unit



Appendix B

Ground Water Elevation
Well 3S/2E-10N3
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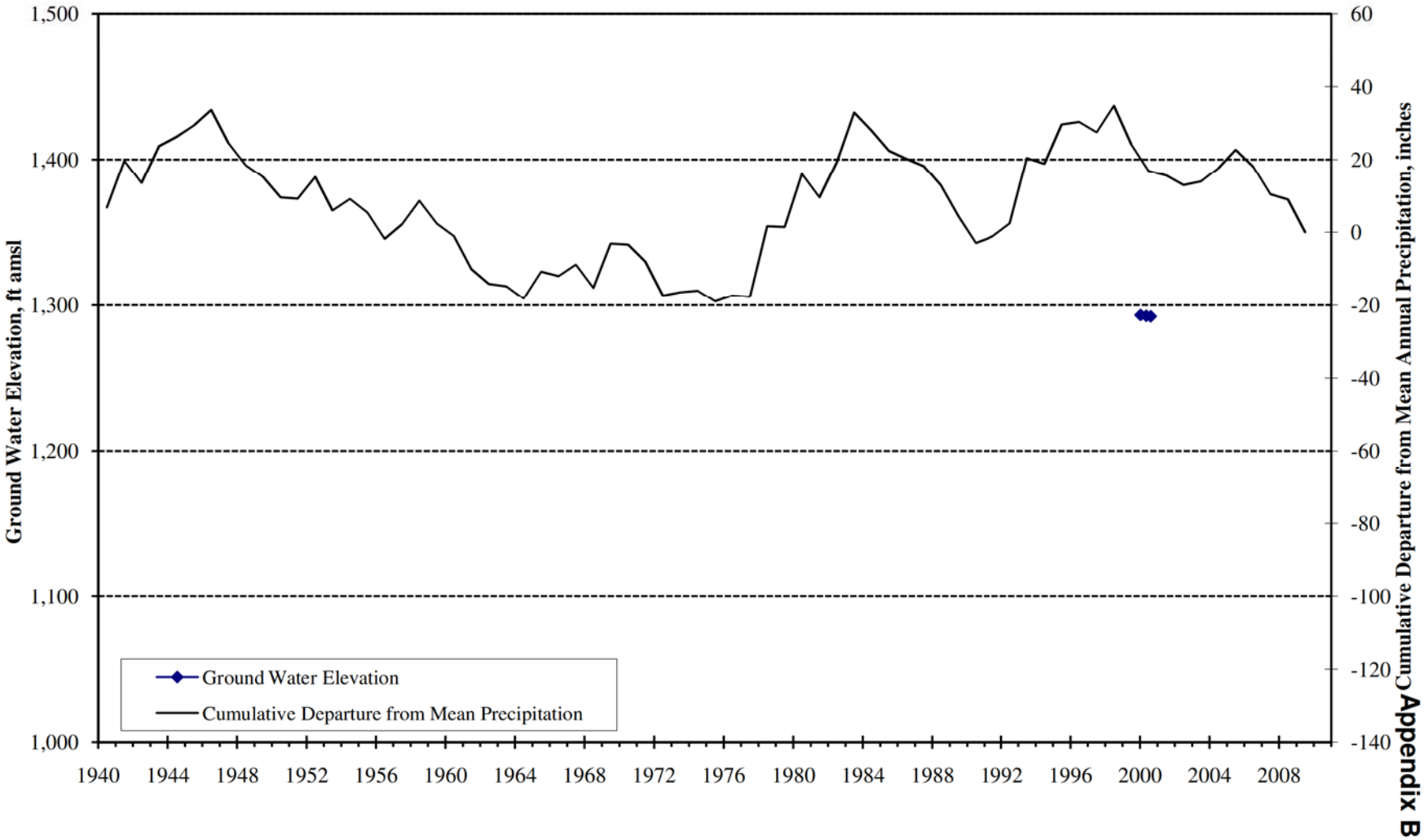

Appendix B

Ground Water Elevation
Well 3S/2E-10N2
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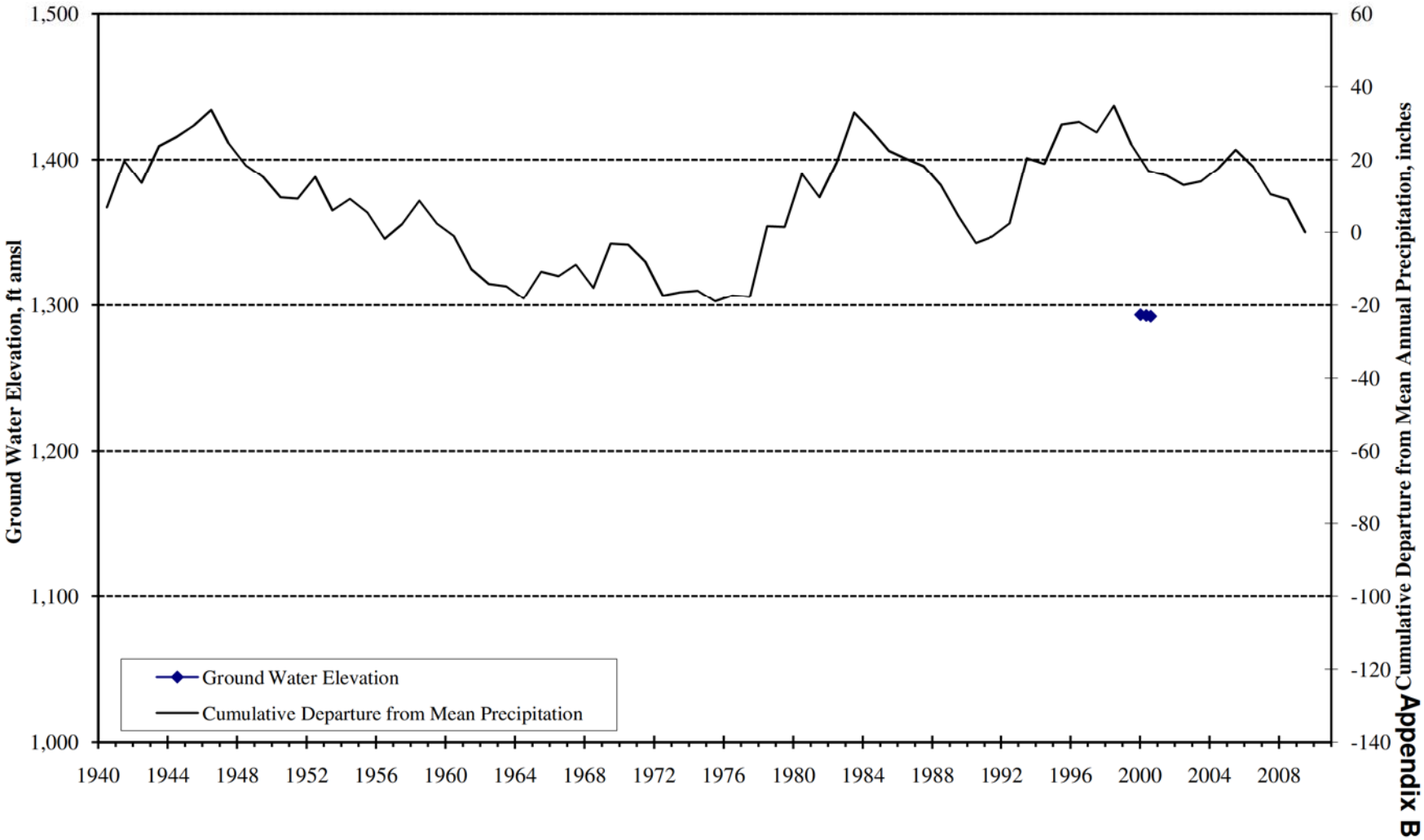
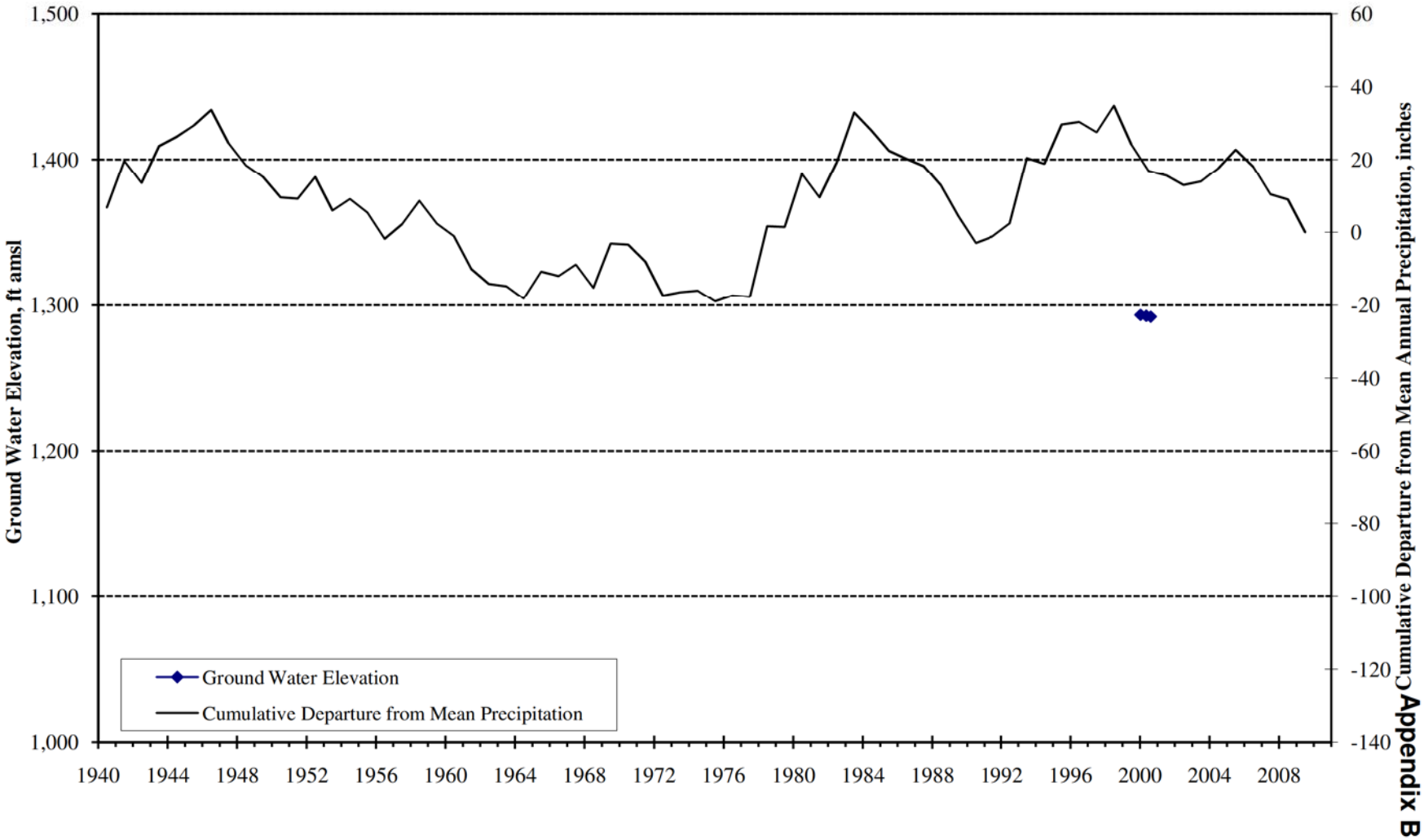


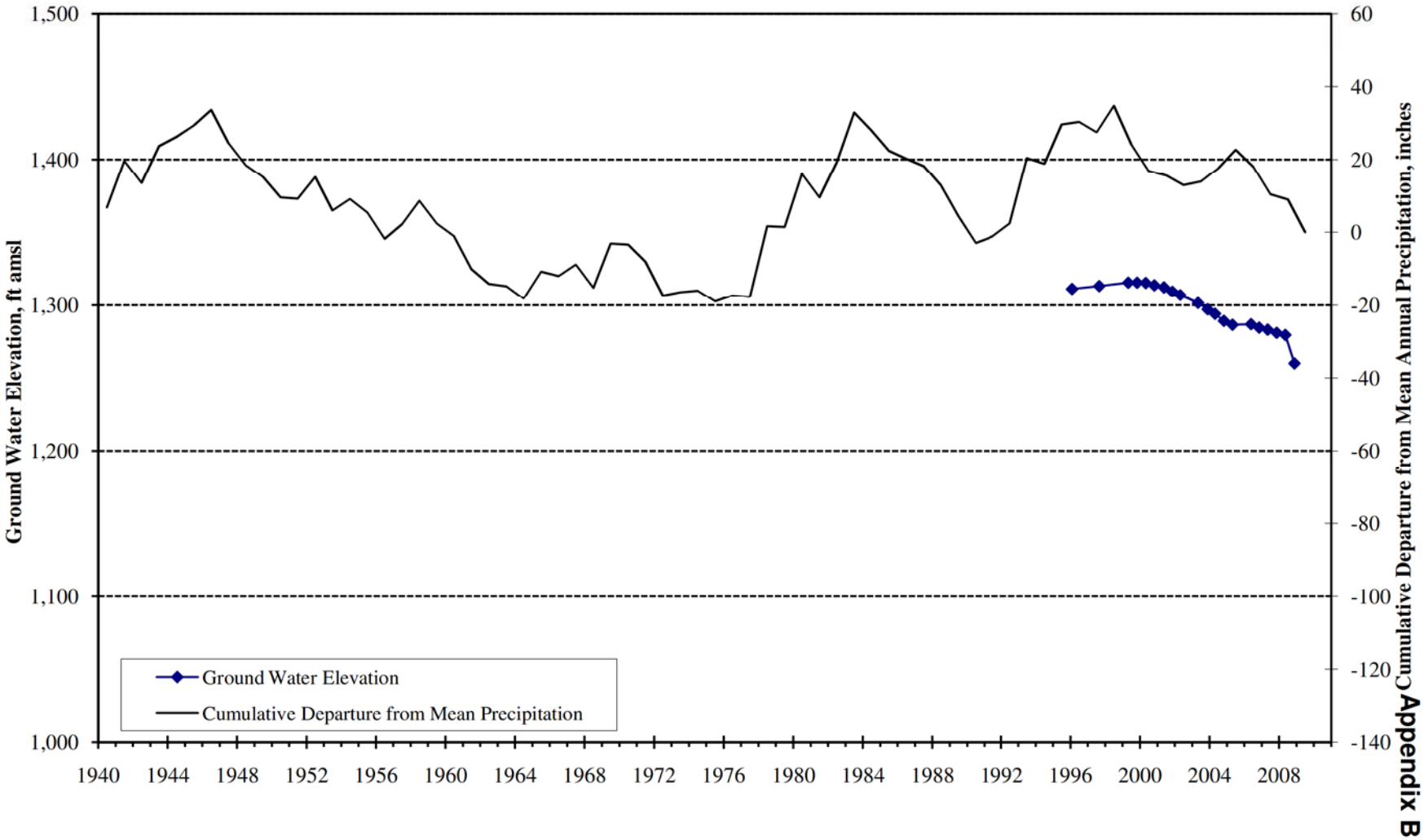
Appendix B

Ground Water Elevation
Well 3S/2E-10N1
Cabazon Storage Unit



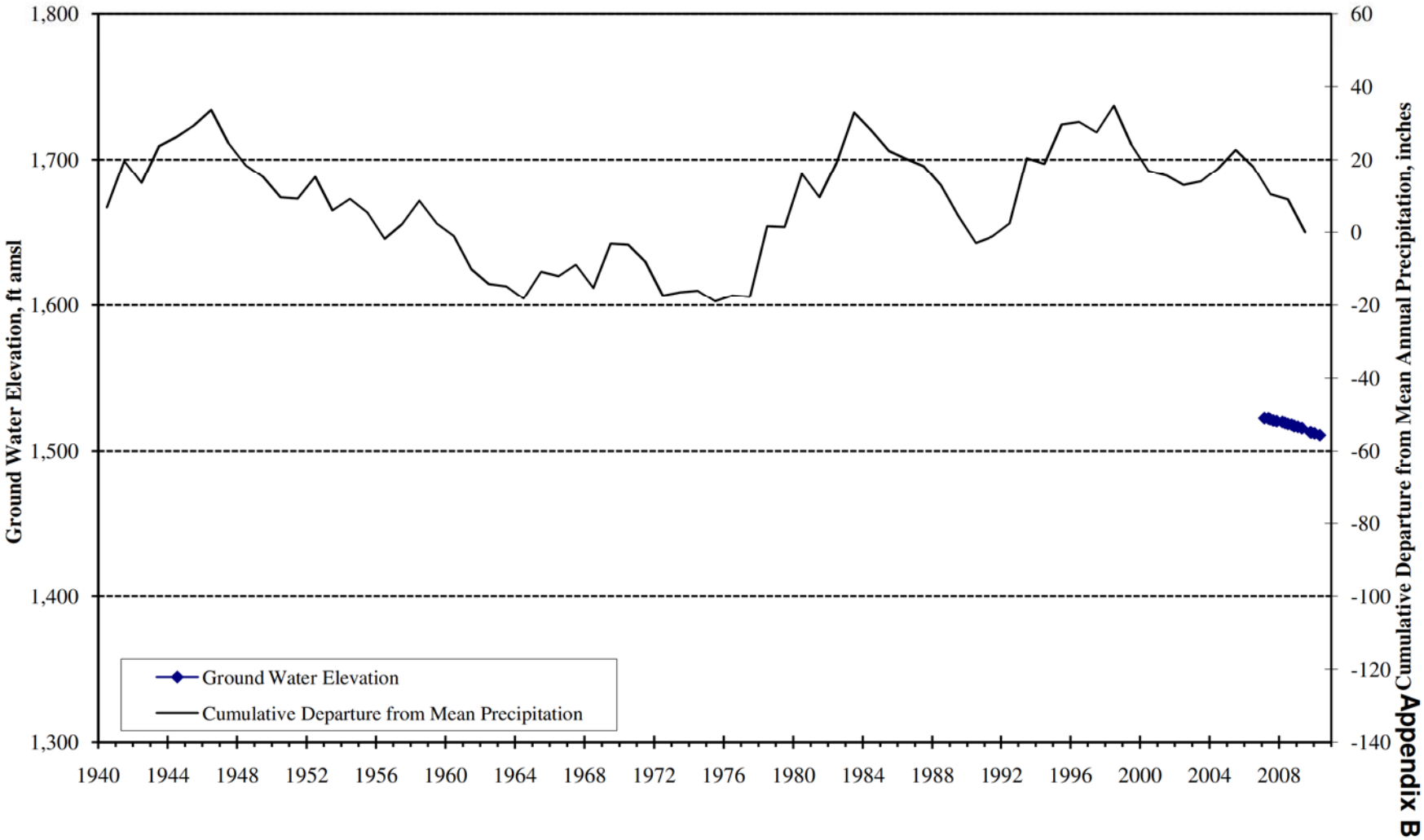
Appendix B

Ground Water Elevation
Well 3S/2E-09E1
Cabazon Storage Unit



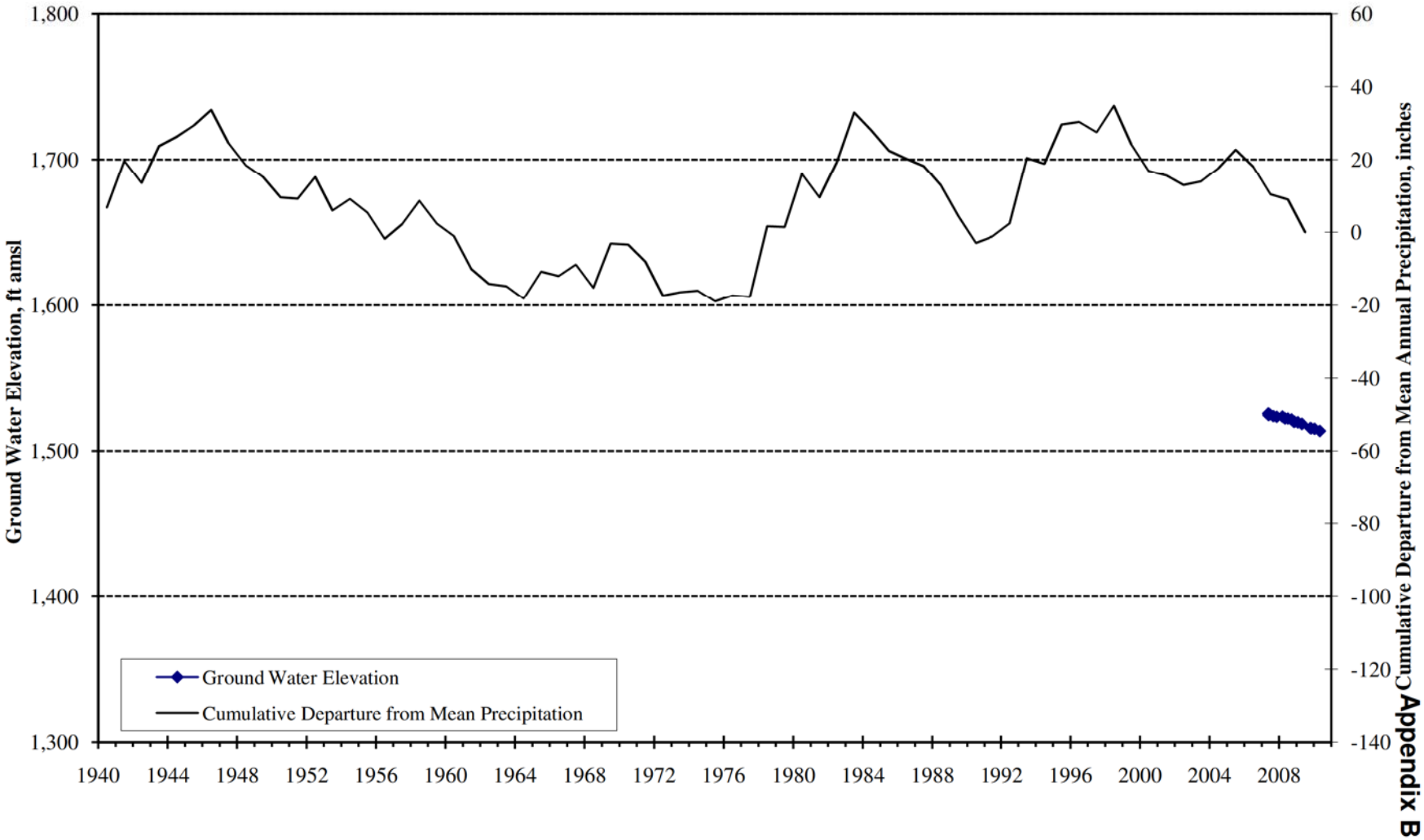
Appendix B

Ground Water Elevation
Well 3S/2E-07P4
Cabazon Storage Unit



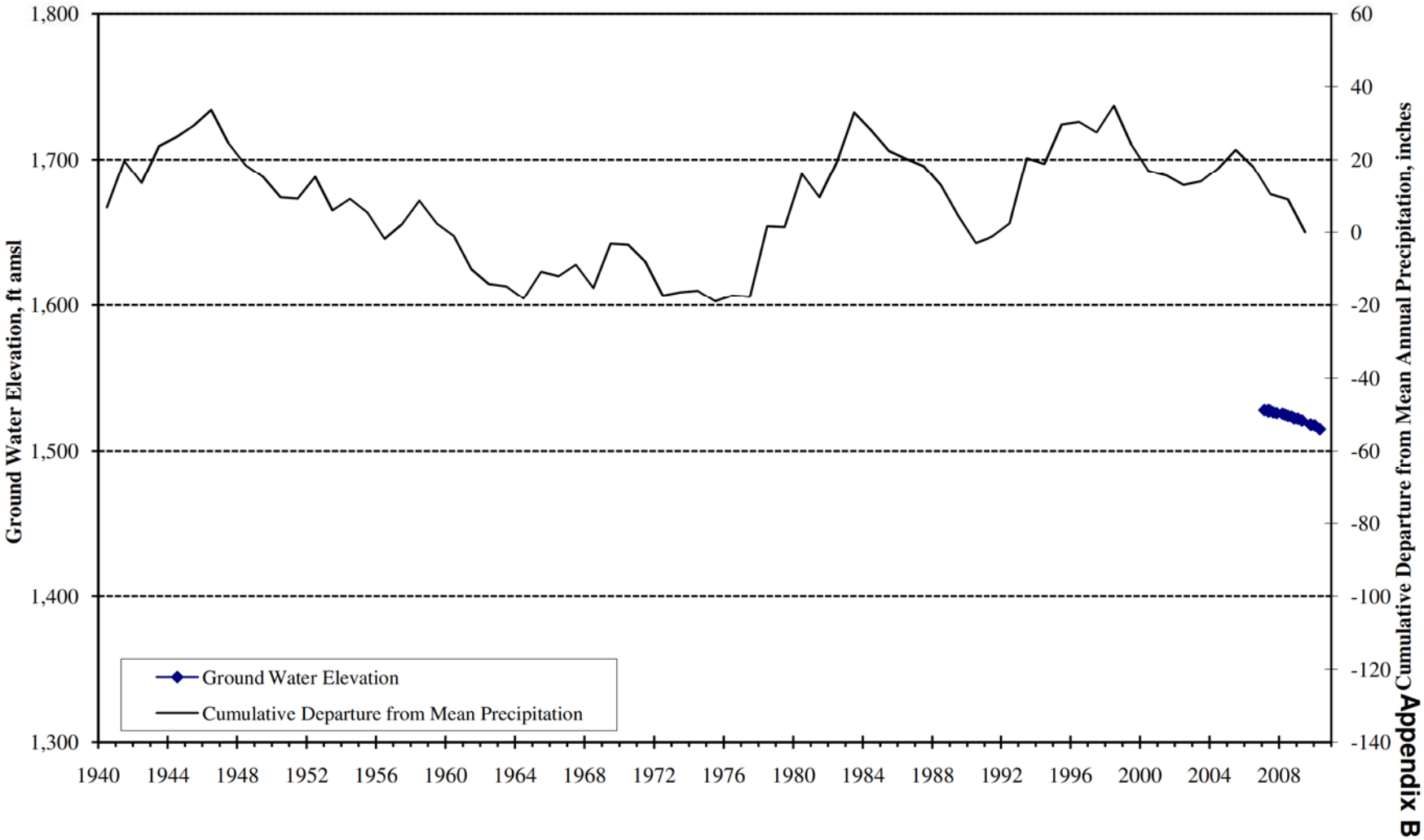
Appendix B

Ground Water Elevation
Well 3S/2E-07P3
Cabazon Storage Unit



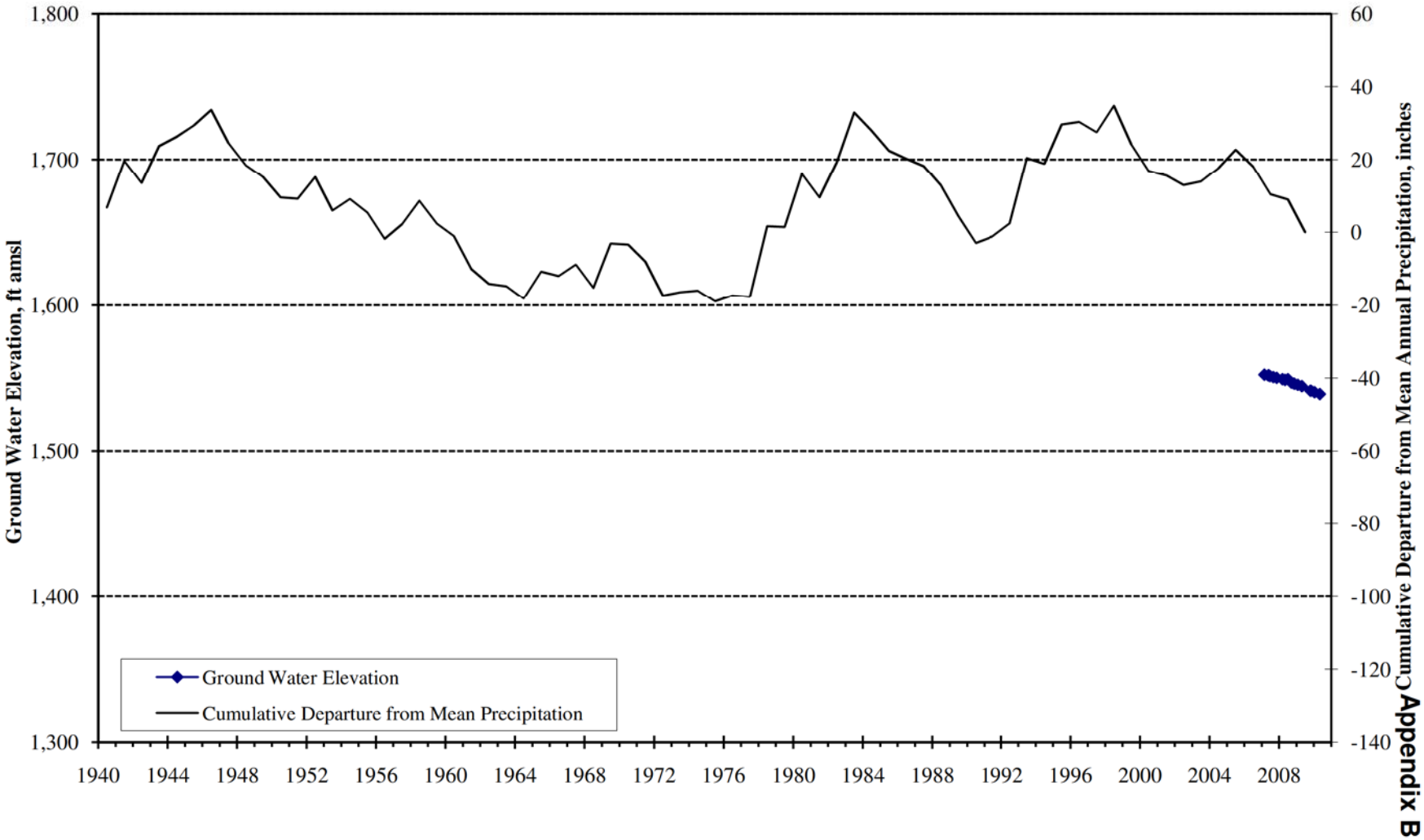
Appendix B

Ground Water Elevation
Well 3S/2E-07P2
Cabazon Storage Unit



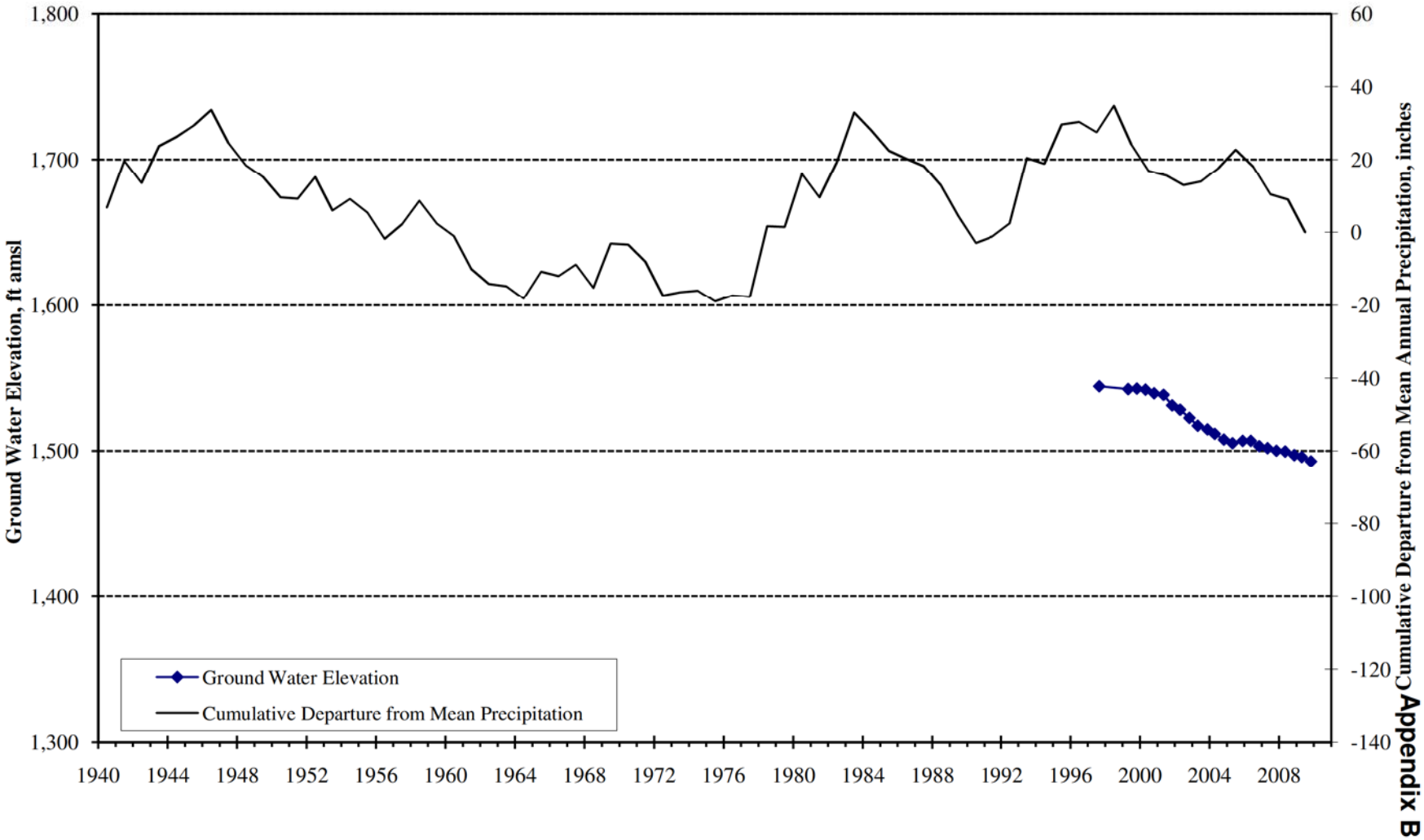
Appendix B

Ground Water Elevation
Well 3S/2E-07P1
Cabazon Storage Unit



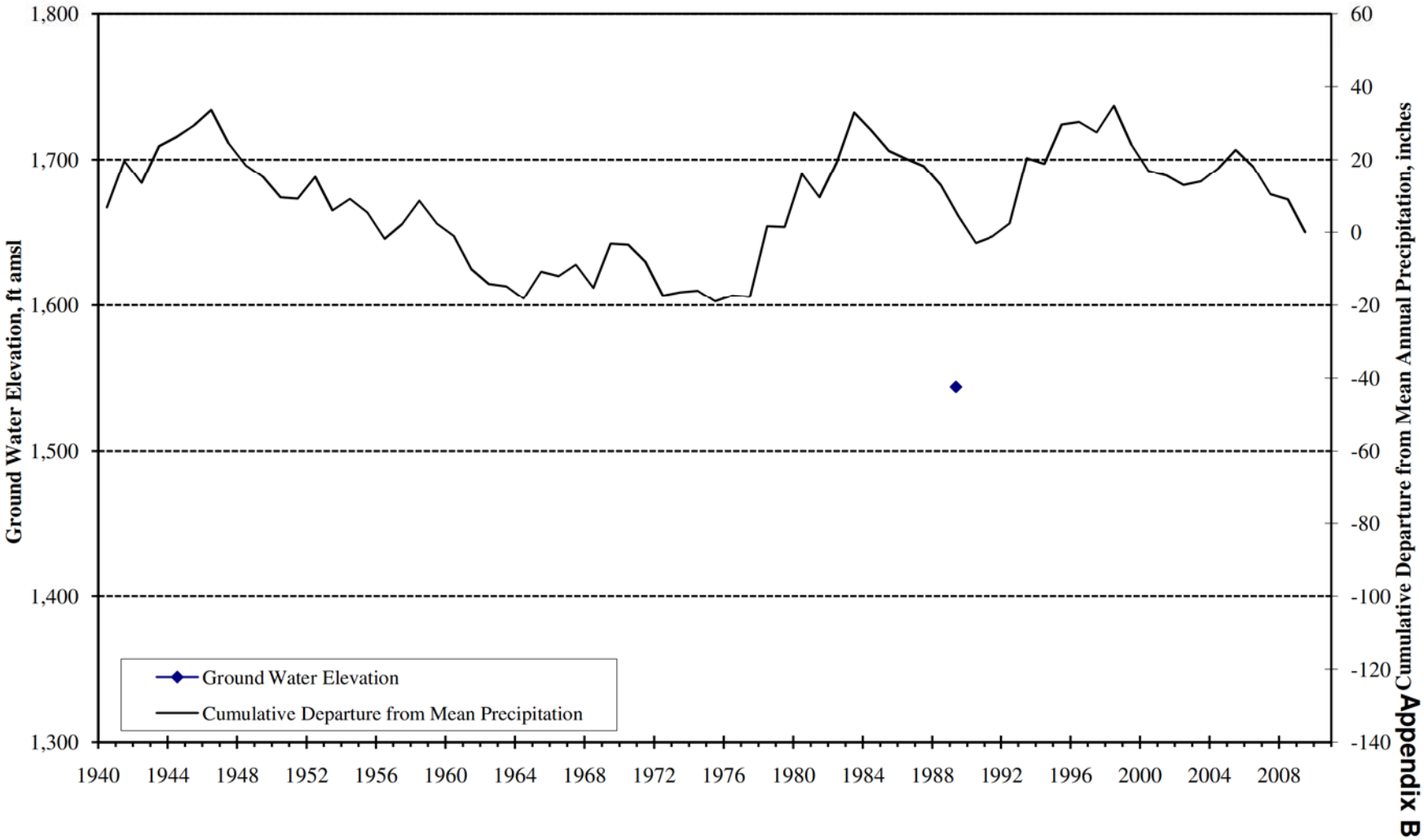
Appendix B

Ground Water Elevation
Well 3S/2E-07K1
Cabazon Storage Unit



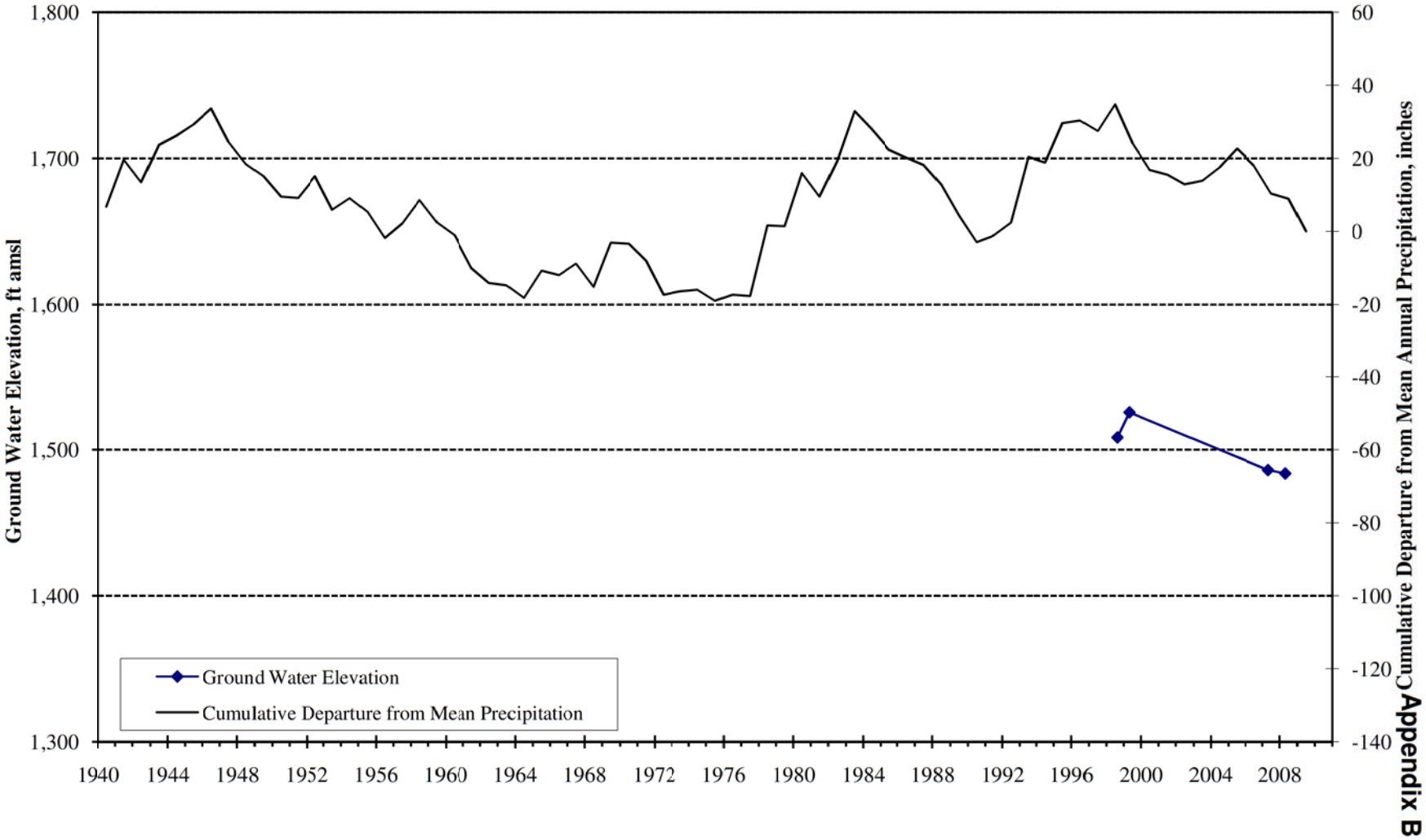
Appendix B

Ground Water Elevation
Well 3S/2E-07H1
Cabazon Storage Unit



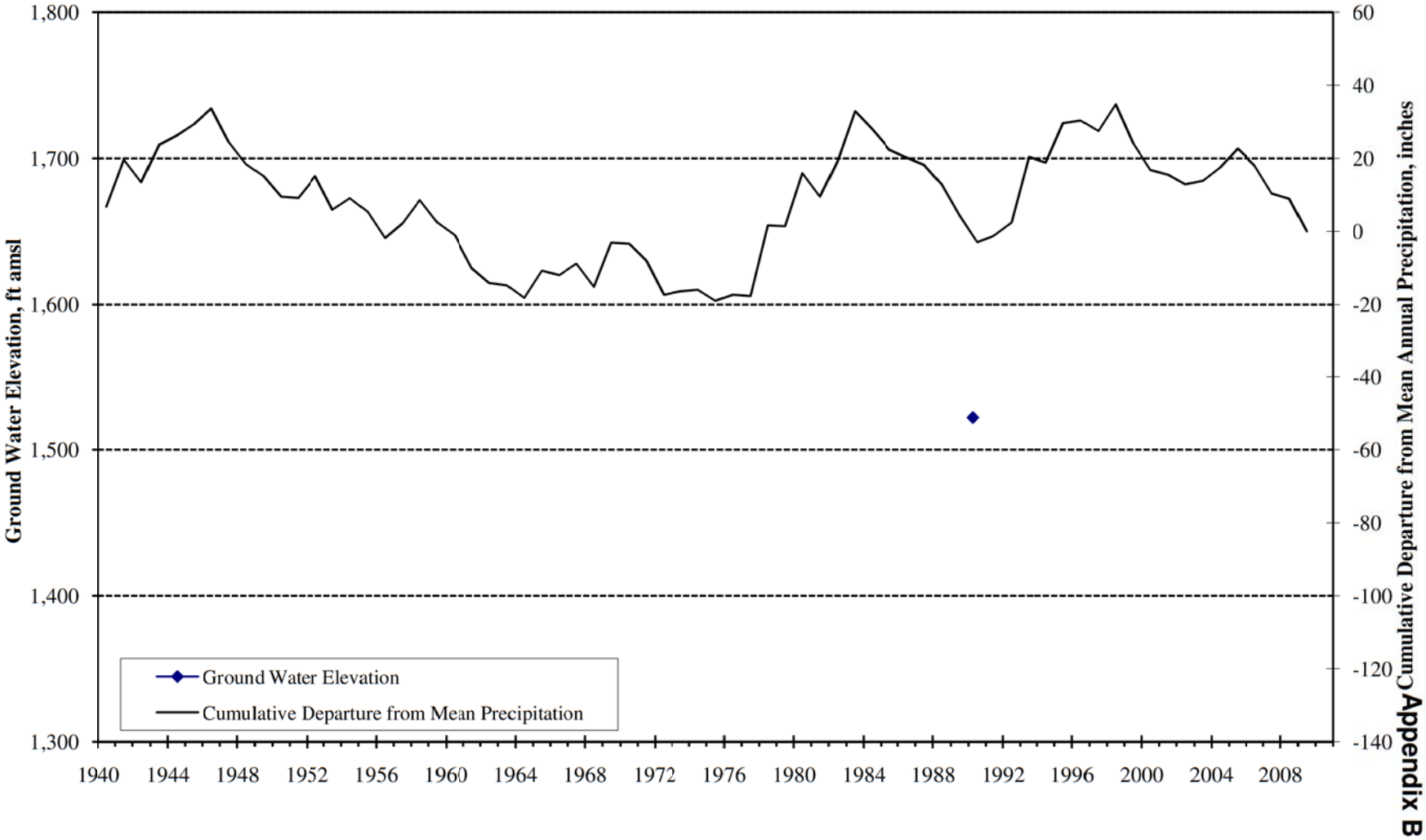
Appendix B

Ground Water Elevation
Well 3S/2E-07G2
Cabazon Storage Unit



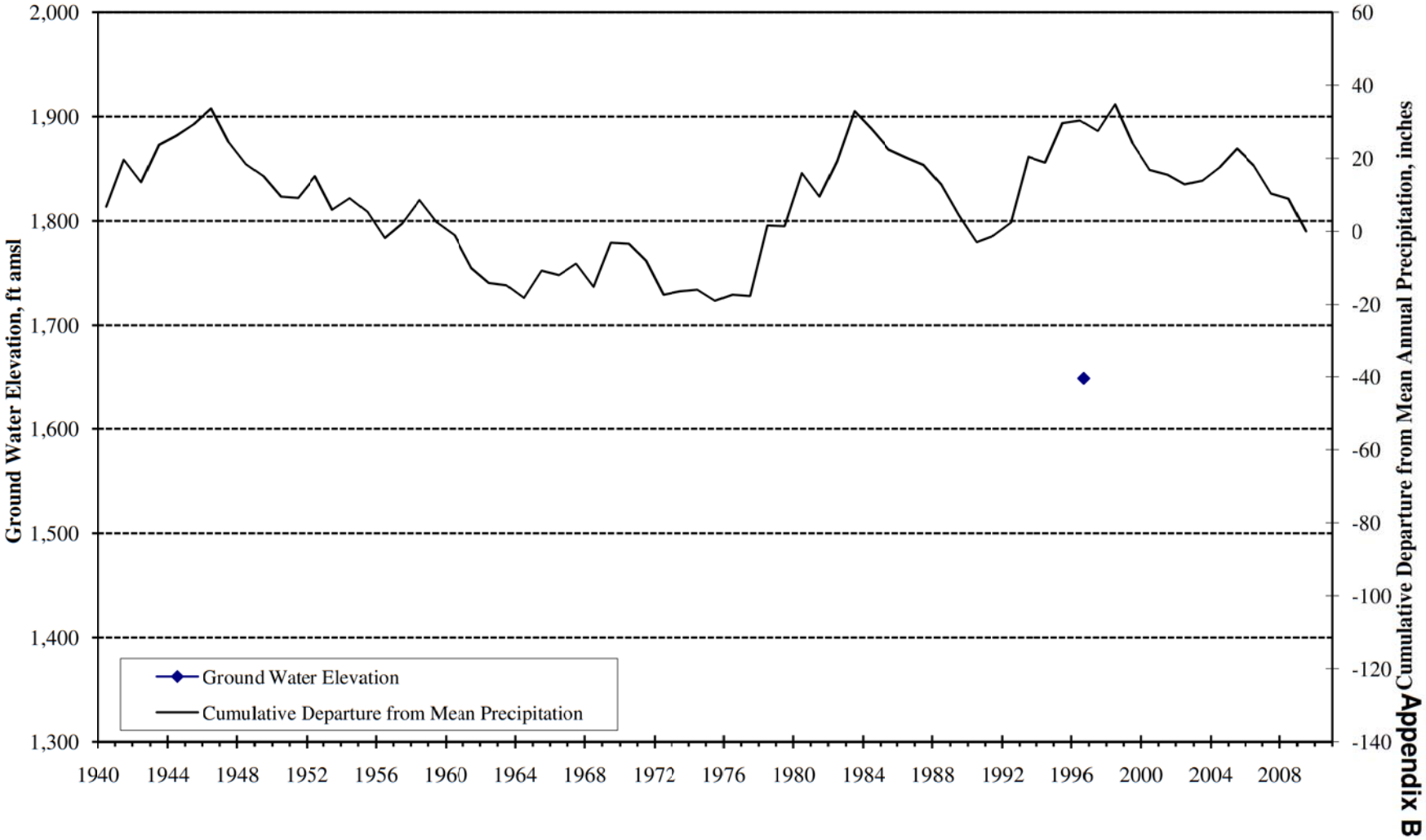
Appendix B

Ground Water Elevation
Well 3S/2E-07G1
Cabazon Storage Unit



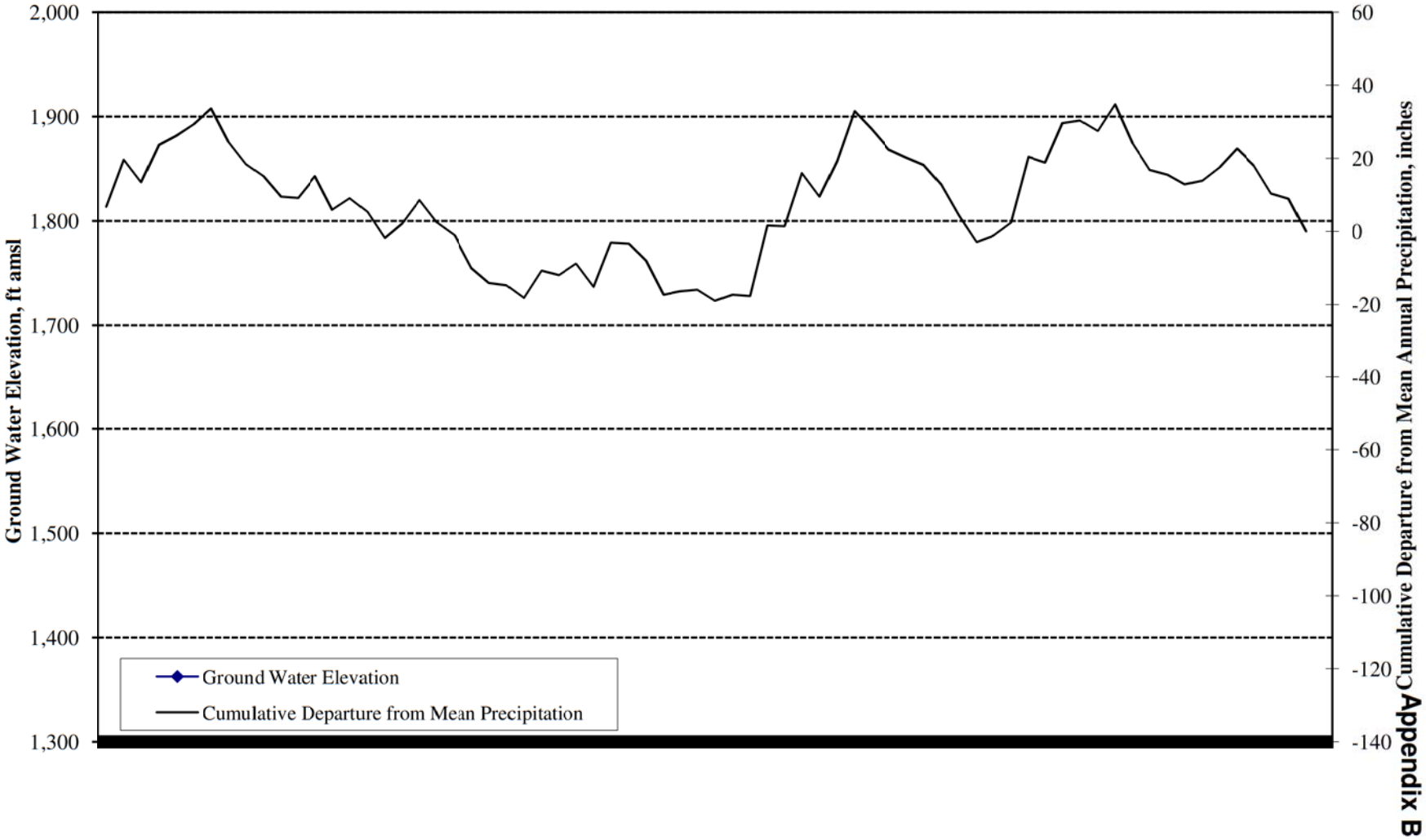
Appendix B

Ground Water Elevation
Well 3S/1E-12D1
Cabazon Storage Unit



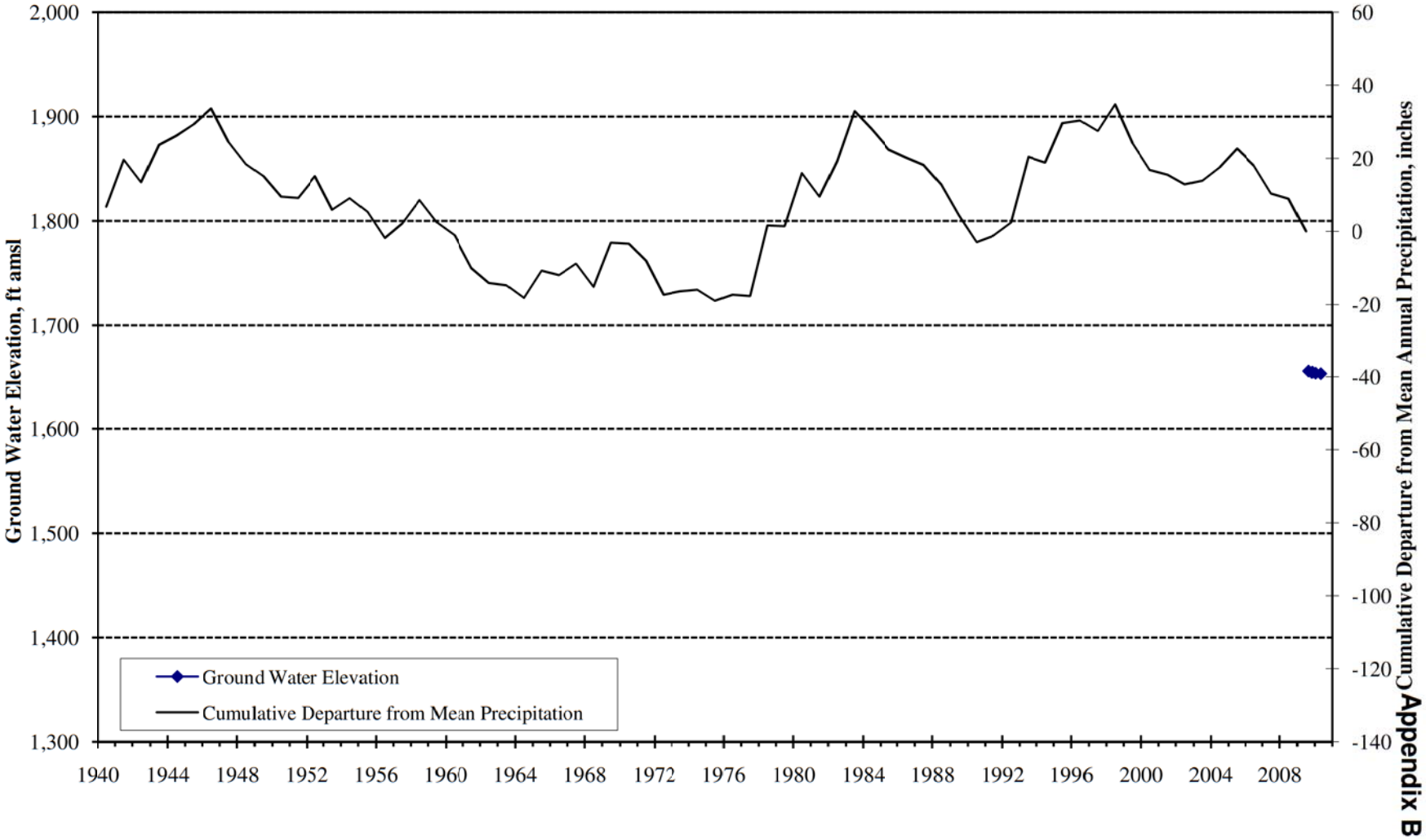
Appendix B

Ground Water Elevation
Well 3S/1E-12A1
Cabazon Storage Unit



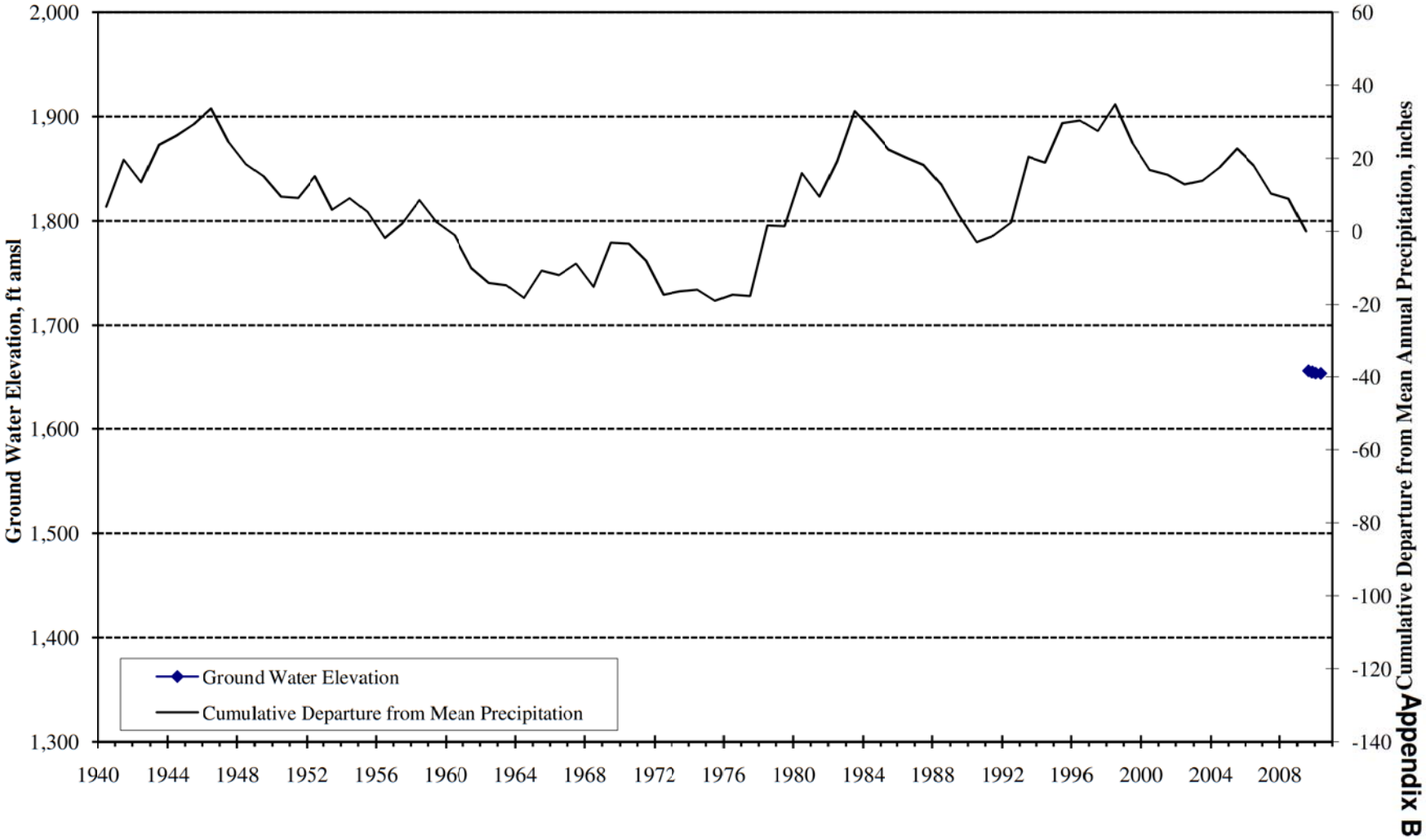
Appendix B

Ground Water Elevation
Well 3S/1E-11F4
Cabazon Storage Unit



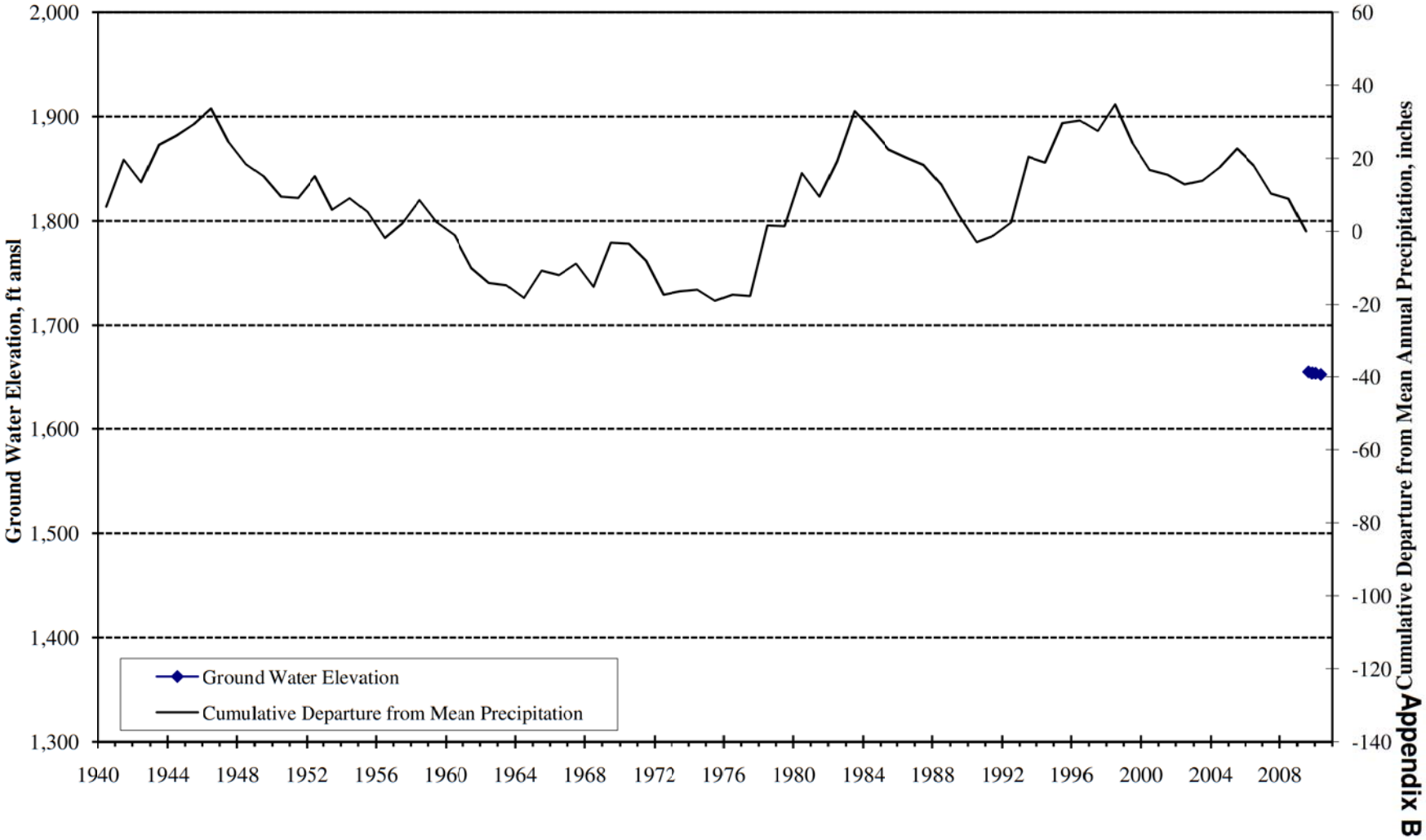
Appendix B

Ground Water Elevation
Well 3S/1E-11F3
Cabazon Storage Unit



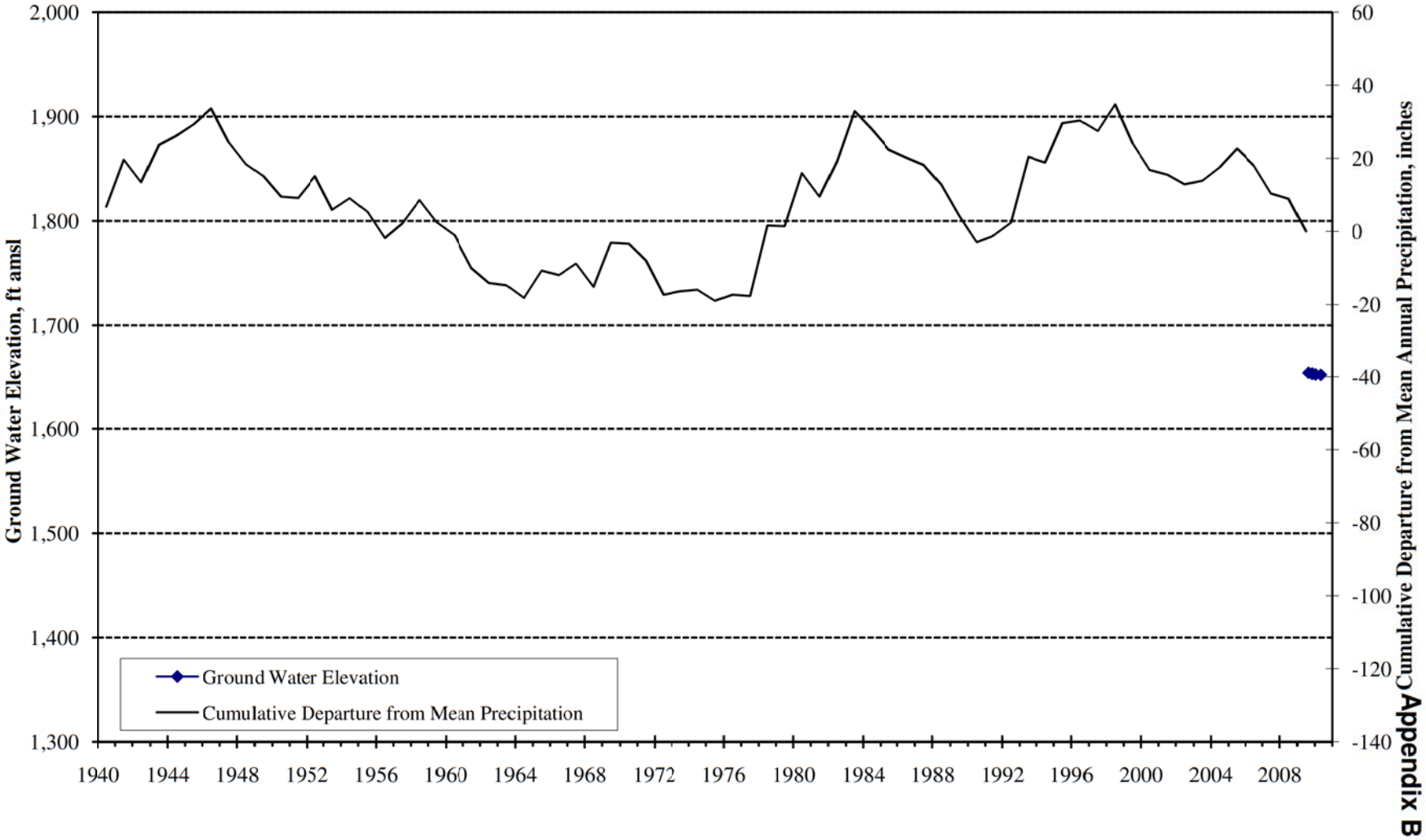
Appendix B

Ground Water Elevation
Well 3S/1E-11F2
Cabazon Storage Unit



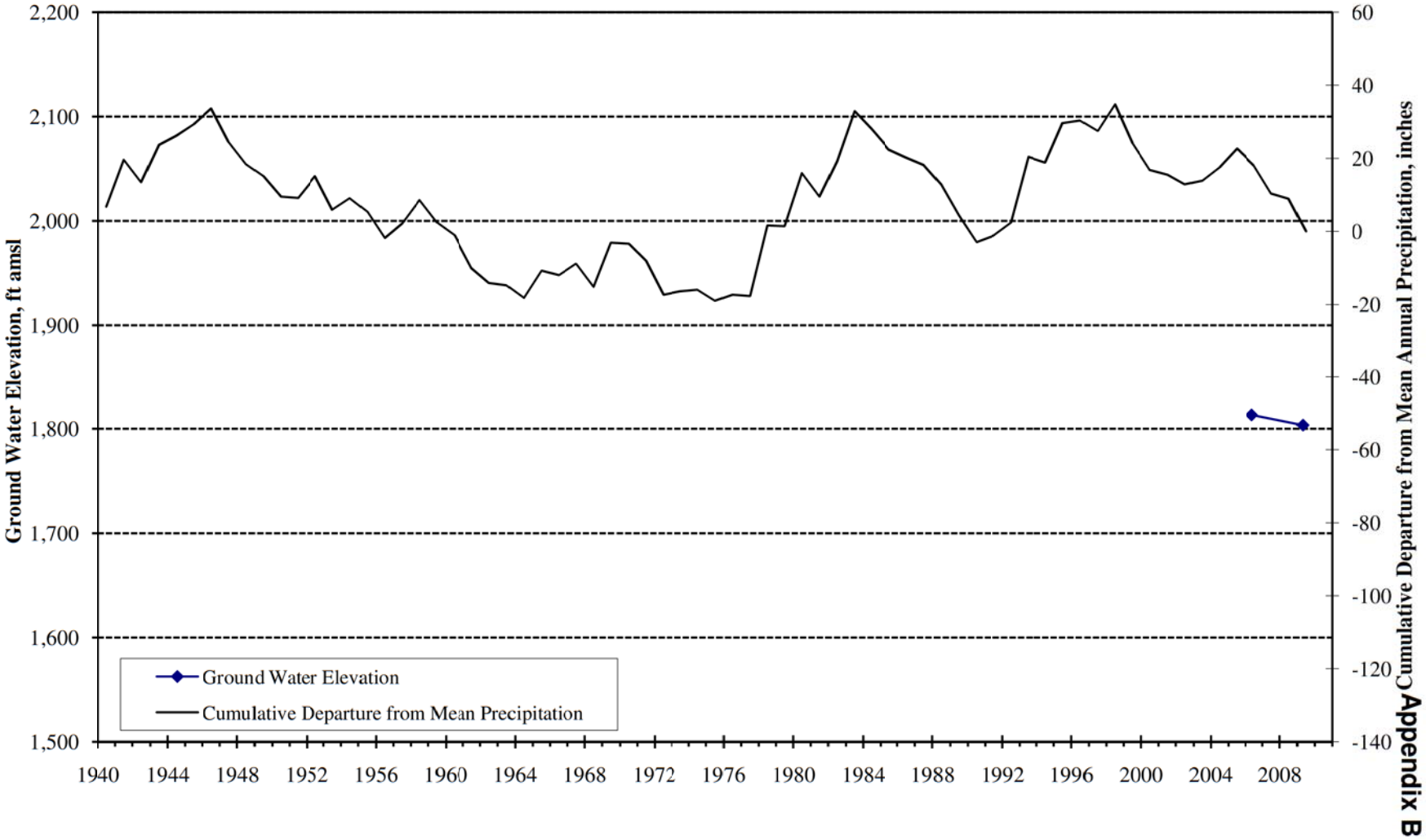
Appendix B

Ground Water Elevation
Well 3S/1E-11F1
Cabazon Storage Unit



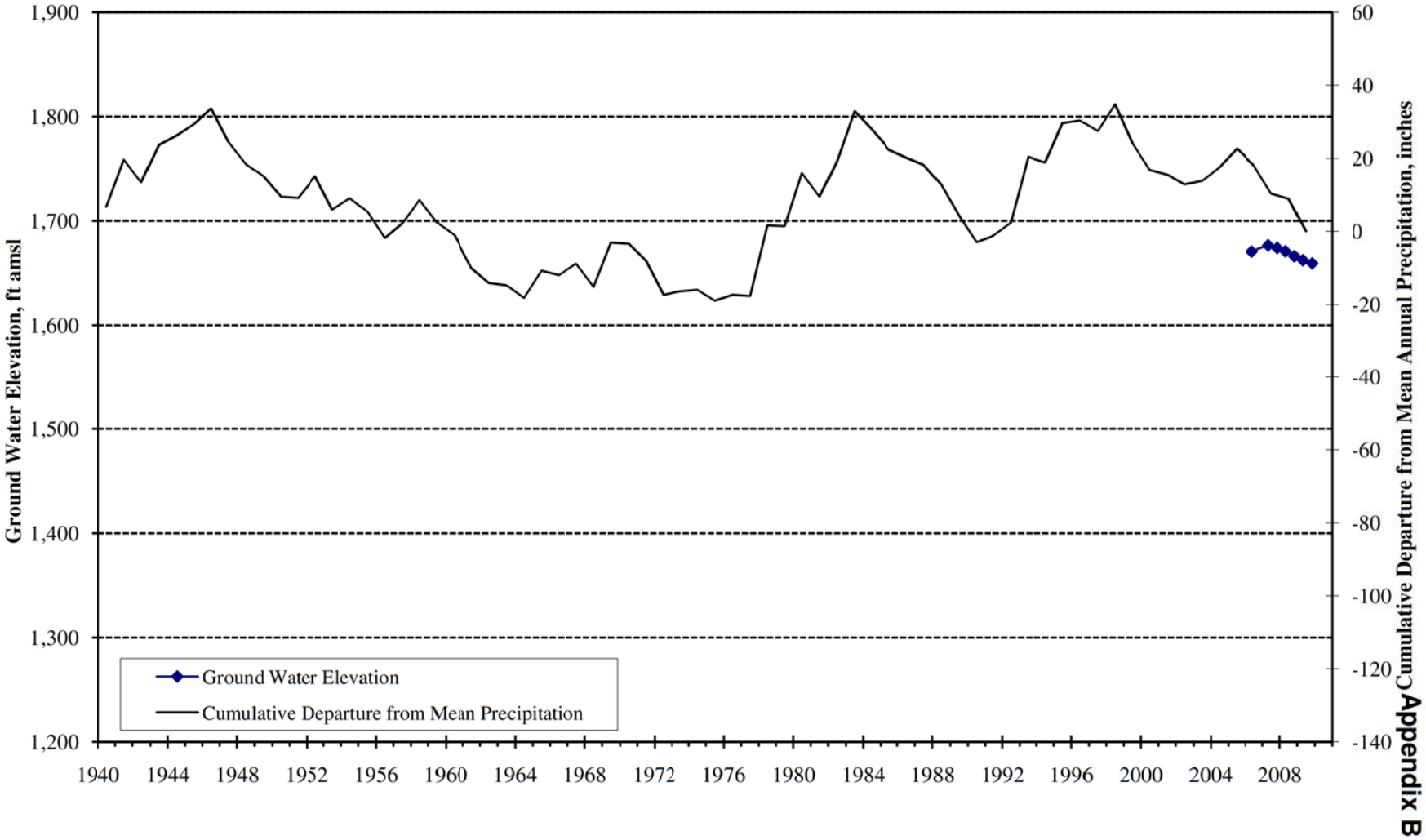
Appendix B

Ground Water Elevation
Well 3S/1E-03J2
Cabazon Storage Unit



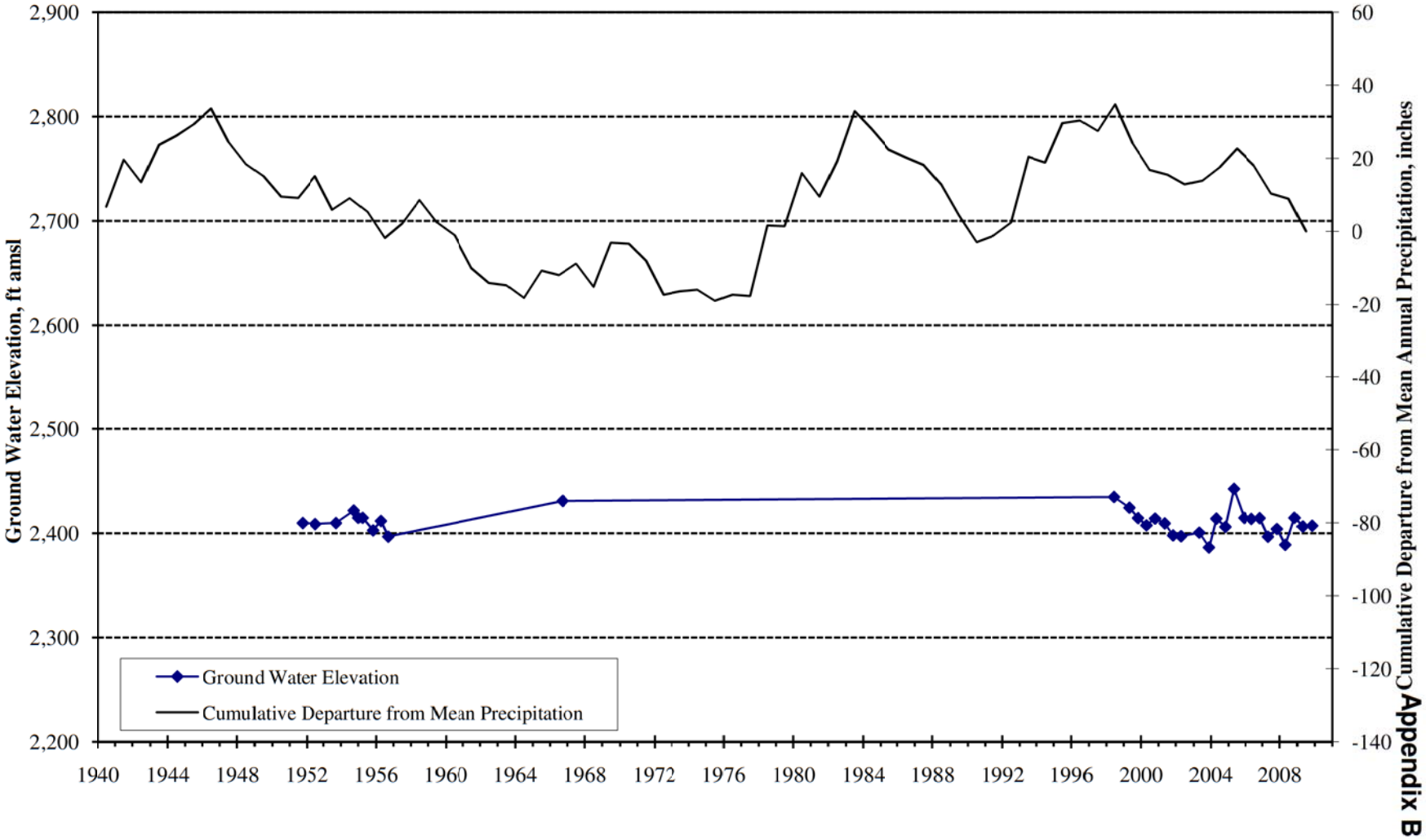
Appendix B

Ground Water Elevation
Well 3S/1E-03J1
Cabazon Storage Unit



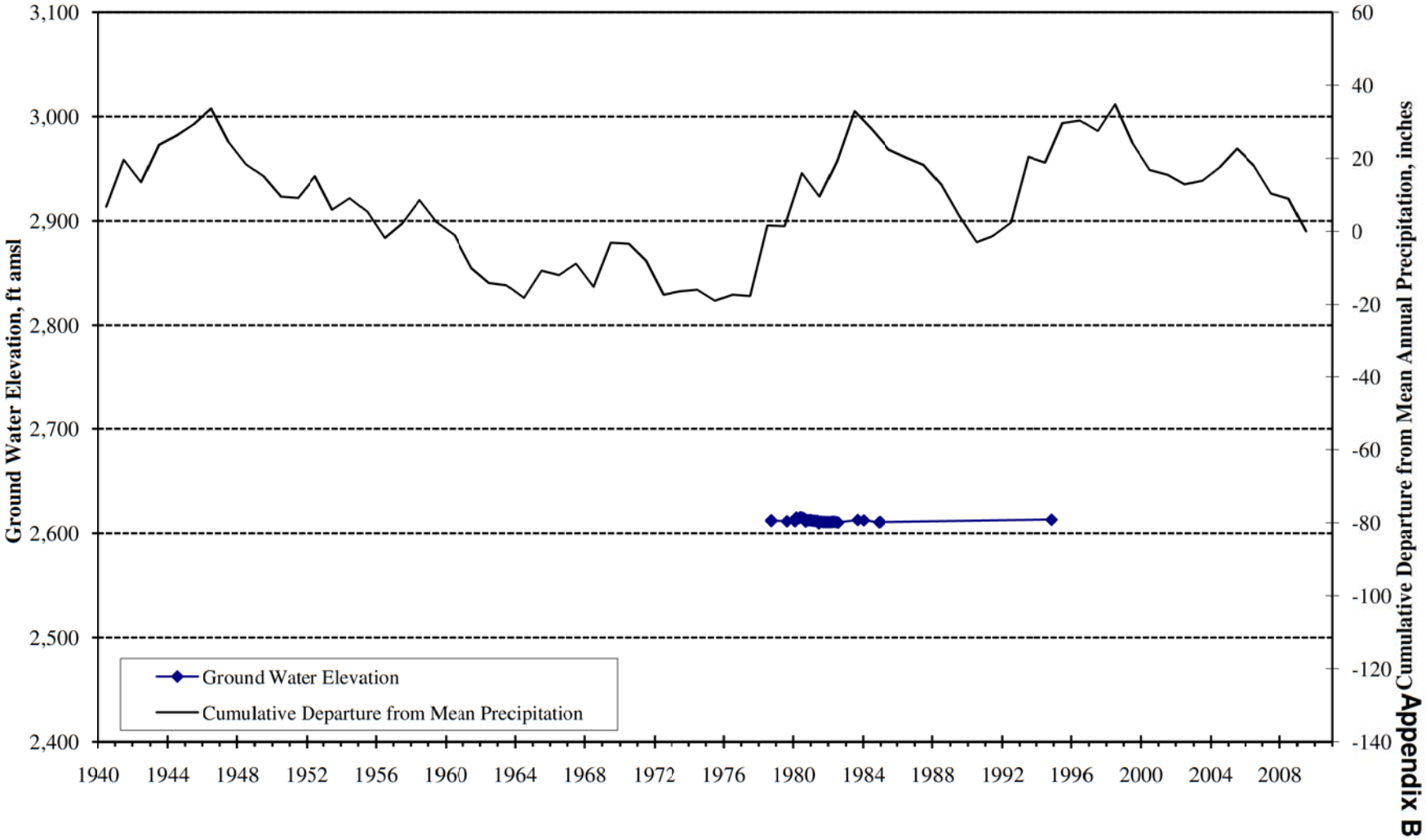
Appendix B

Ground Water Elevation
Well 3S/1E-03C2
Cabazon Storage Unit



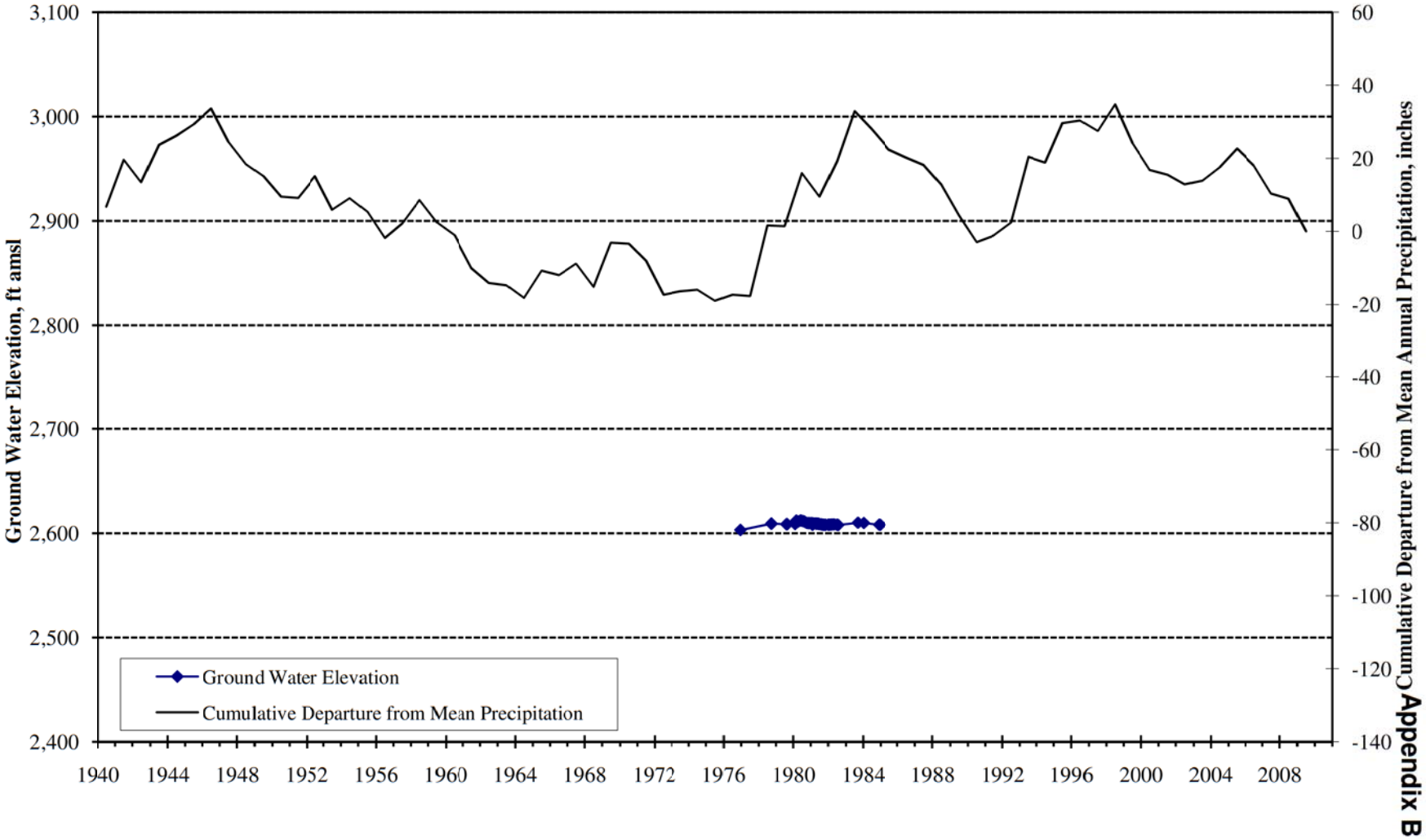
Appendix B

Ground Water Elevation
Well 2S/1E-25R2
Potrero Canyon



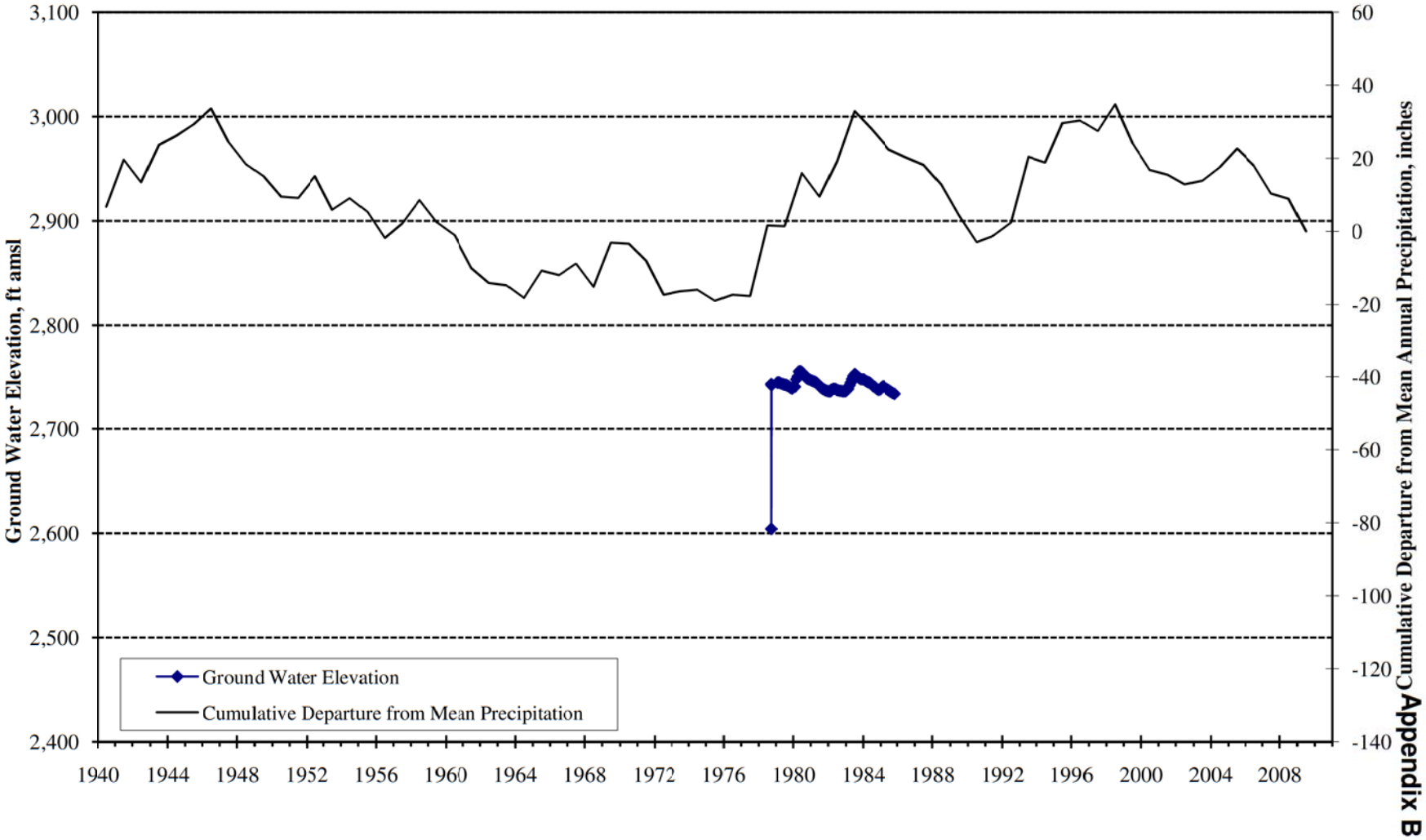
Appendix B

Ground Water Elevation
Well 2S/1E-25R1
Potrero Canyon



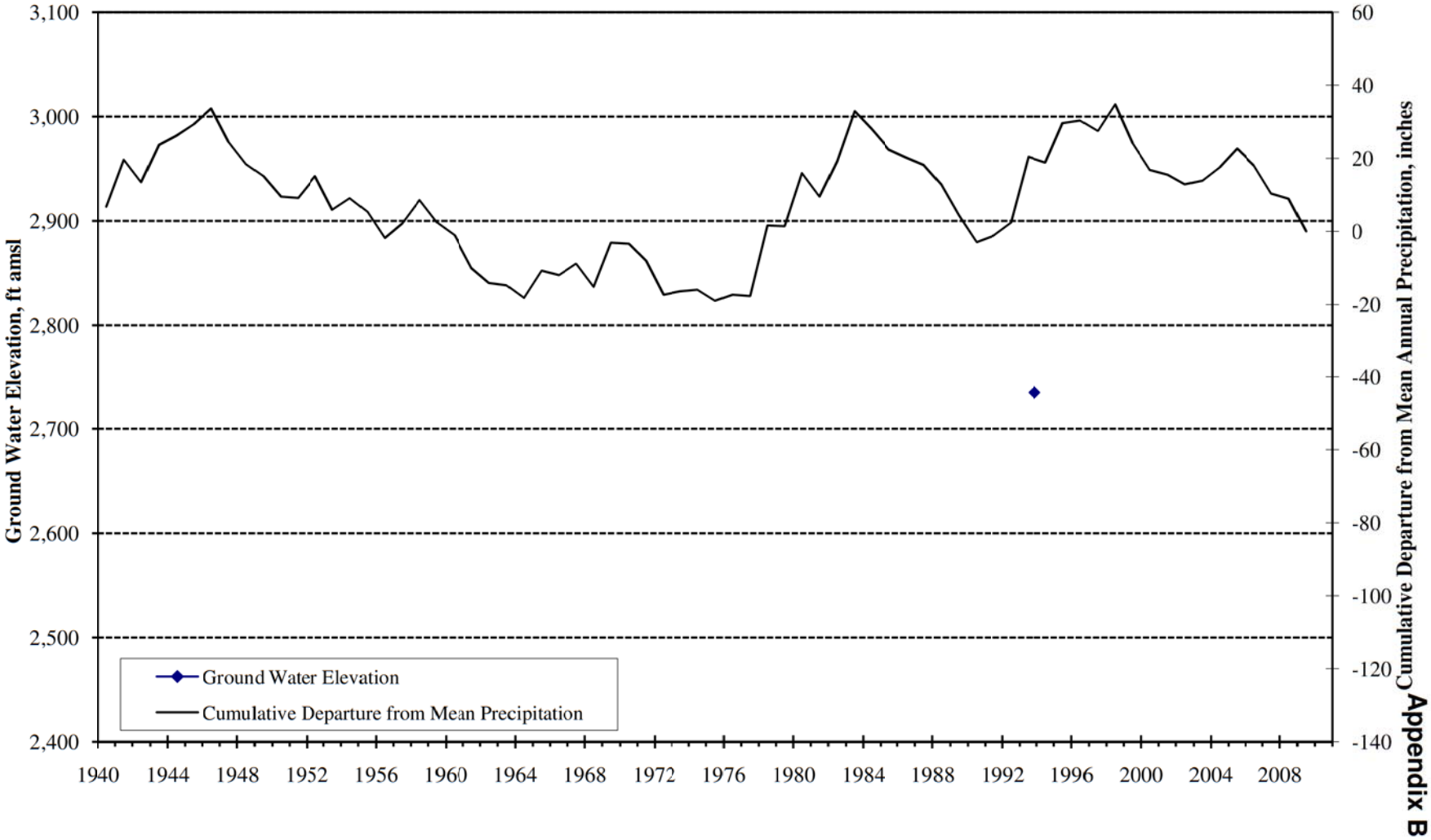
Appendix B

Ground Water Elevation
Well 2S/1E-25J1
Potrero Canyon



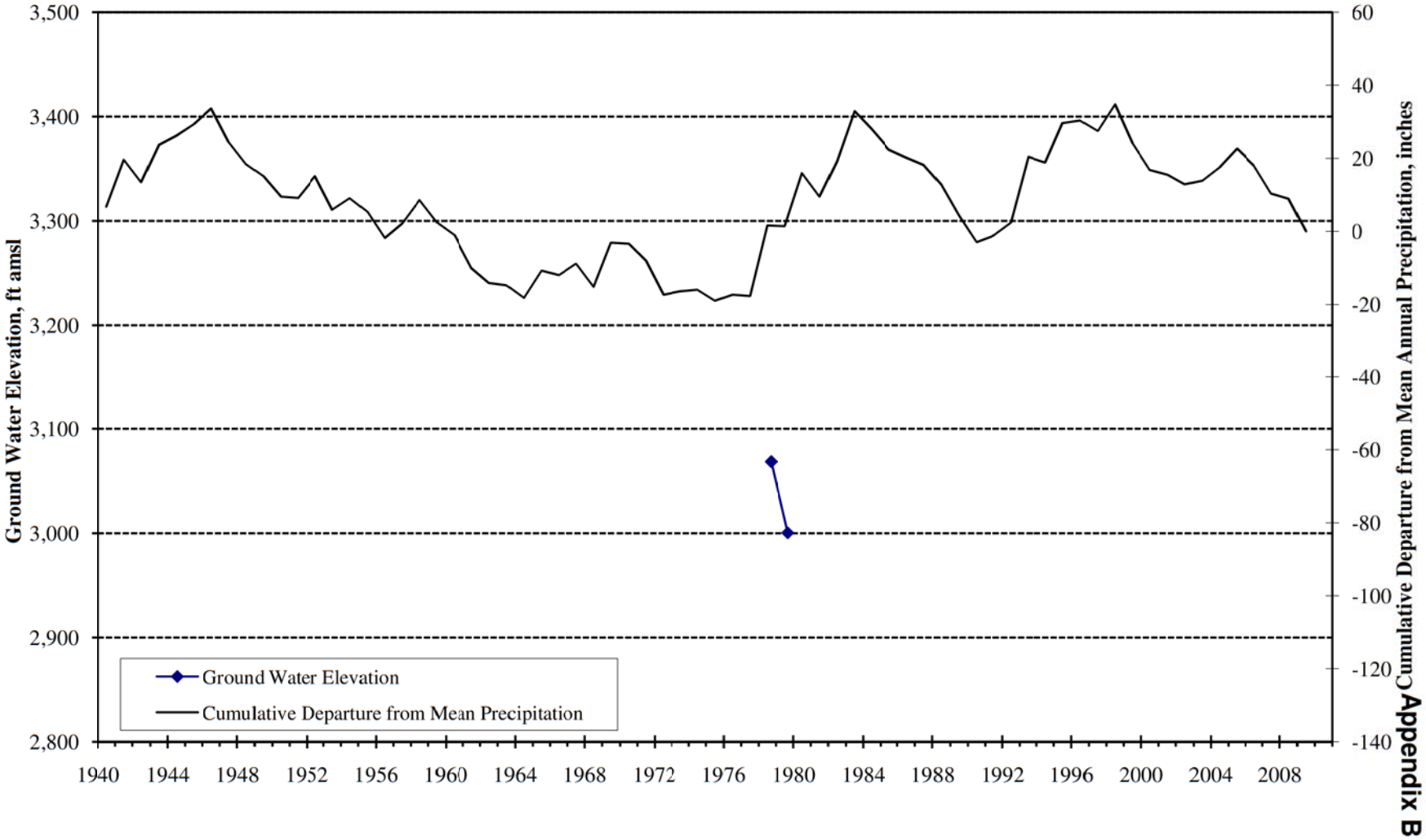
Appendix B

Ground Water Elevation
Well 2S/1E-25H1S NO. 4
Potrero Canyon



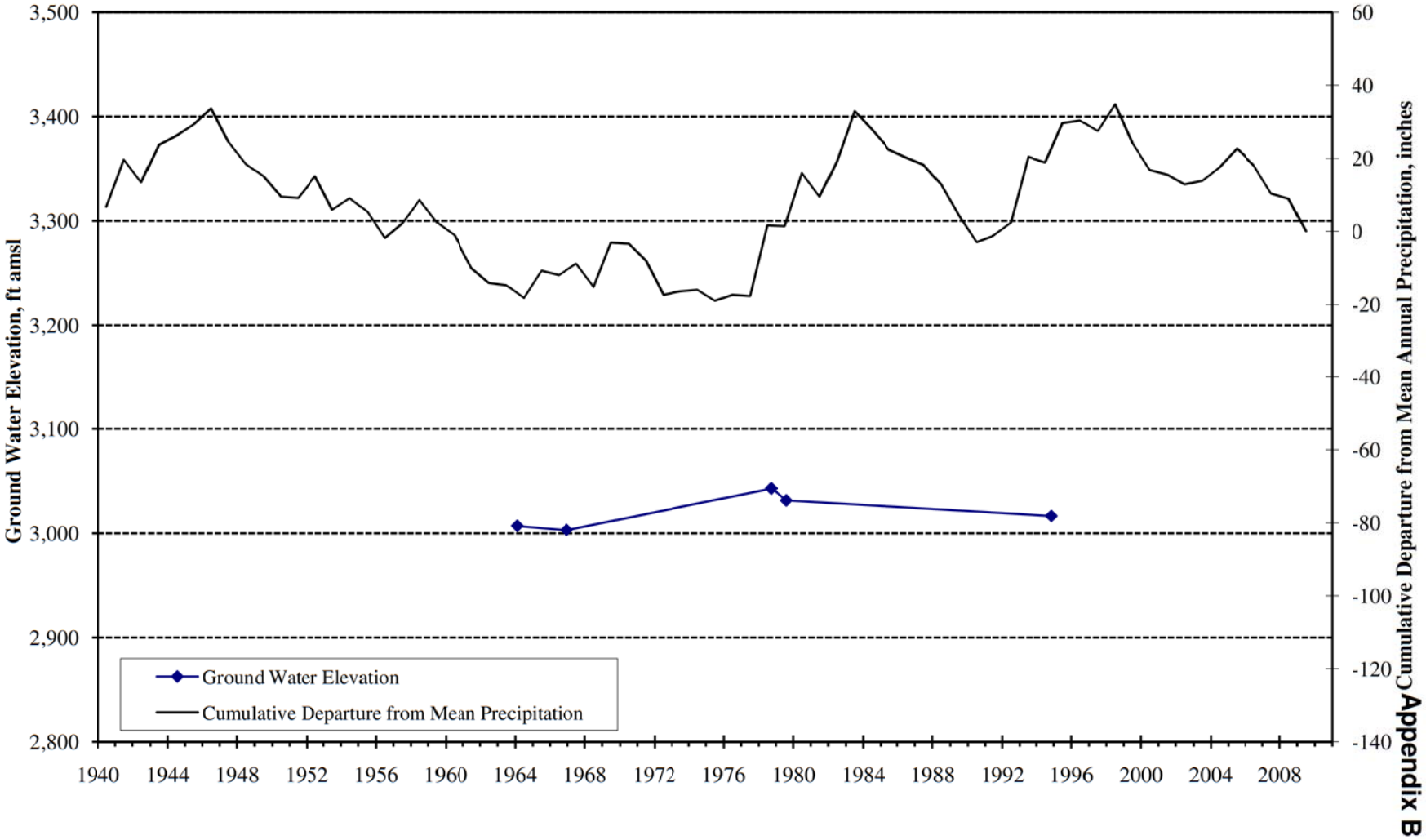
Appendix B

Ground Water Elevation
Well 2S/1E-24P2
Potrero Canyon



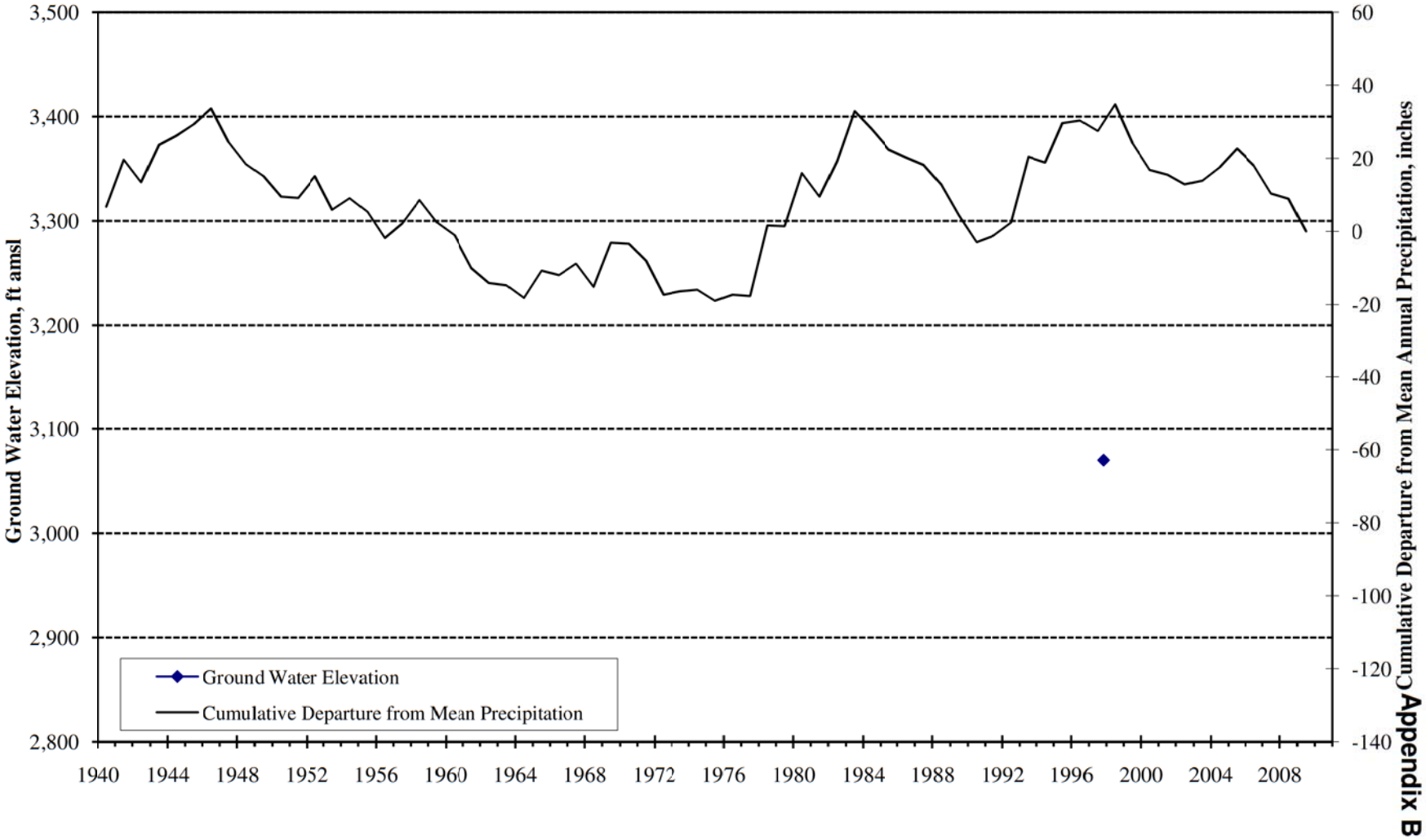
Appendix B

Ground Water Elevation
Well 2S/1E-24P1
Potrero Canyon

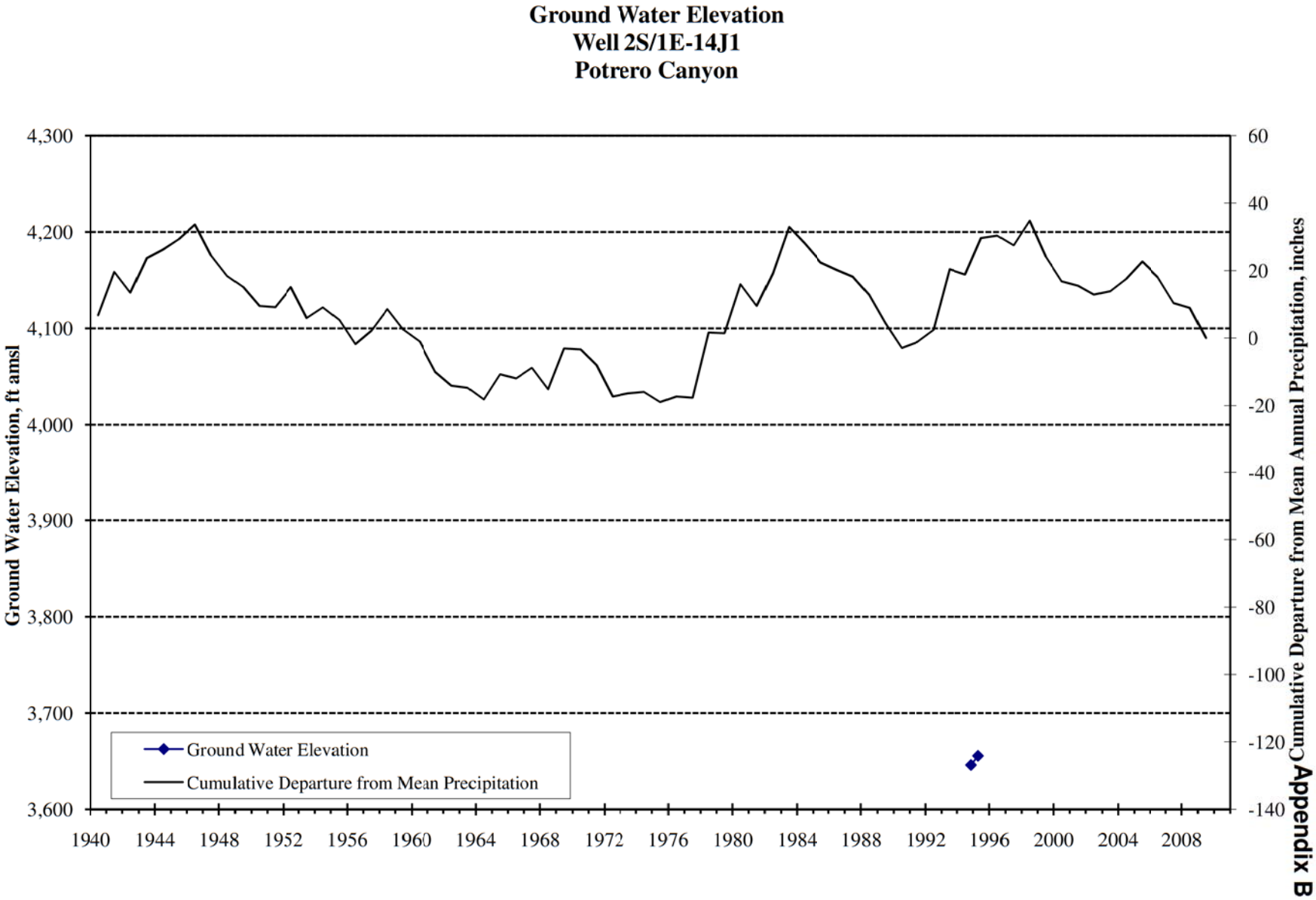


Appendix B

Ground Water Elevation
Well 2S/1E-24N1
Potrero Canyon



Appendix B


Ground Water Elevation
Well 2S/1E-14J1
Potrero Canyon
Ground Water Elevation, ft amsl
Cumulative Departure from Mean Annual Precipitation, inches
4,300
4,200
4,100
4,000
3,900
3,800
3,700
3,600
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
1940
1944
1948
1952
1956
1960
1964
1968
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
Ground Water Elevation
Cumulative Departure from Mean Precipitation

Appendix B

APPENDIX C

Select Historical Water Quality Data

GEOSCIENCE

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well 01	27-Jun-05			2.4					3.3	190
	29-Jun-05			2.4					3.2	190
	30-Jun-05			2.4					3.9	210
	06-Dec-84		ND	4	ND	0.3	ND	ND	7	135
	30-Jan-94	170		113.49			130	3	6.6	626
	07-Mar-94	ND	ND	10	ND	0.4	ND	ND	2	165
	16-Feb-95			10				3	1.25	290
	26-Oct-95								32	
	05-Sep-96	0	0	3	ND	0.4	0	0	2.7	170
	13-Sep-96		96	14			180		5.2	216
	29-Sep-98			18					15.9	390
	02-Mar-99	0	0	2	ND	0.4	0	0	3	180
	02-Aug-00			26					8	310
	02-Oct-01		2	16.1					12.6	263
	01-Oct-02		ND	16.3					9.1	185
	29-Oct-02	52	0	5.7	ND	0.4	0	0	4	240
	19-Dec-02				ND	1.3				
	25-May-05								6.3	220
	05-Jan-06	ND	ND	2.4	ND	0.4	ND	ND	3.1	190
	20-Apr-06								3.3	
	10-Apr-07								3.2	
	28-Apr-08								3.9	
	27-Jan-09	ND	ND	2.4	ND	0.3	ND	ND	4.5	210
	03-Feb-09				ND	0.6				
City of Banning Well 02	17-Apr-84		ND	7	ND	0.5	ND	ND	3	175
	07-Mar-94	ND	ND	3	ND	0.4	ND	ND	3	170
	05-Sep-96	0	0	7	ND	0.5	0	0	6.2	230
	02-Mar-99	0	0	3	3	0.4	0	0	3	160
	29-Oct-02	0	0	14	ND	1.2	0	0	8	360
	25-May-05			2.6			150		5.6	190
	05-Jan-06	ND	ND	2.6	3	0.4	150	ND	2.8	190

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well 02 cont.	20-Apr-06								6.5	
	17-Apr-07			2.6			150		3.5	190
	28-Apr-08			2.8					6.9	200
	04-Feb-09	ND	ND	2.8	ND	0.5	ND	ND	4.2	200
City of Banning Well 03	06-Dec-84		ND	12	ND	0.6	ND	ND	8	225
	07-Mar-94	ND	ND	2	ND	0.4	130	ND	1	170
	05-Sep-96	0	0	10	ND	0.4	0	0	6.2	260
	02-Mar-99	0	0	3	ND	0.4	0	0	2	150
	19-Dec-02	0	0	15			0	0	9	310
	01-Jan-05			2.3						180
	25-May-05								5.5	190
	05-Jan-06	ND	ND	2.3			ND	ND	2.7	180
	20-Apr-06								7.3	
	10-Apr-07			2.3			150		5.3	180
	01-Jan-08			3.8						170
	28-Apr-08								7.5	
	03-Feb-09	ND	ND	3.8			ND	ND	4.8	170
	05-May-09								5.3	
City of Banning Well 04	13-Jan-84		ND	5	ND	0.4	ND	ND	ND	150
	06-Dec-84		ND	9	ND	0.4	ND	ND	1	160
	09-Mar-94	ND	ND	3	3	0.4	410	ND	2	165
	03-Mar-99	0	0	2	ND	0.3	0	0	ND	180
	25-May-05	ND	ND	2.1	ND	0.4	ND	ND	3.6	180
	11-Jan-06	ND	ND	2.7	ND	0.4	ND	ND	2.8	190
	20-Apr-06								3	
	17-Apr-07			2.7					2.5	
	28-Apr-08								3.6	
	25-Feb-09	ND	ND	2.2		0.4	ND	ND	2.8	180
	01-Jun-09				ND					
City of Banning Well 05	06-Dec-84		ND	7	5	0.5	530	ND	1	165
	10-Mar-94	ND	ND	2	ND	0.3	ND	ND	ND	160
	26-Oct-95								21	
	05-Sep-96	0	0	3	ND	0.3	0	0	2.2	180
	02-Mar-99	0	0	3	ND	0.4	0	0	2	180
	01-Jul-03	0	0	2.7	ND	0.4	0	0		180
	01-Jan-05			2.7			160			
	25-May-05								3.1	170
	11-Jan-06	ND	ND	2.7	3	0.3	160	ND	2.8	190

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well 05 cont.	01-Jan-07			2.7			160			190
	29-Jan-07								2.4	
	29-Jan-08								5.4	
	03-Mar-09	ND	ND	3	ND	0.4	ND	ND	5.5	180
City of Banning Well 06 - DESTROYED	08-Jan-90	200	ND	4	ND	0.4	920	10	16	185
	08-Mar-94	ND	ND	5	ND	0.3	ND	ND	13	210
City of Banning Well 07	06-Dec-84		ND	5	ND	0.4	ND	ND	ND	160
	07-Mar-94	ND	ND	3	ND	0.4	ND	ND	1	175
	05-Sep-96	0	0	2	ND	0.3	0	0	ND	160
	02-Mar-99	0	0	2	ND	0.4	0	0	ND	170
	06-Nov-02	0	0	3.5	ND	0.4	0	0	ND	220
	25-May-05								4.5	220
	09-Jan-06	ND	ND	2.6	ND	0.3	ND	ND	1.8	200
	20-Apr-06								1.9	
	10-Apr-07			2.6					1.4	200
	21-Apr-08								2.3	
	21-Jan-09	ND	ND	1.8	ND	0.4	ND	ND	1.6	230
	19-May-09								1.2	
City of Banning Well 08	06-Dec-84		ND	5	ND	0.5	ND	ND	1	170
	02-Mar-90	ND	ND	2	ND	0.3	730	ND	ND	205
	07-Mar-94	ND	ND	3	ND	0.4	ND	ND	1	185
	05-Sep-96	0	0	3	ND	0.4	0	0	2.2	170
	02-Mar-99	0	0	4	ND	0.4	0	0	ND	160
	19-Dec-02	140	0	3.4	5	0.4	580	0	ND	200
	01-Jan-05			3			180		1.8	290
	25-May-05								2.5	220
	10-Jan-06	ND	ND	3	3	0.4	180	ND	2.2	170
	20-Apr-06								1.8	
	17-Apr-07			3			180		1.5	170
	21-Apr-08								1.7	
	13-Jan-09	ND	ND	4.1	ND	0.4	ND	ND	2.5	170
	26-May-09								ND	
City of Banning Well 09	08-Jan-90	ND	ND	2	ND	0.4	260	ND	ND	210
	08-Mar-94	ND	ND	2	ND	0.5	ND	ND	ND	175
	05-Sep-96	0	0	3	ND	0.4	0	0	ND	200
	01-Jul-02	0	0	11	ND	0.3	0	0	7	250
	05-Nov-02	0	0	2.1	ND	0.4	0	0	ND	200

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well 09 cont.	01-Jan-05			3.3						
	25-May-05								1.5	220
	04-Jan-06	ND	ND	3.3	ND	0.5	ND	ND	2.4	290
	20-Apr-06								2.1	
	17-Apr-07			3.3					2	290
	21-Apr-08								1.2	
	13-Jan-09	ND	ND	1.5	ND	0.5	ND	ND	1.1	220
	26-May-09								ND	
City of Banning Well 10 (LEWIS)	08-Jan-90	ND	ND	1	ND	0.4	50	ND	ND	190
	08-Mar-94	50	ND	2	ND	0.4	ND	ND	1	195
	05-Sep-96	0	0	2	ND	0.4	0	0	2.2	170
	03-Mar-99	60	0	2	3	0.4	130	0	ND	200
	05-Nov-02	0	0	1.7	ND	0.4	0	0	ND	180
	01-Jan-05			1.9						
	25-May-05								1.8	140
	04-Jan-06	ND	ND	1.9	ND	0.4	ND	ND	1.9	180
	20-Apr-06								1.4	
	17-Apr-07			1.9					1.1	180
	21-Apr-08								1.3	
	13-Jan-09	ND	ND	1.2	ND	0.4	ND	ND	1.1	250
	26-May-09								1.2	
City of Banning Well 11	08-Jan-90	ND	ND	1	ND	0.4	90	ND	ND	190
	08-Mar-94	ND	ND	2	ND	0.4	130	ND	ND	175
	05-Sep-96	0	0	1	ND	0.4	270	0	ND	180
	03-Mar-99	0	0	2	3	0.4	110	0	ND	190
	05-Mar-03	0	0	1.3	ND	0.4	140	0	ND	220
	01-Jan-05	120		1.9						
	25-May-05								1.7	170
	04-Jan-06	120	ND	1.9	20	0.4	1200	29	1.8	210
	22-Feb-06						ND			
	20-Apr-06								1.4	
	08-Jun-06				ND					
	17-Apr-07	120		1.9				29	1	210
	21-Apr-08								1.5	
	21-Jan-09	ND	ND	1.2	ND	0.4	ND	ND	1	170
	26-May-09								1.2	

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well 12	29-Jun-05			1.8			140			190
	08-Jan-90	ND	ND	1	ND	0.3	20	ND	ND	195
	08-Mar-94	110	ND	2	ND	0.4	280	ND	ND	180
	05-Sep-96	0	0	2	ND	0.3	100	0	ND	180
	03-Mar-99	0	0	2	ND	0.3	110	0	ND	200
	21-Jul-01	0	0	13	ND	0.7	0	0	8	190
	05-Mar-03	0	0	1.5	ND	0.3	0	0	ND	200
	01-Jan-05			1.8			140			
	25-May-05								1.3	160
	04-Jan-06	ND	ND	1.8	5	0.3	140	ND	1.2	190
	20-Apr-06								1.3	
	17-Apr-07								ND	
	21-Apr-08								1.3	
	21-Jan-09	ND	ND	1.4	ND	0.3	ND	ND	ND	180
	26-May-09								1.2	
City of Banning Well C-02 - ABANDONED	07-Dec-84		ND	14	10	0.4		ND	11	215
City of Banning Well C-02A	10-Jan-86		ND	11	ND	0.2	ND	ND	6	205
	20-Apr-94	250	ND	12	10	0.3	460	ND	7	245
	05-Sep-96	50	0	10	ND	0.4	490	0	6.2	230
	03-Mar-99	0	0	8	ND	0.3	110	0	8	230
	06-Nov-02	0	0	8.3	ND	0.3	0	0	5	260
	01-Jan-05	130		10					9.9	210
	25-May-05								9.7	260
	10-Jan-06	130	ND	10	3	0.3	490	ND	8	210
	06-Feb-06						ND			
	20-Apr-06								9.9	
	24-Apr-07	130		10					5.5	210
	14-Apr-08			8.9					7.1	240
	04-Feb-09	ND	ND	8.9	ND	0.4	ND	ND	7.3	240
	28-Apr-09								7.5	
City of Banning Well C-03	02-Mar-90	ND	ND	11	ND	0.5	30	ND	6	185
	07-Mar-94	120	ND	10	5	0.4	480	ND	6	200
	05-Sep-96	0	0	9	ND	0.4	0	0	5.3	210
	02-Mar-99	360	0	11	10	0.4	440	0	8	170
	06-Nov-02	0	0	10	ND	0.4	0	0	7	220
	25-May-05								6.8	230
	11-Jan-06	ND	ND	10	3	0.4	ND	ND	6.9	180

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well C-03 cont.	20-Apr-06								6.7	
	24-Apr-07			10					4.6	180
	14-Apr-08								6.3	
	04-Feb-09	ND	ND	9.2	ND	0.6	ND	ND	6.7	180
	08-Jun-09								7	
City of Banning Well C-04	07-Mar-94	ND	ND	12	ND	0.3	ND	ND	7	225
	28-Aug-95	ND	ND	13	3	0.3	ND	ND	9	230
	05-Sep-96	0	0	9	ND	0.3	0	0	5.3	220
	09-Dec-96						0			
	02-Mar-99	0	0	9	ND	0.3	0	0	7	210
	06-Nov-02			7.5	ND	0.3		0.004	4	230
	01-Jan-05			9.8					5	210
	11-Jan-06	ND	ND	9.8	ND	0.3	ND	ND	7.4	210
	20-Apr-06								5	
	24-Apr-07			9.8					5.2	210
	14-Apr-08								6.5	
	27-Jan-09	ND	ND	8.8	ND	0.3	ND	ND	6.9	200
	05-May-09								6.5	
City of Banning Well C-05	8-Nov-90	ND	ND	12	ND	1	90	ND	6	180
	7-Mar-94	90	5	17	15	2.4	800	ND	3	180
	28-Aug-95	ND	6	15	3	1.7	ND	ND	5	190
	27-Sep-95					1.7				
	1-Jul-96					1.8				
	5-Sep-96	0	5	13	ND	1.4	0	0	8	180
	9-Dec-96					1.7				
	3-Mar-99	0	7	13	5	2	240	20	5	190
	29-Oct-02			11	ND	1.3			5	190
	11-Jan-06	ND	3.5	13	ND	1.5	ND	ND	5.4	180
	20-Apr-06								5.4	
	17-Apr-07			13					6.1	
	14-Apr-08								5.7	
	3-Feb-09	ND	ND	11	ND	0.2	ND	ND	6	140
	28-Apr-09								5.8	
City of Banning Well C-06	5-Dec-90	ND	ND	14	ND	0.5	70	ND	6	200
	10-Apr-03				3	0.5				
	26-Jul-06	170	ND	14	ND	0.8	480	ND	6.4	240
	22-Aug-06						ND			

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well C-06 cont.	17-Oct-06	ND		12		0.5	ND		1.8	210
	17-Apr-07			14					8.1	240
	14-Apr-08								7.7	
	19-May-09			12					6.7	230
	24-Jun-09	ND	ND	12	ND	0.5	ND	ND	8.1	230
City of Banning Well M-10	1-Jan-05			11					8.7	160
	31-May-05				ND	0.7				
	12-Jan-06	ND	ND	11	ND	0.7	ND	ND	9.2	160
	20-Apr-06								8.7	
	10-Apr-07			11					9.5	160
	28-Apr-08								8.9	
	24-Jun-09	57	ND	11	5	0.7	480	ND	9.4	180
City of Banning Well M-11	1-Jan-05			8.8			170		5.8	280
	31-May-05				ND	0.4				
	12-Jan-06	ND	ND	8.8	ND	0.3	170	ND	5.8	280
	20-Apr-06								5.8	
	10-Apr-07			8.8			170		4.5	280
	28-Apr-08								3.6	
	27-Jan-09	ND	3.3	7.2	ND	0.7	ND	ND	ND	170
	5-May-09								3.6	
City of Banning Well M-12	1-Jan-05			8.5						
	2-Jan-05								4.6	
	3-Jan-05									180
	31-May-05				ND	0.7				
	12-Jan-06	ND	ND	8.5	ND	0.5	ND	ND	6.8	180
	20-Apr-06								4.6	
	10-Apr-07			8.5					6.3	180
	28-Apr-08								7.1	
	25-Feb-09	ND	ND	9.2		0.8	ND	ND	7.5	190
	23-Apr-09								6.4	
	1-Jun-09				ND					
City of Banning Well M-3	1-Jan-05			16					7.8	280
	31-May-05				3	0.4				
	12-Jan-06	ND	ND	16	ND	0.4	ND	ND	7.2	280

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
City of Banning Well M-3 cont.	20-Apr-06								7.8	
	17-Apr-07			16					7.1	280
	14-Apr-08								6.4	
	3-Feb-09	ND	ND	14	ND	0.5	ND	ND	7.5	250
City of Banning Well M-7 - INACTIVE	1-Jan-05								8.9	
	31-May-05				15	0.5				
	20-Apr-06								8.9	
	10-Apr-07								8.7	
	27-May-08	ND	ND	13	ND	0.5	ND	ND	8.5	190
	19-May-09								7.3	
City of Banning Well R-1 (Zone 1) 600 - 620 ft bgs	3-Dec-90			28			190	0.03	24	325
City of Banning Well R-1 (Zone 2) 550 - 570 ft bgs	3-Dec-90			21			460	0.02	27	260
City of Banning Well R-1 (Zone 3) 480 - 500 ft bgs	3-Dec-90			23			420	0.03	29	280
City of Banning Well R-1 (Zone 4) 410 - 430 ft bgs	3-Dec-90			50			800	0.11	22	530
Cabazon Water District Well 01	11-Feb-96			9	0		0	0	8.4	
	13-Aug-96	0	2			0.9			8.9	
	08-Mar-99			10			20	0	12.8	
	05-Apr-99				0					
	28-Feb-00				ND					
	20-May-02					0.7				
	19-May-03				ND					
	04-May-05				ND	0.8				
	11-May-06								7.9	250
	30-Jan-08								7	
	13-Nov-08	ND	ND	8.1	ND	0.7	ND	ND	8.2	210
Cabazon Water District Well 02	06-Dec-95			6	ND		ND	ND	7.1	
	11-Dec-96	130	0			0.4			7.1	
	08-Mar-99			6			0	0	8	
	05-Apr-99				0					
	28-Feb-00				ND					
	20-May-02					0.4				
	19-May-03				ND					
	04-May-05				ND	0.4				

Select Historical Water Quality Constituents in the City of Banning Water Resource Area

Well Name	Date	Aluminum [µg/L] 50 µg/L[1]	Arsenic [µg/L] 6 µg/L[1]	Chloride [mg/L] 250 mg/L[2]	Color [units] 15 color units[2]	Fluoride [mg/L] 2 mg/L[2]	Iron [µg/L] 300 µg/L[2]	Manganese [mg/L] 0.05 mg/L[2]	Nitrate (as NO3) [mg/L] 45 mg/L[1]	TDS [mg/L] 500 mg/L[2]
Cabazon Water District Well 02 cont.	11-May-06								6.8	230
	30-Jan-08								6.5	
	13-Nov-08	ND	ND	5.4	ND	0.4	ND	ND	7.6	220
Cabazon Water District Well 03 (Formerly Jenson Well 01)	26-Nov-86		ND	7	5		ND	ND	ND	
	10-Aug-89	ND	ND	16	ND	0.5	160	ND	21	
	13-Jul-93	ND	ND	13	ND	0.3	ND	ND	13	
	29-Mar-95	ND	ND	25	5	0.3	100	ND	35	
	29-Dec-95	0	0	25	ND	0.3	2300	0	30	
	17-Mar-97	0	0	24	3	0.3	250	0	30	
	27-Apr-98	0	0	21	ND	0.4	0	0	33	
	03-Jun-09								23	
	11-Aug-09								20	
Cabazon Water District Well 04	26-Nov-86		ND	7	5	0.1	90	ND	ND	
	10-Aug-89	ND	ND	14	ND	0.5	80	ND	10	
Cabazon Water District Well 04 (Formerly Jenson Well 02) - DESTROYED cont.	22-Sep-93	ND	ND	15	10	0.3	650	ND	11	
	29-Mar-95	ND	ND	12	3	0.3	100		11	
	29-Dec-95	0	0	12	ND	0.3	1000	0	9	
	17-Mar-97	0	0	13	10	0.5	690	0	8	
USGS monitoring Well 3S/1E-11F1	16-Jul-09	8.5	0.43	13.5		0.39	2*	0.7		232
USGS monitoring Well 3S/1E-11F2	16-Jul-09	5.3	1.3	15.2		0.42	2	3.6		264
USGS monitoring Well 3S/1E-11F3	16-Jul-09	6.5	0.85	15.2		0.49	2*	3.8	25.9*	296
USGS monitoring Well 3S/1E-11F4	16-Jul-09	17.9	5.1	13.8		0.44	10	1.2	39.7	338

* Estimated Value as displayed on USGS water Quality Website

Note: ND = Not Detected

Shaded cells exceed Maximum Contamination Level (MCL)

Values of zero were as reported by the California Department of Human Services

[1] Primary MCL

[2] Secondary MCL

[3] US EPA Treatment Technique Value

APPENDIX D

Appropriators and Their Water Rights

Exhibit C of the Beaumont Basin Judgment

GEOSCIENCE

Exhibit C
Appropriators and Their Water Rights

(1) Producer	(2) Average Production during 1997-2001 (acre-ft/yr)	(3) Share of Safe Yield Allocated to Appropriators	(4) Initial Estimate of Appropriate Rights[1] (acre-ft/yr)	(5) Controlled Overdraft and Supplemental Water Recharge Allocation [2] (acre-ft/yr)	(6) Operating Yield (acre-ft/yr)
Banning, City of	2,170	31.43%	882	5,029	5,910
City of Beaumont	0	0.00%	0	0	0
Beaumont Cherry Valley Water District	2,936	42.51%	1,193	6,802	7,995
South Mesa Water Company	862	12.48%	350	1,996	2,346
Yucaipa Valley Water District	938	13.58%	381	2,173	2,554
Totals	6,906	100.00%	2,805	16,000	18,805

Note 1 – Based on a 8,650 acre-ft/yr safe yield

Note 2– Controlled overdraft will not exceed 160,000 acre-ft during for first ten years of operation under the physical solution

GEOSCIENCE

P.O. Box 220, Claremont, CA 91711 | P: 909.451.6650 | F: 909.451.6638 | www.gssiwater.com

Appendix K

HEI
Corporation

c 714.875.1362
o 949.645.5326
f 949.645.0466

1805 Peninsula Pl.
Costa Mesa, CA 92627

www.heicorporation.com

April 25, 2017

Ms. Sue A. Smith
Vice President
Pacific Newport Properties, Inc.
17842 Mitchell North, Suite 100
Irvine, CA 92614



Re: Phase 1 Environmental Site Assessment
Undeveloped 58.3 Acre Tract of Land
North of the Banning Airport
Banning, California

Dear Ms. Smith:



Enclosed is the Environmental Site Assessment report on the undeveloped 58.3 acre tract of land to the north of the Banning Airport in the City of Banning in Riverside County, California. All of the agencies responded to our requests for information. Information obtained in the process of completing this assessment does not indicate the presence of recognized environmental conditions.

HEI Corporation appreciates this opportunity to be of service to you and to Pacific Newport Properties, Inc. If you have any questions regarding this report, don't hesitate to contact me at chayden@heicorporation.com or at 714-875-1362.

Sincerely,



Christopher M. Hayden
President

PHASE 1
ENVIRONMENTAL SITE ASSESSMENT

Undeveloped 58.3 Acre Tract of Land
North of the Banning Airport
Banning, California

April 2017

Prepared for

Ms. Sue A. Smith
Pacific Newport Properties, Inc.

Prepared by

HEI Corporation
1805 Peninsula Place
Costa Mesa, CA 92627
714-875-1362

Project 17-3444

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APPENDIX E	DEFENSE ENVIRONMENTAL RESTORATION PROGRAM BANNING AIRPORT FINDINGS OF FACT
APPENDIX F	STATEMENT OF QUALIFICATIONS FOR HEI CORPORATION

PROFESSIONAL CERTIFICATION

This Phase 1 Environmental Site Assessment (ESA) was conducted consistent with generally accepted environmental consulting practices within the limitations included as Appendix A. The site visits and records reviews were performed by Chris Hayden, consistent with the proposal submitted to Pacific Newport Properties, Inc. (Client). The information contained in this ESA was obtained from personal inspection, from sources deemed to be reliable, and from various government agencies.

PHASE 1
ENVIRONMENTAL SITE ASSESSMENT

Undeveloped 58.3 Acre Tract of Land
North of the Banning Airport
Banning, California

Project 17-3444

I declare that, to the best of my professional knowledge and belief, I meet the definition of **Environmental Professional** (EP) as defined in 40 C.F.R. § 312.10(b).

I have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the Subject Property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. § 312.10(b).

Christopher M. Hayden
Environmental Professional

1 SUMMARY

This ESA was performed on the three parcels of land, which total approximately 58.3 acre and are located to the north of the Banning Airport in the City of Banning, California (hereinafter collectively referred to as the "Subject Property").

After inspecting the Subject Property; reviewing its past uses; observing surrounding properties; searching through the Federal Environmental Protection Agency, State of California, Riverside County, City of Banning records and reviewing previously conducted Phase 1 Environmental Site Assessments, it can be concluded that there is no evidence of recognized environmental conditions", as defined by the ASTM, in connection with the Subject Property. No further action is required at this time.

2 INTRODUCTION

2.1 Purpose

The purpose of this Environmental Site Assessment is to identify "recognized environmental conditions" in connection with the Subject Property. The ASTM Standard Practice for Environmental Site Assessments E 1527-13 defines "recognized environmental condition" as "the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to any release to the environmental; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

2.2 Scope of Work

As agreed to between HEI Corporation and Pacific Newport Properties, Inc., the scope of work for this ESA included the following:

- Site Inspection
- Surrounding Property Observation
- Interviews With Individuals Having Knowledge of the Operations on the Subject Property
- Inspection of City or County Building Permits
- Inspection of County Health Care Agency Files
- State and Federal Regulatory Agency Database Search For Posted Properties Within An ASTM Designated Radius of the Subject Property
- Inspection of City or County Fire Department Records
- Search for Records of Permits for Underground or Aboveground Storage Tanks
- Inspection of Owner/Operator's Books and Records
- Evaluate the Likelihood of Vapor Encroachment Onto the Subject Property or Vapor Intrusion Into Structures on the Subject Property

- Inspection of Historical Aerial Photographs, Sanborn Map Company Maps and/or Archive Cross Directories

- Preparation and Presentation of One pdf Report

2.3 Limitations and Exceptions of Assessments

This ESA is based upon the information available from a variety of sources and on the inspection of the Subject Property. The ESA was performed in accordance with industry standards and using appropriate methods. It is intended to allow a party to make an informed decision regarding the Subject Property.

HEI Corporation is not responsible or liable for the accuracy of the information provided by others. This ESA is not a guaranty that there is no subsurface contamination, nor can it be warranted that those areas of environmental concern herein noted are the only areas of potential contamination at the Subject Property.

There was no sampling or testing for the possible presence or absence of, nor is any statement made in this ESA regarding the possible presence or absence of any of the following:

1) Asbestos Containing Materials

2) Radon

3) Lead Based Paints

4) Lead in the Drinking Water

2.4 Limiting Conditions

There were no limiting conditions with regard to the ability of HEI Corporation to conduct the property inspection portion of this ESA. Access was made available to all parts of the Subject Property.

2.5 Previous Environmental Site Assessments/Investigations

A Phase 1 Environmental Site Assessment, November 15, 2004, was prepared by HEI Corporation for Mr. Brandon Hughes (2004 HEI ESA). The 2004 HEI ESA concluded that "...there is no evidence of 'recognized environmental conditions', as defined by the ASTM, in connection with the Subject Property. No further action is required at this time."

A Phase 1 Environmental Site Assessment Update, dated in April 2006, was prepared by Hayden Environmental for Messenger Investment Company (2006 HEI ESA-U). The 2006 HEI ESA-U

concluded that "...there is no evidence of 'recognized environmental conditions', as defined by the ASTM, in connection with the Subject Property. No further action is required at this time."

2.6 Data Gaps

Data gaps occur in this report in two (2) areas. In the past uses of the Subject Property, the earliest aerial photographs obtained for this report was taken in 1967. Also in the past uses section, there is a gap of twenty-four (24) years in the aerial photographs obtained, from 1972 to 1996. These were the aerial photographs readily available from NETR Online. These data gaps do not impair the ability of HEI Corporation to form an opinion or arrive at a conclusion as to the environmental condition of the Subject Property.

3 SUBJECT PROPERTY DESCRIPTION AND USE HISTORY

3.1 Site and Improvement Description

The Subject Property consists of three parcels of land which total approximately 2,560,893 square feet (58.79 acres). It is located adjoining and to the north of the Banning Airport. Southern Pacific Railroad tracks are adjoining to the north, with Interstate 10 (the Christopher Columbus Transcontinental Highway) further to the north. The eastern terminus of John Street is to the west. The eastern terminus of Lincoln Street is to the southwest. Hargrave Street is to the west and Ramsey Street is to the northwest. No addresses have been assigned to the Subject Property. It appears that the Subject Property is currently located within the Banning city limits. The assessor's parcel numbers are 532-130-001 (20.63 acres), 532-130-002 (20.0 acres) and 532-110-006 (18.16 acres).

The topography for the Subject Property is mostly flat, as is this portion of the San Gorgonio Pass. The elevation is approximately 2,150 feet above sea level. The Santa Jacinto Mountains are to the south, and San Gorgonio Mountain is to the northeast. An unnamed creek crosses the southern portion of the Subject Property, two other small creeks cross the parcels and Smith Creek is to the south. The San Gorgonio River is to the northeast. Information regarding groundwater was sought on the GeoTracker database. A Case Closure Summary, dated January 26, 1995, was found for a leaking underground storage tank (LUST) site 0.47 miles to the northwest at 2033 East Ramsey Street. This summary stated that groundwater was estimated to be more than 200 feet below ground surface (bgs). The direction of groundwater flow was said to be to the southwest in this summary. A second Case Closure Summary, dated January 5, 1998, for a LUST site 1.25 miles to the west-northwest, at 775 East Ramsey Street. This summary stated that groundwater was 400 feet bgs, and the direction of groundwater flow was shown to be to the south-southeast in this summary.

Structure There are no structures on the Subject Property.

Parking and Landscaping There are no parking surfaces on Subject Property. There is no formal landscaping on the site. Vegetation consists of trees, shrubs, cacti and weedy groundcover. The plants are in good condition and no signs of stressed vegetation were observed. No stained soil was observed on the Subject Property.

Utilities The utility service to the properties in the area of the Subject Property is provided by a variety of vendors. Gas is provided by Southern California Gas Corp.; electricity, water and sewage treatment by the City of Banning; and trash removal by private vendors such as Waste Management.

3.2 Subject Property Use History

The Subject Property is currently an undeveloped 58.3 acre parcel of land. No evidence of recent activity was observed.

3.2.1 Past Site Uses

Past uses for the Subject Property were determined by examining aerial photographs dating back to 1967 as obtained from NETR Online. No aerial photographs taken prior to 1967 were available from NETR Online. Because the Subject Property has not been assigned an address, there was no permit file at the Building and Safety Division of the City of Banning Community Development Department. For the same reason, archive city directories were not researched. No Sanborn Map Company maps were found for the area of the Subject Property on the City of Los Angeles Public Library's online database.

The aerial photographs from 1967 to 2012 showed no structures or evidence of activity on the Subject Property. The 2005 aerial photograph showed what appeared to be more or less rectangular foot paths on the Subject Property.

3.3 Adjoining Properties - Use History

A number of properties adjoin the Subject Property. The current uses are as follows:

North Adjoining to the north are Southern Pacific Railroad tracks, and, north of the tracks, is Interstate 10.

East Adjoining to the east is a large tract of undeveloped land.

South and West Adjoining to the south and west is the Banning Airport. A large above ground storage tank was observed in the southern portion of the airport property.

Nothing was observed on any of these properties that appeared to be of environmental concern to the Subject Property.

3.3.1 Adjoining Properties - Past Uses

Prior uses for the properties discussed above were determined by viewing aerial photograph dating back to 1967 as obtained from NETR Online and from the Cabazon, California USGS Topographic Map. The aerial photographs and the USGS Map are discussed in Section 3.4 below.

3.4 Aerial Photograph and USGS Map Analysis

Historic aerial photographs were examined in order to determine what may have existed on a site prior to the construction of the existing buildings. Aerial photographs for the Subject Property were obtained from NETR Online. The aerial photographs showed the following:

- An aerial photograph taken in **1967** showed the Subject Property and the adjoining property to the east to be undeveloped, with no evidence of activity observed. A creek was shown along the southern side of the Subject Property. Adjoining to the north were railroad tracks, with Interstate 10 shown to the north of the tracks. Adjoining to the south and west was the Banning Airport. Structures associated with the airport and industrial buildings were shown to the southwest. What appeared to be a sewage treatment plant was shown to the south-southwest. What may have been a quarry was shown to the south. Commercial, retail and residential properties were shown to the west, along and to the north of Ramsey Street. A copy of this aerial photograph can be seen as Figure C-1 in Appendix C.

- An aerial photograph taken in **1972** showed the Subject Property and the adjoining property to the east to be undeveloped, with no evidence of activity observed. A creek was shown along the southern side of the Subject Property. Adjoining to the north were railroad tracks, with Interstate 10 shown to the north of the tracks. Adjoining to the south and west was the Banning Airport. A newer facility was shown to the northwest. Structures associated with the airport and industrial buildings were shown to the southwest. What appeared to be a sewage treatment plant was shown to the south-southwest. No evidence of recent activity was observed on what may have been a quarry to the south. Commercial, retail and residential properties were shown to the west, along and to the north of Ramsey Street. A copy of this aerial photograph can be seen as Figure C-2 in Appendix C.

- An aerial photograph taken in **1996** showed the Subject Property and the adjoining property to the east to be undeveloped, with no evidence of activity observed. A creek was shown along the southern side of the Subject Property. Adjoining to the north were railroad tracks, with Interstate 10 shown to the north of the tracks. Adjoining to the south and west was the Banning Airport. A facility was shown to the northwest that appeared to be a maintenance yard. Further to the northwest was what appeared to be a building materials operation. Structures associated with the airport and industrial buildings were shown to the southwest. What appeared to be a sewage treatment plant was shown to the south-southwest. No evidence of recent activity was observed on what may have been a quarry to the south. Commercial, retail and residential properties were shown to the west, along and to the north of Ramsey Street. A large quarry operation was observed to the northwest. A copy of this aerial photograph can be seen as Figure C-3 in Appendix C.

- An aerial photograph taken in **2005** showed the Subject Property and the adjoining property to the east to be undeveloped, however, what appeared to be more or less rectangular foot paths were observed on the Subject Property. A creek was shown along the southern side of the Subject Property. Adjoining to the north were railroad tracks, with Interstate 10 shown to the

north of the tracks. Adjoining to the south and west was the Banning Airport. A facility was shown to the northwest that appeared to be a maintenance yard. Further to the northwest was what appeared to be a building materials operation. The CalTrans weight station to the northeast was shown to have added a large parking lot. Structures associated with the airport and industrial buildings were shown to the southwest. What appeared to be a sewage treatment plant was shown to the south-southwest. No evidence of recent activity was observed on what may have been a quarry to the south. Commercial, retail and residential properties were shown to the west, along and to the north of Ramsey Street. A large quarry operation was observed to the northwest. A copy of this aerial photograph can be seen as Figure C-4 in Appendix C.

- An aerial photograph taken in **2012** showed the Subject Property and the adjoining property to the east to be undeveloped, with no evidence of activity observed. A creek was shown along the southern side of the Subject Property. Adjoining to the north were railroad tracks, with Interstate 10 shown to the north of the tracks. Adjoining to the south and west was the Banning Airport. A facility was shown to the northwest that appeared to be a maintenance yard. Further to the northwest was what appeared to be graded pads, a large graded parcel of land and a building materials operation. The CalTrans weight station was shown to the northeast. Structures associated with the airport and industrial buildings were shown to the southwest. What appeared to be a sewage treatment plant was shown to the south-southwest. Evidence of recent activity, possibly landfill activity, was observed on the former quarry to the south. Commercial, retail and residential properties were shown to the west, along and to the north of Ramsey Street. A large quarry operation was observed to the northwest. A copy of this aerial photograph can be seen as Figure C-5 in Appendix C.

USGS Map Analysis The 7.5 Minute Series United States Geological Survey Topographic Map for the area of the Subject Property is named the Cabazon, California map. The map, which was laid out in 1956, showed no structures or evidence of activity on the Subject Property or in the area to the east. Railroad tracks were shown adjoining to the north. The adjoining properties to the south and west were shown to be the Banning Airport, including an item labeled "Radio Far Beacon". Structures were shown to the west, along Ramsey Street, that appeared to be commercial or retail in use. Smaller structures, indicative of residences, were shown to the northwest. Smith Creek was shown to the southeast and the San Gorgonio River was shown to the northeast. The map showed mush of the surrounding land to be part of the Morongo Indian Reservation The map was photorevised (updated based on a review of aerial photographs) in 1987. The revised map showed that Interstate 10 had been built to the north (newer roads and building are shown in a purple tint on the revised map). Newer structures that were associated with the airport were shown to the west and southwest. A newer facility was shown to the northwest. Newer structures that appeared to be industrial in use was shown to the southwest. A newer facility labeled "Sewage Disposal" was shown to the south. An area to the east of the sewage disposal plant was labeled "Pit", and it may have been an abandoned quarry. A portion of the Cabazon USGS Map is reproduced as Figure B-1 in Appendix B.

4 RECORDS SEARCH

4.1 Regulatory Agencies Database Search

The following Federal, State of California, tribal and local government agency databases and sources were searched for postings within designated radii of the Subject Property:

FEDERAL SOURCES

- National Priority List (NPL) Within 1.0 Mile
- Delisted National Priority List (DELISTED NPL) Within 1.0 Mile
- Proposed National Priority List (PROPOSED NPL) Within 1.0 Mile
- Superfund Enterprise Management System (SEMS) Within 0.50 Miles
- CERCLIS No Further Remedial Action Planned (SEMS Archive) Within 0.50 Miles
- RCRA Corrective Action (CORRACTS) Within 1.0 Mile
- RCRA Treatment Storage and Disposal Facilities (RCRA-TSDF) Within 0.50 Miles
- RCRA Hazardous Waste Generator (RCRA-SQG) Within 0.25 Miles
- Federal EPA Institutional Controls/Engineering Controls (FEDERAL IC/FEDERAL EC) Within 0.50 Miles
- Emergency Response Notification System for Spills (ERNS) Within 0.25 Miles

STATE OF CALIFORNIA AND LOCAL GOVERERNMENT SOURCES

- State NPL (Response) Within 1.0 Mile
- California Department of Toxic Substances Control (EnviroStor) Within 0.50 Mile
- California/Tribal Landfills and/or Solid Waste (SWF/LF) Within 0.50 Miles
- California/Tribal Leaking Underground Storage Tanks (LUST) Within 0.50 Miles

- California/Tribal Spills, Leaks, Investigations and Cleanups (SLIC) Within 0.50 Miles
- California/Tribal Hazardous Substance Storage Containers (UST/AST) Within 0.25 Miles
- California/Tribal EPA Voluntary Cleanup Program (VCP) Within 0.50 Miles
- Local Landfill and Solid Waste Disposal Sites (WMUDS/SWAT) Within 0.50 Miles
- Local Underground Storage Tanks (UST, SWEEPS) Within 0.25 Miles
- California Hazardous Waste Information System (HAZNET) Within 0.50 Miles
- Environmental Liens (LIENS) for Subject Property Only
- Deed Restricted Sites (DEED) Within 0.50 Mile

The environmental database report is included in Appendix D.

SUBJECT PROPERTY The Subject Property is not posted onto databases.

ADJOINING PROPERTIES One of the adjoining properties is posted onto databases.

- The adjoining properties to the south and west, at 200 South Hathaway Street, is posted onto EnviroStor list. The occupant is shown to be Banning Municipal Airport. The EnviroStor posting states that the airport is a Formally Used Defense Site (FUDS). The Status is given as "Inactive - Needs Evaluation". A review of this site on the online EnviroStor database showed that the airport was never acquired by the military, and that the airport was built by private citizens in 1927 on 68 acres of land. The U.S. Army did conduct a training program at the airport in 1943, during World War II, specifically, on how to build an airport in Italy. The result was a lengthened and oiled landing strip. In that the EnviroStor posting does not indicate that any soil or groundwater impacts occurred, it is unlikely that the activities in 1943 would have affected the environmental condition of the Subject Property. A copy of the Defense Environmental Restoration Program Finding of Fact for Banning Airport can be seen in Appendix E.

NEARBY PROPERTIES No sites within 0.125 miles of the Subject Property are posted onto databases.

OTHER PROPERTIES The Subject Property is located in an undeveloped area, with industrial properties located to the west and southwest.

- A site 0.50 miles to the west, at 2033 East Ramsey Street, is posted onto LUST and SWF/LF lists. The occupant is shown to be California Department of Transportation Banning Maintenance Station. The LUST posting states that only the soil was affected by an unauthorized release of waste oil. The Status is given as "Completed - Case Closed" as of August 30, 1995. The SWF/LF

posting states that this is a limited volume transfer station which handles dead animals; inert, landscape and metal debris; mixed municipal trash; and used tires. In that the LUST case has been closed, and given that this a transfer station and not a disposal facility, it is unlikely that the unauthorized release or activities on this site would have affected the environmental condition of the Subject Property.

- A site 0.65 miles to the south-southeast, to the east of the sewage treatment plant, is posted onto EnviroStor list. The facility is said to have been the Banning Rifle Range. The EnviroStor posting states that the soil on this site had been impacted by explosives, lead, munitions debris and perchlorate. The Status is given as "Inactive - Action Required". In that only the soil was affected, it is unlikely that the activities on this site would have affected the environmental condition of the Subject Property.

- A site 0.84 miles to the southwest, at 700 South Hathaway Street, is posted onto EnviroStor list. The occupant is shown to be Tyco Electronics Corporation. The EnviroStor posting states that this site had been impacted by tetrachloroethylene (PCE), trichloroethylene (TCE) and cadmium compounds. The Status is given (on the online EnviroStor database) as "Certified O&M - Land Use Restrictions Only" as of March 15, 2017. In that it has been certified, it is unlikely that the impacts on this site would have affected the environmental condition of the Subject Property.

- A site 0.99 miles to the southwest, at 1284 East Lincoln Street, is posted onto EnviroStor list. The occupant is shown to be Perfection Plating. The EnviroStor posting states that this site had been impacted by PCE, TCE and chromium compounds. The Status is given as "Refer: 1248 Local Agency", in this case, the Riverside County Department of Environmental Health. A review of this site on the online EnviroStor database showed that the RCDEH and Perfection Plating entered into a voluntary cleanup agreement in 2004. In that it is not proximal, it is unlikely that the impacts on this site would have affected the environmental condition of the Subject Property.

There is no indication that any of the posted sites are of environmental concern to the Subject Property. There is no known regional groundwater impact in the area.

4.1.2 State of California Department of Oil, Gas and Geothermal Resources

The State of California Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR) maintains maps that show the exact location of oil wells located in the state. The DOGGR Well Finder online mapping service was searched for oil wells in the immediate area of the Subject Property. No oil wells were shown to be located on, near, or within one mile of the Subject Property.

4.1.3 California State Department of Toxic Substance Control (DTSC)

The State of California Department of Toxic Substance Control (DTSC) is the agency that tracks sites on which there have been placed deed restrictions and land use restrictions. The DTSC web site for deed restricted sites and for land use restriction sites was searched. Neither the Subject Property nor any of the adjoining properties were included on these lists.

4.2 Regional Sources

4.2.1 Regional Water Quality Control Board

The California Regional Water Quality Control Board, San Diego Region (SDRWQCB) maintains a list of sites with leaking underground storage tanks (LUST) and the spills and leaks investigations and cleanups (SLIC) list. The GeoTracker database was searched, and the Subject Property was not included on the LUST or the SLIC lists.

4.3 County Sources

4.3.1 Riverside County Department of Environmental Health

The Riverside County Department of Environmental Health (RCDEH) is the agency responsible for supervising the remediation of sites impacted by hazardous materials or hazardous wastes; for permitting and inspecting USTs; and for inspecting facilities that use and store hazardous materials and generate hazardous waste. Because there are no addresses, and because the aerial photos showed no evidence of activity on the site, no request to review the files for the Subject Property was submitted.

4.3.2 Riverside County Waste Resources Management District

The Waste Resources Management District (WRMD) deals with solid waste management in the County of Riverside. The WRMD compiled a map of inactive landfills in the county. The map shows no inactive landfills to be within one mile of the Subject Property. One active landfill, named the Lamb Canyon Sanitary Landfill, was shown to be more than one mile to the southwest.

4.3.2 Riverside County Transportation and Land Management Agency

The Transportation and Land Management Agency (TLMA) deals with land development in the County of Riverside. The three parcel numbers which comprise the Subject Property were entered into the TLMA online search engine. The search result for parcel number 532-130-001 was Map 32335. This map was not found on the TLMA website. No permits were found to have been issued to any of the parcels.

4.4 Municipal Sources

4.4.1 City of Banning Building & Safety Department

The City of Banning Building & Safety Department is the repository for all building permits taken out in the city. Its files are examined as part of an ESA to determine the age of buildings and to obtain additional information of environmental significance. There is no permit file for the Subject Property.

5 SUBJECT PROPERTY INSPECTION

The Subject Property was inspected on April 18, 2017 by Chris Hayden, EP. The purpose of the site visits were to seek out and to report on visible environmental concerns, or to note use and storage of hazardous materials which could effect the environment condition of the Subject Property.

5.1 Use and Storage of Hazardous Materials

The Subject Property consists of an undeveloped 58.3 acre parcel of land. No evidence of recent activity was observed, as can be seen in Photographs 1 - 5 in Appendix C. The route of the public street was also assessed. As can be seen in Photograph 6, no evidence of recent activity was observed along the proposed route of the public street. The fire access route is within the airport property, and could not be directly examined, however, no evidence of activity was observed along the route. Markers were observed along the eastern side of the Subject Property which indicated that a gas pipeline was located in this area. Additional pipeline markers were observed in the railroad right-of-way to the north of the Subject Property.

5.2 Indications of PCBs

There is no indication that polychlorinated biphenyls (PCBs) were used or stored at the Subject Property. There are no transformers on the site. Transformers in the area would be the property of the City of Banning.

5.3 Indications of Solid Waste Disposal

Solid wastes are not currently generated on the Subject Property. Those generated in the area are placed into containers that are provided and serviced by Waste Management.

5.4 Indications of Hazardous Waste Disposal

Hazardous wastes are not currently generated on the Subject Property. There is no documentation to indicate that hazardous wastes were generated on the site in the past.

5.5 Indications of Asbestos Containing Materials

There are no structures on the Subject Property.

5.6 Indications of Vapor Intrusion/Vapor Encroachment

Impacted soil or groundwater on a site may result in vapor intrusion; and impacted groundwater migrating towards a site may result in vapor encroachment. There is no indication that the soil on the Subject Property has been impacted. There are no LUST cases within 0.25 miles of the Subject Property. Therefore, it is unlikely that vapor intrusion or vapor encroachment would be of concern for the Subject Property.

6 INTERVIEW

An important part of any Phase 1 is interviews with individuals having knowledge of the facilities and the operations at the property being assessed. For this ESA, there are no operations or structures on the Subject Property. James Thompson, Public Works Inspector with the City of Banning provided access to the Subject Property and gave some indication of the boundaries of the parcels.

7 FINDINGS, OPINIONS AND CONCLUSIONS

Prior to arriving at these conclusions, the following tasks were completed:

- The Subject Property was inspected.
- The surrounding properties were observed.
- Aerial photographs dating back to 1967 were examined.
- Information was requested from various governmental and regulatory agencies for environmental information pertaining to the Subject Property.
- The databases from local, tribal, state and federal regulatory agencies were examined.

Findings included the following:

- The aerial photographs from 1967 to 2012 showed the Subject Property to be undeveloped, with no evidence of activity observed.
- The 2005 aerial photograph showed rectangular foot paths on the Subject Property.
- The Subject Property is not posted onto any of the environmental databases searched in Section 4.1.
- No use or storage of hazardous materials were observed on the Subject Property on the day of the inspection.

The Environmental Site Assessment on the 58.3 acres of land located to the north of the Banning Airport in the area of Banning in Riverside County, was performed in conformance with the scope and limitations of ASTM Standard Practice E 1527-13. In the opinion of HEI Corporation, this assessment has revealed no evidence of "recognized environmental conditions", as defined by the ASTM, in connection with the Subject Property. Therefore, it can be concluded that no further action is required at this time.

APPENDIX A

LIMITATIONS

LIMITATIONS

The services described in this report were performed consistent with generally accepted consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with the Client. This report is solely for the use and information of the Client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

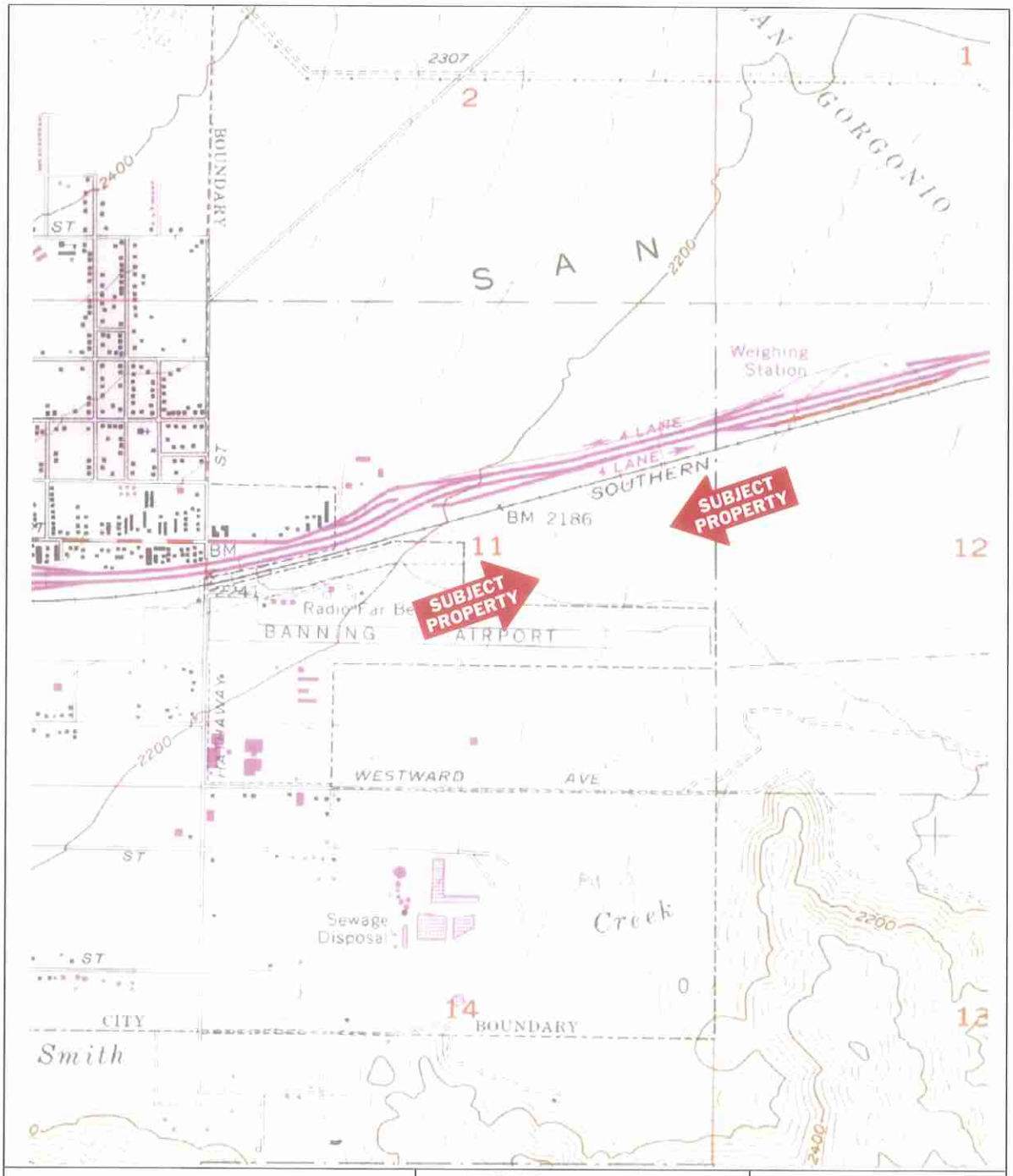
Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the Client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to the performance of services. We do not warrant the accuracy of information supplied by others.

The purpose of an environmental assessment is to reasonable evaluate the potential for or actual impact of past and current practices on the Subject Property. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraph discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the services performed within the scope, limitations, and cost of the work performed. Environmental conditions may exist on the Subject Property that cannot be identified by visual observation.

APPENDIX B

USGS MAP / ASSESSOR'S PARCEL MAPS



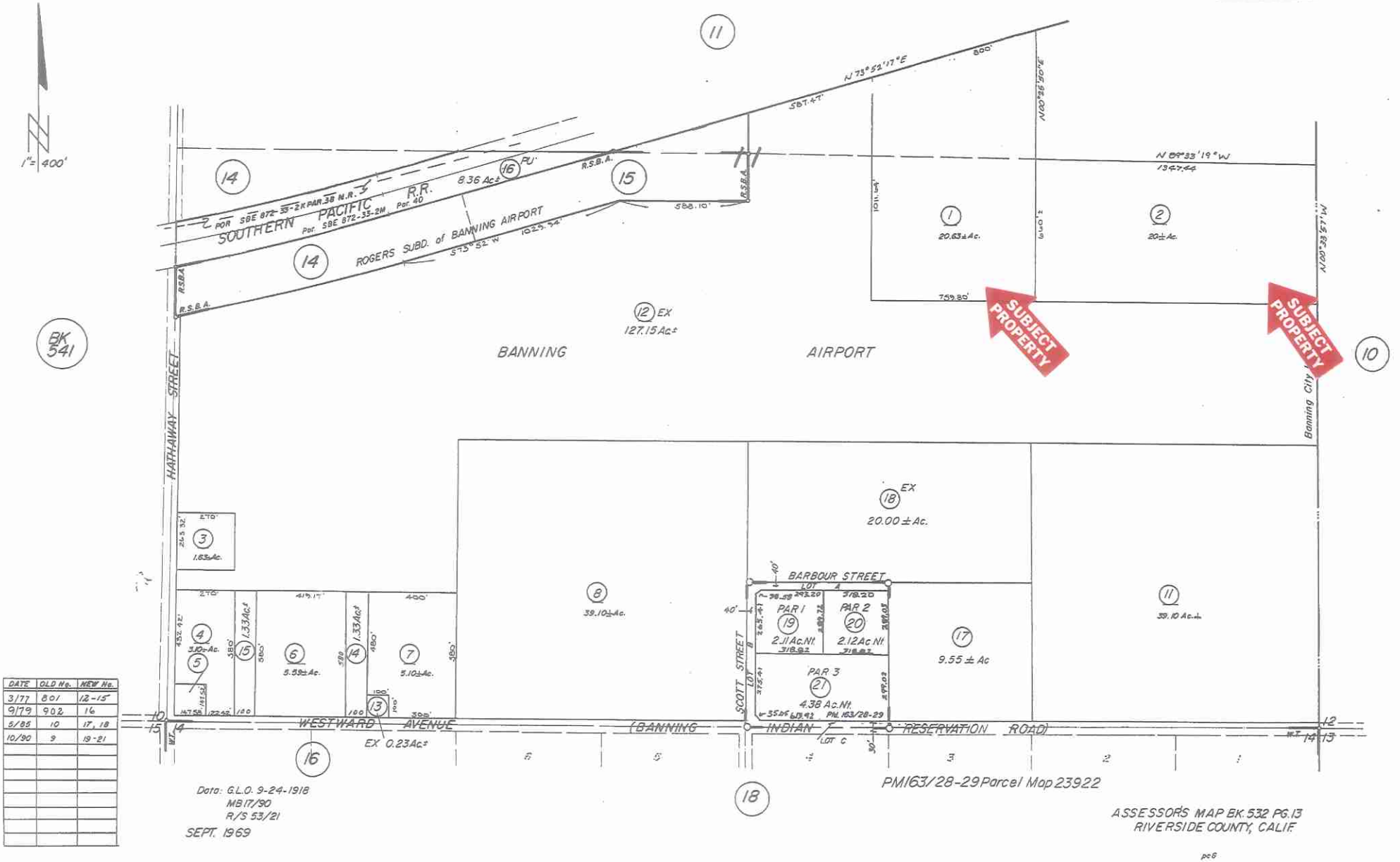
Hayden Environmental	USGS 7.5 Minute Topographic Map Subject Property: Banning Airport Project; Banning, California	↑ **NORTH**
JOB NUMBER: 17-3444	Date: 4/26/17	FIGURE: B-1

532-13
24-27-1

T.C.A. 104

S1/2 SEC. 11 T.3 S., R.1E.

THIS MAP IS FOR ASSESSMENT PURPOSES ONLY.

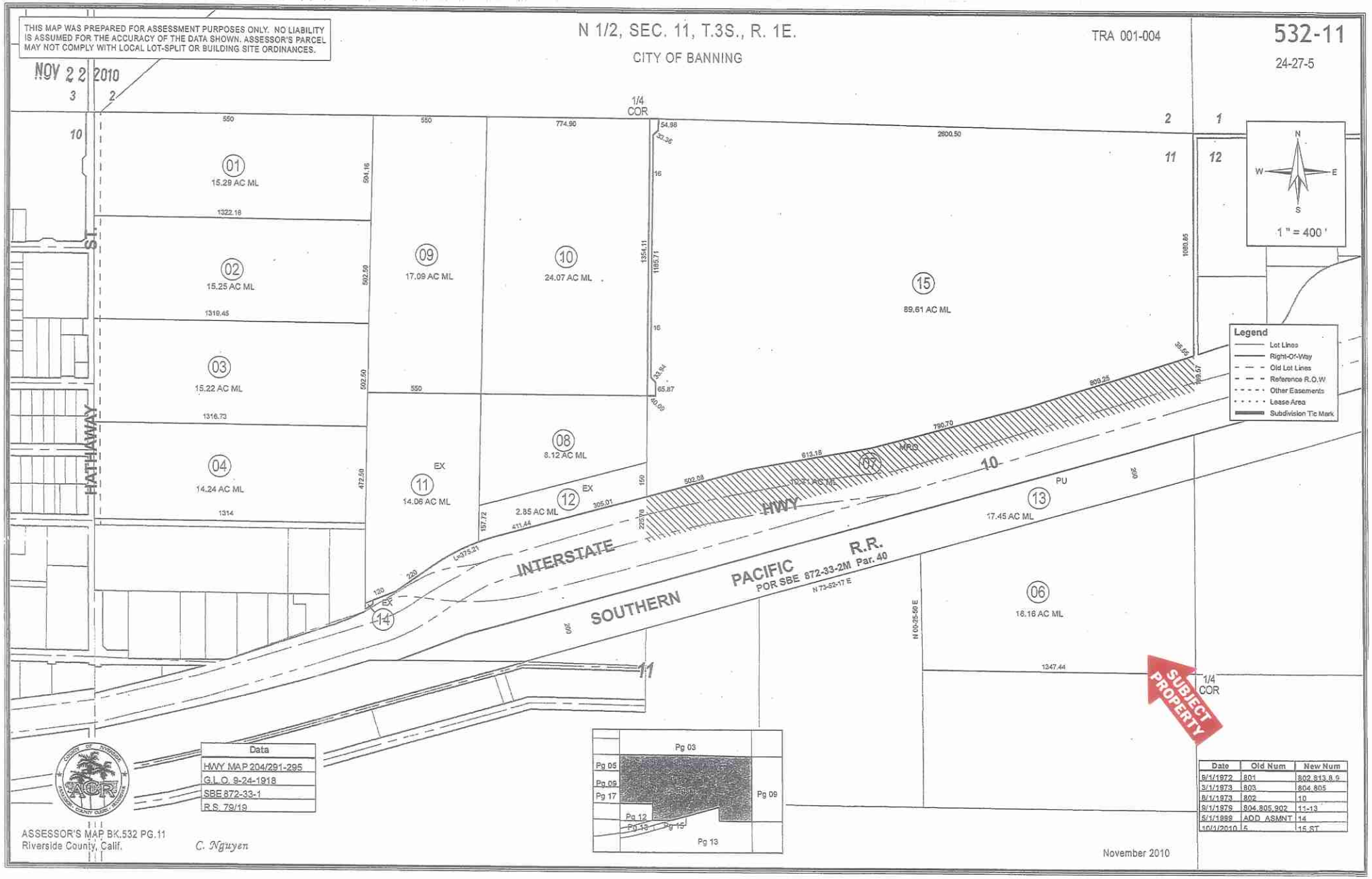


DATE	OLD No.	NEW No.
3/77	801	12-15
9/79	902	16
5/85	10	17, 18
10/90	9	19-21

Data: G.L.O. 9-24-1918
MB 17/90
R/S 53/21
SEPT. 1969

ASSESSOR'S MAP BK. 532 PG. 13
RIVERSIDE COUNTY, CALIF.

pc6


THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.
NOV 22 2010
N 1/2, SEC. 11, T.3S., R. 1E.
CITY OF BANNING
TRA 001-004
532-11
24-27-5
1/4 COR
01 15.29 AC ML
02 15.25 AC ML
03 15.22 AC ML
04 14.24 AC ML
09 17.09 AC ML
10 24.07 AC ML
11 14.06 AC ML
08 8.12 AC ML
12 2.85 AC ML
15 89.61 AC ML
13 17.45 AC ML
06 16.16 AC ML
07 10.21 AC ML
14
HATHAWAY ST.
INTERSTATE 10
HWY
SOUTHERN PACIFIC R.R.
POR SBE 872-33-2M Par. 40
N 73-52-17 E
N 60-25-50 E
PU
MRS
EX
1 " = 400 '
Legend
Lot Lines
Right-Of-Way
Old Lot Lines
Reference R.O.W
Other Easements
Lease Area
Subdivision Tic Mark
SUBJECT PROPERTY
Data
HWY MAP 204/291-295
G.L.O. 9-24-1918
SBE 872-33-1
R.S. 79/19
Pg 03
Pg 05
Pg 09
Pg 17
Pg 12
Pg 13
Pg 15
Pg 09
Pg 13
Date | Old Num | New Num
9/1/1972 | 801 | 802,813,8,9
3/1/1973 | 803 | 804,805
8/1/1973 | 802 | 10
8/1/1978 | 804,805,902 | 11-13
5/1/1988 | ADD ASMNT | 14
10/1/2010 | 5 | 15 ST
ASSESSOR'S MAP BK.532 PG.11
Riverside County, Calif.
C. Nguyen
November 2010

APPENDIX C

SUBJECT PROPERTY PHOTOGRAPHS
1967, 1972, 1996, 2005, 2012 AERIAL PHOTOGRAPHS

PHOTOGRAPHS



1. View of the Subject Property Looking Southeast



2. View of the Subject Property Looking Northeast



3. View ofthe Currently Dry Creek Along the South Side of the Subject Property



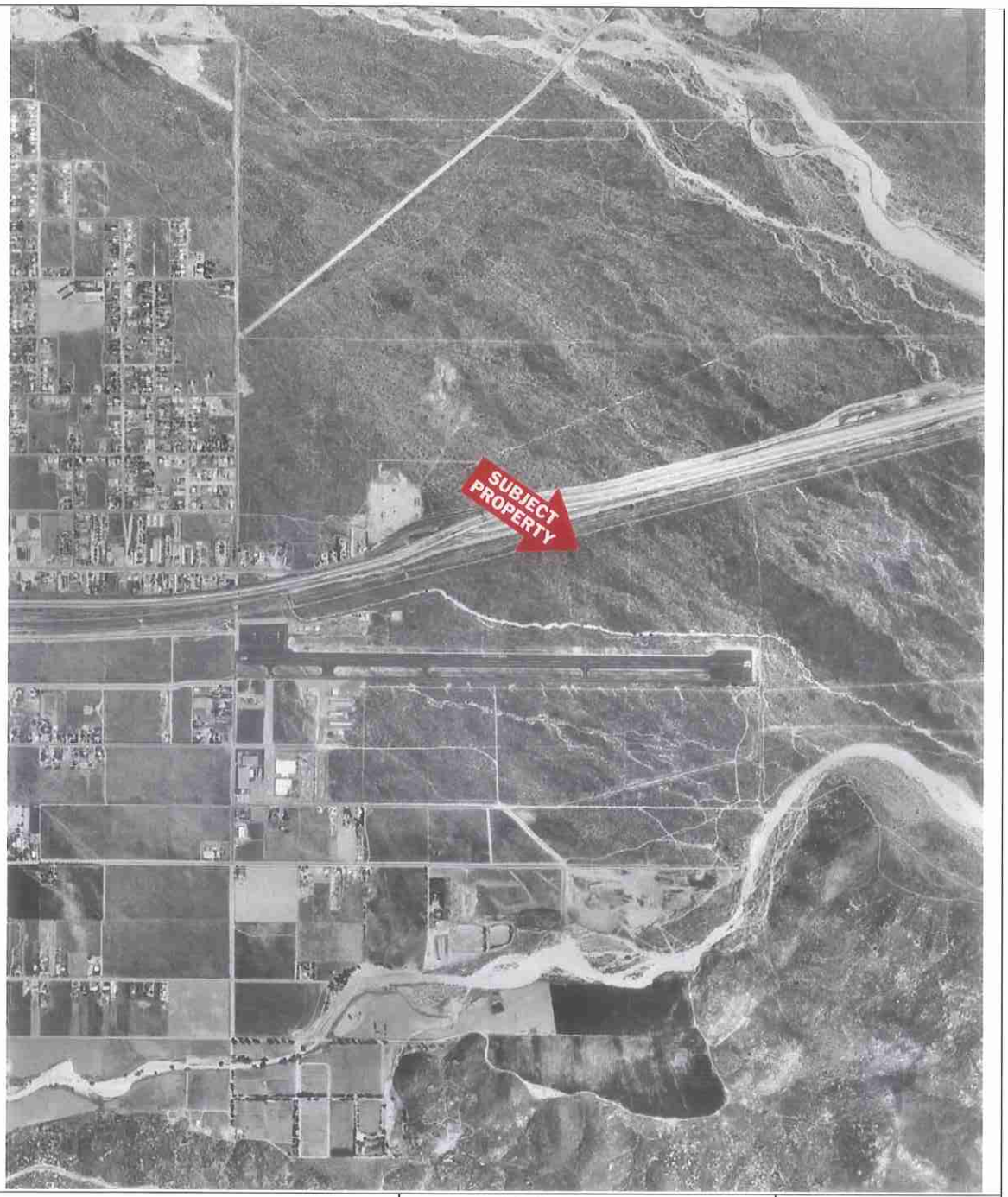
4. View of the Subject Property Looking Northwest Showing the Dry Creek and a Freight Train on the Southern Pacific Railroad Tracks



5. View of the Subject Property Looking West-Southwest



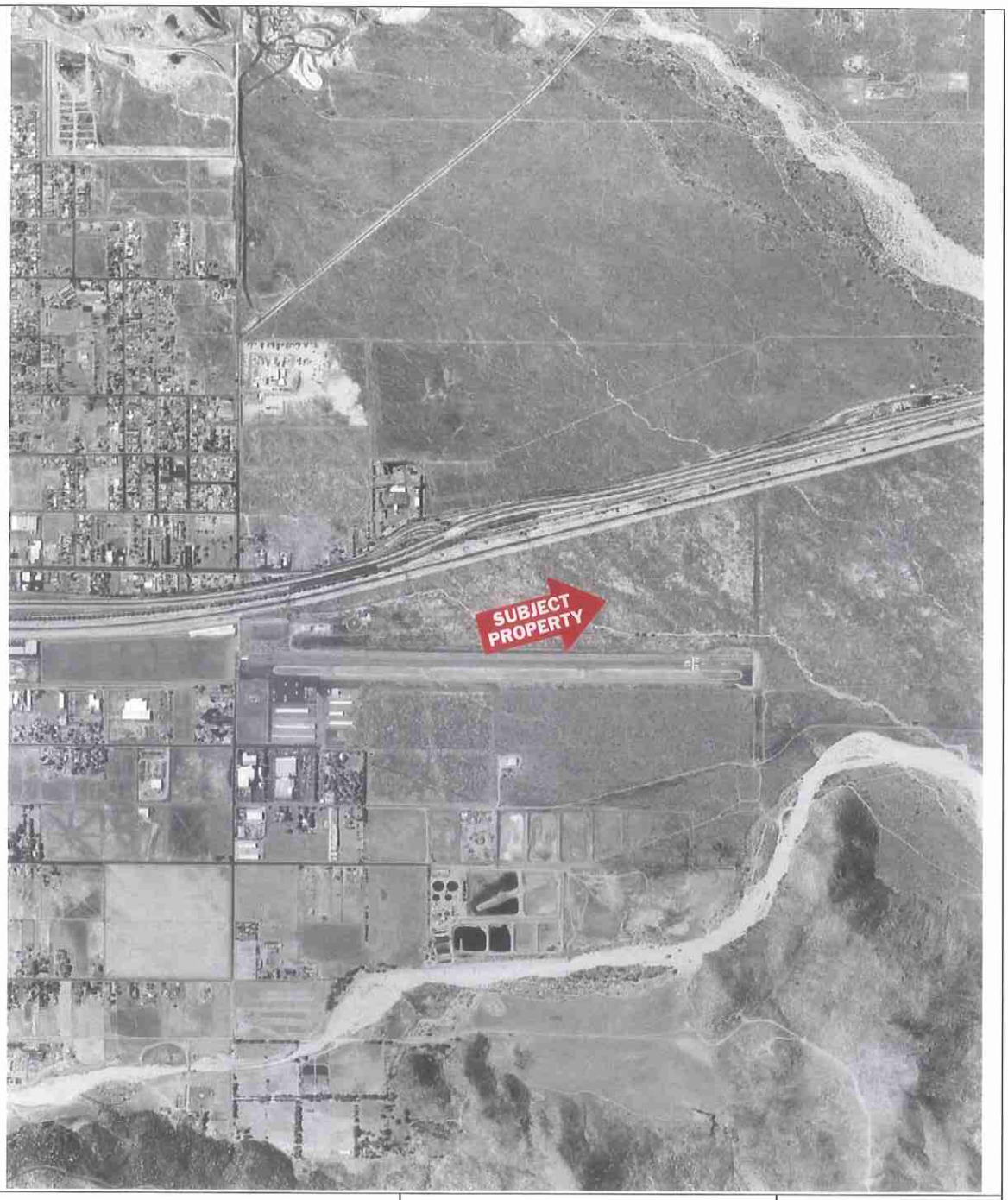
6. View of Area of the John Street Extension Looking East-Northeast



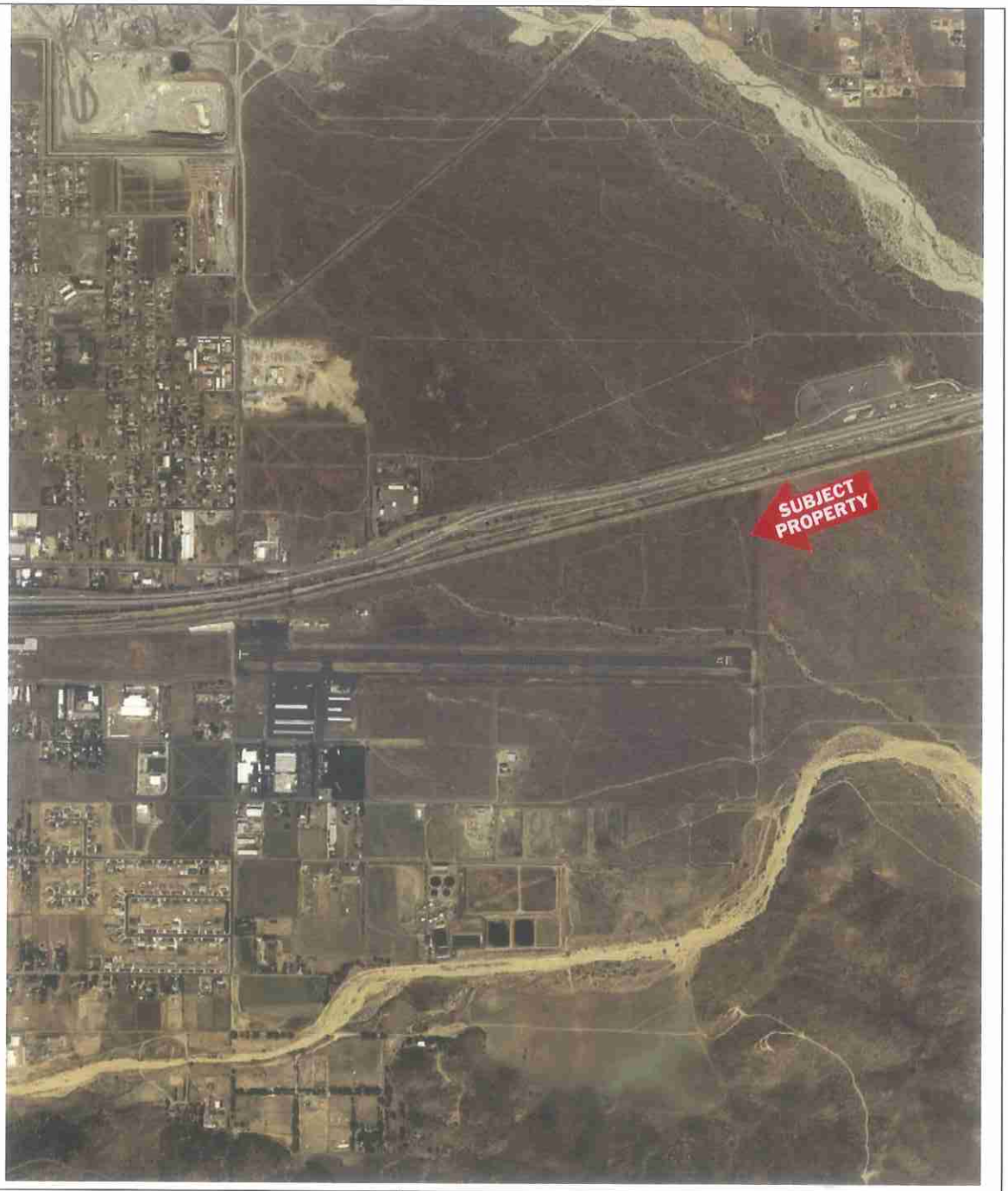
Hayden Environmental	1967AERIAL PHOTOGRAPH Subject Property:Banning Airport Project; Banning, California	↑ **NORTH**
JOB NUMBER: 17-3444	Date: 4/26/17	FIGURE: C-1



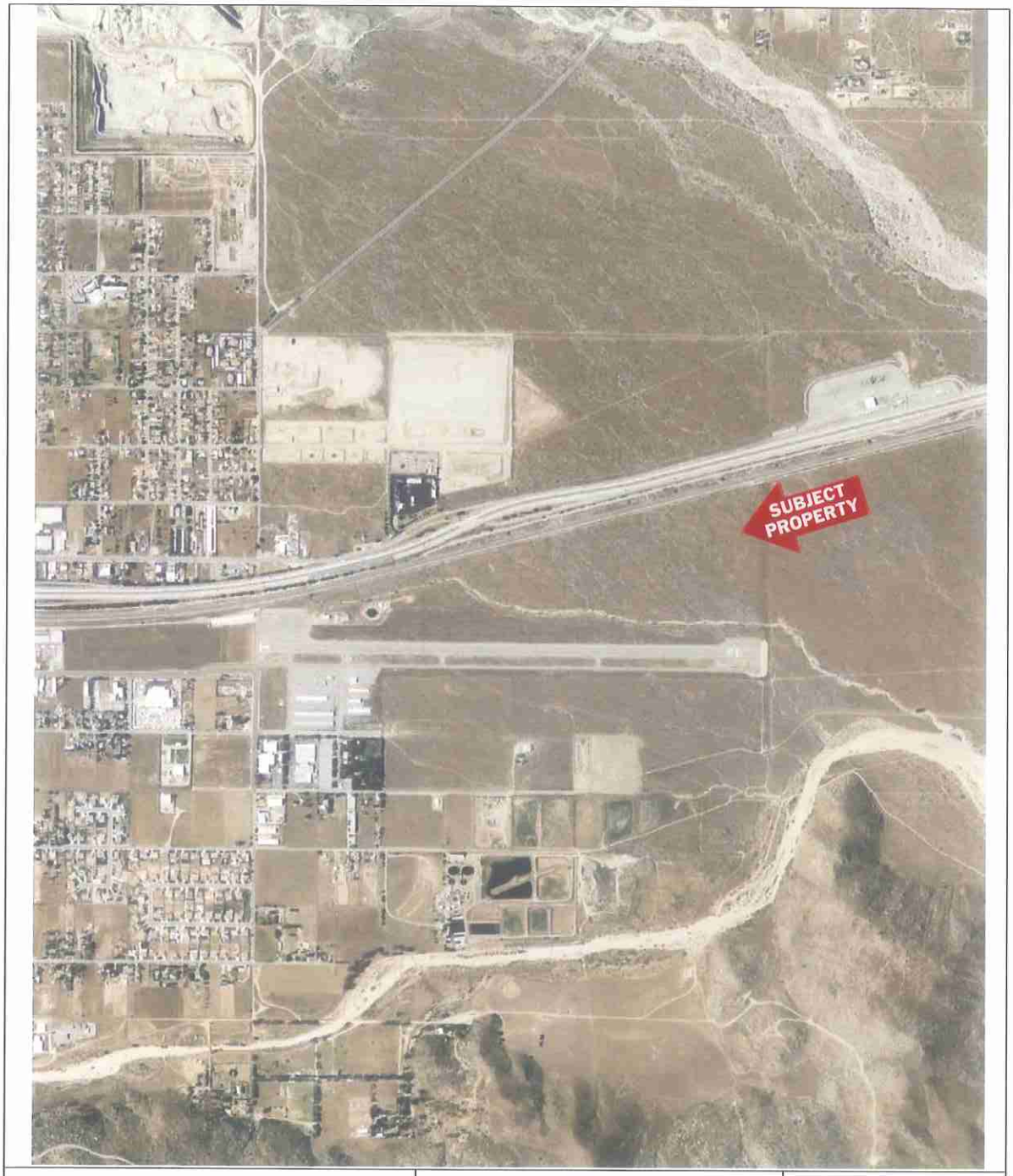
Hayden Environmental	1972AERIAL PHOTOGRAPH Subject Property:Banning Airport Project; Banning, California	↑ **NORTH**
JOB NUMBER: 17-3444	Date: 4/26/17	FIGURE: C-2



Hayden Environmental	1996AERIAL PHOTOGRAPH Subject Property:Banning Airport Project; Banning, California	↑ **NORTH**
JOB NUMBER: 17-3444	Date: 4/26/17	FIGURE: C-3



Hayden Environmental	2005AERIAL PHOTOGRAPH Subject Property:Banning Airport Project; Banning, California	↑ **NORTH**
JOB NUMBER: 17-3444	Date: 4/26/17	FIGURE: C-4



Hayden Environmental	2012AERIAL PHOTOGRAPH Subject Property:Banning Airport Project; Banning, California	↑ **NORTH**
JOB NUMBER: 17-3444	Date: 4/26/17	FIGURE: C-5

APPENDIX D

REGULATORY AGENCIES DATABASE REPORT

Banning Airport Project
North of Banning Airport
Banning, CA 92220

Inquiry Number: 04914157.6r
April 20, 2017

FirstSearch Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Search Summary Report

TARGET SITE NORTH OF BANNING AIRPORT
BANNING, CA 92220

Category	Sel	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
NPL	Y	0	0	0	0	0	0	0
NPL Delisted	Y	0	0	0	0	0	0	0
CERCLIS	Y	0	0	0	0	-	0	0
NFRAP	Y	0	0	0	0	-	1	1
RCRA COR ACT	Y	0	0	0	0	0	0	0
RCRA TSD	Y	0	0	0	0	-	0	0
RCRA GEN	Y	0	0	0	-	-	0	0
Federal IC / EC	Y	0	0	0	0	-	0	0
ERNS	Y	0	-	-	-	-	0	0
State/Tribal NPL	Y	0	0	0	0	0	0	0
State/Tribal CERCLIS	Y	0	0	0	0	4	0	4
State/Tribal SWL	Y	0	0	0	1	-	0	1
State/Tribal LTANKS	Y	0	0	0	2	-	0	2
State/Tribal Tanks	Y	0	-	-	-	-	0	0
State/Tribal VCP	Y	0	0	0	0	-	0	0
US Brownfields	Y	0	0	0	0	-	0	0
Other SWF	Y	0	0	0	0	-	0	0
Other Haz Sites	Y	0	0	0	-	-	0	0
Other Tanks	Y	0	0	0	-	-	0	0
Local Land Records	Y	0	0	0	0	-	0	0
Spills	Y	0	-	-	-	-	0	0
Other	Y	0	0	0	1	-	0	1
	- Totals --	0	0	0	4	4	1	9

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Search Summary Report

TARGET SITE: NORTH OF BANNING AIRPORT
BANNING, CA 92220

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
NPL	NPL	12/05/2016	1.000	0	0	0	0	0	0	0
	Proposed NPL	12/05/2016	1.000	0	0	0	0	0	0	0
NPL Delisted	Delisted NPL	12/05/2016	1.000	0	0	0	0	0	0	0
CERCLIS	SEMS	10/10/2016	0.500	0	0	0	0	-	0	0
NFRAP	SEMS-ARCHIVE	10/10/2016	0.500	0	0	0	0	-	1	1
RCRA COR ACT	CORRACTS	12/12/2016	1.000	0	0	0	0	0	0	0
RCRA TSD	RCRA-TSDF	12/12/2016	0.500	0	0	0	0	-	0	0
RCRA GEN	RCRA-LQG	12/12/2016	0.250	0	0	0	-	-	0	0
	RCRA-SQG	12/12/2016	0.250	0	0	0	-	-	0	0
	RCRA-CESQG	12/12/2016	0.250	0	0	0	-	-	0	0
Federal IC / EC	US ENG CONTROLS	11/15/2016	0.500	0	0	0	0	-	0	0
	US INST CONTROL	11/15/2016	0.500	0	0	0	0	-	0	0
ERNS	ERNS	09/26/2016	TP	0	-	-	-	-	0	0
State/Tribal NPL	RESPONSE	10/31/2016	1.000	0	0	0	0	0	0	0
State/Tribal CERCLIS	ENVIROSTOR	10/31/2016	1.000	0	0	0	0	4	0	4
State/Tribal SWL	SWF/LF	11/14/2016	0.500	0	0	0	1	-	0	1
State/Tribal LTANKS	LUST	12/12/2016	0.500	0	0	0	2	-	0	2
	INDIAN LUST	10/27/2015	0.500	0	0	0	0	-	0	0
	SLIC	12/12/2016	0.500	0	0	0	0	-	0	0
State/Tribal Tanks	UST	09/12/2016	TP	0	-	-	-	-	0	0
	AST	07/06/2016	TP	0	-	-	-	-	0	0
	INDIAN UST	10/20/2015	0.250	0	0	0	-	-	0	0
State/Tribal VCP	VCP	10/31/2016	0.500	0	0	0	0	-	0	0
US Brownfields	US BROWNFIELDS	03/02/2017	0.500	0	0	0	0	-	0	0

Search Summary Report

TARGET SITE: NORTH OF BANNING AIRPORT
BANNING, CA 92220

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	ZIP	TOTALS
Other SWF	WMUDS/SWAT	04/01/2000	0.500	0	0	0	0	-	0	0
Other Haz Sites	SCH	10/31/2016	0.250	0	0	0	-	-	0	0
	US CDL	09/30/2016	TP	0	-	-	-	-	0	0
Other Tanks	SWEEPS UST	06/01/1994	0.250	0	0	0	-	-	0	0
	CA FID UST	10/31/1994	0.250	0	0	0	-	-	0	0
Local Land Records	DEED	12/06/2016	0.500	0	0	0	0	-	0	0
Spills	HMIRS	12/28/2016	TP	0	-	-	-	-	0	0
	CHMIRS	09/26/2016	TP	0	-	-	-	-	0	0
Other	RCRA NonGen / NLR	12/12/2016	0.250	0	0	0	-	-	0	0
	TSCA	12/31/2012	TP	0	-	-	-	-	0	0
	TRIS	12/31/2014	TP	0	-	-	-	-	0	0
	SSTS	12/31/2009	TP	0	-	-	-	-	0	0
	RAATS	04/17/1995	TP	0	-	-	-	-	0	0
	PRP	10/25/2013	TP	0	-	-	-	-	0	0
	PADS	01/20/2016	TP	0	-	-	-	-	0	0
	ICIS	11/18/2016	TP	0	-	-	-	-	0	0
	FTTS	04/09/2009	TP	0	-	-	-	-	0	0
	MLTS	08/30/2016	TP	0	-	-	-	-	0	0
	RADINFO	01/04/2017	TP	0	-	-	-	-	0	0
	INDIAN RESERV	12/31/2014	1.000	0	0	0	1	0	0	1
	LEAD SMELTERS	12/05/2016	TP	0	-	-	-	-	0	0
	US AIRS	10/12/2016	TP	0	-	-	-	-	0	0
	FINDS	07/15/2016	TP	0	-	-	-	-	0	0
	CUPA Listings		0.125	0	0	-	-	-	0	0
	HAZNET	12/31/2015	TP	0	-	-	-	-	0	0
	WDS	06/19/2007	TP	0	-	-	-	-	0	0
	- Totals --			0	0	0	4	4	1	9

Site Information Report

Request Date: APRIL 20, 2017
Request Name: CHRIS HAYDEN
Search Type: COORD
Job Number: NA

Target Site: NORTH OF BANNING AIRPORT
BANNING, CA 92220

Site Location

	Degrees (Decimal)	Degrees (Min/Sec)	UTMs
Longitude:	116.846188	116.8461880 - 116° 50' 46.27"	Easting: 514216.9
Latitude:	33.925318	33.9253180 - 33° 55' 31.14"	Northing: 3753692.0
Elevation:	2152 ft. above sea level		Zone: Zone 11

Demographics

Sites: 8 **Non-Geocoded:** 1 **Population:** N/A

RADON

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92220

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-1.000 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

Site Information Report

RADON

State Database: CA Radon

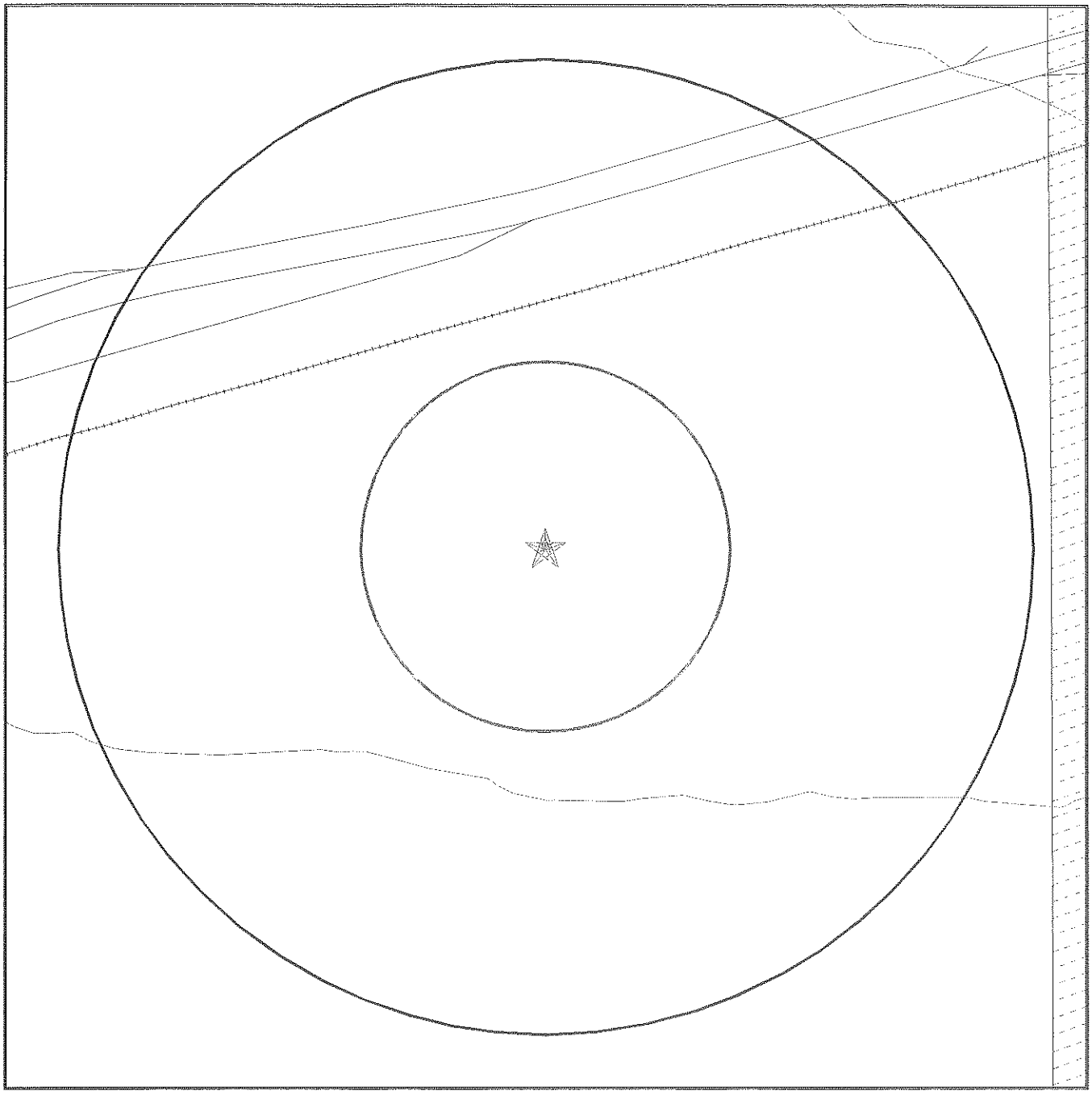
Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92220	7	0

Environmental FirstSearch

0.25 Mile Radius
Non ASTM Map, Spills, FINDS

NORTH OF BANNING AIRPORT BANNING, CA 92220



Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius

- Target Property (Latitude: 33.925318 Longitude: 116.846188)
- Identified Sites
- Sensitive Receptors
- National Priority List Sites
- Indian Reservations BIA

EDR Reference Code (EDR internal use only): 04914157.6r
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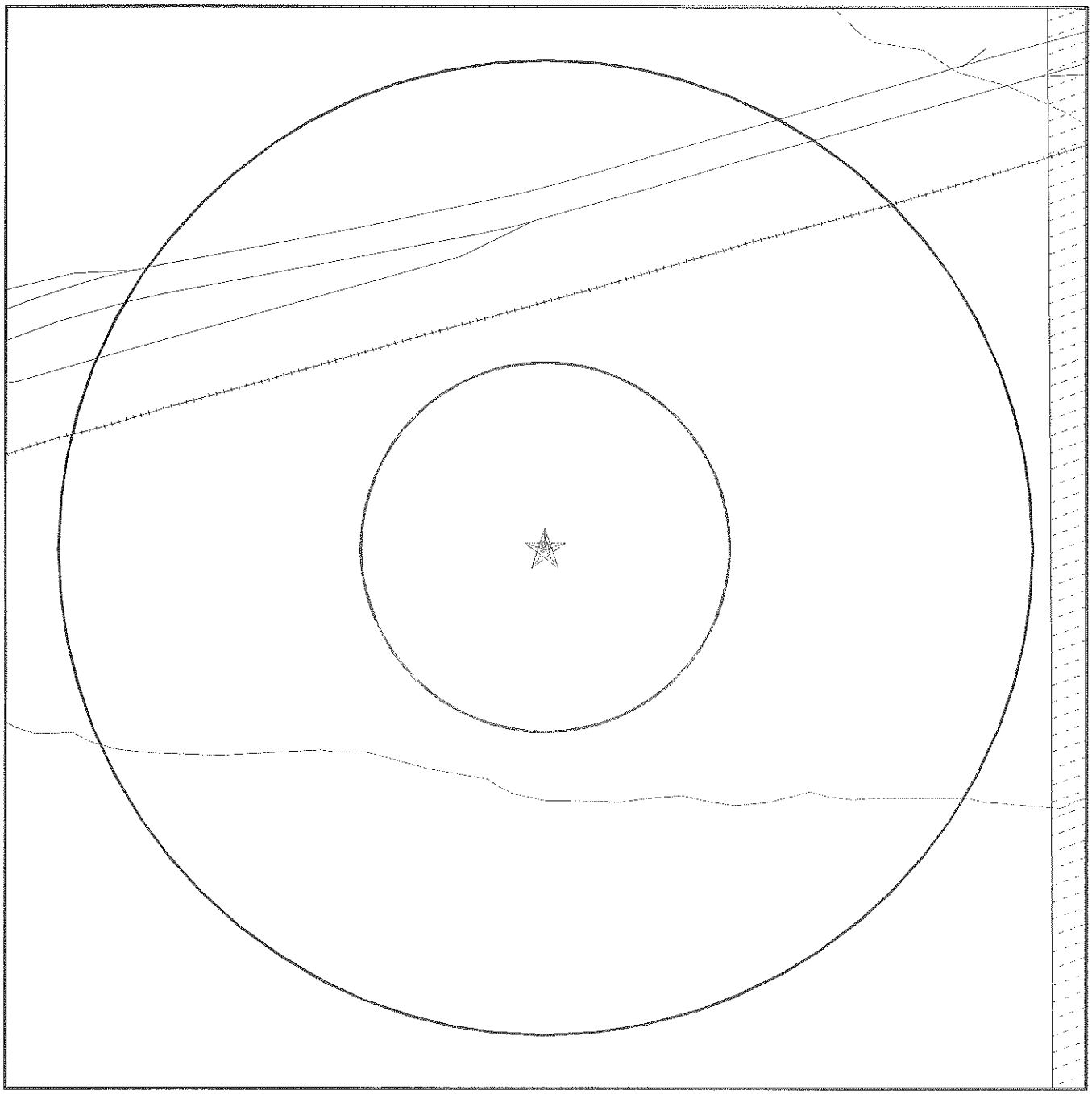
17-04-20.18:26:06.Thu

Environmental FirstSearch

0.25 Mile Radius

ASTM MAP: RCRAGEN, ERNS, UST, FED IC/EC, METH LABS

NORTH OF BANNING AIRPORT BANNING, CA 92220



Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius

☆ Target Property (Latitude: 33.925318 Longitude: 116.846188)

▲ Identified Sites

Indian Reservations BIA

National Priority List Sites

EDR Reference Code (EDR internal use only): 04914157.6r

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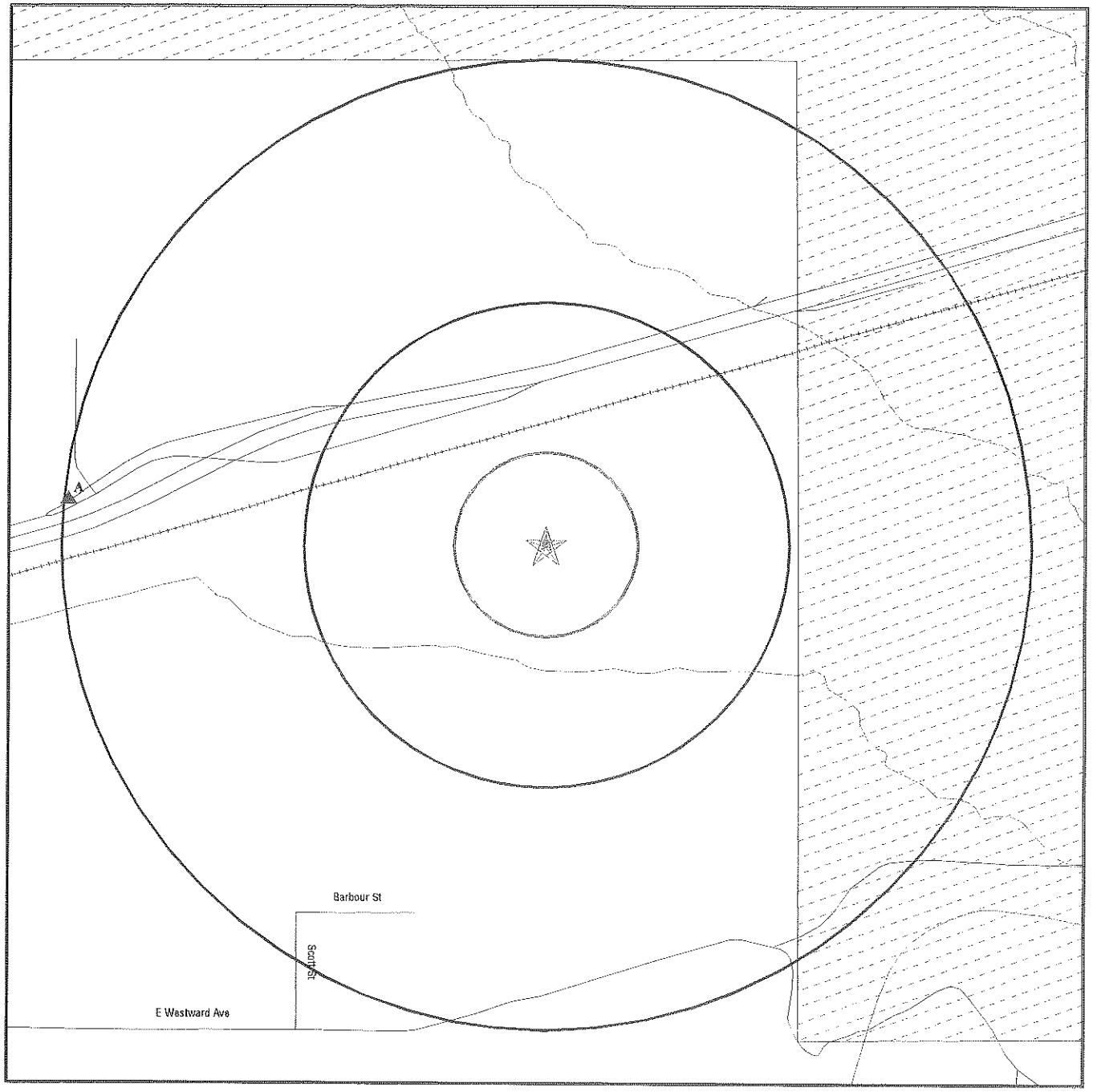
17-04-20.18:25:57.Thu

Environmental FirstSearch

0.500 Mile Radius

ASTM MAP: CERCLIS, RCRATSD, LUST, SWL

NORTH OF BANNING AIRPORT BANNING, CA 92220



Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius

☆ Target Property (Latitude: 33.925318 Longitude: 116.846188)

▲ Identified Sites

Indian Reservations BIA

National Priority List Sites

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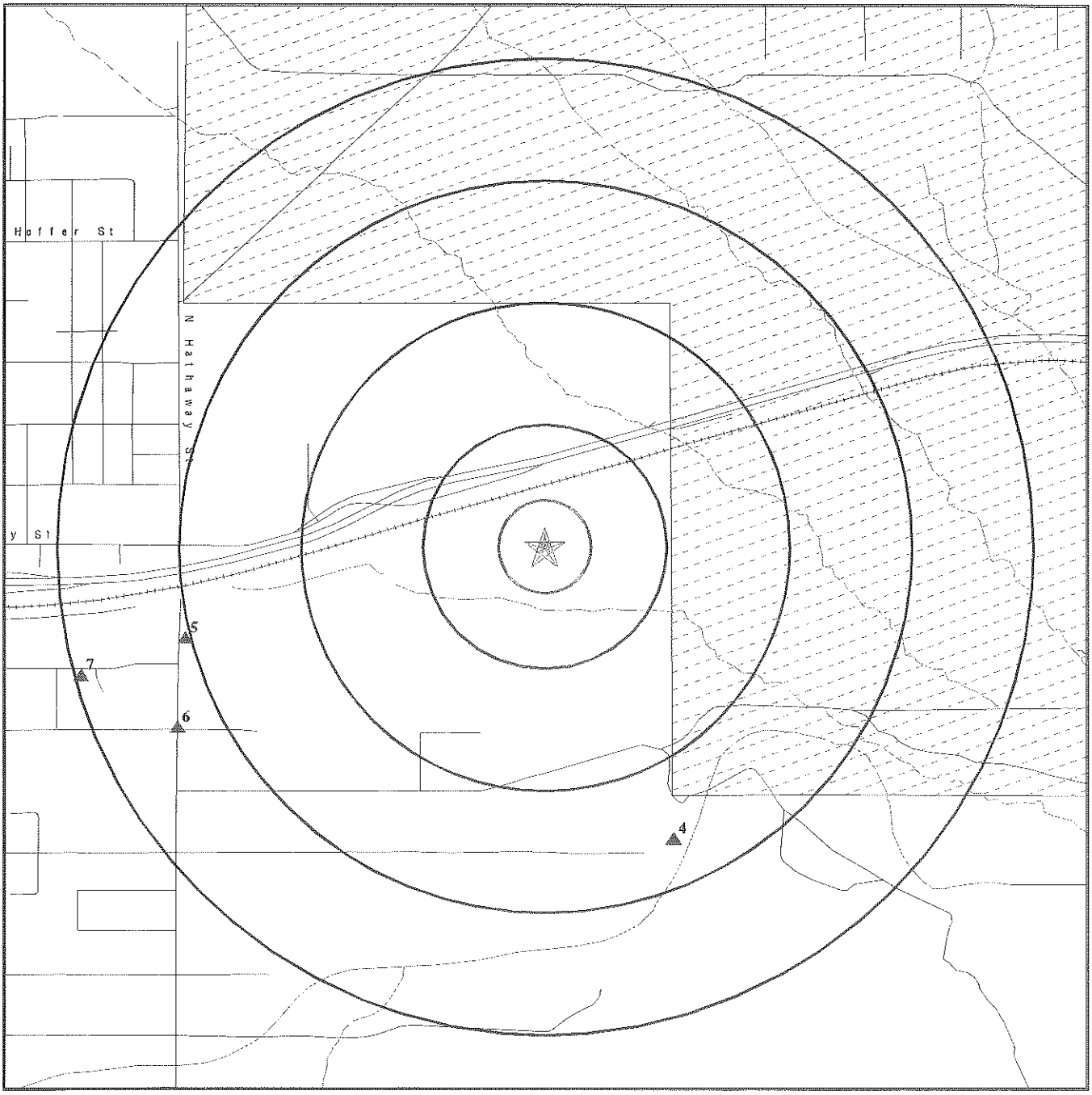
Environmental FirstSearch

1.000 Mile Radius
ASTM MAP: NPL, RCRACOR, STATES Sites

NORTH OF BANNING AIRPORT BANNING, CA 92220



Black Rings Represent Qtr. Mile Radius; Red Ring Represents 500 ft. Radius

☆ Target Property (Latitude: 33.925318 Longitude: 116.846188)

△ Identified Sites

Indian Reservations BIA

National Priority List Sites

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17-04-20.18:24:02.Thu

Target Site Summary Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

TOTAL: 9 GEOCODED: 8 NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.

No sites found for target address

Sites Summary Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

TOTAL: 9 GEOCODED: 8 NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
Reg	INDIAN RESERV	MORONGO RESERVATION	, CA	0.26 East		1
A1	LUST --89155 --9	BANNING MAINTENANCE STATION	2033 E RAMSEY BANNING, CA 92220	0.50 West	+ 79	2
A2	LUST --9 - Case Closed --Completed - Case Closed --T0606500715 --T0606500715	CALTRANS BANNING AREA MAINT ST	2033 E RAMSEY ST BANNING, CA 92220	0.50 West	+ 79	3
A3	SWF/LF --Notification --33-AA-0328 --Active	CALTRANS BANNING MAINTENANCE S	2033 EAST RAMSEY SREET BANNING, CA	0.50 West	+ 79	6
4	ENVIROSTOR --80000140 --Inactive - Action Required	BANNING RIFLE RANGE	SECTIONS 13 AND 14 OF TOW BANNING, CA 92220	0.65 SSE	- 104	7
5	ENVIROSTOR --80000972 --Inactive - Needs Evaluation	BANNING MUNICIPAL AIRPORT	200 S HATHAWAY STREET BANNING, CA 92220	0.76 WSW	+ 78	9
6	ENVIROSTOR --60002152 --Active	TYCO ELECTRONICS CORPORATION	700 SOUTH HATHAWAY STREET BANNING, CA 92220	0.84 WSW	+ 49	11
7	ENVIROSTOR --71003018 --60000748 --No Further Action --Refer: 1248 Local Agency	PERFECTION PLATING	1284 EAST LINCOLN STREET BANNING, CA 92220	0.99 WSW	+ 88	14

Sites Summary Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

TOTAL: 9 GEOCODED: 8 NON GEOCODED: 1

Map ID	DB Type --ID/Status	Site Name	Address	Dist/Dir	ElevDiff	Page No.
	SEMS-ARCHIVE --0904871 --CAD983671058	MORONGO LAB WASTE	1 MIL N. OF MORONGO RD AD BANNING, CA 92220	NON GC	N/A	N/A

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

INDIAN RESERV

EDR ID: CIND200656 **DIST/DIR:** 0.259 East **ELEVATION:** **MAP ID:** 0

NAME: MORONGO RESERVATION **Rev:** 12/31/2014

ADDRESS:
, CA

SOURCE: US USGS

INDIAN RESERV:
Feature: Indian Reservation
Name: Morongo Reservation
Agency: BIA

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

LUST

EDR ID: U001573523 **DIST/DIR:** 0.495 West **ELEVATION:** 2231 **MAP ID:** A1

NAME: BANNING MAINTENANCE STATION
ADDRESS: 2033 E RAMSEY
BANNING, CA 92220
RIVERSIDE
SOURCE: CA State Water Resources Control Board

Rev: 12/12/2016
ID/Status: 89155
ID/Status: 9

RIVERSIDE CO. LUST:
Region: RIVERSIDE
Facility ID: 89155
Employee: Brown
Site Closed: Yes
Case Type: Soil only
Facility Status: closed/action completed
Casetype Decode: Soil only is impacted
Fstatus Decode: Closed/Action completed

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

LUST

EDR ID: 1000419402 **DIST/DIR:** 0.495 West **ELEVATION:** 2231 **MAP ID:** A2

NAME: CALTRANS BANNING AREA MAINT STATION
ADDRESS: 2033 E RAMSEY ST
BANNING, CA 92220
RIVERSIDE
SOURCE: CA State Water Resources Control Board

Rev: 12/12/2016
ID/Status: 9 - Case Closed
ID/Status: Completed - Case Closed
ID/Status: T0606500715
ID/Status: T0606500715

LUST:
Region: STATE
Global Id: T0606500715
Latitude: 33.9280050193936
Longitude: -116.853906294968
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 08/30/1995
Lead Agency: RIVERSIDE COUNTY LOP
Case Worker: RIV
Local Agency: RIVERSIDE COUNTY LOP
RB Case Number: 7T2220001
LOC Case Number: 89155
File Location: Local Agency Warehouse
Potential Media Affect: Soil
Potential Contaminants of Concern: Waste Oil / Motor / Hydraulic / Lubricating
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0606500715
Contact Type: Regional Board Caseworker
Contact Name: Phan Le
Organization Name: COLORADO RIVER BASIN RWQCB (REGION 7)
Address: 73720 FRED WARING DRIVE SUITE #100
City: PALM DESERT
Email: phan.le@waterboards.ca.gov
Phone Number: 7607768974

Global Id: T0606500715
Contact Type: Local Agency Caseworker
Contact Name: Riverside County LOP Closed Cases
Organization Name: RIVERSIDE COUNTY LOP
Address: 3880 LEMON ST SUITE 200
City: RIVERSIDE
Email: Not reported
Phone Number: 9519558980

Status History:
Global Id: T0606500715
Status: Open - Case Begin Date
Status Date: 09/11/1987

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

LUST

EDR ID: 1000419402 **DIST/DIR:** 0.495 West **ELEVATION:** 2231 **MAP ID:** A2

NAME: CALTRANS BANNING AREA MAINT STATION
ADDRESS: 2033 E RAMSEY ST
BANNING, CA 92220
RIVERSIDE
SOURCE: CA State Water Resources Control Board

Rev: 12/12/2016
ID/Status: 9 - Case Closed
ID/Status: Completed - Case Closed
ID/Status: T0606500715
ID/Status: T0606500715

Global Id: T0606500715
Status: Open - Site Assessment
Status Date: 09/21/1987

Global Id: T0606500715
Status: Open - Site Assessment
Status Date: 08/12/1991

Global Id: T0606500715
Status: Open - Site Assessment
Status Date: 08/22/1991

Global Id: T0606500715
Status: Open - Site Assessment
Status Date: 12/19/1991

Global Id: T0606500715
Status: Completed - Case Closed
Status Date: 08/30/1995

Regulatory Activities:
Global Id: T0606500715
Action Type: ENFORCEMENT
Date: 03/06/2009
Action: Closure/No Further Action Letter - #Site Closure

Global Id: T0606500715
Action Type: Other
Date: 09/11/1987
Action: Leak Stopped

Global Id: T0606500715
Action Type: Other
Date: 05/13/1988
Action: Leak Reported

Global Id: T0606500715
Action Type: ENFORCEMENT
Date: 03/05/2009
Action: File review - #RCDEH Upload Site File 8/7/2015

Global Id: T0606500715
Action Type: Other
Date: 09/21/1987

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

LUST

EDR ID: 1000419402 **DIST/DIR:** 0.495 West **ELEVATION:** 2231 **MAP ID:** A2

NAME: CALTRANS BANNING AREA MAINT STATION
ADDRESS: 2033 E RAMSEY ST
BANNING, CA 92220
RIVERSIDE
SOURCE: CA State Water Resources Control Board

Rev: 12/12/2016
ID/Status: 9 - Case Closed
ID/Status: Completed - Case Closed
ID/Status: T0606500715
ID/Status: T0606500715

Action: Leak Discovery

LUST REG 7:
Region: 7
Status: 9 - Case Closed
Case Num: 7T2220001
Substance: Waste oil/Used oil
ID: 576
Global ID: T0606500715
Lead Agency: Local Agency
Case Worker: RT

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

SWF/LF

EDR ID: S111290834 **DIST/DIR:** 0.495 West **ELEVATION:** 2231 **MAP ID:** A3

NAME: CALTRANS BANNING MAINTENANCE STATION
ADDRESS: 2033 EAST RAMSEY SREET
BANNING, CA
RIVERSIDE
SOURCE: CA Department of Resources Recycling and Recovery

Rev: 11/14/2016
ID/Status: Notification
ID/Status: 33-AA-0328
ID/Status: Active

SWF/LF (SWIS):
Region: STATE
Facility ID: 33-AA-0328
Lat/Long: 33.92741 / -116.85394
Owner Name: Caltrans South Region District 8
Owner Telephone: 9517874807
Owner Address: Jim A. Rogers
Owner Address2: 1091 Everton Place
Owner City,St,Zip: Riverside, CA 92516
Operational Status: Active
Operator: Banning Maintenance Crew 08-711
Operator Phone: 9518497924
Operator Address: Not reported
Operator Address2: 2033 East Ramsey St.
Operator City,St,Zip: Banning, CA 92220
Permit Date: 09/01/2011
Permit Status: Notification
Permitted Acreage: $12.00
Activity: Limited Volume Transfer Operation
Regulation Status: Notification
Landuse Name: Residential,Desert
GIS Source: Map
Category: Transfer/Processing
Unit Number: 01
Inspection Frequency: Quarterly
Accepted Waste: Dead Animals,Green Materials,Inert,Metals,Mixed municipal,Tires,Tires, Shreds
Closure Date: Not reported
Closure Type: Not reported
Disposal Acreage: Not reported
SWIS Num: 33-AA-0328
Waste Discharge Requirement Num: Not reported
Program Type: Not reported
Permitted Throughput with Units: 60
Actual Throughput with Units: Cu Yards/day
Permitted Capacity with Units: 15600
Remaining Capacity: Not reported
Remaining Capacity with Units: Cu Yards/year
Lat/Long: 33.92741 / -116.85394

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S110711859 **DIST/DIR:** 0.652 SSE **ELEVATION:** 2048 **MAP ID:** 4

NAME: BANNING RIFLE RANGE
Rev: 10/31/2016
ADDRESS: SECTIONS 13 AND 14 OF TOWNSHIP SOUTH, RANGE 1 EAST, SAN BERN
BANNING, CA 92220
RIVERSIDE
ID/Status: 80000140
ID/Status: Inactive - Action Required
SOURCE: CA Department of Toxic Substances Control

ENVIROSTOR:
Facility ID: 80000140
Status: Inactive - Action Required
Status Date: 09/13/2012
Site Code: 401502
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: 93.77
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Omoruyi Patrick
Supervisor: Douglas Bautista
Division Branch: Cleanup Cypress
Assembly: 42
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 33.91666
Longitude: -116.8416
APN: NONE SPECIFIED
Past Use: FIRING RANGE - SMALL ARMS ETC...
Potential COC: Explosives (UXO, MEC Munitions Debris (MD Lead Perchlorate
Confirmed COC: 30013-NO 30017-NO 30011-NO 32000-NO
Potential Description: SOIL
Alias Name: CA99799F536200
Alias Type: Federal Facility ID
Alias Name: 401502
Alias Type: Project Code (Site Code)
Alias Name: 80000140
Alias Type: Envirostor ID Number
Alias Name: J09CA0234
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Tech Memo
Completed Date: 07/07/2011
Comments: The final technical project planning document approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S110711859 **DIST/DIR:** 0.652 SSE **ELEVATION:** 2048 **MAP ID:** 4

NAME: BANNING RIFLE RANGE
Rev: 10/31/2016
ADDRESS: SECTIONS 13 AND 14 OF TOWNSHIP SOUTH, RANGE 1 EAST, SAN BERN
BANNING, CA 92220
RIVERSIDE
ID/Status: 80000140
ID/Status: Inactive - Action Required
SOURCE: CA Department of Toxic Substances Control

Completed Document Type: Site Characterization Workplan
Completed Date: 07/07/2011
Comments: The final site specific workplan approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 11/07/2011
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S106104704 **DIST/DIR:** 0.760 WSW **ELEVATION:** 2230 **MAP ID:** 5

NAME: BANNING MUNICIPAL AIRPORT
ADDRESS: 200 S HATHAWAY STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 80000972
ID/Status: Inactive - Needs Evaluation

ENVIROSTOR:
Facility ID: 80000972
Status: Inactive - Needs Evaluation
Status Date: 07/01/2005
Site Code: Not reported
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: Not reported
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Douglas Bautista
Division Branch: Cleanup Cypress
Assembly: 42
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 33.92555
Longitude: -116.8502
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CA99799FA35500
Alias Type: Federal Facility ID
Alias Name: J09CA7326
Alias Type: INPR
Alias Name: 80000972
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Inventory Project Report (INPR)
Completed Date: 09/21/1999
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S106104704 **DIST/DIR:** 0.760 WSW **ELEVATION:** 2230 **MAP ID:** 5

NAME: BANNING MUNICIPAL AIRPORT
ADDRESS: 200 S HATHAWAY STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 80000972
ID/Status: Inactive - Needs Evaluation

Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S105635414 **DIST/DIR:** 0.837 WSW **ELEVATION:** 2201 **MAP ID:** 6

NAME: TYCO ELECTRONICS CORPORATION
ADDRESS: 700 SOUTH HATHAWAY STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 60002152
ID/Status: Active

ENVIROSTOR:
Facility ID: 60002152
Status: Active
Status Date: 12/03/2015
Site Code: 401652
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 18
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Irena Edwards
Supervisor: Manny Alonzo
Division Branch: Cleanup Cypress
Assembly: 42
Senate: 23
Special Program: Voluntary Cleanup Program
Restricted Use: YES
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 33.91947
Longitude: -116.8586
APN: 532130004, 532130006, 532130014, 532130015
Past Use: ABOVE GROUND STORAGE TANKS, FUEL - AIRCRAFT STORAGE/ REFUELING, MANUFACTURING - ELECTRONIC, METAL FINISHING, METAL PLATING - OTHER, MANUFACTURING - ELECTRONIC, METAL FINISHING, METAL PLATING - OTHER
Potential COC: Tetrachloroethylene (PCE Trichloroethylene (TCE Cadmium and compounds Tetrachloroethylene (PCE Trichloroethylene (TCE Cadmium and compounds
Confirmed COC: Tetrachloroethylene (PCE Cadmium and compounds Trichloroethylene (TCE Tetrachloroethylene (PCE Cadmium and compounds Trichloroethylene (TCE
Potential Description: SOIL, SV
Alias Name: 532130004
Alias Type: APN
Alias Name: 532130006
Alias Type: APN
Alias Name: 532130014
Alias Type: APN
Alias Name: 532130015
Alias Type: APN
Alias Name: 401652
Alias Type: Project Code (Site Code)
Alias Name: 60002152

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S105635414 **DIST/DIR:** 0.837 WSW **ELEVATION:** 2201 **MAP ID:** 6

NAME: TYCO ELECTRONICS CORPORATION
ADDRESS: 700 SOUTH HATHAWAY STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 60002152
ID/Status: Active

Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 10/11/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 03/04/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 03/04/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Plan
Completed Date: 02/10/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 10/16/2015
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 12/08/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 02/02/2016
Comments: Not reported

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: S105635414 **DIST/DIR:** 0.837 WSW **ELEVATION:** 2201 **MAP ID:** 6

NAME: TYCO ELECTRONICS CORPORATION
ADDRESS: 700 SOUTH HATHAWAY STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 60002152
ID/Status: Active

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 11/10/2013
Comments: Completed

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Certification
Future Due Date: 2017
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: 1000436170 **DIST/DIR:** 0.986 WSW **ELEVATION:** 2240 **MAP ID:** 7

NAME: PERFECTION PLATING
ADDRESS: 1284 EAST LINCOLN STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 71003018
ID/Status: 60000748
ID/Status: No Further Action
ID/Status: Refer: 1248 Local Agency

ENVIROSTOR:
Facility ID: 71003018
Status: No Further Action
Status Date: 09/09/2010
Site Code: 550003
Site Type: Tiered Permit
Site Type Detailed: Tiered Permit
Acres: 5
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: * John Geroch
Division Branch: Cleanup Cypress
Assembly: 42
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 33.92082
Longitude: -116.8627
APN: NONE SPECIFIED
Past Use: METAL PLATING - CHROME
Potential COC: Tetrachloroethylene (PCE Trichloroethylene (TCE Chromium VI
Confirmed COC: Tetrachloroethylene (PCE Chromium VI Trichloroethylene (TCE
Potential Description: SOIL
Alias Name: CAD982400731
Alias Type: EPA Identification Number
Alias Name: 110000479081
Alias Type: EPA (FRS #)
Alias Name: 550003
Alias Type: Project Code (Site Code)
Alias Name: 71003018
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consent Agreement
Completed Date: 01/31/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: 1000436170 **DIST/DIR:** 0.986 WSW **ELEVATION:** 2240 **MAP ID:** 7

NAME: PERFECTION PLATING
ADDRESS: 1284 EAST LINCOLN STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 71003018
ID/Status: 60000748
ID/Status: No Further Action
ID/Status: Refer: 1248 Local Agency

Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 04/01/1999
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Corrective Action Completion Determination
Completed Date: 09/30/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consent Agreement
Completed Date: 01/31/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase I Verification
Completed Date: 08/26/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 06/30/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 08/26/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 03/23/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 09/30/2006
Comments: Not reported

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: 1000436170 **DIST/DIR:** 0.986 WSW **ELEVATION:** 2240 **MAP ID:** 7

NAME: PERFECTION PLATING
ADDRESS: 1284 EAST LINCOLN STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 71003018
ID/Status: 60000748
ID/Status: No Further Action
ID/Status: Refer: 1248 Local Agency

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Facility ID: 60000748
Status: Refer: 1248 Local Agency
Status Date: 06/25/2004
Site Code: Not reported
Site Type: Evaluation
Site Type Detailed: Evaluation
Acres: Not reported
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Not reported
Division Branch: Cleanup Cypress
Assembly: 42
Senate: 23
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not Applicable
Latitude: 33.92082
Longitude: -116.8627
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: 60000748
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: SB 1248 Notification
Completed Date: 06/25/2004
Comments: DTSC is not involved with this project

- Continued on next page -

Site Detail Report

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

ENVIROSTOR

EDR ID: 1000436170 **DIST/DIR:** 0.986 WSW **ELEVATION:** 2240 **MAP ID:** 7

NAME: PERFECTION PLATING
ADDRESS: 1284 EAST LINCOLN STREET
BANNING, CA 92220
RIVERSIDE
SOURCE: CA Department of Toxic Substances Control

Rev: 10/31/2016
ID/Status: 71003018
ID/Status: 60000748
ID/Status: No Further Action
ID/Status: Refer: 1248 Local Agency

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Database Descriptions

NPL: NPL National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices. NPL - National Priority List Proposed NPL - Proposed National Priority List Sites.

NPL Delisted: Delisted NPL The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Delisted NPL - National Priority List Deletions

CERCLIS: SEMS SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL. SEMS - Superfund Enterprise Management System

NFRAP: SEMS-ARCHIVE SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site. SEMS-ARCHIVE - Superfund Enterprise Management System Archive

RCRA COR ACT: CORRACTS CORRACTS identifies hazardous waste handlers with RCRA corrective action activity. CORRACTS - Corrective Action Report

RCRA TSD: RCRA-TSDF RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste. RCRA-TSDF - RCRA - Treatment, Storage and Disposal

RCRA GEN: RCRA-LQG RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. RCRA-LQG - RCRA - Large Quantity Generators RCRA-SQG - RCRA - Small Quantity Generators. RCRA-CESQG - RCRA - Conditionally Exempt Small Quantity Generators.

Federal IC / EC: US ENG CONTROLS A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. US ENG CONTROLS - Engineering Controls Sites List US INST CONTROL - Sites with Institutional Controls.

Database Descriptions

ERNS: ERNS Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances. ERNS - Emergency Response Notification System

State/Tribal NPL: RESPONSE Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. RESPONSE - State Response Sites

State/Tribal CERCLIS: ENVIROSTOR The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. ENVIROSTOR - EnviroStor Database

State/Tribal SWL: SWF/LF (SWIS) Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites. SWF/LF (SWIS) - Solid Waste Information System

State/Tribal LTANKS: LUST REG 6L SAN FRANCISCO CO. LUST - Local Oversite Facilities. SONOMA CO. LUST - Leaking Underground Storage Tank Sites. SAN MATEO CO. LUST - Fuel Leak List. LUST REG 6V - Leaking Underground Storage Tank Case Listing. LUST REG 7 - Leaking Underground Storage Tank Case Listing. LUST REG 8 - Leaking Underground Storage Tanks. LUST SANTA CLARA - LOP Listing. LUST - Geotracker's Leaking Underground Fuel Tank Report. NAPA CO. LUST - Sites With Reported Contamination. RIVERSIDE CO. LUST - Listing of Underground Tank Cleanup Sites. LUST REG 2 - Fuel Leak List. VENTURA CO. LUST - Listing of Underground Tank Cleanup Sites. SAN DIEGO CO. SAM - Environmental Case Listing. LUST REG 4 - Underground Storage Tank Leak List. LUST REG 3 - Leaking Underground Storage Tank Database. ORANGE CO. LUST - List of Underground Storage Tank Cleanups. LUST REG 9 - Leaking Underground Storage Tank Report. LUST REG 5 - Leaking Underground Storage Tank Database. LUST REG 1 - Active Toxic Site Investigation. SOLANO CO. LUST - Leaking Underground Storage Tanks. Orange County Underground Storage Tank Cleanups (LUST). SOLANO CO. LUST - List of Underground Storage Tank Cleanups INDIAN LUST R6 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R10 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R8 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R1 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R5 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R9 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R4 - Leaking Underground Storage Tanks on Indian Land. INDIAN LUST R7 - Leaking Underground Storage Tanks on Indian Land. SLIC - Statewide SLIC Cases. SLIC REG 1 - Active Toxic Site Investigations. SLIC REG 2 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 3 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 4 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 5 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 6V - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. SLIC REG 6L - SLIC Sites. SLIC REG 7 - SLIC List. SLIC REG 8 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing. Sacramento Co. CS - Toxic Site Clean-Up List. SLIC REG 9 - Spills, Leaks, Investigation & Cleanup Cost Recovery Listing.

State/Tribal Tanks: UST Active UST facilities gathered from the local regulatory agencies UST - Active UST Facilities AST - Aboveground Petroleum Storage Tank Facilities. INDIAN UST R6 - Underground Storage Tanks on Indian Land. INDIAN UST R5 - Underground Storage Tanks on Indian Land. INDIAN UST R4 - Underground Storage Tanks on Indian Land. INDIAN UST R9 - Underground Storage Tanks on Indian Land. INDIAN UST R8 - Underground Storage Tanks on Indian Land. INDIAN UST R7 - Underground Storage Tanks on Indian Land. INDIAN UST R10 - Underground Storage Tanks on Indian Land. INDIAN UST R1 - Underground Storage Tanks on Indian Land.

Database Descriptions

State/Tribal VCP: VCP Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs. VCP - Voluntary Cleanup Program Properties

US Brownfields: US BROWNFIELDS Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs. US BROWNFIELDS - A Listing of Brownfields Sites

Other SWF: CA LA LF SAN DIEGO CO. LF - Solid Waste Facilities. WMUDS/SWAT - Waste Management Unit Database. LOS ANGELES CO. LF - List of Solid Waste Facilities. VENTURA CO. LF - Inventory of Illegal Abandoned and Inactive Sites. Solid Waste Facilities in Los Angeles County. VENTURA CO. LF - List of Solid Waste Facilities

Other Haz Sites: SCH This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose. SCH - School Property Evaluation Program SAN DIEGO CO. HMMD - Hazardous Materials Management Division Database. US CDL - Clandestine Drug Labs.

Other Tanks: SWEEPS UST Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list. SWEEPS UST - SWEEPS UST Listing ALAMEDA CO. UST - Underground Tanks. KERN CO. UST - Underground Storage Tank Sites & Tank Listing. MARIN CO. UST - Underground Storage Tank Sites. NAPA CO. UST - Closed and Operating Underground Storage Tank Sites. ORANGE CO. UST - List of Underground Storage Tank Facilities. RIVERSIDE CO. UST - Underground Storage Tank Tank List. SAN FRANCISCO CO. UST - Underground Storage Tank Information. SOLANO CO. UST - Underground Storage Tanks. SUTTER CO. UST - Underground Storage Tanks. VENTURA CO. UST - Underground Tank Closed Sites List. YOLO CO. UST - Underground Storage Tank Comprehensive Facility Report. EL SEGUNDO UST - City of El Segundo Underground Storage Tank. LONG BEACH UST - City of Long Beach Underground Storage Tank. UST SAN JOAQUIN - San Joaquin Co. UST. TORRANCE UST - City of Torrance Underground Storage Tank. UST MENDOCINO - Mendocino County UST Database. CA FID UST - Facility Inventory Database.

Local Land Records: DEED Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners. DEED - Deed Restriction Listing

Spills: HMIRS Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT. HMIRS - Hazardous Materials Information Reporting System CHMIRS - California Hazardous Material Incident Report System. Orange Co. Industrial Site - List of Industrial Site Cleanups.

Database Descriptions

Other: RCRA NonGen / NLR RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste. RCRA NonGen / NLR - RCRA - Non Generators / No Longer Regulated FEDLAND - Federal and Indian Lands. TSCA - Toxic Substances Control Act. TRIS - Toxic Chemical Release Inventory System. SSTS - Section 7 Tracking Systems. RAATS - RCRA Administrative Action Tracking System. PRP - Potentially Responsible Parties. PADS - PCB Activity Database System. ICIS - Integrated Compliance Information System. FTTS - FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act). FTTS INSP - FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act). MLTS - Material Licensing Tracking System. RADINFO - Radiation Information Database. BRS - Biennial Reporting System. INDIAN RESERV - Indian Reservations. LEAD SMELTER 1 - Lead Smelter Sites. LEAD SMELTER 2 - Lead Smelter Sites. US AIRS (AFS) - Aerometric Information Retrieval System Facility Subsystem (AFS). US AIRS MINOR - Air Facility System Data. FINDS - Facility Index System/Facility Registry System. CUPA - CUPA Resources List. CUPA AMADOR - CUPA Facility List. CUPA BUTTE - CUPA Facility Listing. CUPA CALVERAS - CUPA Facility Listing. CUPA COLUSA - CUPA Facility List. CUPA DEL NORTE - CUPA Facility List. CUPA EL DORADO - CUPA Facility List. CUPA FRESNO - CUPA Resources List. CUPA HUMBOLDT - CUPA Facility List. CUPA IMPERIAL - CUPA Facility List. CUPA INYO - CUPA Facility List. CUPA KINGS - CUPA Facility List. CUPA LAKE - CUPA Facility List. CUPA MADERA - CUPA Facility List. CUPA MERCED - CUPA Facility List. CUPA MONO - CUPA Facility List. CUPA MONTEREY - CUPA Facility Listing. CUPA NEVADA - CUPA Facility List. CUPA SAN LUIS OBISPO - CUPA Facility List. CUPA SANTA BARBARA - CUPA Facility Listing. CUPA SANTA CLARA - Cupa Facility List. CUPA SANTA CRUZ - CUPA Facility List. CUPA SHASTA - CUPA Facility List. CUPA SONOMA - Cupa Facility List. CUPA TUOLUMNE - CUPA Facility List. CUPA YUBA - CUPA Facility List. HAZNET - Facility and Manifest Data. Sacramento Co. ML - Master Hazardous Materials Facility List. San Bern. Co. Permit - Hazardous Material Permits. LA Co. Site Mitigation - Site Mitigation List. WDS - Waste Discharge System.

Database Sources

NPL: EPA

Updated Quarterly

NPL Delisted: EPA

Updated Quarterly

CERCLIS: EPA

Updated Quarterly

NFRAP: EPA

Updated Quarterly

RCRA COR ACT: EPA

Updated Quarterly

RCRA TSD: Environmental Protection Agency

Updated Quarterly

RCRA GEN: Environmental Protection Agency

Updated Quarterly

Federal IC / EC: Environmental Protection Agency

Varies

ERNS: National Response Center, United States Coast Guard

Updated Annually

State/Tribal NPL: Department of Toxic Substances Control

Updated Quarterly

State/Tribal CERCLIS: Department of Toxic Substances Control

Updated Quarterly

State/Tribal SWL: Department of Resources Recycling and Recovery

Updated Quarterly

State/Tribal LTANKS: Department of Environmental Health

Updated Annually

Database Sources

State/Tribal Tanks: SWRCB

Updated Semi-Annually

State/Tribal VCP: Department of Toxic Substances Control

Updated Quarterly

US Brownfields: Environmental Protection Agency

Updated Semi-Annually

Other SWF: Environmental Health Division

Updated Annually

Other Haz Sites: Department of Toxic Substances Control

Updated Quarterly

Other Tanks: State Water Resources Control Board

No Update Planned

Local Land Records: DTSC and SWRCB

Updated Semi-Annually

Spills: U.S. Department of Transportation

Updated Annually

Other: Environmental Protection Agency

Varies

Street Name Report for Streets near the Target Property

Target Property: NORTH OF BANNING AIRPORT
BANNING, CA 92220

JOB: NA

Street Name	Dist/Dir	Street Name	Dist/Dir
I-10 E	0.16 NNW		
I-10 W	0.18 NNW		

APPENDIX E

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM FINDINGS OF FACT FOR BANNING AIRPORT

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
FORMERLY USED DEFENSE SITES
FINDINGS AND DETERMINATION OF ELIGIBILITY

BANNING AIRPORT
BANNING, CALIFORNIA
SITE NO. J09CA732600

FINDINGS OF FACT

1. The Department of Defense (DOD) is not known to have acquired nor have had any controlling interest in Banning Airport, Banning California. Real estate records were neither specific nor complete. The airport was established by private parties in 1927 on 68 acres of privately owned land.

2. In 1943, the U.S. Army conducted a training program for Army engineers in airport construction at the airport. As a result of the training program, the landing strip was lengthened and oiled. DOD made no other improvements to the site. The landing strip continues to be beneficially used. Anecdotal evidence supports ad hoc use of the airport during World War II by General Patton.

3. No DOD disposal actions were necessary. The airport is currently owned and operated by the City of Banning, which has enlarged the airport site to 127.15 acres. It is primarily used by the general public and North American Jet Charters.

DETERMINATION

Based on the foregoing Findings of Fact, it has been determined that this site has been formerly used by the Department of Defense. It is therefore eligible for the Defense Environmental Restoration Program-Formerly Used Defense Sites, established under 10 USC 2701 et seq.

21 Sep 99
DATE

Thomas D. Hodgini COL EN
PETER T. MADSEN
for Colonel (P), U.S. Army
Commanding

SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. J09CA732600
BANNING AIRPORT
20 August 1999

SITE NAME: BANNING AIRPORT; also known as Banning Landing Strip; Banning Flight Strip; Rogers Airport.

LOCATION: Banning Airport is located within the City of Banning, at its eastern boundary. It is immediately south of Interstate Highway 10.

SITE HISTORY: Banning airport was established in 1927 on 68 acres of land purchased from the Southern Pacific Railroad Company by members of the Banning Kiwanis Club and the Banning Post of the American legion. The airport comprised a hangar and 2,240 feet dirt landing strip. In the mid 1930s the airport was annexed by the City of Banning, which subsequently improved the site and enlarged it to 127.15 acres. The airport remains in operation and is principally used by the general public. Recently North American Jet Charter started operation of flights to Europe and South America from the airport.

Military use of the airport is well known. In 1943 the U.S. Army conducted a training program for Army engineers in airport construction at the airport. The program, known as *Project X: How to Build an Air Field in Italy*, resulted in improvement of the landing strip and extension of the strip to 5,000 feet. No other improvements were made to the airport by the military. The landing strip continues to be beneficially used. Listing of the airport in various military publications supports its use by the U.S. Army and the U.S. Army Air Corps during WWII. There is anecdotal evidence that General Patton used the airport during WWII to travel between the Third Army headquarters in Banning and his field headquarters in the California Arizona Maneuver Area. No evidence was found of ordnance use or storage at the airport.

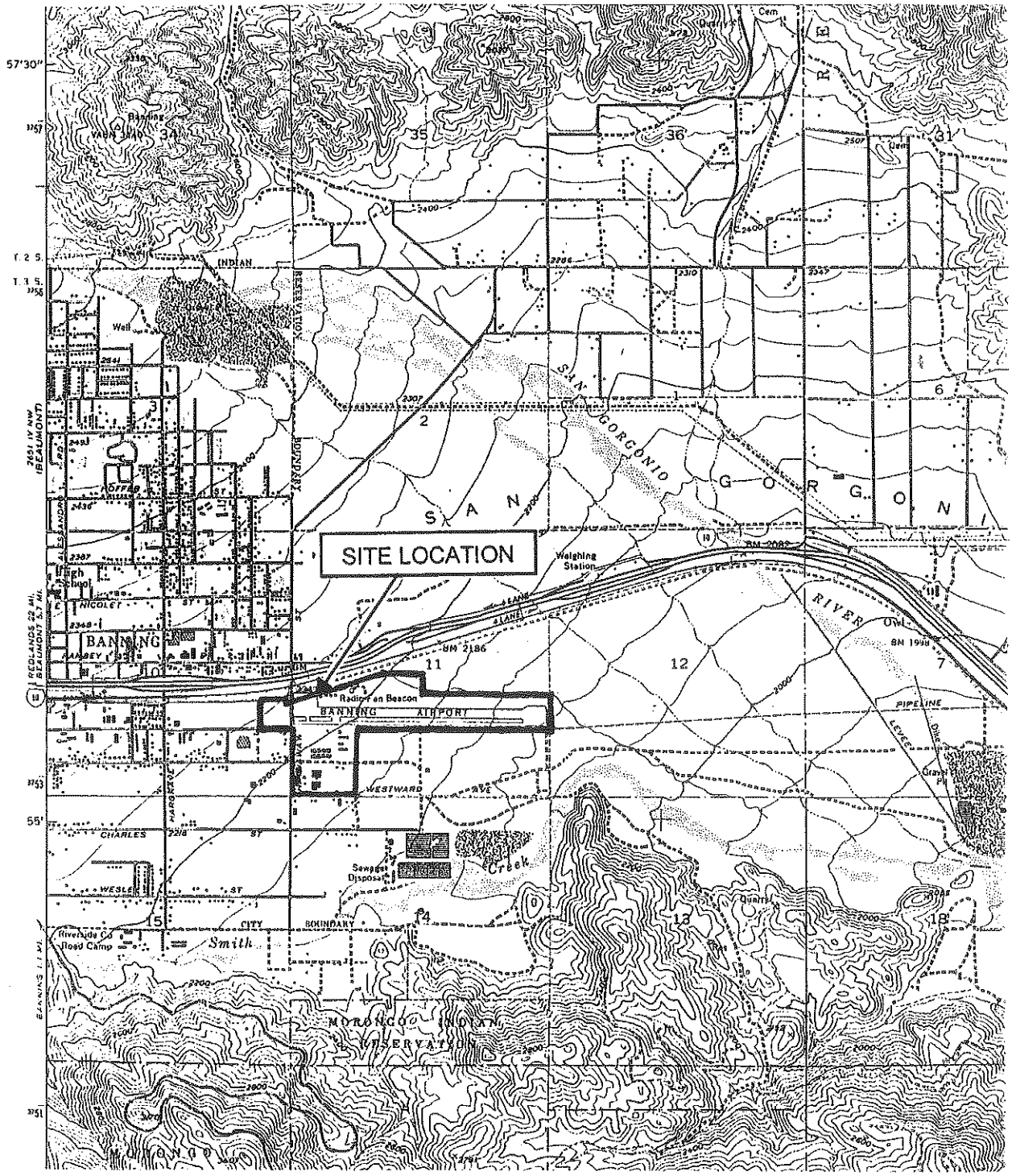
SITE VISIT: The site was visited on 9 June 1999 by Joyce Clarke and John Pacetti of Science Applications International Corporation, Fountain Valley, California. The primary site contact was Mr. Earl Seay, owner of Banning Aviation Services, Banning Municipal Airport, Banning, California.

CATEGORY OF HAZARD: None.

PROJECT DESCRIPTION: No potential Projects at this site.

AVAILABLE STUDIES AND REPORTS: A history of Banning Airport has been compiled by the San Gorgonio Pass Pilots' Association and is held by the San Gorgonio History Association.

DISTRICT POC: Jeffery B. Armentrout, Los Angeles District (213) 452-3720.



TOWNSHIP 3 SOUTH, RANGE 1 EAST

U.S.G.S. TOPO, 7.5' CABAZON, CALIF. 1956, PHOTREVISED 1988

N

CALIF

QUADRANGLE LOCATION

0 1 MILE

SCALE IN MILES

SAIC®

An Employee-Owned Company

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

SITE LOCATION
BANNING AIRPORT
J09CA732600
BANNING, CA

PROJECT NO.		
01-255-04-1838		
DRAWN BY	CHECKED BY	DATE
JP	JC	08-99

APPENDIX F

STATEMENT OF QUALIFICATIONS FOR HEI CORPORATION

HEI CORPORATION

HEI Corporation was established in 1992 to respond to a need that exists in the environmental industry. There were many outstanding "full service" environmental firms in Southern California. Very few, however, specialized in performing Phase I Environmental Site Assessments (ESA's). For many firms, the ESA was and is approached as a way of positioning themselves to get any additional work recommended therein. This had led many to recognize the inherent conflict of interest that this represents. HEI Corporation eliminates this potential conflict in that no other environmental services are offered.

HEI Corporation, which also does business as Hayden Environmental, recognizes the importance of an ESA. The company was formed with the expressed purpose of providing the best, most complete, most thoroughly researched report available. At HEI Corporation, our fees are always competitive. Also, because we are not in the business of conducting Site Investigations (phase II's) there is no undue incentive to recommend them.

Our assessments are grounded in a solid understanding of the primary function of an ESA. Liability for environmental contamination can be expensive and time consuming in the extreme. While there is no guarantee that it will, an ESA is designed to allow a party coming into possession of real property, either as a tenant, buyer or lender forced to foreclose, to avail themselves of the "innocent landowner" defense. ESA's can also be a very valuable tool for an owner or tenant to establish a baseline condition of a property proper to the commencement of a lease.

Hayden Environmental has researched the law and adheres to the standards for environmental assessments promulgated by the ASTM Designation E 1527-13.

All Hayden Environmental Phase I assessments will include these five basic components:

- Subject property inspection and surrounding property observation
- Federal, state, tribal and local agency environmental database review
- County and /or municipal government record review
- Historical use review using aerial photographs, Sanborn maps and/or archive city directories
- Interviews with the current and former owners and occupants of the subject property

Hayden Environmental is fully insured, with policy coverage of $2,000,000 for Professional Liability and $1,000,000 for General Liability.

CHRISTOPHER M. HAYDEN

Chris Hayden, EP, has been in the environmental field since 1991. He began with a large multinational firm as the regional sales and marketing representative for Western U.S. He dealt primarily with firms in the energy, mining and real estate development fields. Seeking to broaden his "hands on" experience, he began working with a local firm in 1992. While there, he had the opportunity to work on a variety of projects, including environmental site assessments and site investigations. Seeing the need for a firm that specialized in conducting reliable, thorough and reasonably priced environmental site assessments while avoiding potential conflicts of interest, he formed Hayden Environmental in 1992. Hayden, through his years of experience, has earned the designation of Environmental Professional (EP) as defined in Section 40 C.F.R. § 312.10(b).

Mr. Hayden also serves on the ASTM E50 Committee which reviews, revises and enforces the standards for environmental assessments currently promulgated by the ASTM Designation E 1527-13.

Prior to 1991 Hayden had been in the real estate industry for twelve years. He last worked as an industrial real estate broker with Grubb & Ellis in Newport Beach, CA.

Hayden has a Bachelors of Arts in Biology from Humboldt State University in Arcata, California. He has taken several classes in the Environmental Site Investigation and Remediation Certification program at the University of California at Irvine.

ENVIRONMENTAL COURSES/SEMINARS COMPLETED

40 Hour HazMat Health and Safety Training

ASTM Standards Technology Training in Phase I Site Assessments for Environmental Professionals

Principles of Hazardous Materials Management

Regulatory Framework of Hazardous and Toxic Substances

Groundwater Hydrology: Monitoring, Protection and Clean-up

The Site Investigation and Remedial Feasibility Process

The Site Remediation Process for Hazardous Substance Impacts

Environmental Aspects of Souls Engineering and Geology

Innovative Soils Gas Monitoring and Remediation Applications

A Partial List of Current and Former Clients Includes:

CLIENT	CLIENT
US Bank	First California Bank
Bank of America	Comerica Bank
Bank of Internet/Apartmentbank	U. S. Trust Co.
Orange County Business Bank	First Citizens Bank
First Security Bank	Bank of the West
Pacific Enterprise Bank	PFF Bank & Trust
Community Bank	Southland EDC
American Security Bank	Wells Fargo Bank
California Bank & Trust	Investment Building Group (IBG)
Farmers & Merchants Trust	Messenger Investment Company
Spectrum Commercial Lending	The Koll Company
City National Bank	Steadfast Companies
Palm Desert National Bank	Shaw Properties
1st Capital Bank	Rexco Real Estate Development
California Statewide CDC	Cardinal Development Company
First American Bank	Lord Constructors
Hamni Bank	Caribou Industries
First Foundation Bank	Western National Realty Advisors
Sun Country Bank	Sares-Regis Group
Union Bank of California	Gilmore Associates
Bank of China	Aardex Corporation
Foothill Independent Bank	Arlen Capital
Dynex Financial, Inc.	Martin Building Company
Silvergate Bank	NPL Construction Co.
Finova Corporation	Carmenita Investment Properties
ARCS Commercial Mortgage	The Davidson Group
GE Financial Corporation	National Golf Properties
Sanwa Bank	Nextel Communications
BBVA Compass	Coca Cola Enterprises
First Union Small Business Capital	General Telephone Company
California Republic Bank	Intuit
Bank One	Rockwell International
Sun Life of America	Pacific Sales
Plaza Bank	University of Southern California
City of Los Angeles CRA	Pepperdine University

REFERENCES

Lenders

Mr. Murray Anderson
US Bank
3121 Michelson Drive, Suite 326
Irvine, CA 92612
T: 949-230-6562
Email: Murray.Anderson@usbank.com

Mr. Grady Kjesbo
Community Bank
2100 Main Street, Suite 103
Irvine, CA 92814
T: 949-223-4148
Email: gkjesbo@cbank.com

Real Estate Developer

Mr. Robert Murray
President
Steadfast Commercial Properties
18100 Von Karman Avenue, Suite 500
Irvine, CA 92612
T.: 949-852-0700
Email: bmurray@steadfastcompanies.com

Real Estate Brokers

Mr. Tim Hawke
President
Strata Realty
2433 Pomona Rincon Road
Corona, CA 92880
T.: 951-280-1733
Email: thawke@stratarealty.com

Mr. Richard C. John
Executive Vice President
Branch Manager
Daum Commercial Real Estate Services
3595 East Inland Empire Blvd., Bldg. 5
Ontario, CA 91764
T: 909-980-1234
Email: rj@daumcommercial.com

HEICO-1 OP ID: BT

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 10/25/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Van Oppen & Co. 2, Inc.
P.O. Box 793
Teton Village, WY 83025
Rick van Oppen

CONTACT NAME: Brenda Todd
PHONE (A/C, No, Ext): 800-746-0048 FAX (A/C, No):
E-MAIL ADDRESS: service@vanoppenco2.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Westchester Surplus Lines	10172
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
HEI Corporation
1805 Peninsula Pl
Costa Mesa, CA 92627

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			G24331337 003	11/04/2016	11/04/2018	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 50,000
	X CPL(Pollution)						MED EXP (Any one person)	$ 10,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PERSONAL & ADV INJURY	$ 1,000,000
	X POLICY PRO-JECT LOC						GENERAL AGGREGATE	$ 2,000,000
	OTHER:						PRODUCTS - COMP/OP AGG	$ 2,000,000
								$
A	AUTOMOBILE LIABILITY			G24331337 003	11/04/2016	11/04/2018	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS / X NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N / A (Mandatory in NH)						E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Lia "Claims Made"			G24331337 003 SUBJECT TO GL AGGREGATE	11/04/2016	11/04/2018	Ea Claim	1,000,000
							Aggregate	2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

General Info

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
F. van Oppen

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Appendix L

Project Specific

Preliminary
Water Quality Management Plan

For: **Banning Distribution Center**

John Street, Banning, CA 92220
(street address has not been assigned)

DEVELOPMENT NO. **TENTATIVE PARCEL MAP #34335**
DESIGN REVIEW NO. **2**

Prepared for:

Banning Industrial, LP
17842 Mitchell North, Suite 100
Irvine, CA 92614-6004
Telephone: (949) 474-2000

Prepared by:
Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506
Telephone: (951) 686-1070
Attn: Christopher R. Castaneda

Original Date Prepared: July 2016

Revision Date(s): November 2017

OWNER'S CERTIFICATION

This project-specific Water Quality Management Plan (WQMP) has been prepared for:

Banning Industrial, LP
for the project known as **Banning Distribution Center** located north of the Banning Airport, south of I-10, east of Hargrave Street, and west of the San Gorgonio River, Banning, CA

This WQMP is intended to comply with the requirements of **City of Banning** for **TENTATIVE PARCEL MAP #34335**, which includes the requirement for the preparation and implementation of a project-specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity.

The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under Error! Reference source not found. Water Quality Ordinance (Municipal Code Section 13.24).

If the undersigned transfers its interest in the subject property/project, the undersigned shall notify the successor in interest of its responsibility to implement this WQMP.

"I, the undersigned, certify under penalty of law that I am the owner of the property that is the subject of this WQMP, and that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

_____
Owner's Signature

William R. Patton
Owner's Printed Name

_____
Owner's Title/Position

_____
Date

17842 Mitchell North, Suite 100
Irvine, CA 92614-6004
949-474-2000

ATTEST

_____
Notary Signature

_____
Printed Name

_____
Title/Position

_____
Date

THIS FORM SHALL BE NOTARIZED BEFORE ACCEPTANCE OF THE FINAL PROJECT SPECIFIC WQMP

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III. Pollutants of Concern **7**
Hydrologic Conditions of Concern **8**
IV. Best Management Practices **9**
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V.1.B TREATMENT CONTROL BMPS N/A 17
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C. SUPPORTING DETAIL RELATED TO HYDROLOGIC CONDITIONS OF CONCERN (IF APPLICABLE)
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F. STRUCTURAL BMP AND/OR RETENTION FACILITY SIZING CALCULATIONS AND DESIGN DETAILS
G. AGREEMENTS – CC&RS, COVENANT AND AGREEMENTS, BMP MAINTENANCE AGREEMENTS AND/OR OTHER MECHANISMS FOR ENSURING ONGOING OPERATION, MAINTENANCE, FUNDING AND TRANSFER OF REQUIREMENTS FOR THIS PROJECT-SPECIFIC WQMP
H. PHASE 1 ENVIRONMENTAL SITE ASSESSMENT – SUMMARY OF SITE REMEDIATION CONDUCTED AND USE RESTRICTIONS
I. PROJECT-SPECIFIC WQMP SUMMARY DATA FORM

I. Project Description

Project Owner: Banning Industrial, LP
17842 Mitchell North, Suite 100
Irvine, CA 92614-6004
Telephone: (949) 474-2000

WQMP Preparer: Christopher R. Castaneda, P.E. Associate Engineer
Albert A. Webb Associates
3788 McCray St.
Riverside, CA 92506

Project Site Address: Street Address: To Be Determine
John Street Banning, CA 92220

Planning Area/ Community Name/ Development Name: Banning Distribution Center

APN Number(s): 532-110-006
532-130-001
532-130-002

Latitude & Longitude: 33.9253°, -116.8452°

Receiving Water: Smith Creek, San Gorgonio River, Whitewater River, Coachella Valley Storm Channel, Salton Sea

Project Site Size: 63.9 acres

Standard Industrial Classification (SIC) Code: **4225**

Formation of Home Owners' Association (HOA) or Property Owners Association (POA): Y ☐ N ☒

Additional Permits/Approvals required for the Project:

AGENCY	Permit required
State Department of Fish and Wildlife, Fish and Game Code §1602 Streambed Alteration Agreement	Y ☒ N☐
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Certification	Y ☒ N☐
US Army Corps of Engineers, CWA Section 404 permit	Y ☒ N☐
US Fish and Wildlife, Endangered Species Act Section 7 biological opinion	Y ☐ N☒
Statewide Construction General Permit Coverage	Y ☒ N☐
Statewide Industrial General Permit Coverage	Y ☐ N☒
Other *(please list in the space below as required)*	

The proposed project consists of a rail serviced warehouse/distribution building with 1,000,000 square feet of warehouse space, 10,000 square feet of office space, 392 truck and trailer parking spaces, 223 automobile parking spaces, 205 loading docks, and landscaped areas on a 63.90 acre site.

Existing runoff from the site generally flows southeast for approximately a half miles before entering Smith Creek. Flows continue in Smith Creek for 1.5 miles before flowing into the San Gorgonio River, which then empties into the Whitewater River (11.5 miles to the east). The Whitewater River flows for about 50 miles before reaching the Salton Sea.

The site was subdivided into 2 Drainage Management Areas (DMAs). DMA-1 consists of 20.1 acres of warehouse building, parking and landscape areas. DMA-1 generates water quality treatment volume of 16,781 cubic feet which will be directed to the proposed retention basin (Basin 1) via combination of surface flow and underground storm drain. DMA-2 consists of 37.8 acres of warehouse building, parking and landscape areas. DMA-2 generates water quality treatment volume of 41,164 cubic feet which will be directed to the proposed retention basin (Basin 2) via combination of surface flow and underground storm drain.

In order to minimize the discharge and transport of pollutants from the site and comply with the City of Banning stormwater requirements, the site will be constructed to retain100% of the 100-year 3-hour storm runoff volume. As a result, the retention basins are capable of storing storm volumes in excess of the water quality volumes. Proposed onsite drainage system will capture and convey the entire 100-year runoff volume into two retention basins located near the southern boundary of the site. Infiltration tests have been performed by SCST Engineering indicating average infiltration rate of 3.63 inches per hour at the location of the proposed retention basins. A minimum factor of safety of 3 will be applied to the infiltration rate to ensure better long term performance of the infiltration basins.

City of Banning requires that the 100-year 3-hour storm event must be completely infiltrated within 72 hours of the event. However, the project site is located within the sphere of influence of the Banning Municipal Airport; the Riverside County Airport Land Use Commission (ALUC) is requiring a maximum 48 hour retention time for the onsite retention basins.

It should be noted that infiltrating the required water quality volumes in the ground is a Low Impact (Development (LID) BMP and as such complies with the latest principles in addressing the storm water quality.

Appendix A of this project-specific WQMP includes a complete copy of the final Conditions of Approval. Appendix B of this project-specific WQMP includes:

a. A Vicinity Map identifying the project site and surrounding planning areas in sufficient detail; and

b. A Site Plan for the project. The Site Plan included as part of Appendix B depicts the following project features:

   - Location and identification of all structural BMPs, including Source Control, LID/Site Design and Treatment Control BMPs.
   - Landscaped areas.

- Paved areas and intended uses (i.e., parking, outdoor work area, outdoor material storage area, sidewalks, patios, tennis courts, etc.).
- Number and type of structures and intended uses (i.e., buildings, tenant spaces, dwelling units, community facilities such as pools, recreation facilities, tot lots, etc.).
- Infrastructure (i.e., streets, storm drains, etc.) that will revert to public agency ownership and operation.
- Location of existing and proposed public and private storm drainage facilities (i.e., storm drains, channels, basins, etc.), including catch basins and other inlets/outlet structures. Existing and proposed drainage facilities should be clearly differentiated.
- Location(s) of Receiving Waters to which the project directly or indirectly discharges.
- Location of points where onsite (or tributary offsite) flows exit the property/project site.
- Delineation of proposed drainage area boundaries, including tributary offsite areas, for each location where flows exit the project site and existing site (where existing site flows are required to be addressed). Each tributary area should be clearly denoted.
- Pre- and post-project topography.

Appendix I is a one page form that summarizes pertinent information relative to this project-specific WQMP.

II. Site Characterization

Land Use Designation or Zoning:

Current Property Use: **UNDEVELOPED**

Proposed Property Use: **INDUSTRIAL (WAREHOUSE/ DISTRIBUTION)**

Availability of Soils Report: Y ☒ N ☐ *Note: A soils report is required if infiltration BMPs are utilized. Attach report in Appendix E.*

Phase 1 Site Assessment: Y ☐ N ☒ *Note: If prepared, attached remediation summary and use restrictions in Appendix H.*

Receiving Waters for Urban Runoff from Site

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use Designated Receiving Waters
Smith Creek	None	No beneficial uses listed in WQMP Guidance	N/A
San Gorgonio River	None	MUN, AGR, GWR, REC I, REC II, COLD, WILD	N/A
Whitewater River	None	MUN, AGR, GWR, REC I, REC II, WARM, COLD,WILD, POW	N/A
Coachella Valley Stormwater Channel	Pathogens, Toxaphene	FRSH, REC I, REC II, WARM, WILD, RARE	43.3
Salton Sea	Nutrients, Salinity, Selenium	AQUA, IND, RECI, RECII, WARM, WILD, RARE	64.3

III. Pollutants of Concern

Table 1. Pollutant of Concern Summary

Pollutant Category	Potential for Project and/or Existing Site	Causing Receiving Water Impairment
Bacteria/Virus	Yes	Yes
Heavy Metals	Yes	Yes
Nutrients	Yes	Yes
Toxic Organic Compounds	Yes	Yes
Sediment/Turbidity	Yes	No
Trash & Debris	Yes	No
Oil & Grease	Yes	No
Other (specify pollutant):		
Other (specify pollutant):		

Hydrologic Conditions of Concern

Local Jurisdiction Requires On-Site Retention of Urban Runoff:

Yes ☒ The project will be required to retain urban runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater"). This section does not need to be completed; however, retention facility design details and sizing calculations must be included in Appendix F.

No ☐ This section must be completed.

This Project meets the following condition:

☐ **Condition A**: 1) Runoff from the Project is discharged directly to a publicly-owned, operated and maintained MS4 or engineered and maintained channel, 2) the discharge is in full compliance with local land use authority requirements for connections and discharges to the MS4 (including both quality and quantity requirements), 3) the discharge would not significantly impact stream habitat in proximate Receiving Waters, **and** 4) the discharge is authorized by the local land use authority.

☐ **Condition B**: The project disturbs less than 1 acre and is not part of a larger common plan of development that exceeds 1 acre of disturbance. The disturbed area calculation must include all disturbances associated with larger plans of development.

☐ **Condition C**: The project's runoff flow rate, volume, velocity and duration for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour and 10-year 24-hour rainfall events. This condition can be achieved by, where applicable, complying with the local land use authority's on-site retention ordinance, or minimizing impervious area on a site and incorporating other Site-Design BMP concepts and LID/Site Design BMPs that assure non-exceedance of pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the local land use authority.

☐ **None:** Refer to Section 3.4 of the Whitewater River Region WQMP Guidance document for additional requirements.

Supporting engineering studies, calculations, and reports are included in Appendix C.

	2 year – 24 hour		10 year – 24 hour	
	Precondition	**Post-condition**	**Precondition**	**Post-condition**
Discharge (cfs)				
Velocity (fps)				
Volume (cubic feet)				
Duration (minutes)				

IV. Best Management Practices

This project implements Best Management Practices (BMPs) to address the Pollutants of Concern that may potentially be generated from the use of infiltration. These BMPs have been selected and implemented to comply with Section 3.5 of the WQMP Guidance document, and consist of Site Design BMP concepts, Source Control, LID/Site Design and, if/where necessary, Treatment Control BMPs as described herein.

V.1 Site Design BMP Concepts, LID/Site Design and Treatment Control BMPs

Local Jurisdiction Requires On-Site Retention of Urban Runoff:

Yes ☒ The project will be required to retain Urban Runoff onsite in conformance with local ordinance (See Table 6 of the WQMP Guidance document, "Local Land use Authorities Requiring Onsite Retention of Stormwater). **The LID/Site Design measurable goal has thus been met (100%), and Sections V.1.A and V.1.B do not need to be completed**; however, retention facility design details and sizing calculations must be included in Appendix F, and '100%' should be entered into Column 3 of Table 6 below.

No ☐ Section V.1 must be completed.

This section of the Project-Specific WQMP documents the LID/Site Design BMPs and, if/where necessary, the Treatment Control BMPs that will be implemented on the project to meet the requirements detailed within Section 3.5.1 of the WQMP Guidance document. Section 3.5.1 includes requirements to implement Site Design Concepts and BMPs, and includes requirements to address Pollutants of Concern with BMPs. Further, sub-section 3.5.1.1 specifically requires that Pollutants of Concern be addressed with LID/Site Design BMPs to the extent feasible.

LID/Site Design BMPs are those BMPs listed within Table 2 below which promote retention and/or feature a natural treatment mechanism; off-site and regionally-based BMPs are also LID/Site Design BMPs, and therefore count towards the measurable goal, if they fit these criteria. This project incorporates LID/Site Design BMPs to fully address the Treatment Control BMP requirement where and to the extent feasible. If and where it has been acceptably demonstrated to the local land use authority that it is infeasible to fully meet this requirement with LID/Site Design BMPs, Section V.1.B (below) includes a description of the conventional Treatment Control BMPs that will be substituted to meet the same requirements.

In addressing Pollutants of Concern, BMPs are selected using Table 2 below.

Table 2. BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency [(1)]

(Sources: Riverside County Flood Control & Water Conservation District Design Handbook for Low Impact Development Best Management Practices, dated September 2011, the Orange County Technical Guidance Document for Water Quality Management Plans, dated May 19, 2011, and the Caltrans Treatment BMP Technology Report, dated April 2010 and April 2008)

Pollutant of Concern	Landscape Swale[2, 3]	Landscape Strip[2, 3]	Biofiltration (with underdrain)[2, 3]	Extended Detention Basin[2]	Sand Filter Basin[2]	Infiltration Basin[2]	Infiltration Trench[2]	Permeable Pavement[2]	Bioretention (w/o underdrain)[2, 3]	Other BMPs Including Proprietary BMPs[4, 6]
Sediment & Turbidity	M	M	H	M	H	H	H	H	H	Varies by Product[5]
Nutrients	L/M	L/M	M	L/M	L/M	H	H	H	H	
Toxic Organic Compounds	M/H	M/H	M/H	L	L/M	H	H	H	H	
Trash & Debris	L	L	H	H	H	H	H	L	H	
Bacteria & Viruses (also: Pathogens)	L	M	H	L	M	H	H	H	H	
Oil & Grease	M	M	H	M	H	H	H	H	H	
Heavy Metals	M	M/H	M/H	L/M	M	H	H	H	H	

Abbreviations:

L: Low removal efficiency M: Medium removal efficiency H: High removal efficiency

Notes:

(1) Periodic performance assessment and updating of the guidance provided by this table may be necessary.

(2) Expected performance when designed in accordance with the most current edition of the document, "Riverside County, Whitewater River Region Stormwater Quality Best Management Practice Design Handbook".

(3) Performance dependent upon design which includes implementation of thick vegetative cover. Local water conservation and/or landscaping requirements should be considered; approval is based on the discretion of the local land use authority.

(4) Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other stormwater treatment BMPs not specifically listed in this WQMP (including proprietary filters, hydrodynamic separators, inserts, etc.), or newly developed/emerging stormwater treatment technologies.

(5) Expected performance should be based on evaluation of unit processes provided by BMP and available testing data. Approval is based on the discretion of the local land use authority.

(6) When used for primary treatment as opposed to pre-treatment, requires site-specific approval by the local land use authority.

V.1.A SITE DESIGN BMP CONCEPTS AND LID/SITE DESIGN BMPS

This section documents the Site Design BMP concepts and LID/Site Design BMPs that will be implemented on this project to comply with the requirements detailed in Section 3.5.1 of the WQMP Guidance document.

- Table 3 herein documents the implementation of the Site Design BMP Concepts described in sub-sections 3.5.1.3 and 3.5.1.4.
- Table 4 herein documents the extent to which this project has implemented the LID/Site Design goals described in sub-section 3.5.1.1.

Table 3. Implementation of Site Design BMP Concepts

Design Concept	Technique	Specific BMP	Included			Brief Reason for BMPs Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 1	**Minimize Urban Runoff, Minimize Impervious Footprint, and Conserve Natural Areas (See WQMP Section 3.5.1.3)**	Conserve natural areas by concentrating or clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition.	☐	☐	☐	
		Conserve natural areas by incorporating the goals of the Multi-Species Habitat Conservation Plan or other natural resource plans.	☐	☐	☐	
		Preserve natural drainage features and natural depressional storage areas on the site.	☐	☐	☐	
		Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.	☐	☐	☐	
		Use natural drainage systems.	☐	☐	☐	
		Where applicable, incorporate Self-Treating Areas	☐	☐	☐	
		Where applicable, incorporate Self-Retaining Areas	☐	☐	☐	
		Increase the building floor to area ratio (i.e., number of stories above or below ground).	☐	☐	☐	
		Construct streets, sidewalks and parking lot aisles to minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.	☐	☐	☐	
		Reduce widths of streets where off-street parking is available.	☐	☐	☐	
		Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.	☐	☐	☐	
		Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☐	☐	☐	

Table 3. Site Design BMP Concepts (continued)

Design Concept	Technique	Specific BMP	Included			Brief Reason for Each BMP Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 2	**Minimize Directly Connected Impervious Area (See WQMP Section 3.5.1.4)**	Design residential and commercial sites to contain and infiltrate roof runoff, or direct roof runoff to landscaped swales or buffer areas.	☐	☐	☐	
		Drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.	☐	☐	☐	
		Incorporate landscaped buffer areas between sidewalks and streets.	☐	☐	☐	
		Use natural or landscaped drainage swales in lieu of underground piping or imperviously lined swales.	☐	☐	☐	
		Where soil conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration.	☐	☐	☐	
		Maximize the permeable area by constructing walkways, trails, patios, overflow parking, alleys, driveways, low-traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces such as pervious concrete, porous asphalt, unit pavers, and granular materials.	☐	☐	☐	
		Use one or more of the following:				
		Rural swale system: street sheet flows to landscaped swale or gravel shoulder, curbs used at street corners, and culverts used under driveways and street crossings.	☐	☐	☐	
		Urban curb/swale system: street slopes to curb; periodic swale inlets drain to landscaped swale or biofilter.	☐	☐	☐	
		Dual drainage system: first flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder; high flows connect directly to MS4s.	☐	☐	☐	
		Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☐	☐	☐	
		Use one or more of the following for design of driveways and private residential parking areas:				
		Design driveways with shared access, flared (single lane at street), or wheel strips (paving only under the tires).	☐	☐	☐	
		Uncovered temporary or guest parking on residential lots paved with a permeable surface, or designed to drain into landscaping.	☐	☐	☐	

Table 3. Site Design BMP Concepts (continued)

Design Concept	Technique	Specific BMP	Included			Brief Reason for Each BMP Indicated as No or N/A
			Yes	No	N/A	
Site Design BMP Concept 2 (cont'd)	**Minimize Directly Connected Impervious Area (See WQMP Section 3.5.1.4)**	Other comparable and equally effective Site Design BMP concept(s) as approved by the local land use authority (Note: Additional narrative required to describe BMP and how it addresses site design concept).	☐	☐	☐	
		Use one or more of the following for design of parking areas:				
		Where landscaping is proposed in parking areas, incorporate parking area landscaping into the drainage design.	☐	☐	☐	
		Overflow parking (parking stalls provided in excess of the Permittee's minimum parking requirements) may be constructed with permeable pavement.	☐	☐	☐	
		Other comparable and equally effective Site Design BMP (or BMPs) as approved by the local land use authority (Note: Additional narrative required describing BMP and how it addresses site design concept).	☐	☐	☐	

Project Site Design BMP Concepts:

Infiltration basins will be implemented to allow for 100% infiltration of the 100 year, 3 hour event. This will reduce the total amount of stormwater leaving the site and maintain water quality.

Alternative Project Site Design BMP Concepts:

Not applicable

Table 4. LID/Site Design BMPs Meeting the LID/Site Design Measurable Goal N/A

(1) DRAINAGE SUB-AREA ID OR NO.	(2) LID/SITE DESIGN BMP TYPE* (See Table 2)	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA (Refer to Table 1)	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS (Refer to Table 1)	(5) EFFECTIVENESS OF LID/SITE DESIGN BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS (U, L, M, H/M, H; see Table 2)	(6) BMP MEETS WHICH DESIGN CRITERIA? (Identify as V_{BMP} OR Q_{BMP})	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA (Nearest 0.1 acre)
TOTAL PROJECT AREA TREATED WITH LID/SITE DESIGN BMPs (NEAREST 0.1 ACRE)						

*** LID/Site Design BMPs listed in this table are those that <u>completely</u> address the 'Treatment Control BMP requirement' for their drainage sub-area.**

Justification of infeasibility for sub-areas not addressed with LID/Site Design BMPs

Insert text here listing each drainage sub-area wherein the design criteria of VBMP and/or QBMP are not treated using LID/Site Design BMPs as required in WQMP Guidance Section 3.5.1.1, and provide justification of infeasibility for each.

V.1.B TREATMENT CONTROL BMPS N/A

Conventional Treatment Control BMPs shall be implemented to address the project's Pollutants of Concern as required in WQMP Section 3.5.1 where, and to the extent that, Section V.1.A has demonstrated that it is infeasible to meet these requirements through implementation of LID/Site Design BMPs.

☒ The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP completely address the 'Treatment Control BMP requirement' for the entire project site (and where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP Guidance document. Supporting documentation for the sizing of these LID/Site Design BMPs is included in Appendix F. ***Section V.1.B does not need to be completed**.

☐ The LID/Site Design BMPs described in Section V.1.A of this project-specific WQMP do **NOT** completely address the 'Treatment Control BMP requirement' for the entire project site (or where applicable, entire existing site) as required in Section 3.5.1.1 of the WQMP. ***Section V.1.B must be completed.**

The Treatment Control BMPs identified in this section are selected, sized and implemented to treat the design criteria of V_{BMP} and/or Q_{BMP} for all project (and if required, existing site) drainage sub-areas which were not fully addressed using LID/Site Design BMPs. Supporting documentation for the sizing of these Treatment Control BMPs is included in Appendix F.

Table 5: Treatment Control BMP Summary

(1) DRAINAGE SUB-AREA ID OR NO.	(2) TREATMENT CONTROL BMP TYPE* (See Table 2)	(3) POTENTIAL POLLUTANTS OF CONCERN WITHIN DRAINAGE SUB-AREA (Refer to Table 1)	(4) POTENTIAL POLLUTANTS WITHIN SUB-AREA CAUSING RECEIVING WATER IMPAIRMENTS (Refer to Table 1)	(5) EFFECTIVENESS OF TREATMENT CONTROL BMP AT ADDRESSING IDENTIFIED POTENTIAL POLLUTANTS (U, L, M, H/M, H; see Table 2)	(6) BMP MEETS WHICH DESIGN CRITERIA? (Identify as V_{BMP} OR Q_{BMP})	(7) TOTAL AREA WITHIN DRAINAGE SUB-AREA (Nearest 0.1 acre)
	TOTAL PROJECT AREA TREATED WITH TREATMENT CONTROL BMPs (NEAREST 0.1 ACRE)					

V.1.C MEASURABLE GOAL SUMMARY

This section documents the extent to which this project has met the measurable goal described in WQMP Section 3.5.1.1 of addressing 100% of the project's 'Treatment Control BMP requirement' with LID/Site Design BMPs. Projects required to retain Urban Runoff onsite in conformance with local ordinance are considered to have met the measurable goal; for these instances, '100%' is entered into Column 3 of the Table.

Table 6: Measurable Goal Summary

(1) **Total Area Treated with LID/Site Design BMPs** (Last row of Table 4)	(2) **Total Area Treated with Treatment Control BMPs** (Last row of Table 5)	(3) **% of Treatment Control BMP Requirement addressed with LID/Site Design BMPs**
63.9 acres	N/A	100

V.2 SOURCE CONTROL BMPS

This section identifies and describes the Source Control BMPs applicable and implemented on this project.

Table 7. Source Control BMPs

BMP Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
Non-Structural Source Control BMPs			
Education for Property Owners, Operators, Tenants, Occupants, or Employees	☒	☐	
Activity Restrictions	☒	☐	
Irrigation System and Landscape Maintenance	☒	☐	
Common Area Litter Control	☒	☐	
Street Sweeping Private Streets and Parking Lots	☒	☐	
Drainage Facility Inspection and Maintenance	☒	☐	
Structural Source Control BMPs			
Storm Drain Inlet Stenciling and Signage	☒	☐	
Landscape and Irrigation System Design	☒	☐	
Protect Slopes and Channels	☒	☐	
Provide Community Car Wash Racks	☐	☒	Not Planned
Properly Design*:			
Fueling Areas	☐	☒	Not Planned
Air/Water Supply Area Drainage	☐	☒	Not Planned
Trash Storage Areas	☒	☐	
Loading Docks	☒	☐	
Maintenance Bays	☐	☒	Not Planned
Vehicle and Equipment Wash Areas	☐	☒	Not Planned
Outdoor Material Storage Areas	☐	☒	Not Planned
Outdoor Work Areas or Processing Areas	☐	☒	Not Planned
Provide Wash Water Controls for Food Preparation Areas	☐	☒	Not Planned

*Details demonstrating proper design must be included in Appendix F.

Education of Owners, Maintenance Crews, and Associated Contractors:

The OWNER will maintain general WQMP education materals published by the Riverside County Storm Water program and/or the Regional Water quality Control Board-Whitewater region, or other appropriate sources. These educational materials shall include general housekeeping and street maintenance practices that prevent pollutant loading in site runoff (http://www.floodcontrol.co.riverside.ca.us/stormwater/). In addition, the OWNER will be responsible for providing training to street maintenance crews and contractors regarding the requirements of the FWQMP including, but not limited to, associated BMPs, and activity restrictions. Copies of training attendance records will be retained for up to five years. Examples of the educational materials that will be used in implementing the FWQMP are provided in Appendix D.

Street Sweeping Private Streets and Parking Lots:

The OWNER shall ensure that the streets are swept monthly in accordance with local City ordinances and maintenance frequency.

Drainage Facility Inspection and Maintenance:

The OWNER shall ensure that routine maintenance procedures include inspection and maintenance of all on-site catch basins, drainage facilities, and the water quality infiltration basin with its associated dry/infiltration wells. Frequency shall be once each year prior to the onset of the rainy season. Rainy season in this area is from August 1 to October 1 and November 1 to May 1. Catch basins observed to have accumulated a volume of sediment and debris equal to 25% of its capacity shall be cleaned prior to the rainy season. Deficiencies in the system that may impact water quality shall be immediately repaired.

Storm Drain Inlet Stenciling and Signage:

Stenciling and signage shall employ the phrase "NO DUMPING-ONLY RAIN IN DRAIN" or an equally effective phrase, consistent with the City of Banning requirements, that will be stenciled on all catch basins ("STORM WATER ONLY") to alert maintenance personnel to the destination of pollutants discharged into the storm drains. Legibility will be checked annually and repainted if necessary within 30 days after inspection. The signs will be located at storm drain inlets in impervious areas and will be either stenciled or placarded. Refer to the educational materials in Appendix D.

Protect Slopes and Channels:

All slopes of the water quality infiltration basin and shall be adequately vegetated with native drought tolerant species, stabilized, and maintained to continue optimum performance. Bare areas shall be re-vegetated. Inspections shall be performed prior, during, and after rain events. Implementation is post construction and maintenance operations and funding are the responsibility of the building OWNERs.

Trash Storage Areas:

The OWNER shall ensure that routine inspection and maintenance of all on-site trash storage areas.

Appendix D includes copies of the educational materials (described in Section 3.5.2.1 of the WQMP Guidance document) that will be used in implementing this project-specific WQMP.

V.3 EQUIVALENT TREATMENT CONTROL BMP ALTERNATIVES

Not Applicable

V.4 REGIONALLY-BASED BMPS

Not Applicable

V. Operation and Maintenance Responsibility for BMPs

Appendix G of this project-specific WQMP includes copies of CC&Rs, Covenant and Agreements, BMP Maintenance Agreement and/or other mechanisms used to ensure the ongoing operation, maintenance, funding, transfer and implementation of the project-specific WQMP requirements.

BMP	***O&M Requirements***	***Start-up Dates***	***O&M Frequency***	***Parties Responsible***	***Inspection and Record Keeping***	***Water Quality Monitoring***
Education of Owners, Maintenance Crews, and Associated Contractors	*Distribute educational materials and conduct annual awareness training.*	*Post-construction*	*Upon first occupancy and yearly thereafter*	*OWNER*	*Maintain Training records.*	*None*
Activity Restrictions	*Develop activity restrictions*	*Upon first occupancy.*	*Continuous*	*OWNER*	*Lease Agreements*	*None*
Irrigation System and Landscape Maintenance	*Regular maintenance of landscaping and water quality basins*	*Upon installation of landscaping & irrigation systems*	*Inspect twice annually, before & after rainy season. Maintain every 2 weeks*	*OWNER*	*Maintain inspection & maintenance records*	*None*
Common Areas Litter Control	*Trash & debris to be removed as part of regular landscape maintenance*	*Post-construction*	*Inspect twice annually, before & after rainy season. Maintena-nce every 2 weeks*	*OWNER*	*Maintain inspection & maintenance records*	*None*
Parking Sweeping	*Sweep parking lot. Do not use water to clean.*	*Post-construction*	*Monthly*	*OWNER*	*Maintain inspection & maintenance records*	*None*
Drainage Facility Inspection and Maintenance	*Inspect at a minimum, before and after the rainy season to remove sediment/debris build-up.*	*Post-construction*	*Quarterly or as needed*	*OWNER*	*Maintain inspection & maintenance records*	*None*
Storm Drain Inlet	*Inspect annually.*	*Post-construction*	*Repair or replace*	*Owner*	*Maintain inspection &*	*None*

Stenciling and Signage	*Maintain legibility*		*as needed*		*maintenance records*	
Protect Slopes and Channels	*Inspect for standing water, slope stability.*	*Post-construction*	*Semi-annually and after extreme storm events*	*OWNER*	*Maintain inspection & maintenance records*	*None*
Trash Storage Areas	*Inspect weekly. Have trash hauled away when containers are full and on a regular basis. Maintain trash receptacles and enclosures in good working order.*	*Post-construction*	*Check Daily and empty as needed.*	*OWNER*	*Maintain inspection & maintenance records*	*Trash Storage Areas*
Pre-treatment facility - CDS Unit or Dry Well (See Appendix F for more O&M information)	*Inspect at a minimum twice a year for blockages or obstruction in the inlet and separation screen for accumulation of hydrocarbons, trash and sediment*	*Post-construction*	*Maintenance, at a minimum, before and after the rainy season. Clean when sediment has reached 75% of the isolated sump capacity, or when appreciable level of hydrocarbons and trash has accumulated. Repair any deficiencies that may impact water quality.*	*OWNER*	*Maintain inspection & maintenance records*	*None*
Infiltration Basin (See Appendix F for more O&M information)	*Inspect quarterly, or at a minimum, before and after the rainy season, for standing water, odors, insects, sediment accumulation, trash, debris, structural integrity. Inflow structures*	*Post-construction*	*Maintenance, at a minimum, before and after the rainy season to remove sediment/debris build-up, repair any deficiencies that may impact water quality.*	*OWNER*	*Maintain inspection & maintenance records*	*None*

VI. Funding

Funding for all O&M of the site design and treatment control BMP's will be by the OWNER.

Appendix A

Conditions of Approval

Planning Commission Resolution _____

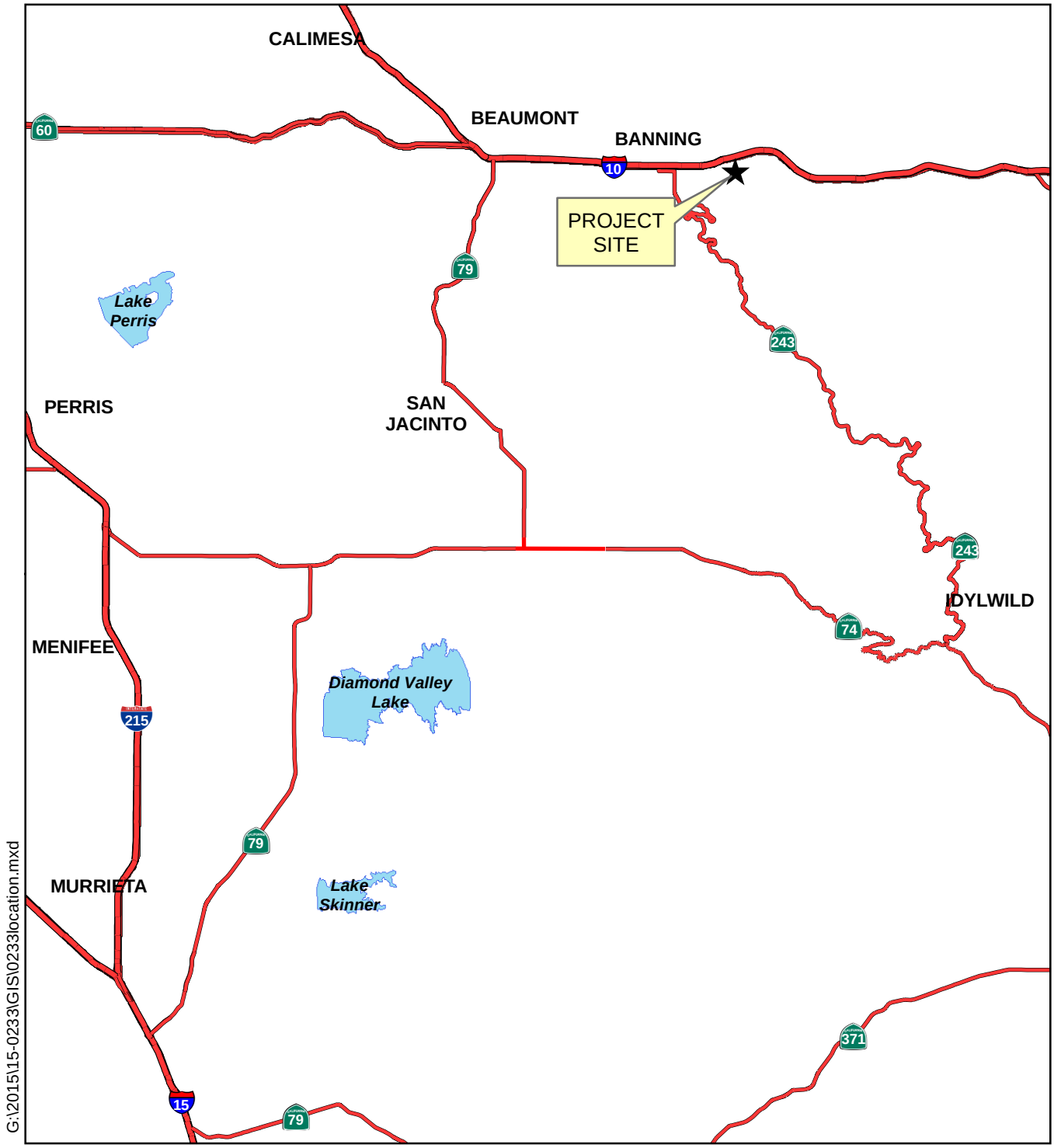
Dated _____

Conditions of Approval have not been assigned

(To be provided with the Final WQMP submittal)

Appendix B

Vicinity Map, WQMP Site Plan, and Receiving Waters Map



Legend

★ Project Location

N
W E
S

0 3 6 9 Miles

Vicinity Map

ALBERT A. WEBB ASSOCIATES

Banning Distribution Center



G:\2015\15-0233\GIS\0233aerial.mxd

Legend

Project Boundary

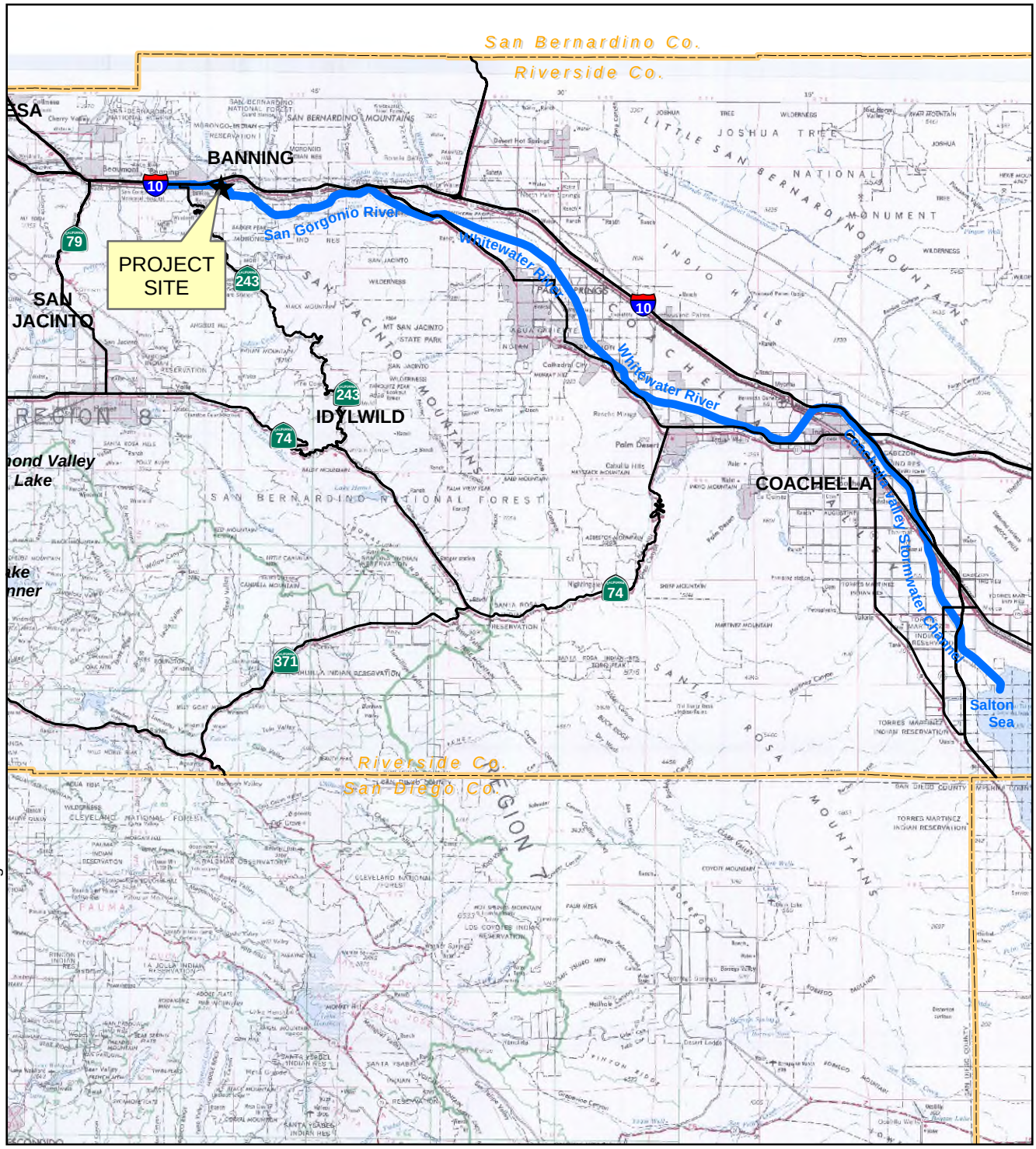
N
W E
S

0 750 1,500 2,250 Feet

Aerial Map

ALBERT A. WEBB ASSOCIATES

Banning Distribution Center



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Legend

★ Project Location

N
W E
S

0 3 6 9
Miles

Receiving Waters Map

Banning Distribution Center

ALBERT A. WEBB ASSOCIATES

INTERSTATE 10

RAIL ROAD

EX. CULVERTS

NEW SWALE/DITCH

CHANNEL FOR OFF-SITE FLOWS
(REFER TO OFFSITE DRAINAGE MAP)

JOHN STREET

AIRPORT OBLIGATED PROPERTY

PROP. EARTHEN SWALE
(REFER TO OFFSITE DRAINAGE MAP)

LIMITS OF BLUE LINE STREAM

DMA-2
37.8 ACRES

DMA-1
20.1 ACRES

BASIN 1
BASIN TOP: 2124.0'
BASIN BTM: 2123.0'
BTM AREA: 55,900 FT²
V_{100}: 125,905 FT3
V_{BMP}: 16,781 FT³

BASIN 2
BASIN TOP: 2116.0'
BASIN BTM: 2110.0'
BTM AREA: 34,540 FT²
V_{100}: 264,061 FT3
V_{BMP}: 41,64 FT³

2120.0

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- LANDSCAPING
- ROOF
- CONCRETE OR ASPHALT
- INFILTRATION BASIN
- FLOW DIRECTION
- SD — STORM DRAIN PIPE
- ROOF DRAIN DOWNSPOUT
- CURB OPENING/CUT
- STORM INLET
- TRASH ENCLOSURE

DMA-1	
IMPERVIOUS	78.2%
PERVIOUS	21.8%

DMA-2	
IMPERVIOUS	91.9%
PERVIOUS	8.1%

N
W WEBB E
S

1" = 80'

40 0 80 160 240

CITY OF BANNING

POST CONSTRUCTION BMP SITE PLAN
BANNING INDUSTRIAL

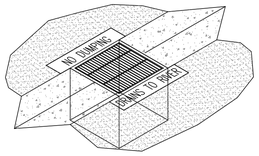
SCALE:	1"=80'
DATE:	11/13/17
DESIGNED:	LJ
CHECKED:	EA
PLN CK REF:	
F.B.	

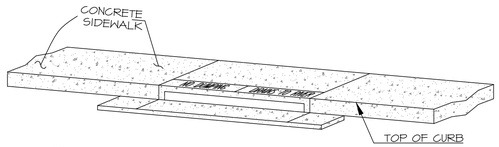
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE, CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O.	15-0233
SHEET	1
OF	2 SHEETS
DWG. NO.	

C:\2015\15-0233\DRAINAGE\WQMP*.WQMP\DWG FOLDER\15-0233-PWQMP.DWG 11/13/2017 5:41:18 PM

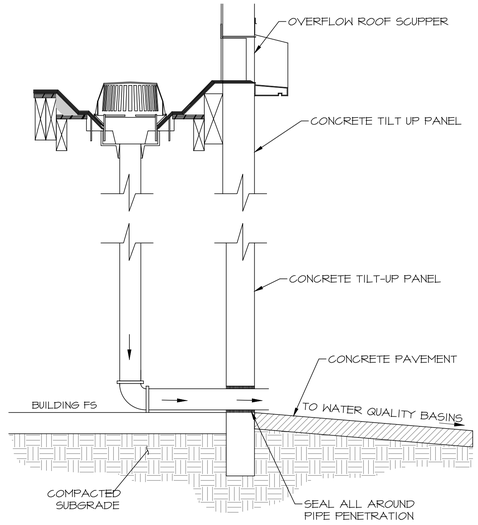
MET25



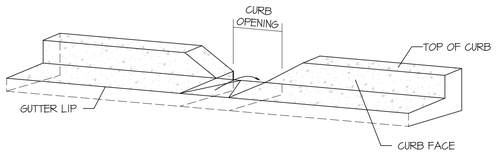


1. STENCILS TO HAVE 2" LETTERS AS FOLLOWS: "NO DUMPING - DRAINS TO RIVER"
2. PLACE BOTH STENCILS CENTERED WITHIN THE CATCHBASIN OPENINGS AND WITHIN THE TOP OF THE CURB.
3. SPRAY BOTH STENCILS WITH WHITE PAINT.
4. REMOVE STENCILS WHEN PAINT IS DRY.

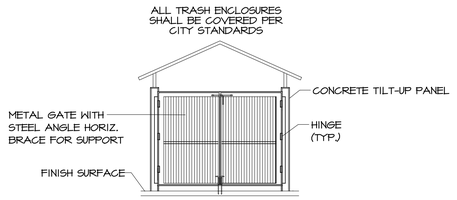
CATCH BASIN STENCILING DETAIL
NTS



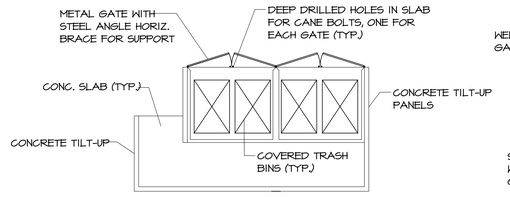
ROOF DRAIN DETAIL
N.T.S.



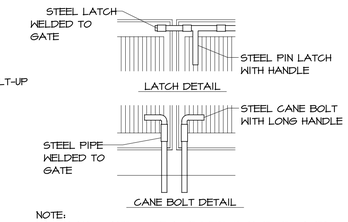
TYPICAL CURB OPENING DETAIL
N.T.S.



TRASH ENCLOSURE GATE ELEVATION
N.T.S.

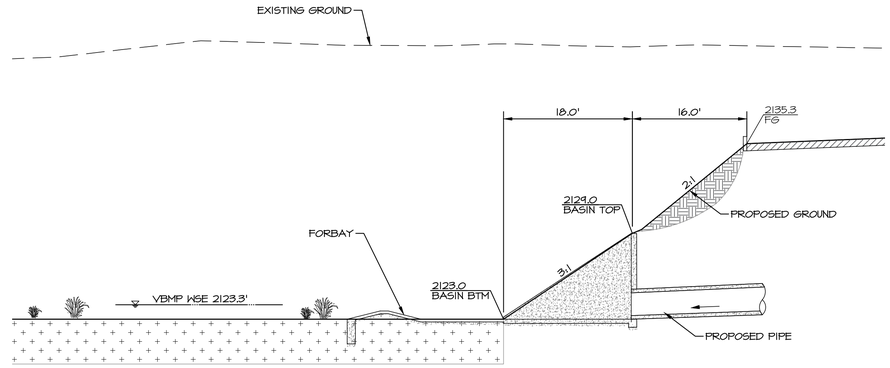


TRASH ENCLOSURE PLAN DETAIL
N.T.S.

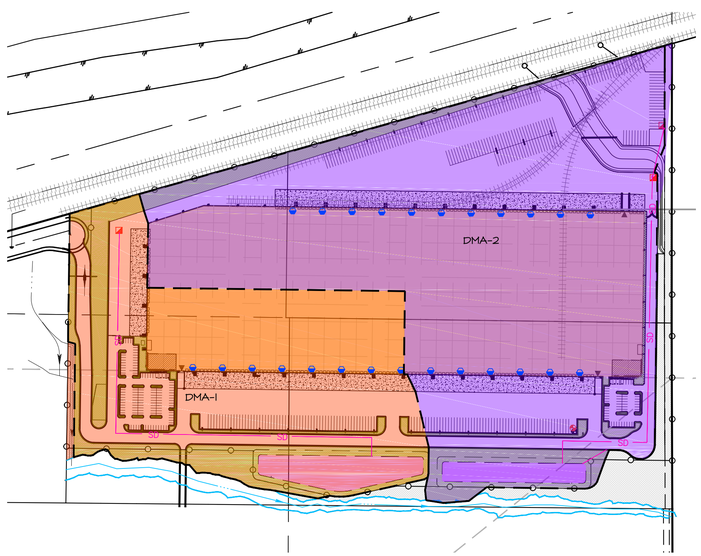


NOTE:
LATCH AND CANE TO BE AT EXTERIOR SIDE OF GATES

TRASH ENCLOSURE GATE LATCHES DETAIL
N.T.S.



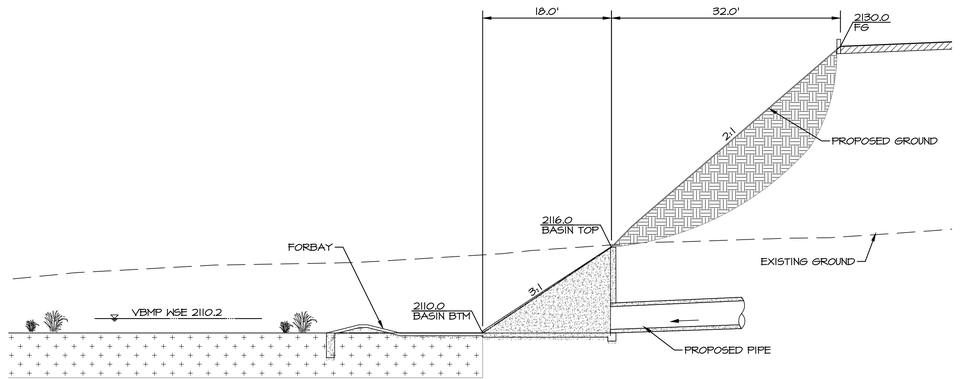
INFILTRATION BASIN 1
N.T.S.



DMA SITE MAP
DMA-1
DMA-2

1"=250'
125 0 250 500 750

N
W WEBB E
S



INFILTRATION BASIN 2
N.T.S.

CITY OF BANNING

POST CONSTRUCTION DMA SITE PLAN & DETAILS
BANNING INDUSTRIAL

SCALE: AS SHOWN	ALBERT A. WEBB ASSOCIATES	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	W.O. 15-0233
DATE: 11/1/17			SHEET 2
DESIGNED: LJ			OF 2 SHEETS
CHECKED: EA			
PLN CK REF:			DWG. NO.
F.B.			

G:\2015\15-0233\DRAINAGE\WQMP\P-WQMP\DWG FOLDER\15-0233-PWQMP.DWG 11/6/2017 7:14:52 PM

M1755

Appendix C

Supporting Detail Related to Hydrologic Conditions of Concern

Not Applicable
(Project is required to retain 100% of 100-year 3-hour storm volume onsite)

Appendix D

Educational Materials

To be provided with the Final WQMP submittal

Appendix E

Soils Report

SCST ENGINEERING
SDVOSB . DVBE . SBE

Corporate Headquarters
6280 Riverdale Street
San Diego, CA 92120
P 619.280.4321
T 877.215.4321
F 619.280.4717
W www.scst.com

August 24, 2015

SCST No. 150390N
Report No. 1

Ms. Sue Smith
Pacific Newport Properties, Inc.
17842 Mitchell North, Suite 100
Irvine, California 92614

Subject: INFILTRATION TESTING
BANNING AIRPORT INDUSTRIAL PARK
BANNING, CALIFORNIA

Dear Ms. Smith:

This report presents our findings of the infiltration testing performed for the design of water quality facilities associated with the subject project in Banning, California. This testing was performed in accordance with our proposal number 15-0202 dated June 4, 2015.

SCOPE OF WORK

Southern California Soil and Testing, Inc. (SCST) performed three double-ring infiltrometer tests within the location identified on the project Conceptual Site Plan as the detention basin and obtained samples for examination and laboratory testing. The laboratory testing consisted of particle size analysis. Results of the testing are summarized in this report with field and laboratory test data.

SITE DESCRIPTION

The subject site encompasses approximately 65 acres located just north of the Banning Municipal Airport in Banning, California. The site is currently undeveloped and is fenced on the south, east, and west sides. The site is bound on the south by the Banning Municipal Airport, on the north by the Union Pacific Railroad, and to the east and west by undeveloped land. Figure 1 shows the general location of the project location. The site slopes gently down to the south and east, with shallow northwest-southeast trending drainages randomly distributed across the site. Much of the site is covered with low lying grasses and scrub brush.

FIELD AND LABORATORY TESTING

An SCST engineer performed double ring infiltration tests and obtained soil samples at 3 locations on August 13, 2015. Figure 2 shows the infiltration testing locations. Figures I-1 through I-3 present the field test results. Laboratory tests consisted of particle size analysis, and a brief description of the laboratory test procedures and the test results are presented in Appendix II. Soils were classified according to the Unified Soil Classification System (USCS). The results of the infiltration testing are summarized in Table 1. These values do not include a factor of safety, which is appropriately evaluated by the civil engineer based on factors of the design.

Table 1
Infiltration Testing Results

Location	Soil Type (USCS)	Infiltration Rate (inches/hour)
I-1 West End	SM	2.3
I-2 Center	SW-SM	4.7
I-3 East End	SM	3.9

LIMITATIONS

SCST should be advised of any changes in the project scope so that the data contained in this report can be evaluated with respect to the revised plans. The findings in this report are valid as of the date of this report. Changes in the condition of the project location can, however, occur with the passage of time, whether they are due to natural processes or work in this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report could be invalidated wholly or in part by changes beyond our control. This report should not be relied upon after a period of two years without a review by us verifying the suitability of the data to site conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the test pit locations, and that our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data and interpretations but will not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

If you have any questions, please call our office at (619) 280-4321.

Respectfully Submitted,
SOUTHERN CALIFORNIA SOIL AND TESTING, INC.



Vincent A. Uhde, EIT 151458
Staff Engineer

Emil Rudolph, GE 2767
Principal Engineer

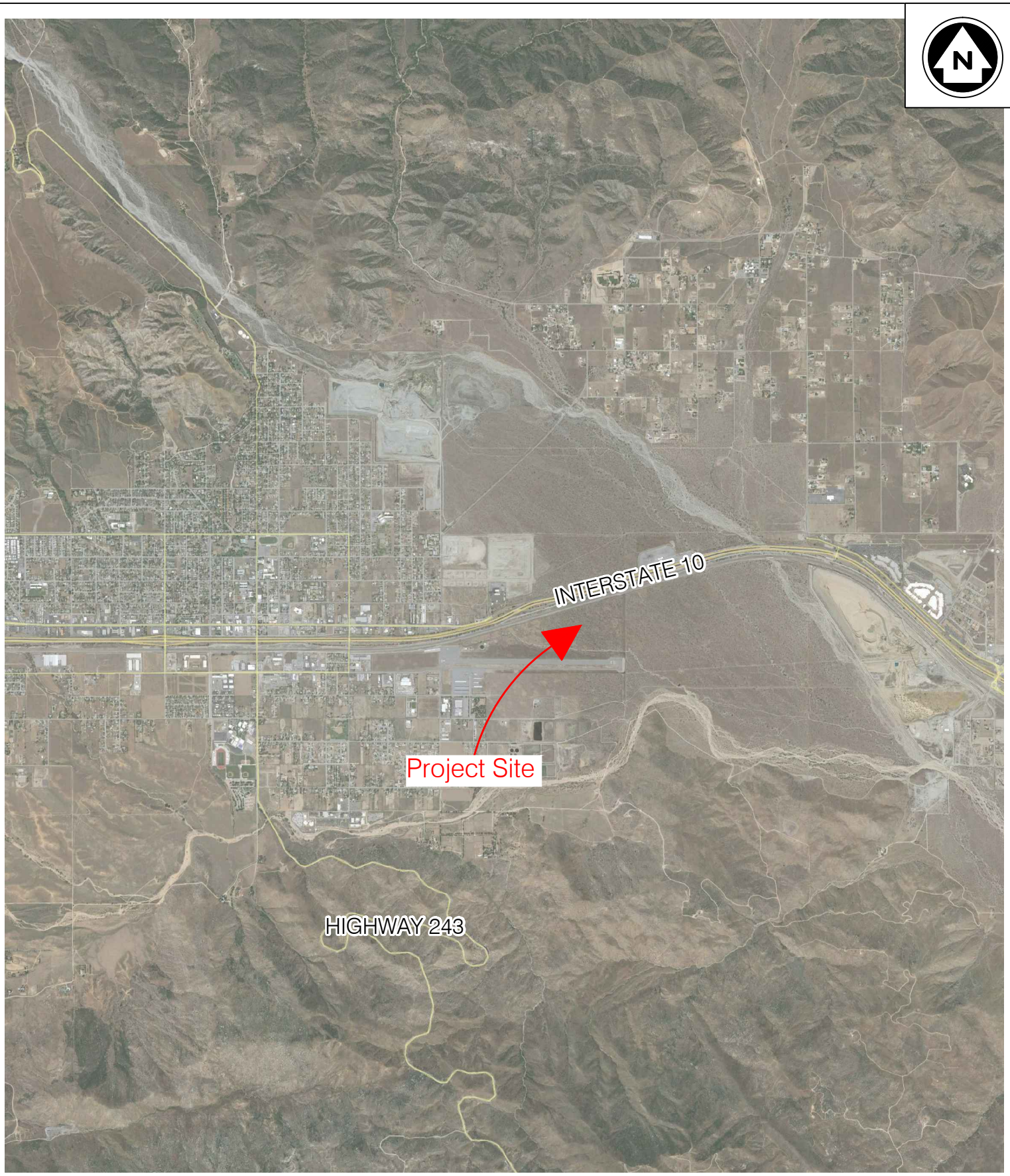
VAU:ER:aw

Attachments:

Figures
Figure 1 – Site Vicinity Map
Figure 2 – Infiltration Testing Location Map

Appendices
Appendix I – Report of Double Ring Infiltrometer Testing
Appendix II – Laboratory Testing

(1) Addressee via e-mail: Sue@PacificNewport.com

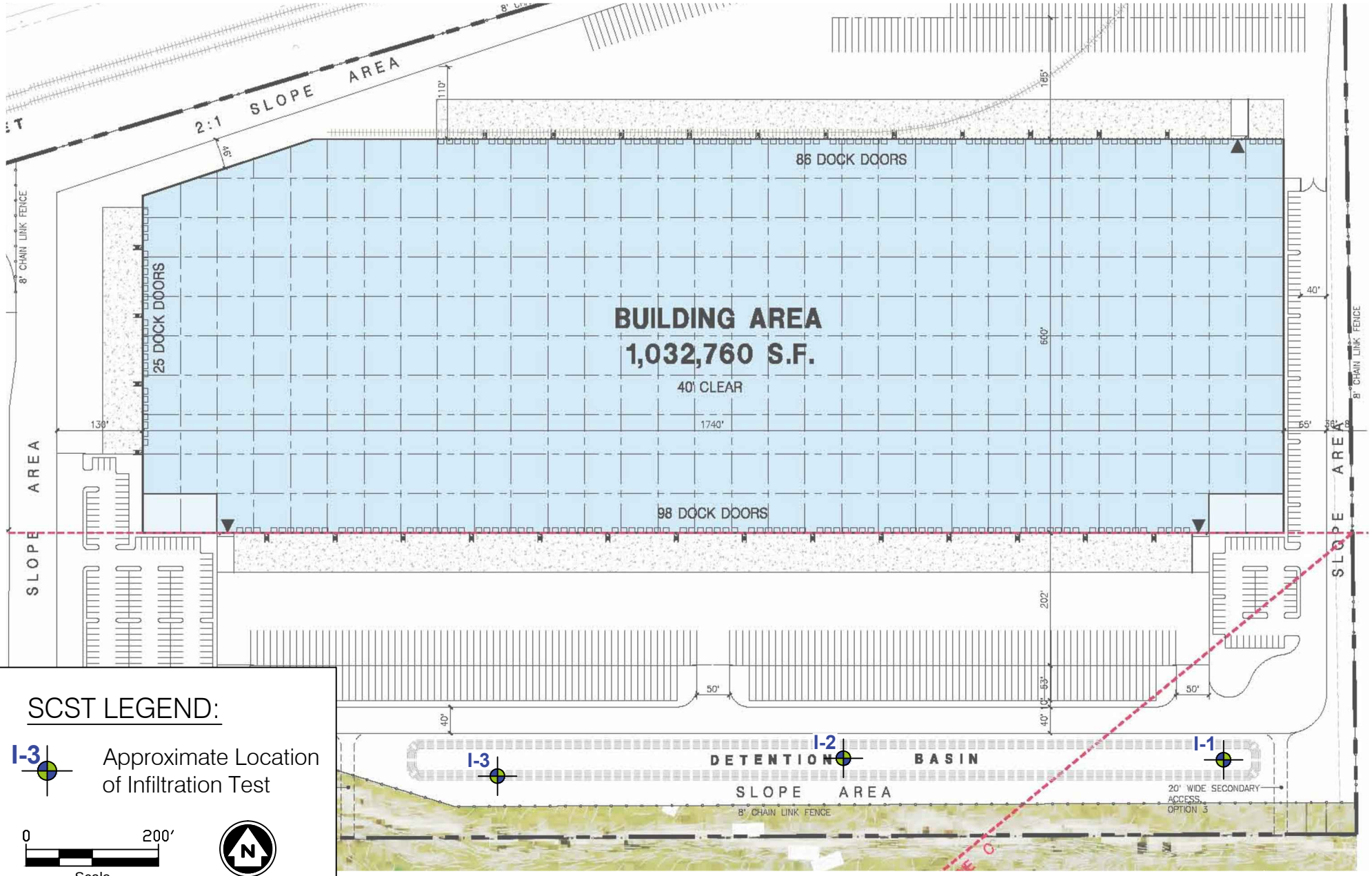


SOUTHERN CALIFORNIA SOIL & TESTING, INC.

SITE VICINITY MAP
Banning Airport Industrial Park
Banning, California

Date:	August, 2015
By:	JGA
Job No.:	150390N-1
Scale:	Not to Scale

Figure: 1



SCST LEGEND:

I-3 Approximate Location of Infiltration Test

0 200' Scale

N

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

INFILTRATION TESTING LOCATION MAP
Banning Airport Industrial Park
Banning, California

Date: August, 2015
By: JGA
Job No.: 1510390N-1

Figure: 2

APPENDIX I
REPORT OF DOUBLE RING INFILTROMETER TESTING

ASTM D3385

Report of Double Ring Infiltrometer Testing

Project Name: **BANNING AIRPORT INDUSTRIAL PARK**
Test Number: **I-1**
Project Number: **150390N**
Date Tested: **8/13/2015**
Test Depth (ft): **1 ft bgs**
Tested By: **VAU**
Reviewed By: **ER**
Soil Type: **SILTY SAND**

Inner Ring Test Data

Graduated Cylinder Area (in^2): N/A
Graduated Cylinder Volume (in^3): N/A
Inner Ring Diameter (in): 11.75

Interval (min)	Reading Difference (L)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
60	4.8	4:15 PM	5:15 PM	14.2	9.4	293	2.7
60	4.2	5:15 PM	6:15 PM	16.2	12.0	256	2.4
30	2.0	6:15 PM	6:45 PM	12.0	10.0	122	2.3
30	3.0	6:45 PM	7:15 PM	16.2	13.2	183	3.4

Outer Ring Test Data

Graduated Cylinder Area (in^2): 268.80
Graduated Cylinder Volume (in^3): 11827.2
Ring Diameter (in): 22.625

Interval (min)	Reading Difference (in)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
60	4.0	4:15 PM	5:15 PM	22.5	18.5	1075	3.7
60	2.0	5:15 PM	6:15 PM	19.5	17.5	538	1.8
30	1.5	6:15 PM	6:45 PM	17.5	16.0	403	2.7
30	1.5	6:45 PM	7:15 PM	26.0	24.5	403	2.7

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning , California

By:	VAU	Date:	August, 2015
Job Number:	150390-1	Figure:	I-1

ASTM D3385

Report of Double Ring Infiltrometer Testing

Project Name: **BANNING AIRPORT INDUSTRIAL PARK** Test Number: **I-2**

Project Number: **150390N** Date Tested: **8/13/2015** Test Depth (ft): **1 ft bgs**

Tested By: **VAU** Reviewed By: **ER** Soil Type: **SILTY SAND**

Inner Ring Test Data

Graduated Cylinder Area (in^2): N/A Graduated Cylinder Volume (in^3): N/A Inner Ring Diameter (in): 11.75

Interval (min)	Reading Difference (L)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
30	4.1	3:00 PM	3:30 PM	12.4	8.3	250	4.6
30	1.2	3:30 PM	4:00 PM	16.2	15.0	73	1.4
60	10.0	4:00 PM	5:00 PM	15.0	5.0	610	5.6
30	4.2	5:15 PM	5:45 PM	16.0	11.8	256	4.7
30	5.3	5:45 PM	6:15 PM	15.5	10.2	323	6.0
30	6.1	6:15 PM	6:45 PM	10.2	4.1	372	6.9

Outer Ring Test Data

Graduated Cylinder Area (in^2): 268.80 Graduated Cylinder Volume (in^3): 11827.2 Ring Diameter (in): 22.625

Interval (min)	Reading Difference (in)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
30	3.5	3:00 PM	3:30 PM	14.0	10.5	941	6.4
30	3.0	3:30 PM	4:00 PM	15.0	12.0	806	5.5
60	5.0	4:00 PM	5:00 PM	12.0	7.0	1344	4.6
30	3.3	5:15 PM	5:45 PM	13.5	10.3	874	6.0
30	4.0	5:45 PM	6:15 PM	19.5	15.5	1075	7.3
30	3.0	6:15 PM	6:45 PM	15.500	12.500	806	5.5

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning , California

By:	VAU	Date:	August, 2015
Job Number:	150390-1	Figure:	I-2

ASTM D3385

Report of Double Ring Infiltrometer Testing

Project Name: **BANNING AIRPORT INDUSTRIAL PARK**
Test Number: **I-3**
Project Number: **150390N**
Date Tested: **8/13/2015**
Test Depth (ft): **1 ft bgs**
Tested By: **VAU**
Reviewed By: **ER**
Soil Type: **SILTY SAND**

Inner Ring Test Data

Graduated Cylinder Area (in^2): N/A
Graduated Cylinder Volume (in^3): N/A
Inner Ring Diameter (in): 11.75

Interval (min)	Reading Difference (L)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
15	2.8	2:15 PM	2:30 PM	11.6	8.8	171	6.3
15	1.8	2:30 PM	2:45 PM	8.8	7.0	110	4.1
30	4.2	2:45 PM	3:15 PM	7.0	2.8	256	4.7
60	7.0	3:15 PM	4:15 PM	15.0	8.0	427	3.9
60	7.0	4:15 PM	5:15 PM	8.0	1.0	427	3.9
30	4.0	5:15 PM	5:45 PM	16.0	12.0	244	4.5

Outer Ring Test Data

Graduated Cylinder Area (in^2): 268.80
Graduated Cylinder Volume (in^3): 11827.2
Ring Diameter (in): 22.625

Interval (min)	Reading Difference (in)	Test Time		Reading (in)		Volume (in^3)	Rate (in/hr)
		Initial	Final	Initial	Final		
15	0.5	2:15 PM	2:30 PM	14.0	13.5	134	1.8
15	2.5	2:30 PM	2:45 PM	13.5	11.0	672	9.2
30	2.0	2:45 PM	3:15 PM	11.0	9.0	538	3.7
60	3.0	3:15 PM	4:15 PM	14.5	11.5	806	2.7
60	6.5	4:15 PM	5:15 PM	13.5	7.0	1747	6.0
30	4.3	5:15 PM	5:45 PM	16.0	11.8	1142	7.8

SOUTHERN CALIFORNIA
SOIL & TESTING, INC.

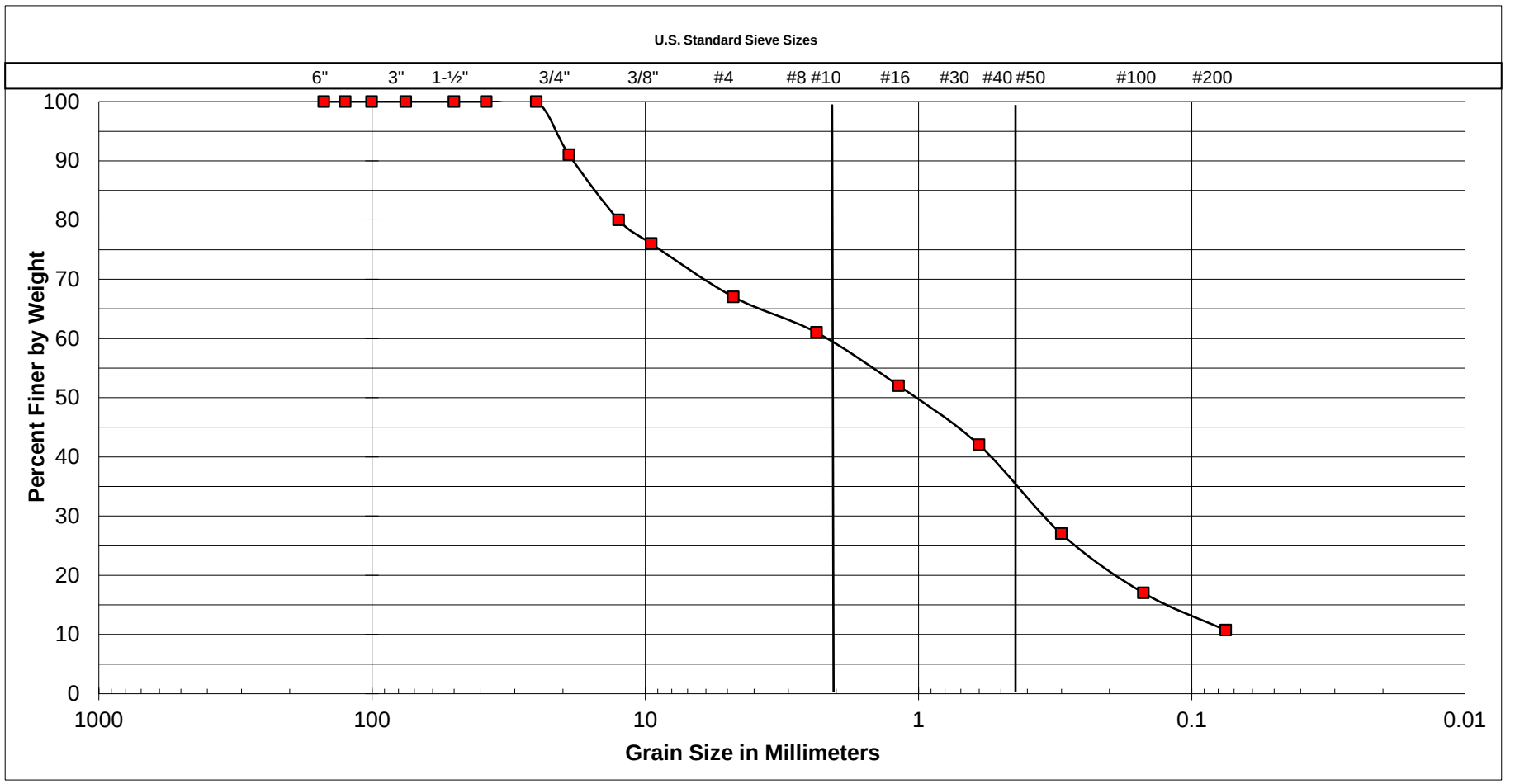
Banning Airport Industrial Park
Banning , California

By:	VAU	Date:	August, 2015
Job Number:	150390-1	Figure:	I-3

APPENDIX II
LABORATORY TESTING

The laboratory test program was design to fit the specific need of this project and was limited to testing on-site materials. A brief description of each type of test is presented below. Results are given on the following pages.

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.
- **GRAIN SIZE DISTRIBUTION:** The grain size distribution was determined for two samples in accordance with ASTM D 422. The results are presented on Figures II-1 and II-2.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
I-2

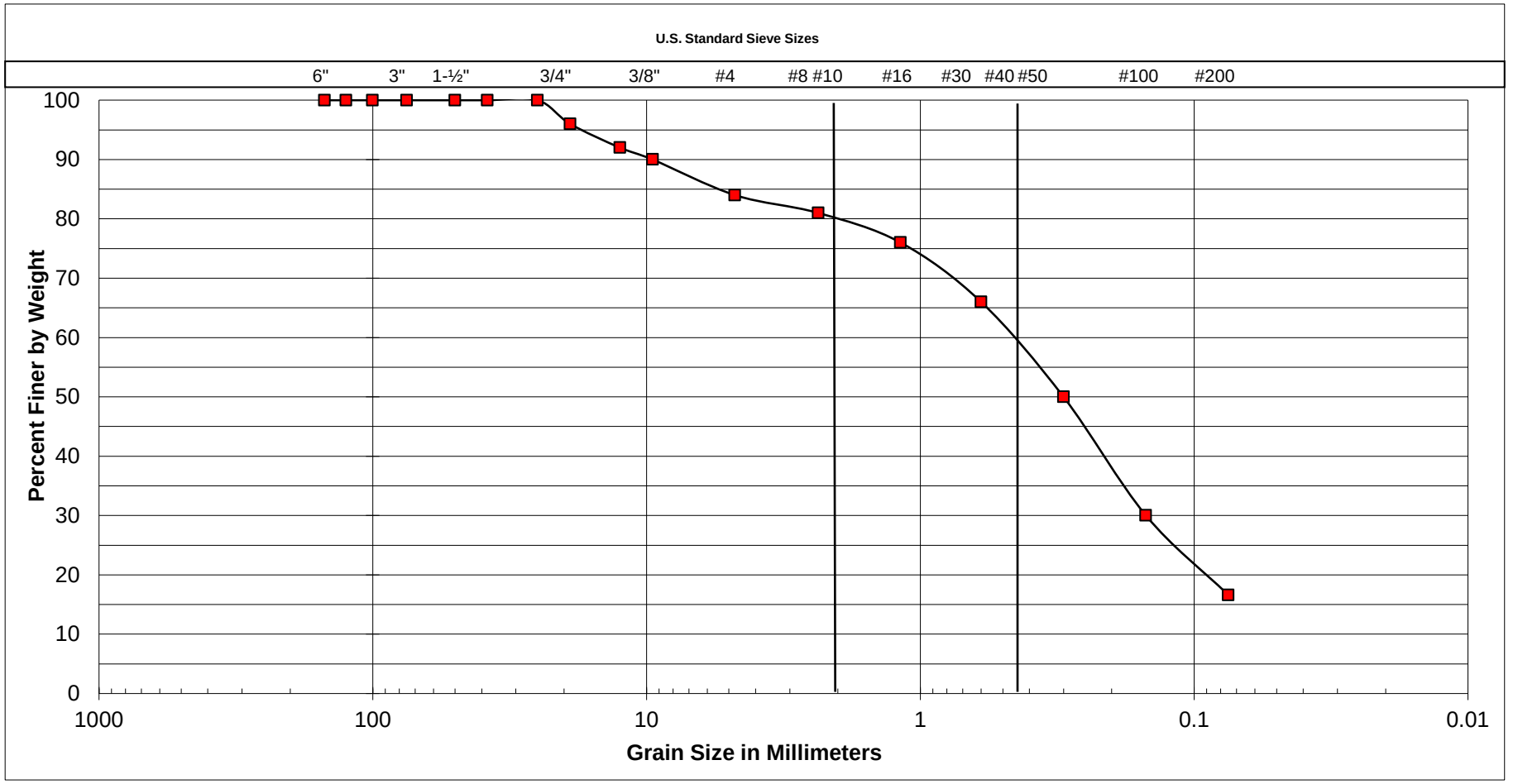
UNIFIED SOIL CLASSIFICATION:	SW-SM
DESCRIPTION	Well graded to Silty Sand

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning, Calilfornia

By:	ER	Date:	August 2015
Job Number:	150390N	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
I-3

UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	Silty Sand

ATTERBERG LIMITS	
LIQUID LIMIT	
PLASTIC LIMIT	
PLASTICITY INDEX	

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

Banning Airport Industrial Park
Banning, Califlornia

By:	ER	Date:	August 2015
Job Number:	150390N	Figure:	II-2

Appendix F

Structural BMP and/or Retention Facility Sizing Calculations and Design Details

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Albert A Webb Associates	Date	11/1/2017
Designed by	MJS	County/City Case No	
Company Project Number/Name	15-0233		
Drainage Area Number/Name	DMA-1		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 20.10 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 15.70 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.78

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.58

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.23 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 16,781 ft^3

Notes:

Infiltration Basin - Design Procedure (Rev. 06-2014)	BMP ID Basin 1	Legend:	Required Entries / Calculated Cells

Company Name: Albert A. Webb Associates — Date: 11/7/2017

Designed by: MJS — County/City Case No.:

Design Volume

a) Tributary Drainage Area (BMP subarea)	A_{TRIB} =	20.1	acres
b) Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	16,781	ft^3

Maximum Depth

a) Infiltration rate	I =	3.6	in/hr
b) Factor of Safety (See Table 1, Appendix B: "Infiltration Testing" from this BMP Handbook)	FS =	3	
c) Calculate D_1 $D_1 = \frac{I\ (in/hr) \times 48\ hrs}{12\ (in/ft) \times FS}$	D_1 =	4.8	ft
d) Enter the depth of freeboard (at least 1 ft)		1	ft
e) Enter depth to historic high ground water (measured from **top** of basin)		50	ft
f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin)		50	ft
g) D_2 is the smaller of: Depth to groundwater - (10 ft + freeboard) and Depth to impermeable layer - (5 ft + freeboard)	D_2 =	39.0	ft
h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet	D_{MAX} =	4.8	ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1)	Slope no steeper than 4:1	z =	3	:1
b) Proposed basin depth (excluding freeboard)	Depth may not exceed Dmax	d_B =	6	ft
c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$)		A_S =	2797	ft^2
d) Proposed Design Surface Area		A_D =	55900	ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP})	Volume =	84	ft^3
b) Forebay depth (height of berm/splashwall. 1 foot min.)	Depth =	1	ft
c) Forebay surface area (minimum)	Area =	84	ft^2
d) Full height notch-type weir	Width (W) =	6.0	in

Notes:

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0
Study date 11/06/17 File: AREA13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Banning distribution Center
100-Year 3-Hour Storm
Developed Condition
Basin 1 Area

Drainage Area = 20.10(Ac.) = 0.031 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 20.10(Ac.) = 0.031 Sq. Mi.
Length along longest watercourse = 1856.00(Ft.)
Length along longest watercourse measured to centroid = 1177.00(Ft.)
Length along longest watercourse = 0.352 Mi.
Length along longest watercourse measured to centroid = 0.223 Mi.
Difference in elevation = 56.00(Ft.)
Slope along watercourse = 159.3103 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.052 Hr.
Lag time = 3.13 Min.
25% of lag time = 0.78 Min.
40% of lag time = 1.25 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
20.10	0.98	19.70

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
20.10	2.20	44.22

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.980(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 2.200(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
20.100	53.00	0.780

Total Area Entered = 20.10(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
53.0	53.0	0.541	0.780	0.161	1.000	0.161
					Sum (F) =	0.161

Area averaged mean soil loss (F) (In/Hr) = 0.161
Minimum soil loss rate ((In/Hr)) = 0.081
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.276

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	159.658	33.977	6.883
2	0.167	319.315	48.343	9.793
3	0.250	478.973	11.263	2.282
4	0.333	638.631	4.177	0.846
5	0.417	798.288	2.240	0.454
		Sum = 100.000	Sum=	20.257

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.343	0.161	---	0.18
2	0.17	1.30	0.343	0.161	---	0.18
3	0.25	1.10	0.290	0.161	---	0.13
4	0.33	1.50	0.396	0.161	---	0.23
5	0.42	1.50	0.396	0.161	---	0.23
6	0.50	1.80	0.475	0.161	---	0.31
7	0.58	1.50	0.396	0.161	---	0.23
8	0.67	1.80	0.475	0.161	---	0.31
9	0.75	1.80	0.475	0.161	---	0.31
10	0.83	1.50	0.396	0.161	---	0.23
11	0.92	1.60	0.422	0.161	---	0.26
12	1.00	1.80	0.475	0.161	---	0.31
13	1.08	2.20	0.581	0.161	---	0.42
14	1.17	2.20	0.581	0.161	---	0.42
15	1.25	2.20	0.581	0.161	---	0.42
16	1.33	2.00	0.528	0.161	---	0.37
17	1.42	2.60	0.686	0.161	---	0.53
18	1.50	2.70	0.713	0.161	---	0.55
19	1.58	2.40	0.634	0.161	---	0.47
20	1.67	2.70	0.713	0.161	---	0.55
21	1.75	3.30	0.871	0.161	---	0.71
22	1.83	3.10	0.818	0.161	---	0.66
23	1.92	2.90	0.766	0.161	---	0.60
24	2.00	3.00	0.792	0.161	---	0.63
25	2.08	3.10	0.818	0.161	---	0.66
26	2.17	4.20	1.109	0.161	---	0.95
27	2.25	5.00	1.320	0.161	---	1.16
28	2.33	3.50	0.924	0.161	---	0.76
29	2.42	6.80	1.795	0.161	---	1.63
30	2.50	7.30	1.927	0.161	---	1.77
31	2.58	8.20	2.165	0.161	---	2.00
32	2.67	5.90	1.557	0.161	---	1.40
33	2.75	2.00	0.528	0.161	---	0.37
34	2.83	1.80	0.475	0.161	---	0.31
35	2.92	1.80	0.475	0.161	---	0.31
36	3.00	0.60	0.158	0.161	0.044	0.11
Sum =		100.0			Sum =	20.7

Flood volume = Effective rainfall 1.73(In)
times area 20.1(Ac.)/[(In)/(Ft.)] = 2.9(Ac.Ft)
Total soil loss = 0.47(In)
Total soil loss = 0.794(Ac.Ft)
Total rainfall = 2.20(In)
Flood volume = 125904.7 Cubic Feet
Total soil loss = 34599.8 Cubic Feet

FLOOD VOLUME THAT MUST BE RETAINED ON-SITE

Peak flow rate of this hydrograph = 35.996(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+ 5	0.0086	1.25	VQ				
0+10	0.0295	3.03	V Q				
0+15	0.0508	3.09	V Q				
0+20	0.0745	3.45	V Q				
0+25	0.1051	4.45	V Q				
0+30	0.1409	5.19	V Q				
0+35	0.1786	5.48	V Q				
0+40	0.2164	5.48	V Q				
0+45	0.2587	6.14	V Q				
0+50	0.2983	5.75	VQ				

```
    0+55       0.3340      5.18  |    VQ     |           |           |           |
    1+ 0       0.3730      5.66  |     Q     |           |           |           |
    1+ 5       0.4205      6.90  |    VQ     |           |           |           |
    1+10       0.4759      8.04  |      V Q  |           |           |           |
    1+15       0.5333      8.34  |       VQ  |           |           |           |
    1+20       0.5890      8.09  |        Q  |           |           |           |
    1+25       0.6490      8.71  |        Q  |           |           |           |
    1+30       0.7201     10.32  |         VQ|           |           |           |
    1+35       0.7914     10.35  |          Q|           |           |           |
    1+40       0.8623     10.29  |          QV           |           |           |
    1+45       0.9455     12.07  |           | QV        |           |           |
    1+50       1.0377     13.39  |           |  QV       |           |           |
    1+55       1.1265     12.90  |           | Q  V      |           |           |
    2+ 0       1.2134     12.61  |           | Q    V    |           |           |
    2+ 5       1.3026     12.96  |           | Q      V  |           |           |
    2+10       1.4074     15.21  |           |    Q    V |           |           |
    2+15       1.5421     19.57  |           |         Q |V          |           |
    2+20       1.6772     19.61  |           |         Q |  V        |           |
    2+25       1.8319     22.47  |           |           |  Q  V     |           |
    2+30       2.0476     31.32  |           |           |        V  |Q          |
    2+35       2.2955     36.00  |           |           |           |V   Q      |
    2+40       2.5366     35.00  |           |           |           |    Q      |
    2+45       2.6951     23.01  |           |           |   Q       |      V    |
    2+50       2.7738     11.44  |           |Q          |           |        V  |
    2+55       2.8301      8.16  |         Q |           |           |         V |
    3+ 0       2.8681      5.53  |     Q     |           |           |         V |
    3+ 5       2.8838      2.27  |  Q        |           |           |         V |
    3+10       2.8884      0.67  Q           |           |           |         V |
    3+15       2.8900      0.24  Q           |           |           |         V |
    3+20       2.8904      0.05  Q           |           |           |         V |
-------------------------------------------------------------------------------
```

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Albert A Webb Associates	Date	11/1/2017
Designed by	MJS	County/City Case No	
Company Project Number/Name	15-0233		
Drainage Area Number/Name	DMA-2		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 37.80 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 34.70 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.92

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.76

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.30 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 41,164 ft^3

Notes:

Infiltration Basin - Design Procedure (Rev. 06-2014)	BMP ID: Basin 2	Legend:	Required Entries / Calculated Cells

Company Name: Albert A. Webb Associates — Date: 11/7/2017

Designed by: MJS — County/City Case No.:

Design Volume

a) Tributary Drainage Area (BMP subarea)	A_{TRIB} =	37.8	acres
b) Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP} =	41,164	ft^3

Maximum Depth

a) Infiltration rate	I =	3.6	in/hr
b) Factor of Safety (See Table 1, Appendix B: "Infiltration Testing" from this BMP Handbook)	FS =	3	
c) Calculate D_1 $D_1 = \frac{I\ (in/hr) \times 48\ hrs}{12\ (in/ft) \times FS}$	D_1 =	4.8	ft
d) Enter the depth of freeboard (at least 1 ft)		1	ft
e) Enter depth to historic high ground water (measured from **top** of basin)		50	ft
f) Enter depth to top of bedrock or impermeable layer (measured from **top** of basin)		50	ft
g) D_2 is the smaller of: Depth to groundwater - (10 ft + freeboard) and Depth to impermeable layer - (5 ft + freeboard)	D_2 =	39.0	ft
h) D_{MAX} is the smaller value of D_1 and D_2 but shall not exceed 5 feet	D_{MAX} =	4.8	ft

Basin Geometry

a) Basin side slopes (no steeper than 4:1)	Slope no steeper than 4:1	z =	3	:1
b) Proposed basin depth (excluding freeboard)	Depth may not exceed Dmax	d_B =	6	ft
c) Minimum bottom surface area of basin ($A_S = V_{BMP}/d_B$)		A_S =	6861	ft^2
d) Proposed Design Surface Area		A_D =	34540	ft^2

Forebay

a) Forebay volume (minimum 0.5% V_{BMP})	Volume =	206	ft^3
b) Forebay depth (height of berm/splashwall. 1 foot min.)	Depth =	1	ft
c) Forebay surface area (minimum)	Area =	206	ft^2
d) Full height notch-type weir	Width (W) =	6.0	in

Notes:

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0
Study date 11/06/17 File: AREA2310O.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Banning Distribution Center
10O-Year 3-Hour Storm
Developed Conditions
Basin 2 Area

Drainage Area = 37.80(Ac.) = 0.059 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 37.80(Ac.) = 0.059 Sq. Mi.
Length along longest watercourse = 3159.00(Ft.)
Length along longest watercourse measured to centroid = 995.00(Ft.)
Length along longest watercourse = 0.598 Mi.
Length along longest watercourse measured to centroid = 0.188 Mi.
Difference in elevation = 64.00(Ft.)
Slope along watercourse = 106.9706 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.065 Hr.
Lag time = 3.88 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.55 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
37.80	0.98	37.04

10O YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
37.80	2.20	83.16

STORM EVENT (YEAR) = 10O.00
Area Averaged 2-Year Rainfall = 0.980(In)
Area Averaged 10O-Year Rainfall = 2.200(In)

Point rain (area averaged) = 2.200(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 2.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
37.800	53.80	0.920

Total Area Entered = 37.80(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
53.8	53.8	0.533	0.920	0.092	1.000	0.092
					Sum (F) =	0.092

Area averaged mean soil loss (F) (In/Hr) = 0.092
Minimum soil loss rate ((In/Hr)) = 0.046
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.165

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	128.907	26.124	9.952
2	0.167	257.814	49.957	19.031
3	0.250	386.721	13.696	5.218
4	0.333	515.628	5.715	2.177
5	0.417	644.535	2.588	0.986
6	0.500	773.442	1.408	0.536
7	0.583	902.349	0.512	0.195
		Sum = 100.000	Sum=	38.095

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.343	0.092	---	0.25
2	0.17	1.30	0.343	0.092	---	0.25
3	0.25	1.10	0.290	0.092	---	0.20
4	0.33	1.50	0.396	0.092	---	0.30
5	0.42	1.50	0.396	0.092	---	0.30
6	0.50	1.80	0.475	0.092	---	0.38
7	0.58	1.50	0.396	0.092	---	0.30
8	0.67	1.80	0.475	0.092	---	0.38
9	0.75	1.80	0.475	0.092	---	0.38
10	0.83	1.50	0.396	0.092	---	0.30
11	0.92	1.60	0.422	0.092	---	0.33
12	1.00	1.80	0.475	0.092	---	0.38
13	1.08	2.20	0.581	0.092	---	0.49
14	1.17	2.20	0.581	0.092	---	0.49
15	1.25	2.20	0.581	0.092	---	0.49
16	1.33	2.00	0.528	0.092	---	0.44
17	1.42	2.60	0.686	0.092	---	0.59
18	1.50	2.70	0.713	0.092	---	0.62
19	1.58	2.40	0.633	0.092	---	0.54
20	1.67	2.70	0.713	0.092	---	0.62
21	1.75	3.30	0.871	0.092	---	0.78
22	1.83	3.10	0.818	0.092	---	0.73
23	1.92	2.90	0.765	0.092	---	0.67
24	2.00	3.00	0.792	0.092	---	0.70
25	2.08	3.10	0.818	0.092	---	0.73
26	2.17	4.20	1.109	0.092	---	1.02
27	2.25	5.00	1.320	0.092	---	1.23
28	2.33	3.50	0.924	0.092	---	0.83
29	2.42	6.80	1.795	0.092	---	1.70
30	2.50	7.30	1.927	0.092	---	1.84
31	2.58	8.20	2.164	0.092	---	2.07
32	2.67	5.90	1.557	0.092	---	1.47
33	2.75	2.00	0.528	0.092	---	0.44
34	2.83	1.80	0.475	0.092	---	0.38
35	2.92	1.80	0.475	0.092	---	0.38
36	3.00	0.60	0.158	0.092	---	0.07
Sum =		100.0			Sum =	23.1

Flood volume = Effective rainfall 1.92(In)
times area 37.8(Ac.)/[(In)/(Ft.)] = 6.1(Ac.Ft)
Total soil loss = 0.28(In)
Total soil loss = 0.867(Ac.Ft)
Total rainfall = 2.20(In)
Flood volume = 264066.2 Cubic Feet
Total soil loss = 37754.7 Cubic Feet

FLOOD VOLUME THAT MUST BE RETAINED ON-SITE

Peak flow rate of this hydrograph = 69.029(CFS)

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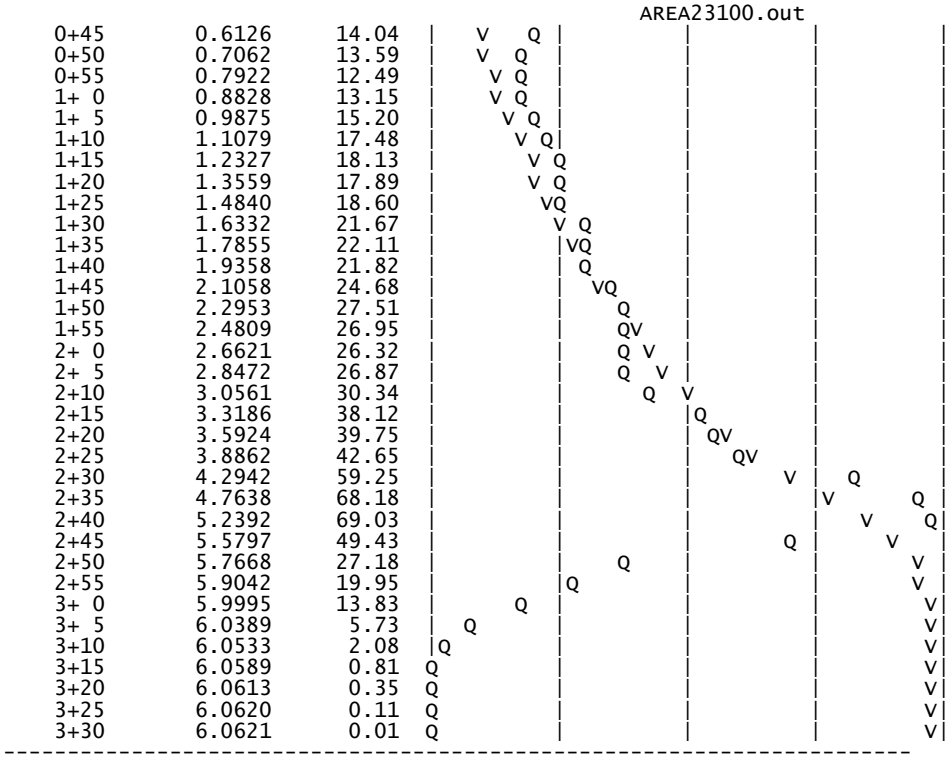
3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	17.5	35.0	52.5	70.0
0+ 5	0.0172	2.50	VQ				
0+10	0.0675	7.29	V Q				
0+15	0.1231	8.08	V Q				
0+20	0.1828	8.67	|V Q				
0+25	0.2562	10.65	|V Q				
0+30	0.3389	12.01	| V Q				
0+35	0.4282	12.96	| V Q				
0+40	0.5159	12.73	| V Q				



0+45	0.6126	14.04	
0+50	0.7062	13.59	
0+55	0.7922	12.49	
1+ 0	0.8828	13.15	
1+ 5	0.9875	15.20	
1+10	1.1079	17.48	
1+15	1.2327	18.13	
1+20	1.3559	17.89	
1+25	1.4840	18.60	
1+30	1.6332	21.67	
1+35	1.7855	22.11	
1+40	1.9358	21.82	
1+45	2.1058	24.68	
1+50	2.2953	27.51	
1+55	2.4809	26.95	
2+ 0	2.6621	26.32	
2+ 5	2.8472	26.87	
2+10	3.0561	30.34	
2+15	3.3186	38.12	
2+20	3.5924	39.75	
2+25	3.8862	42.65	
2+30	4.2942	59.25	
2+35	4.7638	68.18	
2+40	5.2392	69.03	
2+45	5.5797	49.43	
2+50	5.7668	27.18	
2+55	5.9042	19.95	
3+ 0	5.9995	13.83	
3+ 5	6.0389	5.73	
3+10	6.0533	2.08	
3+15	6.0589	0.81	
3+20	6.0613	0.35	
3+25	6.0620	0.11	
3+30	6.0621	0.01	

Infiltration Basin
Drawdown Calculation

Designer:	MJS
Date:	11/2/2017
Project:	Banning Distribution Center
Location:	North of the Banning Municple Airport and South of I-10 Freeway
Area:	DMA 1 & DMA 2

(1)	Combined $V_{100Y\text{-}3H}$ =	389,971	ft^3
(2)	Combined Basin Bottom Area=	90440	ft^2**
(3)	Infiltration Rate =	1.21	in/hr ***

$$Drawdown = \frac{V_{100Y-3H}\ (ft^3)}{Infiltration\ Rate\left(\frac{in}{hr}\right) \times \left(\frac{1ft}{12in}\right) \times Bottom\ Area\ (ft^2)}$$

Drawdown Time= 42.8 hr

***The Geotechnical Infiltration Test Report shows acceptable soil infiltration capability. The average measured infiltration rate is 3.63 in/hr at the expected depth at the bottom of the underground system, used a safety factor of 3 to achive 1.21 in/hr.

**For preliminary purposes, the combined basin bottom areas for both Basin-1 and Basin-2 were used to prove that the basins will drain within 48 hours. The basin bottoms will be indivdually analyzed during final engineering and a drawdown calculation will be submitted for each basin. The basin bottoms will be finalnized during final engineering.

Basin 1 Stage-Storage Summary

Elev (ft)	Depth (ft)	Area (acre)	Incremental Vol (acre-ft)	Cumulative Vol (acre-ft)
2123 Bot	0	1.28		0.00
			1.33	
2124	1	1.37		1.33
			1.42	
2125	2	1.46		2.74
			1.51	
2126	3	1.55		4.25
			1.60	
2127	4	1.65		5.85
			1.70	
2128	5	1.74		7.55
			1.79	
2129 Top	6	1.84		9.34

Basin 2 Stage-Storage Summary

Elev (ft)	Depth (ft)	Area (acre)	Incremental Vol (acre-ft)	Cumulative Vol (acre-ft)
2110 Bot	0	0.79		0.00
			0.83	
2111	1	0.87		0.83
			0.91	
2112	2	0.95		1.74
			0.99	
2113	3	1.03		2.74
			1.08	
2114	4	1.12		3.81
			1.16	
2115	5	1.20		4.97
			1.25	
2116 Top	6	1.29		6.22

Appendix G

AGREEMENTS – CC&RS, COVENANT AND AGREEMENTS, BMP MAINTENANCE AGREEMENTS AND/OR OTHER MECHANISMS FOR ENSURING ONGOING OPERATION, MAINTENANCE, FUNDING AND TRANSFER OF REQUIREMENTS FOR THIS PROJECT-SPECIFIC WQMP

Example Covenant and Agreement

Water Quality Management Plan and Urban Runoff BMP Transfer, Access and Maintenance Agreement (adapted from documents from the Ventura County Stormwater Management Program)

Recorded at the request of:

City of _____

After recording, return to:

City of _____

City Clerk _____

Water Quality Management Plan and Urban Runoff BMP Transfer, Access and Maintenance Agreement

OWNER: _____

PROPERTY ADDRESS: _____

_____

APN: _____

THIS AGREEMENT is made and entered into in

_____, California, this _____day of

_____, by and between

_____, herein after

referred to as "Owner" and the CITY OF _____, a municipal corporation, located in the County of Riverside, State of California hereinafter referred to as "CITY";

WHEREAS, the Owner owns real property ("Property") in the City of

_____, County of Riverside, State of California, more specifically described in Exhibit "A" and depicted in Exhibit "B", each of which exhibits is attached hereto and incorporated herein by this reference;

WHEREAS, at the time of initial approval of development project known as

_____within the Property described herein, the City required the project to employ Best Management Practices, hereinafter referred to as "BMPs," to minimize pollutants in urban runoff;

WHEREAS, the Owner has chosen to install and/or implement BMPs as described in the Water Quality Management Plan, on file with the City, hereinafter referred to as "WQMP", to minimize pollutants in urban runoff and to minimize other adverse impacts of urban runoff;

WHEREAS, said WQMP has been certified by the Owner and reviewed and approved by the City;

WHEREAS, said BMPs, with installation and/or implementation on private property and draining only private property, are part of a private facility with all maintenance or replacement, therefore, the sole responsibility of the Owner in accordance with the terms of this Agreement;

WHEREAS, the Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of all BMPs in the WQMP and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, it is mutually stipulated and agreed as follows:

1. Owner hereby provides the City of City's designee complete access, of any duration, to the BMPs and their immediate vicinity at any time, upon reasonable notice, or in the event of emergency, as determined by City's Director of Public Works no advance notice, for the purpose of inspection, sampling, testing of the Device, and in case of emergency, to undertake all necessary repairs or other preventative measures at owner's expense as provided in paragraph 3 below. City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Owner shall use its best efforts diligently to maintain all BMPs in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of any material(s) from the BMPs and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the City, the Owner shall provide the City with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. In the event Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within five (5) days of being given written notice by the City, the City is hereby authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or Owner's successors or assigns, including administrative costs, attorneys fees and interest thereon at the maximum rate authorized by the Civil Code from the date of the notice of expense until paid in full.

4. The City may require the owner to post security in form and for a time period satisfactory to the city to guarantee the performance of the obligations state herein. Should the Owner fail to perform the obligations under the Agreement, the City may, in the case of a cash bond, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement. As an additional remedy, the Director may withdraw any previous Urban Runoff-related approval with respect to the property on which BMPs have been installed and/or implemented until such time as Owner repays to City its reasonable costs incurred in accordance with paragraph 3 above.

5. This agreement shall be recorded in the Office of the Recorder of Riverside County, California, at the expense of the Owner and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth, and also a lien in such amount as will fully reimburse the City, including interest as herein above set forth, subject to foreclosure in event of default in payment.

6. In event of legal action occasioned by any default or action of the Owner, or its successors or assigns, then the Owner and its successors or assigns agree(s) to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

7. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien there against.

8. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto. The term "Owner" shall include not only the present Owner, but also its heirs, successors, executors, administrators, and assigns. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor.

9. Time is of the essence in the performance of this Agreement.

10. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

IF TO CITY:

_____

_____

_____

_____

IF TO OWNER:

_____

_____

_____

_____

IN WITNESS THEREOF, the parties hereto have affixed their signatures as of the date first written above.

APPROVED AS TO FORM:

_____
City Attorney

_____
CITY OF

_____
Name

_____
Title

ATTEST:

_____
City Clerk Date

OWNER:

_____
Name

_____
Title

OWNER:

_____
Name

_____
Title

NOTARIES ON FOLLOWING PAGE

EXHIBIT A
(Legal Description)

EXHIBIT B
(Map/Illustration)

Infiltration Basin
Sample Inspection and Maintenance Checklist

Property Address: _____ Property Owner: _____

Treatment Measure No.: _____ Date of Inspection: _____ Type of Inspection: ☐Monthly ☐Pre-Rainy Season ☐After heavy runoff ☐End of Rainy Season

Inspector(s): _____ ☐Other:_____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed? (Y/N)	Comments (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	Results Expected When Maintenance Is Performed
General				
Trash & Debris	• Trash and debris accumulated in basin. • Visual evidence of dumping.			Trash and debris cleared from site and disposed of properly.
Poisonous Vegetation and noxious weeds	Poisonous or nuisance vegetation or noxious weeds, e.g., morning glory, English ivy, reed canary grass, Japanese knotweed, purple loosestrife, blackberry, Scotch broom, poison oak, stinging nettles, or devil's club.			Use Integrated Pest Management techniques to control noxious weeds or invasive species.
Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants.			No contaminants or pollutants present.
Rodent Holes	If facility acts as a dam or berm, any evidence of rodent holes, or any evidence of water piping through dam or berm via rodent holes.			The design specifications are not compromised by holes. Any rodent control activities are in accordance with applicable laws and do not affect any protected species.
Insects	Insects such as wasps and hornets interfere with maintenance activities.			Insects do not interfere with maintenance activities.

Infiltration Basin Inspection and Maintenance Checklist

Date of Inspection:_____

Property Address: _____

Treatment Measure No.:_____

Defect	**Conditions When Maintenance Is Needed**	**Maintenance Needed? (Y/N)**	**Comments** (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	**Results Expected When Maintenance Is Performed**
Tree/Brush Growth and Hazard Trees	• Growth does not allow maintenance access or interferes with maintenance activity. • Dead, diseased, or dying trees.			• Trees do not hinder maintenance activities. • Remove hazard trees as approved by the City. (Use a certified Arborist to determine health of tree or removal requirements).
Drainage time	Standing water remains in basin more than 72 hours.			Correct any circumstances that restrict the flow of water from the system. Restore drainage to design condition.
				Sediment removed, basin bottom scarified by tilling or disking. Infiltration capacity restored
				Minimum use of pesticides, especially before the rainy season (Oct 1 to May 1).
Outfall structure	Debris or silt build-up obstructs an outfall structure.			Remove debris and/or silt build-up and dispose of properly.
Side Slopes				
Erosion	• Eroded over 2 in. deep where cause of damage is still present or where there is potential for continued erosion. • Any erosion on a compacted berm embankment.			Cause of erosion is managed appropriately. Side slopes or berm are restored to design specifications, as needed.
Storage Area				
Sediment	Accumulated sediment >10% of designed basin depth or affects inletting or outletting condition of the facility.			Sediment cleaned out to designed basin shape and depth; basin reseeded if necessary to control erosion. Sediment disposed of properly.
Emergency Overflow/ Spillway and Berms				

Infiltration Basin Inspection and Maintenance Checklist

Date of Inspection:_____

Property Address: _____

Treatment Measure No.:_____

Defect	**Conditions When Maintenance Is Needed**	**Maintenance Needed? (Y/N)**	**Comments** (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	**Results Expected When Maintenance Is Performed**
Settlement	Berm settlement 4 inches lower than the design elevation.			Dike is built back to the design elevation.
Tree Growth	Tree growth on berms or emergency spillway >4 ft in height or covering more than 10% of spillway.			• Trees should be removed. If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. • A civil engineer should be consulted for proper berm/spillway restoration.
Emergency Overflow/ Spillway	Rock is missing and soil is exposed at top of spillway or outside slope.			Rocks and pad depth are restored to design standards.
Hydraulic Structures				
Trash and Debris	Trash or debris is plugging openings in the pipe riser (or grated inlet).			Trash or debris is removed and disposed of properly.
Damaged structures	Bars in trash rack of inlet are missing, loose, bent out of shape, or deteriorating due to excessive rust.			Bars are repaired or replaced to allow proper functioning of trash rack.
Outlet and sediment forebay	Excessive accumulation of sediment.			Sediment removed to allow proper functioning of forebay.
Structural integrity	Check for cracks, spalling, joints failures, etc.			

Infiltration Basin Inspection and Maintenance Checklist

Date of Inspection:_____

Property Address: _____

Treatment Measure No.:_____

Defect	**Conditions When Maintenance Is Needed**	**Maintenance Needed? (Y/N)**	**Comments** (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	**Results Expected When Maintenance Is Performed**
Fencing and Gates				
Missing or broken parts	Any defect in or damage to the fence or gate that permits easy entry to a facility.			Fencing and gate are restored to design specifications.
Deteriorating Paint or Protective Coating	Part or parts that have a rusting or scaling condition that has affected structural adequacy.			Paint or protective coating is sufficient to protect structural adequacy of fence or gate.
Risers, orifices and screens	Any debris or clogging			Restore unobstructed flow through discharge structure; to meet original design; dispose of debris properly.
Miscellaneous				
Miscellan-ous	Any condition not covered above that needs attention to restore extended detention basin to design conditions.			Meets the design specifications.

Infiltration BMPs Inspection Checklist*

Project Location: _____

Date/Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Recommended Inspection Frequency	Comments
Inlet/Outlet			
Structural integrity of inlet/outlet		A	
Inlet/outlet clear of debris		M	
Overflow spillway clear of debris		M	
Erosion control at inlet in place (e.g., rock, mat)/ evidence of erosion		A	
Erosion control at outlet in place/evidence of erosion		A	
Inspect/clean catch basin upstream of BMP		A	
Pretreatment for sediment			
Device functioning to trap sediment		A	
Remove accumulated sediment		A	
Overall functionality			
Ensure infiltration device is functioning properly (professional civil engineer is recommended)		A	
BMP infiltration surface			
Any evidence of sedimentation in BMP		A	
Does sediment accumulation currently require removal		A	
Debris in BMP		S	
Evidence of erosion present		A	
Aggregate (if applicable)			
Surface of aggregate clean		A	
Any replacement of aggregate needed? If clogged with sediment replacement is necessary for contin- ued proper function.		A	

Inspection frequency key — A = Annual, M = Monthly, S = After major storm
*Prior to field inspection, it is recommended to review the as-built plans.

Maintenance Item	Satisfactory/ Unsatisfactory	Recommended Inspection Frequency	Comments
Vegetated surface (if applicable)			
Vegetative cover exists		A	
Optional considerations			
Inspect BMP for invasive species.		A	
Qualified professional applicator selectively herbicide invasive species		A	
Increase plant diversity by planting additional vegetation or creating a native plant infiltration basin area.		A	
Complaints from residents (note on back)		A	
Mowing done when necessary		A	
No fertilizer unless testing requires it		A	

Inspection frequency key — A = Annual, M = Monthly, S = After major storm
*Prior to field inspection, it is recommended to review the as-built plans.

Summary

Inspector's remarks:

Overall condition of facility (acceptable or unacceptable):

Dates any maintenance must be completed by:

3.1 INFILTRATION BASIN

Type of BMP	LID - Infiltration
Treatment Mechanisms	Infiltration, Evapotranspiration (when vegetated), Evaporation, and Sedimentation
Maximum Treatment Area	50 acres
Other Names	Bioinfiltration Basin

Description

An Infiltration Basin is a flat earthen basin designed to capture the design capture volume, V_{BMP}. The stormwater infiltrates through the bottom of the basin into the underlying soil over a 72 hour drawdown period. Flows exceeding V_{BMP} must discharge to a downstream conveyance system. Trash and sediment accumulate within the forebay as stormwater passes into the basin. Infiltration basins are highly effective in removing all targeted pollutants from stormwater runoff.



Figure 1 – Infiltration Basin

See Appendix A, and Appendix C, Section 1 of *Basin Guidelines*, for additional requirements.

Siting Considerations

The use of infiltration basins may be restricted by concerns over ground water contamination, soil permeability, and clogging at the site. See the applicable WQMP for any specific feasibility considerations for using infiltration BMPs. Where this BMP is being used, the soil beneath the basin must be thoroughly evaluated in a geotechnical report since the underlying soils are critical to the basin's long term performance. To protect the basin from erosion, the sides and bottom of the basin must be vegetated, preferably with native or low water use plant species.

In addition, these basins may not be appropriate for the following site conditions:

- Industrial sites or locations where spills of toxic materials may occur
- Sites with very low soil infiltration rates
- Sites with high groundwater tables or excessively high soil infiltration rates, where pollutants can affect ground water quality
- Sites with unstabilized soil or construction activity upstream
- On steeply sloping terrain
- Infiltration basins located in a fill condition should refer to Appendix A of this Handbook for details on special requirements/restrictions

Setbacks

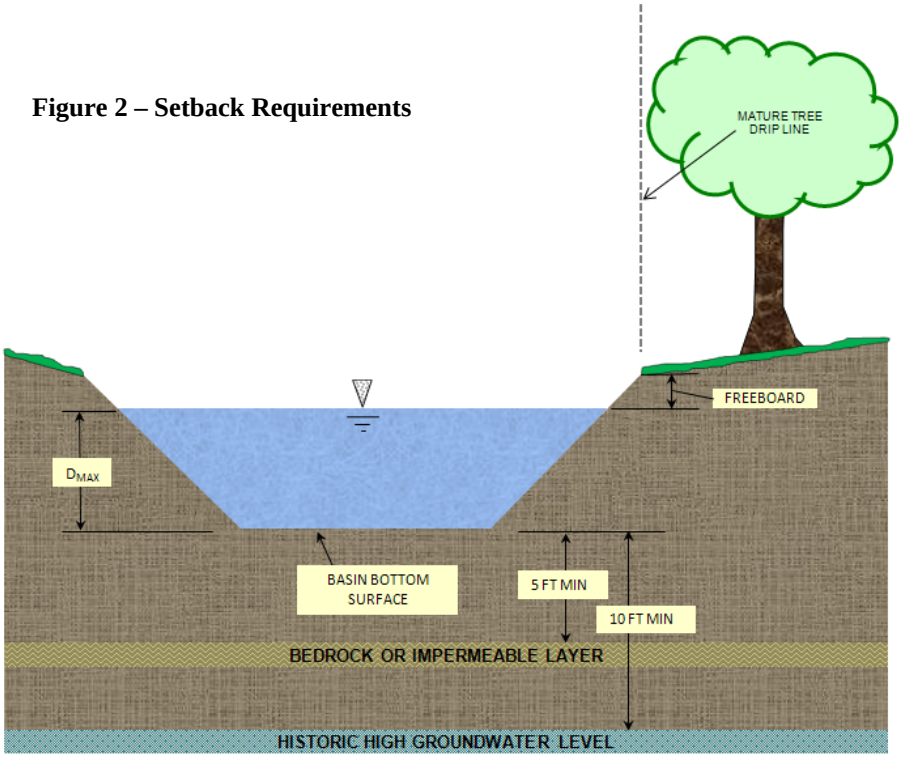
Always consult your geotechnical engineer for site specific recommendations regarding setbacks for infiltration trenches. Recommended setbacks are needed to protect buildings, existing trees, walls, onsite or nearby wells, streams, and tanks. Setbacks should be considered early in the design process since they can affect where infiltration facilities may be placed and how deep they are allowed to be. For instance, depth setbacks can dictate fairly shallow facilities that will have a larger footprint and, in some cases, may make an infiltration basin infeasible. In that instance, another BMP must be selected.

Infiltration basins typically must be set back:

- 10 feet from the historic high groundwater (measured vertically from the bottom of the basin, as shown in Figure 2)
- 5 feet from bedrock or impermeable surface layer (measured vertically from the bottom of the basin, as shown in Figure 2)
- From all existing mature tree drip lines as indicated in Figure 2 (to protect their root structure)
- 100 feet horizontally from wells, tanks or springs

Setbacks to walls and foundations must be included as part of the Geotechnical Report. All other setbacks shall be in accordance with applicable standards of the District's *Basin Guidelines* (Appendix C).

Figure 2 – Setback Requirements



Forebay

A concrete forebay shall be provided to reduce sediment clogging and to reduce erosion. The forebay shall have a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splashwall / berm. Full height notch-type weir(s), offset from the line of flow from the basin inlet to prevent short circuiting, shall be used to outlet the forebay. It is recommended that two weirs be used and that they be located on opposite sides of the forebay (see Figure 2).

Overflow

Flows exceeding V_{BMP} must discharge to an acceptable downstream conveyance system. Where an adequate outlet is present, an overflow structure may be used. Where an embankment is present, an emergency spillway may be used instead. Overflows must be placed just above the design water surface for V_{BMP} and be near the outlet of the system. The overflow structure shall be similar to the District's Standard Drawing CB 110. Additional details may be found in the District's *Basin Guidelines* (Appendix C).

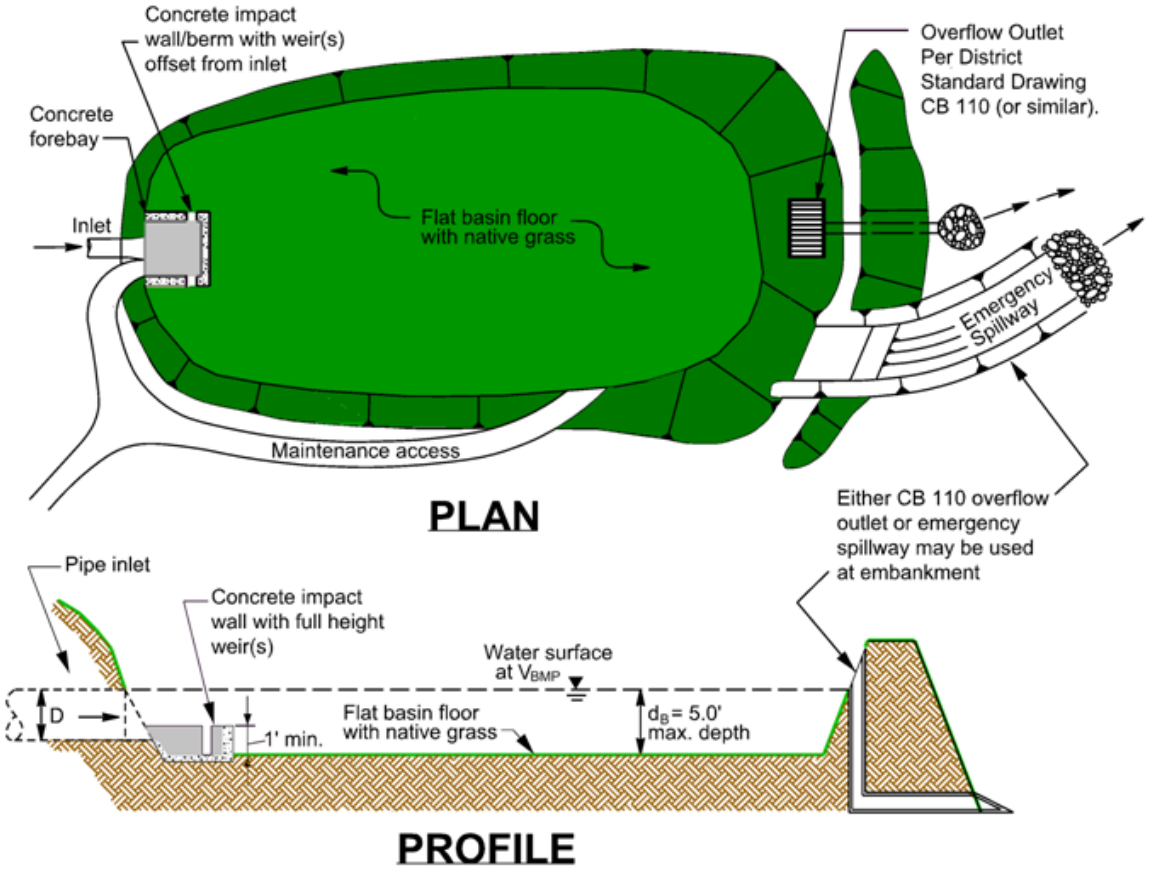


Figure 3 – Infiltration Basin

Landscaping Requirements

Basin vegetation provides erosion protection, improves sediment removal and assists in allowing infiltration to occur. The basin surface and side slopes shall be planted with native grasses. Proper landscape management is also required to ensure that the vegetation does not contribute to water pollution through pesticides, herbicides, or fertilizers. Landscaping shall be in accordance with County of Riverside Ordinance 859 and the District's *Basin Guidelines* (Appendix C), or other guidelines issued by the Engineering Authority.

Maintenance

Normal maintenance of an infiltration basin includes the maintenance of landscaping, debris and trash removal from the surface of the basin, and tending to problems associated with standing water (vectors, odors, etc.). Significant ponding, especially more than 72 hours after an event, may indicate that the basin surface is no longer providing sufficient infiltration and requires aeration. See the District's *Basin Guidelines* (Appendix C) for additional requirements (i.e., fencing, maintenance access, etc.).

Table 1 - Inspection and Maintenance

Schedule	Inspection and Maintenance Activity
Ongoing including just before annual storm seasons and following rainfall events.	• Maintain vegetation as needed. Use of fertilizers, pesticides and herbicides should be strenuously avoided to ensure they don't contribute to water pollution. If appropriate native plant selections and other IPM methods are used, such products shouldn't be needed. If such projects are used, o Products shall be applied in accordance with their labeling, especially in relation to application to water, and in areas subjected to flooding. o Fertilizers should not be applied within 15 days before, after, or during the rain season. • Remove debris and litter from the entire basin to minimize clogging and improve aesthetics. • Check for obvious problems and repair as needed. Address odor, insects, and overgrowth issues associated with stagnant or standing water in the basin bottom. There should be no long-term ponding water. • Check for erosion and sediment laden areas in the basin. Repair as needed. Clean forebay if needed. • Revegetate side slopes where needed.
Annually. If possible, schedule these inspections within 72 hours after a significant rainfall.	• Inspection of hydraulic and structural facilities. Examine the inlet for blockage, the embankment and spillway integrity, as well as damage to any structural element. • Check for erosion, slumping and overgrowth. Repair as needed. • Check basin depth for sediment build up and reduced total capacity. Scrape bottom as needed and remove sediment. Restore to original cross-section and infiltration rate. Replant basin vegetation. • Verify the basin bottom is allowing acceptable infiltration. Use a disc or other method to aerate basin bottom only if there is actual significant loss of infiltrative capacity, rather than on a routine basis[1]. • No water should be present 72 hours after an event. No long term standing water should be present at all. No algae formation should be visible. Correct problem as needed.

1. **CA Stormwater BMP Handbook for New Development and Significant Redevelopment**

Table 2 - Design and Sizing Criteria for Infiltration Basins

Design Parameter	Infiltration Basin
Design Volume	V_{BMP}
Forebay Volume	0.5% V_{BMP}
Drawdown time (maximum)	72 hours
Maximum tributary area	50 acres [2]
Minimum infiltration rate	Must be sufficient to drain the basin within the required Drawdown time over the life of the BMP. The WQMP may include specific requirements for minimum tested infiltration rates.
Maximum Depth	5 feet
Spillway erosion control	Energy dissipators to reduce velocities[1]
Basin Slope	0%
Freeboard (minimum)	1 foot [1]
Historic High Groundwater Setback (max)	10 feet
Bedrock/impermeable layer setback (max)	5 feet
Tree setbacks	Mature tree drip line must not overhang the basin
Set back from wells, tanks or springs	100 feet
Set back from foundations	As recommended in Geotechnical Report

1. **Ventura County's Technical Guidance Manual for Stormwater Quality Control Measures**
2. **CA Stormwater BMP Handbook for New Development and Significant Redevelopment**

Note: The information contained in this BMP Factsheet is intended to be a summary of design considerations and requirements. Additional information which applies to all detention basins may be found in the District's Basin Guidelines (Appendix C). In addition, information herein may be superseded by other guidelines issued by the co-permittee.

INFILTRATION BASIN SIZING PROCEDURE

1. Find the Design Volume, V_{BMP}.
   a) Enter the Tributary Area, $A_{T.}$
   b) Enter the Design Volume, V_{BMP}, determined from Section 2.1 of this Handbook.
2. Determine the Maximum Depth.
   a) Enter the infiltration rate. The infiltration rate shall be established as described in Appendix A: "Infiltration Testing".
   b) Enter the design Factor of Safety from Table 1 in Appendix A: "Infiltration Testing".
   c) The spreadsheet will determine D_1, the maximum allowable depth of the basin based on the infiltration rate along with the maximum drawdown time (72 hours) and the Factor of Safety.

$$D_1 = [(t) \times (I)] / 12s$$

Where I = site infiltration rate (in/hr)
s = safety factor
t = drawdown time (maximum 72 hours)

d) Enter the depth of freeboard.

e) Enter the depth to the historic high groundwater level measured from the top of the basin.

f) Enter the depth to the top of bedrock or other impermeable layer measured from the finished grade.

g) The spreadsheet will determine D_2, the total basin depth (including freeboard, if used) of the basin, based on restrictions to the depth by groundwater and an impermeable layer.

D_2 = Depth to groundwater – (10 + freeboard) (ft);

or

D_2 = Depth to impermeable layer – (5 + freeboard) (ft)

Whichever is least.

h) The spreadsheet will determine the maximum allowable effective depth of basin, D_{MAX}, based on the smallest value between D_1 and D_2. D_{MAX} is the maximum depth of water only and does not include freeboard. D_{MAX} shall not exceed 5 feet.

3. Basin Geometry

a) Enter the basin side slopes, z (no steeper than 4:1).

b) Enter the proposed basin depth, d_B excluding freeboard.

c) The spreadsheet will determine the minimum required surface area of the basin:

$$A_s = V_{BMP} / d_B$$

Where A_s = minimum area required (ft^2)
V_{BMP} = volume of the infiltration basin (ft^3)
d_B= proposed depth not to exceed maximum allowable depth, D_{MAX} (ft)

d) Enter the proposed bottom surface area. This area shall not be less than the minimum required surface area.

4. Forebay

A concrete forebay with a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splashwall shall be provided. Full-height rectangular weir(s) shall be used to outlet the forebay. The weir(s) must be offset from the line of flow from the basin inlet. It is recommended that two weirs be used and that they be located on opposite sides of the forebay (see Figure 2).

a) The spreadsheet will determine the minimum required forebay volume based on 0.5% V_{BMP}.

b) Enter the proposed depth of the forebay berm/splashwall (1foot minimum).

c) The spreadsheet will determine the minimum required forebay surface area.

d) Enter the width of rectangular weir to be used (minimum 1.5 inches). Weir width should be established based on a 5 minute drawdown time.

Infiltration Basin TC-11



Design Considerations

- Soil for Infiltration
- Slope
- Aesthetics

Targeted Constituents

☑	Sediment	■
☑	Nutrients	■
☑	Trash	■
☑	Metals	■
☑	Bacteria	■
☑	Oil and Grease	■
☑	Organics	■

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

Description

An infiltration basin is a shallow impoundment that is designed to infiltrate stormwater. Infiltration basins use the natural filtering ability of the soil to remove pollutants in stormwater runoff. Infiltration facilities store runoff until it gradually exfiltrates through the soil and eventually into the water table. This practice has high pollutant removal efficiency and can also help recharge groundwater, thus helping to maintain low flows in stream systems. Infiltration basins can be challenging to apply on many sites, however, because of soils requirements. In addition, some studies have shown relatively high failure rates compared with other management practices.

California Experience

Infiltration basins have a long history of use in California, especially in the Central Valley. Basins located in Fresno were among those initially evaluated in the National Urban Runoff Program and were found to be effective at reducing the volume of runoff, while posing little long-term threat to groundwater quality (EPA, 1983; Schroeder, 1995). Proper siting of these devices is crucial as underscored by the experience of Caltrans in siting two basins in Southern California. The basin with marginal separation from groundwater and soil permeability failed immediately and could never be rehabilitated.

Advantages

- Provides 100% reduction in the load discharged to surface waters.
- The principal benefit of infiltration basins is the approximation of pre-development hydrology during which a

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CALIFORNIA STORMWATER QUALITY ASSOCIATION

significant portion of the average annual rainfall runoff is infiltrated and evaporated rather than flushed directly to creeks.

- If the water quality volume is adequately sized, infiltration basins can be useful for providing control of channel forming (erosion) and high frequency (generally less than the 2-year) flood events.

Limitations

- May not be appropriate for industrial sites or locations where spills may occur.
- Infiltration basins require a minimum soil infiltration rate of 0.5 inches/hour, not appropriate at sites with Hydrologic Soil Types C and D.
- If infiltration rates exceed 2.4 inches/hour, then the runoff should be fully treated prior to infiltration to protect groundwater quality.
- Not suitable on fill sites or steep slopes.
- Risk of groundwater contamination in very coarse soils.
- Upstream drainage area must be completely stabilized before construction.
- Difficult to restore functioning of infiltration basins once clogged.

Design and Sizing Guidelines

- Water quality volume determined by local requirements or sized so that 85% of the annual runoff volume is captured.
- Basin sized so that the entire water quality volume is infiltrated within 48 hours.
- Vegetation establishment on the basin floor may help reduce the clogging rate.

Construction/Inspection Considerations

- Before construction begins, stabilize the entire area draining to the facility. If impossible, place a diversion berm around the perimeter of the infiltration site to prevent sediment entrance during construction or remove the top 2 inches of soil after the site is stabililized. Stabilize the entire contributing drainage area, including the side slopes, before allowing any runoff to enter once construction is complete.
- Place excavated material such that it can not be washed back into the basin if a storm occurs during construction of the facility.
- Build the basin without driving heavy equipment over the infiltration surface. Any equipment driven on the surface should have extra-wide ("low pressure") tires. Prior to any construction, rope off the infiltration area to stop entrance by unwanted equipment.
- After final grading, till the infiltration surface deeply.
- Use appropriate erosion control seed mix for the specific project and location.

Performance

As water migrates through porous soil and rock, pollutant attenuation mechanisms include precipitation, sorption, physical filtration, and bacterial degradation. If functioning properly, this approach is presumed to have high removal efficiencies for particulate pollutants and moderate removal of soluble pollutants. Actual pollutant removal in the subsurface would be expected to vary depending upon site-specific soil types. This technology eliminates discharge to surface waters except for the very largest storms; consequently, complete removal of all stormwater constituents can be assumed.

There remain some concerns about the potential for groundwater contamination despite the findings of the NURP and Nightingale (1975; 1987a,b,c; 1989). For instance, a report by Pitt et al. (1994) highlighted the potential for groundwater contamination from intentional and unintentional stormwater infiltration. That report recommends that infiltration facilities not be sited in areas where high concentrations are present or where there is a potential for spills of toxic material. Conversely, Schroeder (1995) reported that there was no evidence of groundwater impacts from an infiltration basin serving a large industrial catchment in Fresno, CA.

Siting Criteria

The key element in siting infiltration basins is identifying sites with appropriate soil and hydrogeologic properties, which is critical for long term performance. In one study conducted in Prince George's County, Maryland (Galli, 1992), all of the infiltration basins investigated clogged within 2 years. It is believed that these failures were for the most part due to allowing infiltration at sites with rates of less than 0.5 in/hr, basing siting on soil type rather than field infiltration tests, and poor construction practices that resulted in soil compaction of the basin invert.

A study of 23 infiltration basins in the Pacific Northwest showed better long-term performance in an area with highly permeable soils (Hilding, 1996). In this study, few of the infiltration basins had failed after 10 years. Consequently, the following guidelines for identifying appropriate soil and subsurface conditions should be rigorously adhered to.

- Determine soil type (consider RCS soil type 'A, B or C' only) from mapping and consult USDA soil survey tables to review other parameters such as the amount of silt and clay, presence of a restrictive layer or seasonal high water table, and estimated permeability. The soil should not have more than 30% clay or more than 40% of clay and silt combined. Eliminate sites that are clearly unsuitable for infiltration.

- Groundwater separation should be at least 3 m from the basin invert to the measured ground water elevation. There is concern at the state and regional levels of the impact on groundwater quality from infiltrated runoff, especially when the separation between groundwater and the surface is small.

- Location away from buildings, slopes and highway pavement (greater than 6 m) and wells and bridge structures (greater than 30 m). Sites constructed of fill, having a base flow or with a slope greater than 15% should not be considered.

- Ensure that adequate head is available to operate flow splitter structures (to allow the basin to be offline) without ponding in the splitter structure or creating backwater upstream of the splitter.

- Base flow should not be present in the tributary watershed.

Secondary Screening Based on Site Geotechnical Investigation

- At least three in-hole conductivity tests shall be performed using USBR 7300-89 or Bouwer-Rice procedures (the latter if groundwater is encountered within the boring), two tests at different locations within the proposed basin and the third down gradient by no more than approximately 10 m. The tests shall measure permeability in the side slopes and the bed within a depth of 3 m of the invert.

- The minimum acceptable hydraulic conductivity as measured in any of the three required test holes is 13 mm/hr. If any test hole shows less than the minimum value, the site should be disqualified from further consideration.

- Exclude from consideration sites constructed in fill or partially in fill unless no silts or clays are present in the soil boring. Fill tends to be compacted, with clays in a dispersed rather than flocculated state, greatly reducing permeability.

- The geotechnical investigation should be such that a good understanding is gained as to how the stormwater runoff will move in the soil (horizontally or vertically) and if there are any geological conditions that could inhibit the movement of water.

Additional Design Guidelines

(1) Basin Sizing - The required water quality volume is determined by local regulations or sufficient to capture 85% of the annual runoff.

(2) Provide pretreatment if sediment loading is a maintenance concern for the basin.

(3) Include energy dissipation in the inlet design for the basins. Avoid designs that include a permanent pool to reduce opportunity for standing water and associated vector problems.

(4) Basin invert area should be determined by the equation:

$$A = \frac{WQV}{kt}$$

where A = Basin invert area (m^2)

WQV = water quality volume (m^3)

k = 0.5 times the lowest field-measured hydraulic conductivity (m/hr)

t = drawdown time (48 hr)

(5) The use of vertical piping, either for distribution or infiltration enhancement shall not be allowed to avoid device classification as a Class V injection well per 40 CFR146.5(e)(4).

Maintenance

Regular maintenance is critical to the successful operation of infiltration basins. Recommended operation and maintenance guidelines include:

- Inspections and maintenance to ensure that water infiltrates into the subsurface completely (recommended infiltration rate of 72 hours or less) and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.
- Observe drain time for the design storm after completion or modification of the facility to confirm that the desired drain time has been obtained.
- Schedule semiannual inspections for beginning and end of the wet season to identify potential problems such as erosion of the basin side slopes and invert, standing water, trash and debris, and sediment accumulation.
- Remove accumulated trash and debris in the basin at the start and end of the wet season.
- Inspect for standing water at the end of the wet season.
- Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.
- Remove accumulated sediment and regrade when the accumulated sediment volume exceeds 10% of the basin.
- If erosion is occurring within the basin, revegetate immediately and stabilize with an erosion control mulch or mat until vegetation cover is established.
- To avoid reversing soil development, scarification or other disturbance should only be performed when there are actual signs of clogging, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a very light tractor.

Cost

Infiltration basins are relatively cost-effective practices because little infrastructure is needed when constructing them. One study estimated the total construction cost at about $2 per ft (adjusted for inflation) of storage for a 0.25-acre basin (SWRPC, 1991). As with other BMPs, these published cost estimates may deviate greatly from what might be incurred at a specific site. For instance, Caltrans spent about $18/ft^3 for the two infiltration basins constructed in southern California, each of which had a water quality volume of about 0.34 ac.-ft. Much of the higher cost can be attributed to changes in the storm drain system necessary to route the runoff to the basin locations.

Infiltration basins typically consume about 2 to 3% of the site draining to them, which is relatively small. Additional space may be required for buffer, landscaping, access road, and fencing. Maintenance costs are estimated at 5 to 10% of construction costs.

One cost concern associated with infiltration practices is the maintenance burden and longevity. If improperly maintained, infiltration basins have a high failure rate. Thus, it may be necessary to replace the basin with a different technology after a relatively short period of time.

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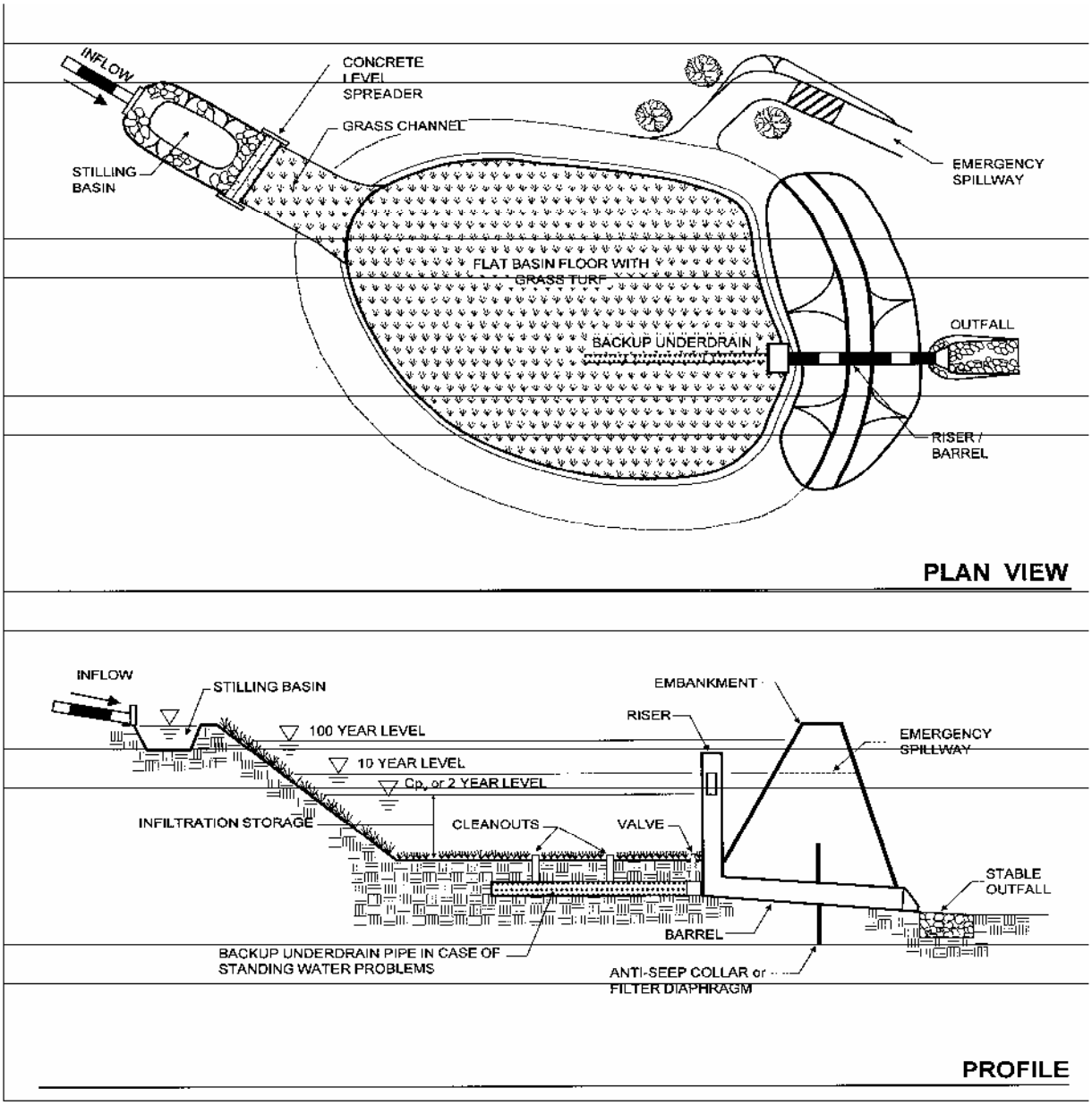
INFLOW
CONCRETE LEVEL SPREADER
GRASS CHANNEL
STILLING BASIN
EMERGENCY SPILLWAY
FLAT BASIN FLOOR WITH GRASS TURF
OUTFALL
BACKUP UNDERDRAIN
RISER / BARREL
PLAN VIEW
INFLOW
STILLING BASIN
EMBANKMENT
RISER
100 YEAR LEVEL
EMERGENCY SPILLWAY
10 YEAR LEVEL
Cp, or 2 YEAR LEVEL
INFILTRATION STORAGE
CLEANOUTS
VALVE
STABLE OUTFALL
BARREL
BACKUP UNDERDRAIN PIPE IN CASE OF STANDING WATER PROBLEMS
ANTI-SEEP COLLAR or FILTER DIAPHRAGM
PROFILE

Appendix H

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT – SUMMARY OF SITE REMEDIATION CONDUCTED AND USE RESTRICTIONS

NOT AVAILABLE

Appendix I

PROJECT-SPECIFIC WQMP SUMMARY DATA FORM

Project-Specific WQMP Summary Data Form

Applicant Information	
Name and Title	William R. Patton
Company	Banning Industrial, LP
Phone	(949) 474-2000
Email	

Project Information	
Project Name (as shown on project application/project-specific WQMP)	Banning Distribution Center
Street Address	(street number not assigned) John Street, Banning, CA 92220
Nearest Cross Streets	Hathaway Street and I-10 Freeway
Municipality (City or Unincorporated County)	City of Banning, CA
Zip Code	92220
Tract Number(s) and/or Assessor Parcel Number(s)	APN's 532-110-006, 532-130-001, 532-130-002
Other (other information to help identify location of project)	33.9253° N, 116.8452 ° W

Indicate type of project.	**Priority Development Projects (Use an "X" in cell preceding project type):**	
		SF hillside residence; impervious area ≥ 10,000 sq. ft.; Slope ≥ 25%
		SF hillside residence; impervious area ≥ 10,000 sq. ft.; Slope ≥ 10% & erosive soils
	X	Commercial or Industrial ≥ 100,000 sq. ft.
		Automotive repair shop
		Retail Gasoline Outlet disturbing > 5,000 sq. ft.
		Restaurant disturbing > 5,000 sq. ft.
		Home subdivision ≥ 10 housing units
		Parking lot ≥ 5,000 sq. ft. or ≥ 25 parking spaces

Date Project-Specific WQMP Submitted	
Size of Project Area (nearest 0.1 acre)	63.9 acres
Will the project replace more than 50% of the impervious surfaces on an existing developed site?	Yes
Project Area managed with LID/Site Design BMPs (nearest 0.1 acre)	63.9 (57.9 by infiltration basins, remaining 5 acres self-treated pervious area draining away from the site)
Are Treatment Control BMPs required?	No
Is the project subject to onsite retention by ordinance or policy?	Yes
Did the project meet the 100% LID/Site Design Measurable Goal?	Yes
Name of the entity that will implement, operate, and maintain the post-construction BMPs	OWNER
Contact Name	William R. Patton
Street or Mailing Address	17842 Mitchell North, Suite 100
City	Irvine
Zip Code	92614
Phone	(949) 474-2000

Space Below for Use by City/County Staff Only	
Preceding Information Verified by (consistent with information in project-specific WQMP)	**Name:** **Date:**
Date Project-Specific WQMP Approved:	
Data Entered by	**Name:** **Date:**
Other Comments	

Appendix M

KUNZMAN ASSOCIATES, INC.

BANNING DISTRIBUTION FACILITY

NOISE IMPACT ANALYSIS (REVISED)

February 20, 2018

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

BANNING DISTRIBUTION FACILITY

NOISE IMPACT ANALYSIS (REVISED)

February 20, 2018

Prepared by:

Roma Stromberg, INCE/M.S. ■ Catherine Howe, M.S.
Carl Ballard, LEED GA ■ William Kunzman, P.E.

KUNZMAN ASSOCIATES, INC.
1111 Town & Country Road, Suite 34 ■ Orange, California 92868
5005 La Mart Drive, Suite 201 ■ Riverside, California 92507
(714) 973-8383 ■ www.traffic-engineer.com
JN 6750a

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I. INTRODUCTION AND SETTING

A. Purpose and Objectives

The purpose of this noise impact analysis is to provide an assessment of the noise impacts resulting from development of the proposed Banning Distribution Facility project and to identify mitigation measures that may be necessary to reduce those impacts. The noise issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to noise analysis, a glossary of terms is provided in Appendix A of this report.

B. Project Location

The project is located at the easterly terminus of John Street and south of the I-10 Freeway in the City of Banning. A vicinity map showing the project location is provided on Figure 1.

C. Project Description

The approximately 63.75 acre project site is proposed to be developed with a 1,000,000 square foot gross floor area high-cube warehouse distribution center. The site is proposed to provide 231 parking spaces and 392 trailer parking spaces. The project site plan is illustrated on Figure 2. The proposed project is anticipated to generate approximately 1,040 average daily passenger car trips, 109 two-axle truck trips, 145 three-axle truck trips, and 386 four-axle (and greater) truck trips.

As shown on Figure 3, off-site improvements to the project include paving and improving of John Street, fire access road, sewer and water lines. The proposed project off-site roadways include a 5,688 linear foot extension of John Street from the project's west property line to the existing easterly terminus of John Street and a 3,871 linear foot emergency fire access roadway at the southwestern corner of the property, which will need to cross a tributary to Smith Creek, west across the Banning Municipal Airport property and south on the Juarez Street alignment to Lincoln Street.

The off-site utility improvements include extensions of water and sewer lines in order to connect to existing facilities and detention basins. There is an existing drainage swale between the project site and the train tracks north of the project site. A drainage swale is proposed west of the project site. The proposed project includes construction of 5,968 linear feet of sewer line and the construction of an approximately 0.146 acre lift station. The lift station is located approximately 0.4 miles from the southern edge of the project site. The proposed project requires construction of an off-site water line for 9,350 linear feet to connect to existing lines at the intersection of South Hathaway Street and East Barbour Street. Approximately 4,714 linear feet of the water line extension will extend north on South Hathaway Street and then east on the extension of John Street. The remaining 4,636 linear feet will be east and south of the project site, terminating at the intersection of Scott Street and East Westward Avenue.

Figure 1
Project Location Map

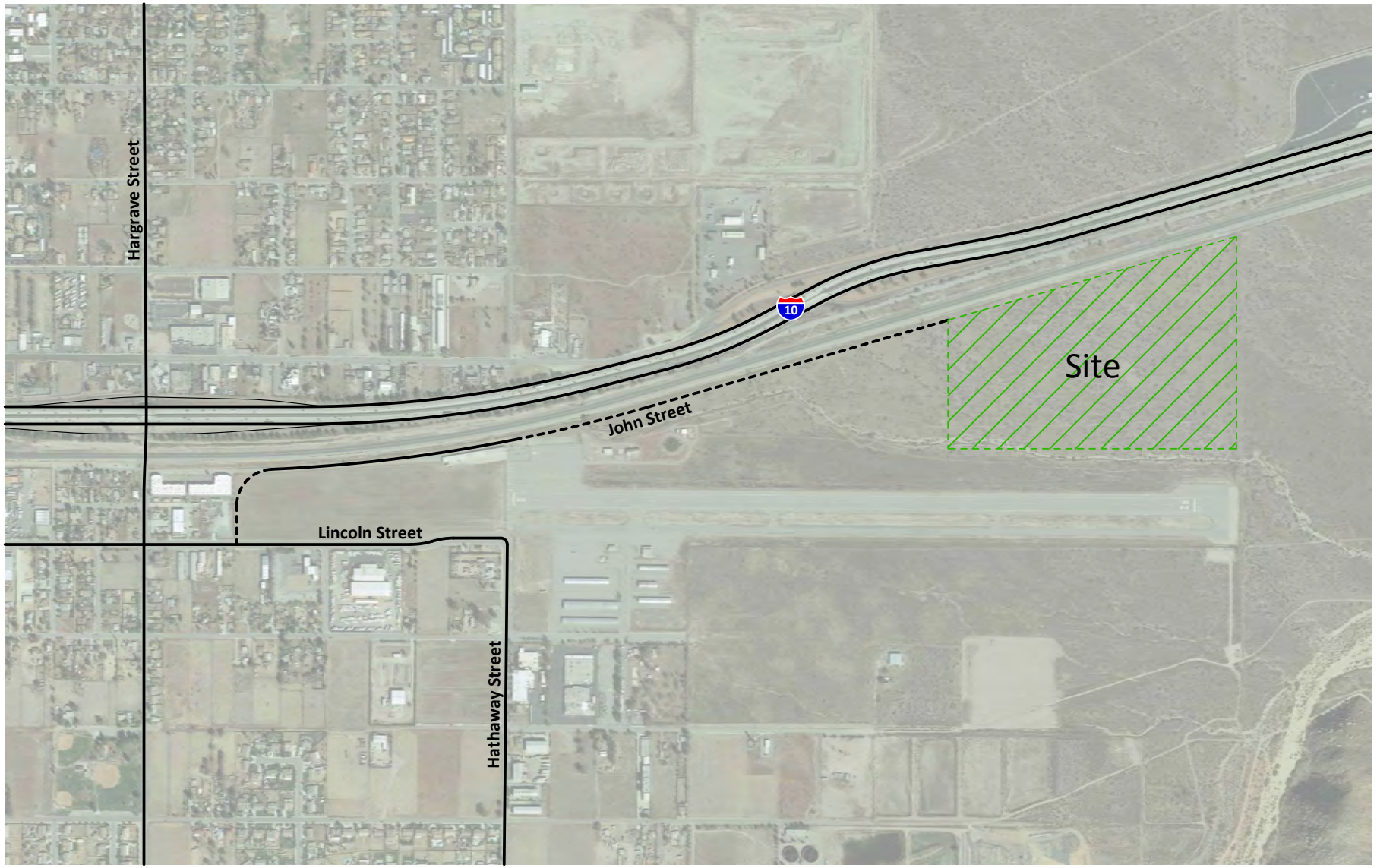


Figure 2
Site Plan

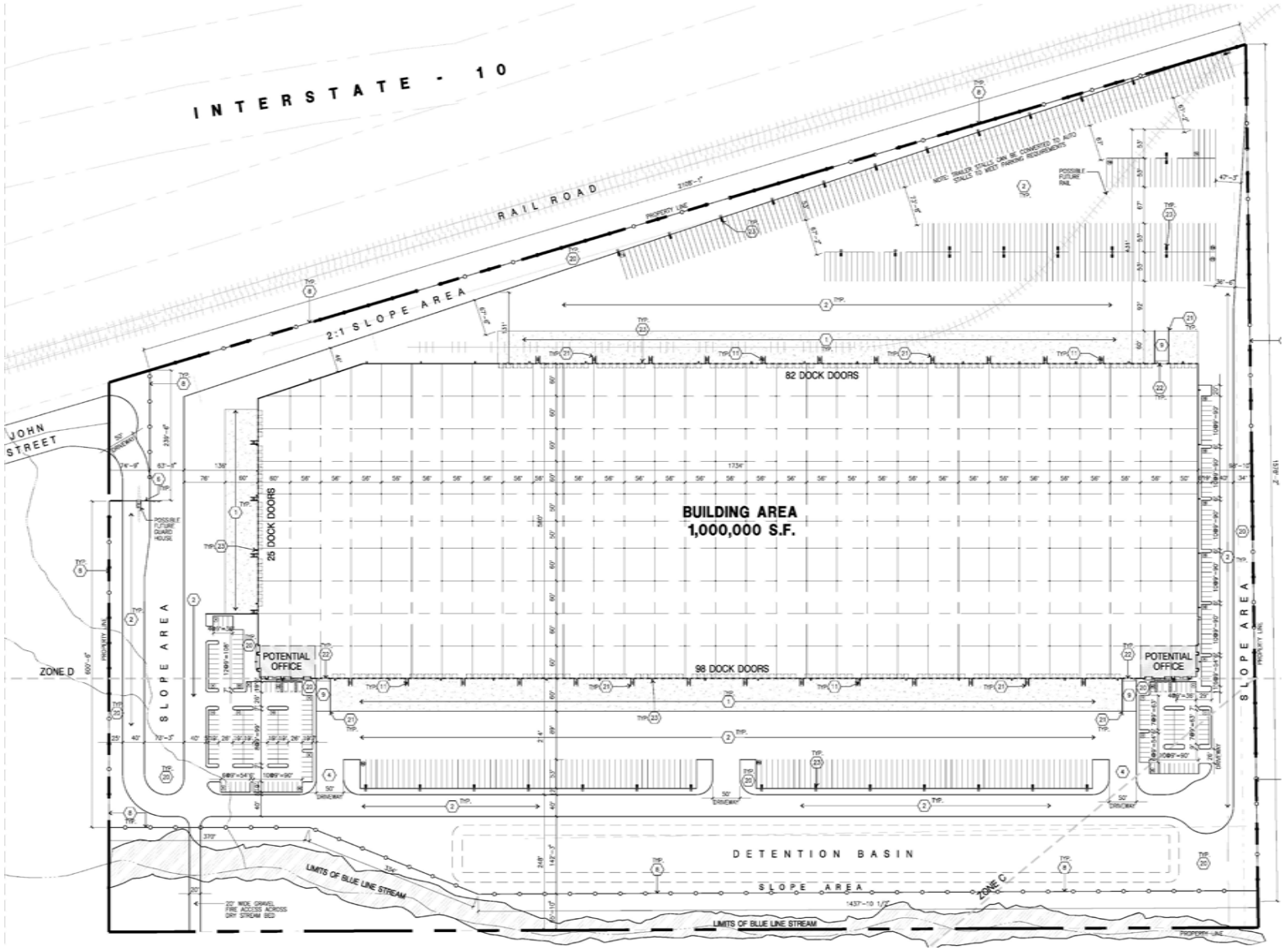
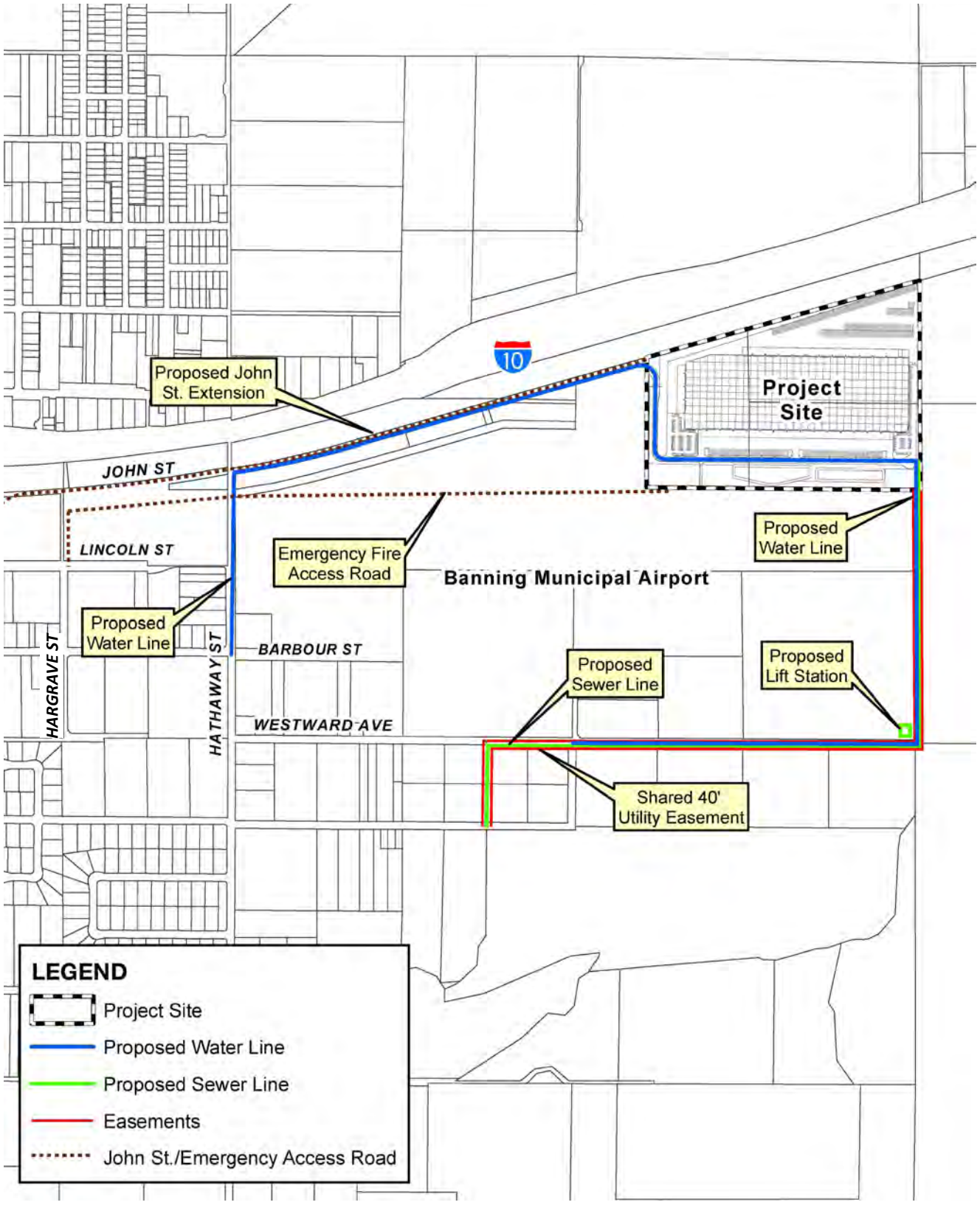


Figure 3
Proposed Off-Site Improvements



II. NOISE AND VIBRATION FUNDAMENTALS

A. Noise Fundamentals

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the "A-weighted" noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease.

Figure 4 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq}, or the equivalent noise level for that period of time. For example, $L_{eq(3)}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (L_{dn}). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. L_{dn} is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation's Traffic Noise Analysis Protocol for New Highway and Reconstruction Projects (2013).

B. Vibration Fundamentals

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Construction operations generally include a wide range of activities that can generate groundborne vibration. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, or the differential settlement of pavement all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions.

Typically, particle velocity or acceleration (measured in gravities) is used to describe vibration. Table 1 shows the peak particle velocities (PPV) of some common construction equipment and Table 2 shows typical human reactions to various levels of PPV as well as the effect of PPV on buildings.

Figure 4
Common Noise Sources and Noise Levels

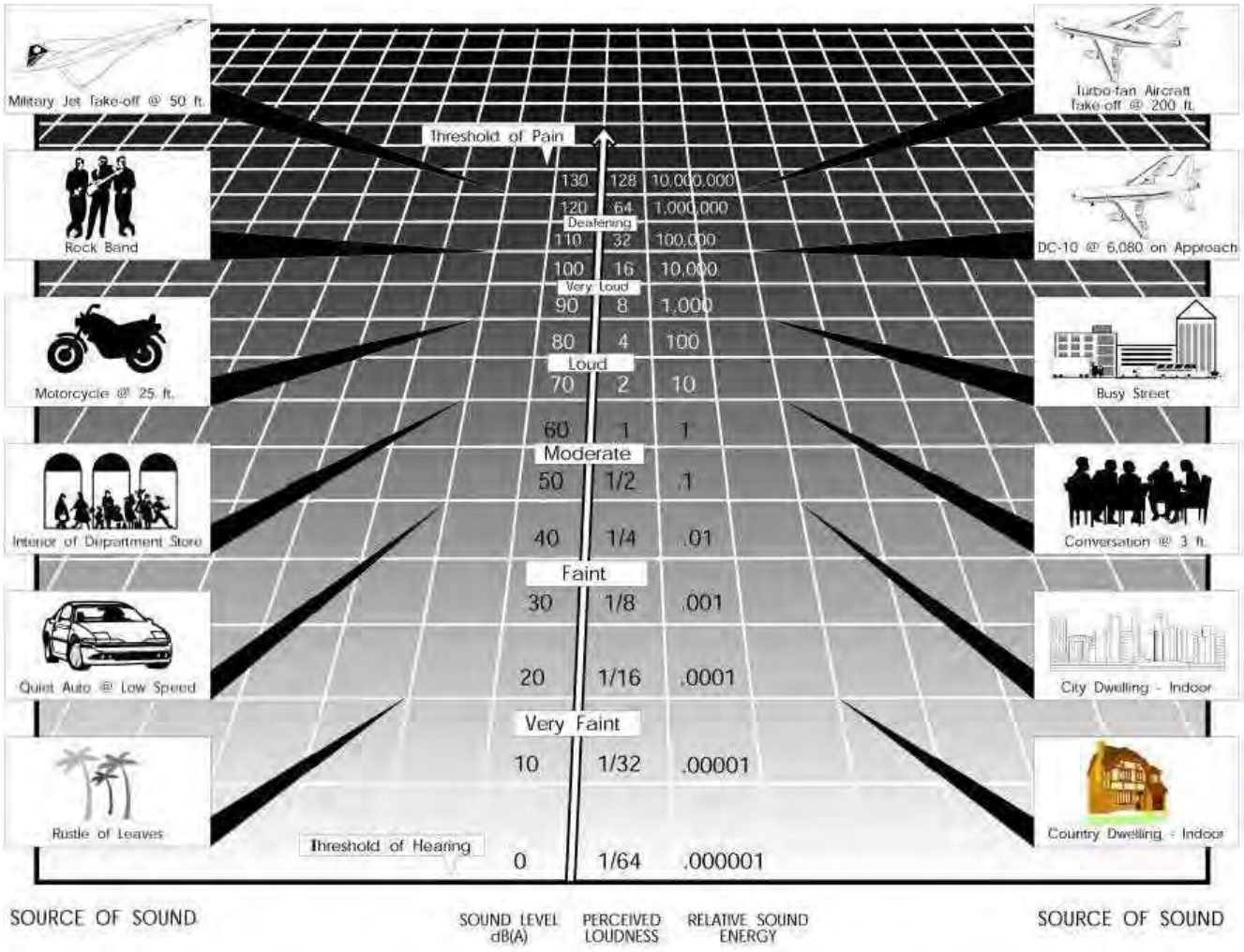


Table 1

Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

[1] Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

Table 2

Typical Human Reaction and Effect on Buildings Due to Groundborne Vibration[1]

Vibration Level Peak Particle Velocity (PPV)	Human Reaction	Effect on Buildings
0.006–0.019 in/sec	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08 in/sec	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20 in/sec	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6 in/sec	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

[1] Source: California Department of Transportation, 2002

III. EXISTING NOISE ENVIRONMENT

A. Existing Land Uses and Sensitive Receptors

The project site is bordered by John Street and the I-10 Freeway to the north, Banning Municipal Airport to the south, vacant land to the east, and Banning Municipal Airport and vacant land to the west. There are no noise sensitive land uses adjacent to the project site.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Sensitive receptors that may be affected by project generated noise include single-family detached residential dwelling units and a church. Figure 5 shows sensitive receptors in proximity to the proposed project.

B. Ambient Noise Measurements

Short-Term Daytime Noise Measurements (10-minute)
Three (3) 10-minute daytime representative noise measurements were taken between 3:30 PM and 4:28 PM on April 19, 2017 with an American National Standards Institute (ANSI Section SI4 1979, Type 1) Larson Davis model LxT sound level meter in order to document existing ambient noise levels in the project area. Field worksheets and noise measurement output data are included in Appendix C.

As shown on Figure 6, two short-term noise measurements were taken near existing single-family detached residential dwelling units along roadway segments that will be affected by project generated vehicle trips and one short-term noise measurement was taken at the east end of East Westward Avenue in order to get representative noise levels at the project site. Table 3 provides a summary of the short-term ambient noise data. Ambient noise levels measured between 49.7 and 65.7 dBA L_{eq}. The dominant noise source was from vehicles traveling on local surface streets. Secondary noise sources included vehicle noise associated with traffic volumes on the I-10 Freeway, overhead aircraft, machinery at a distance, and birdsong.

Long Term Noise Measurements (24-Hour)
Kunzman Associates, Inc. conducted two 24-hour noise measurements at two locations that are representative of sensitive receptors that may be affected by project generated vehicle trips. The noise measurement data were collected in one-minute intervals over a 24-hour period.

The first 24-hour noise measurement was taken near the single-family detached residential dwelling units located at 982 East Lincoln Street (Figure 6, LTNM 1). One-hour L_{eq} noise levels are expected to range between 52.6-62.8 dBA Leq. The quietest daytime hour (7:00 AM-10:00 PM) was 56.8 and the quietest nighttime hour (between 7:00 AM and 10:00 PM was 52.6 dBA Leq. Maximum noise events during daytime hours ranged between 75.7 and 87.9 dBA and maximum noise events during nighttime hours ranged between 67.0 and 88.2 dBA. The CNEL of long term noise measurement 1 is 67.0 dBA.

Figure 5
Sensitive Receptors in Proximity to the Proposed Project

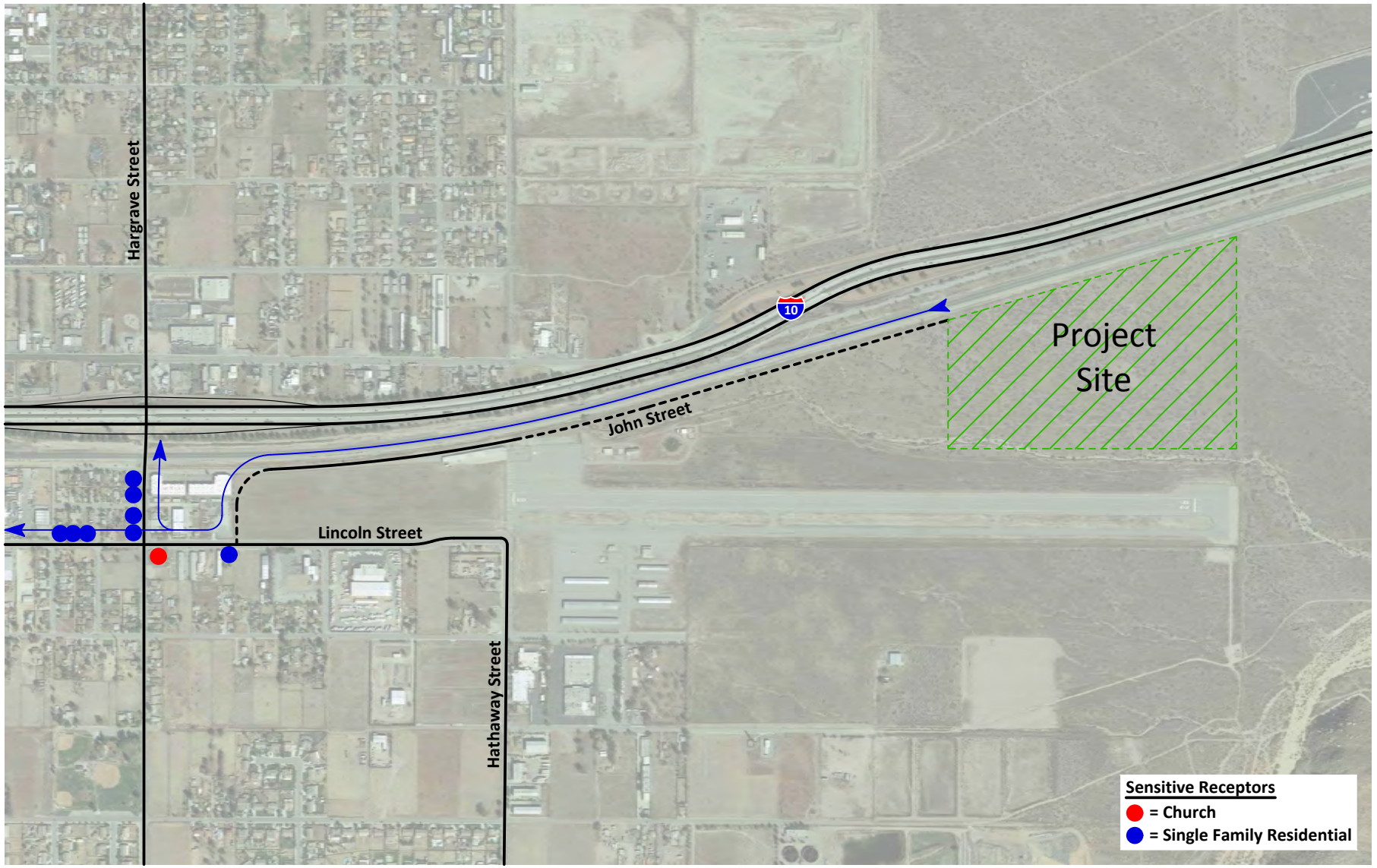


Figure 6
Noise Measurement Location Map

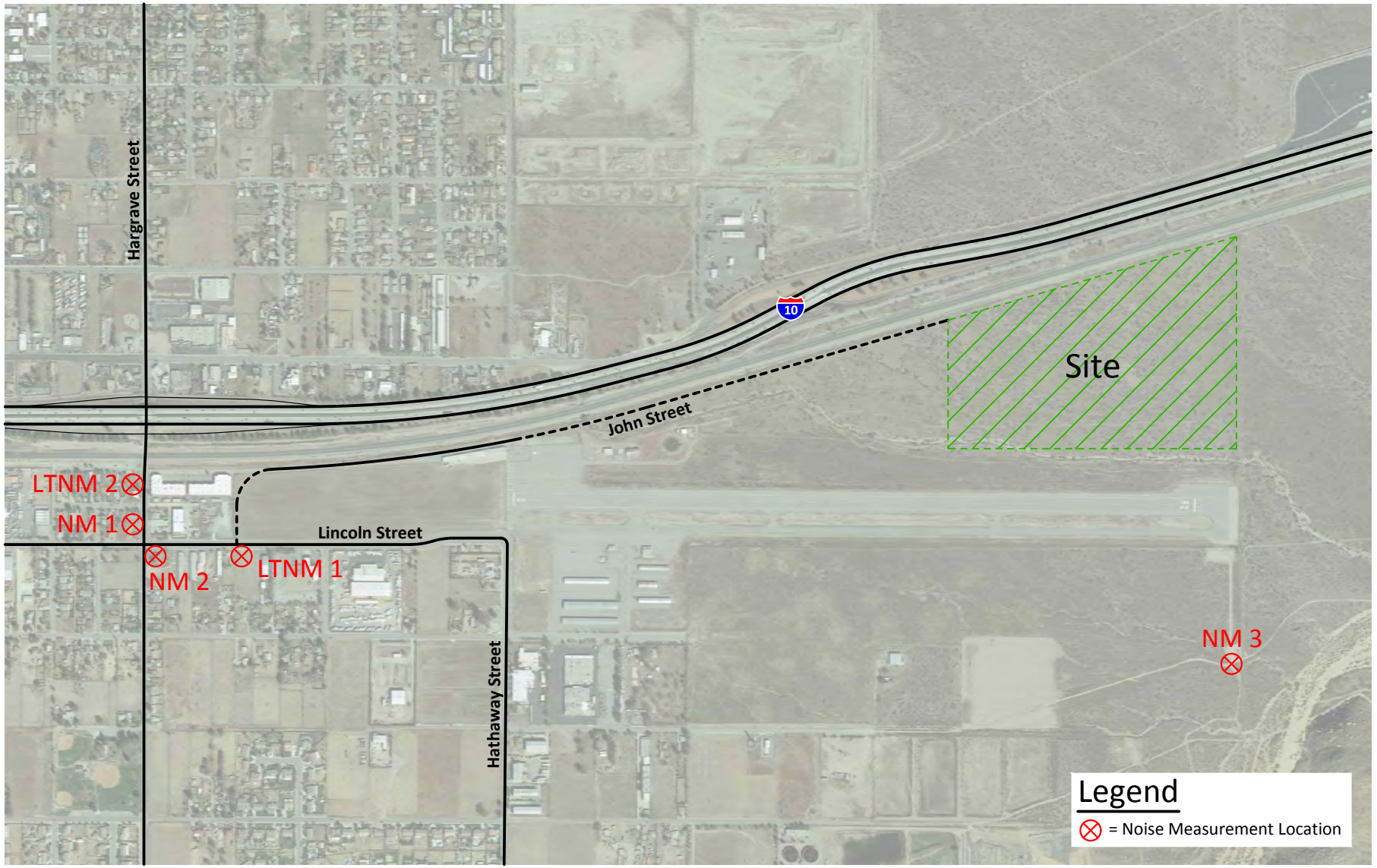


Table 3

Short-Term Noise Measurement Summary (dBA)[1, 2]

Daytime							
Site Location	Time Started	Leq	Lmax	L(2)	L(8)	L(25)	L(50)
NM1	3:30 PM	65.0	77.3	74.1	68.3	64.6	61.7
NM2	3:45 PM	65.7	83.3	73.4	67.7	63.2	59.8
NM3	4:48 PM	49.7	55.6	53.3	51.8	50.5	49.2

[1] See Figure 4 for noise measurement locations. Each noise measurement was performed over a 10-minute duration.

[2] Noise measurements performed on January 11, 2017.

Noise measurement data for long term noise measurement 1 (see Table 4) shows that there is little variation between daytime and nighttime noise levels. In fact, the quietest hours at this location are between 4:00 PM and 5:00 PM, 2:00 AM and 3:00 AM, and 3:00 PM and 4:00 PM in that order. It is clear that noise associated with the I-10 Freeway is the dominant noise source. Noise events exceeding 75 dBA occurred several times between the hours of 10:00 PM and 7:00 AM. The highest measured maximum noise level (88.2 dB) occurred at 11:21 PM.

The second 24-hour noise measurement was taken near the single-family detached residential dwelling unit located at 781 Plaza Street and adjacent to Hargrave Street (see Figure 6, LTNM 2). Measured one-hour L_{eq} noise levels are expected to range between 61.6-76.3 dBA Leq. The quietest daytime hour (7:00 AM-10:00 PM) was 63.5 and the quietest nighttime hour (between 7:00 AM and 10:00 PM was 61.6 dBA L_{eq}. Maximum noise events during daytime hours ranged between 78.2 and 103.4 dBA and maximum noise events during nighttime hours ranged between 73.5 and 103.4 dBA. The CNEL of long term noise measurement 2 is 77.9 dBA.

Noise measurement data for long term noise measurement 2 (see Table 5) shows that there is little variation between daytime and nighttime noise levels. In fact, the quietest hours at this location are between 11:00 PM to 12:00 AM, 1:00 AM and 2:00 AM, 2:00 AM and 3:00 AM, in that order. It is clear that noise associated with the I-10 Freeway and the Union Pacific Railroad Company rail line are the dominant noise sources. Noise events exceeding 75 dBA occurred several times between the hours of 10:00 PM and 7:00 AM. The highest measured maximum noise level (103.4 dB) occurred at 8:27 PM.

C. Existing Noise Sources

The project area is located in an environment heavily dominated by existing transportation related noise sources. The dominant noise sources in the project area are discussed below.

I-10 Freeway

The I-10 Freeway lies to the north of the proposed project site and is in close proximity to those existing sensitive receptors affected by the proposed project. The lanes of the I-10 Freeway are located as close as approximately 330 feet north of the single-family detached residential dwelling units located along Hargrave Street, with the on/off-ramps being as close as 250 feet north of these single-family detached residential dwelling units. Further, the lanes of the I-10 Freeway are located as close as approximately 900 feet north, with the on/off-ramps being located approximately 830 feet north of the single-family detached residential dwelling unit and church located along Lincoln Street.

The I-10 Freeway in the vicinity of the proposed project has a vehicle mix of approximately 84% autos, 4.7% medium trucks and 11.3% heavy trucks with an annual average daily traffic volume of 121,000 vehicles, found in data provided by the California Department of Transportation (http://traffic-counts.dot.ca.gov/).

Table 4

24-Hour Noise Measurement Data at Representative Sensitive Receptors just east of 982 East Lincoln Street (Single-Family Detached Residential Dwelling Unit)[1,2]

Measurement Period	Average One-Minute Leq (dBA)	Maximum Noise Event (dBA)	Leq (1Hour)
12:00 PM-1:00 PM	56.5	79.3	59.4
1:00 PM-2:00 PM	56.6	80.0	59.6
2:00 PM-3:00 PM	56.0	75.7	58.0
3:00 PM-4:00 PM	55.9	80.8	58.7
4:00 PM-5:00 PM	54.2	83.3	57.7
5:00 AM-6:00 PM	59.0	84.6	62.8
6:00 PM-7:00 PM	56.8	81.5	60.8
7:00 PM-8:00 PM	59.2	81.2	61.7
8:00 PM-9:00 PM	59.2	87.9	62.4
9:00 PM-10:00 PM	61.3	70.5	61.5
10:00 PM-11:00 PM	58.9	72.3	59.2
11:00 PM-12:00 AM	59.2	88.2	62.5
12:00 AM-1:00 AM	57.9	82.4	61.4
1:00 AM-2:00 AM	56.5	87.4	60.5
2:00 AM-3:00 AM	55.8	81.6	52.6
3:00 AM-4:00 AM	56.7	67.0	57.0
4:00 AM-5:00 AM	58.6	83.0	60.0
5:00 AM-6:00 AM	60.6	83.4	62.3
6:00 AM-7:00 AM	58.9	78.3	60.1
7:00 AM - 8:00 AM	58.4	76.9	59.1
8:00 AM - 9:00 AM	55.3	77.1	56.8
9:00 AM - 10:00 AM	54.5	80.0	58.0
10:00 AM - 11:00 AM	54.0	81.8	57.0
11:00 AM -12:00 PM	58.2	78.3	59.3

[1] See Figure 4 for noise measurement locations. The noise measurement was performed over a 24-hour duration.

[2] Noise measurement performed from February 5, 2018 to February 6, 2018.

Table 5

24-Hour Noise Measurement Data at Representative Sensitive Receptors just north of 782 Plaza Street (Single-Family Residential Dwelling Unit), near Hargrave Street[1,2]

Measurement Period	Average One-Minute Leq (dBA)	Maximum Noise Event (dBA)	Leq (1-Hour)
12:00 PM-1:00 PM	63.1	78.2	71.6
1:00 PM-2:00 PM	66.2	95.4	68.5
2:00 PM-3:00 PM	65.8	95.0	73.4
3:00 PM-4:00 PM	66.7	100.8	70.8
4:00 PM-5:00 PM	66.0	97.6	75.2
5:00 AM-6:00 PM	67.1	101.7	67.9
6:00 PM-7:00 PM	65.7	92.9	72.3
7:00 PM-8:00 PM	66.0	99.2	74.6
8:00 PM-9:00 PM	66.0	103.4	71.2
9:00 PM-10:00 PM	65.2	99.2	67.8
10:00 PM-11:00 PM	63.1	96.0	61.6
11:00 PM-12:00 AM	61.4	74.6	72.5
12:00 AM-1:00 AM	64.0	98.9	63.6
1:00 AM-2:00 AM	62.7	81.2	71.8
2:00 AM-3:00 AM	63.0	98.8	65.0
3:00 AM-4:00 AM	63.4	92.0	64.7
4:00 AM-5:00 AM	64.5	73.5	74.2
5:00 AM-6:00 AM	67.3	103.0	74.9
6:00 AM-7:00 AM	69.3	100.5	75.0
7:00 AM - 8:00 AM	68.5	100.5	76.3
8:00 AM - 9:00 AM	67.2	103.4	71.7
9:00 AM - 10:00 AM	64.9	97.1	74.5
10:00 AM - 11:00 AM	65.9	101.2	72.8
11:00 AM -12:00 PM	64.3	100.2	63.5

[1] See Figure 4 for noise measurement locations. The noise measurement was performed over a 24-hour duration.

[2] Noise measurement performed from February 8, 2018 to February 9, 2018.

Train Noise

There is an existing Union Pacific Railroad Company rail line in the project vicinity running in an east/west direction just south of the I-10 Freeway. This rail line is as close as 100 feet north of the single-family detached residential dwelling units along Hargrave Street and approximately 660 feet north of the single-family detached residential dwelling unit and church located along Lincoln Street. According to the most recent Federal Railroad Administration Inventory Data Sheets (see Appendix H), approximately 17 thru trains occur during the nighttime hours (6:00 PM to 6:00 AM) and 17 during the daytime hours (6:00 AM to 6:00 PM), with two switching trains throughout the day. Typical train speed range between 20 and 60 miles per hour.

Banning Municipal Airport

Banning Municipal Airport is located approximately 2,660 feet east of the single-family detached residential dwelling units along Hargrave Street and between approximately 1,980 feet and 2,455 feet east of the single-family detached residential dwelling unit and church along Lincoln Street. The airport runway lies in an east/west direction.

According to both the Banning Municipal Airport Master Plan Update and the City of Banning General Plan existing noise contour maps as well as the City of Banning General Plan buildout airport noise contour map, the single-family detached residential dwelling units along Hargrave Street are within the 60 and 65 dB CNEL noise contours, while the church along Lincoln Street is within the 60 dB CNEL noise contour for the airport.

IV. REGULATORY SETTING

A. Federal Regulations

1. Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the Levels of Environmental Noise identified five (5) dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA Ldn (i.e., there would not be a noticeable increase in adverse community reaction with an increase of five dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

B. State Regulations

1. State of California General Plan Guidelines 2003

Though not adopted by law, the State of California General Plan Guidelines 2003, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provide guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., Ldn or CNEL) and in the upper limits for the Normally Acceptable outdoor exposure of noise-sensitive uses. The OPR Guidelines include a Noise and Land Use Compatibility Matrix identifies acceptable and

unacceptable community noise exposure limits for various land use categories. The City utilizes a version of this table (discussed below).

3. California Environmental Quality Act

The California Environmental Quality Act Guidelines (Appendix G) establishes thresholds for noise impact analysis. Two of these standards apply to what is referred to as a "substantial increase" in ambient noise levels. Neither the California Environmental Quality Act nor the City of Banning General Plan Noise Element recognizes an official numerical increase as a "substantial increase." Industry-accepted standards for what is considered to be a "substantial increase" range from 3 dB to 12 dB. It should be noted that a change of 3 dB is considered to be "barely audible" to a trained ear and that a change of 5 dB is considered to be a readily audible change.

For purposes of this analysis, the following threshold was used to evaluate the project's potential to result in substantial increases in ambient noise levels.

Roadway noise impacts would be considered significant if the project increases noise levels at a noise sensitive land use by 3 CNEL and if: (1) the existing noise levels already exceed the residential land use compatibility standard for "clearly compatible" (60 CNEL), or (2) the project increases noise levels from below the 60 CNEL standard to above 60 CNEL.

4. California Department of Transportation

The California Department of Transportation *and Vibration Guidance Manual* recommends a maximum vibration level standard of 0.2 in/sec PPV for the prevention of structural damage to typical residential buildings.

C. Local Regulations

1. City of Banning General Plan

Land use compatibility in light of community noise equivalent levels (CNEL) standards are presented in Table V-4 of the City of Banning General Plan Environmental Hazards Element. These standards (see Table 6) are presented as allowable exterior noise levels for various land uses.

Other Applicable policies and standards governing environmental noise in the City are set forth in the General Plan Noise Element. Those that are applicable to this analysis are presented below:

Goals, Policies, and Policy Action

The City utilizes the following General Plan Noise Element goal, policies and programs to assess and evaluate the project's suitability in light of noise impacts.

Table 6

Land Use Compatibility for Community Noise Environments[1]

Land Use Category	Community Noise Equivalent Level (CNEL)					
	55	60	65	70	75	80
Residential- Single Family Dwellings, Duples, Mobile Homes						
Residential Multi-Family						
Transient Lodging: Hotels/Motels						
School Classrooms, Libraries, Churches, Hospitals, Nursing Homes and Convelescent Hospitals						
Auditoriums, Concert Halls, Amphitheatres						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Business Commercial and Professional						
Industrial, Manufacturing, Utilities, Agriculture						

Normally Acceptable: With no special noise reduction requirements assuming standard construction.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed insulation features included in the design.

Normally Unacceptable: New construction is discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development should generally not be undertaken.

[1]Source: City of Banning General Plan Noise Element

Goal A noise environment that complements the community's residential character and its land uses.

Policy 1 The City shall protect noise sensitive land uses, including residential neighborhoods, schools, hospitals, libraries, churches, resorts and community open space, from potentially significant sources of noise.

Program 1.A The City shall require building setbacks, the installation of wall and window insulation, sound walls, earthen berms, and/or other mitigation measures in areas exceeding the City's noise limit standards for private development projects as they occur.

Program 1.B The City shall maintain and enforce its Noise Control Ordinances that establish community-wide noise standards and identify measures designed to resolve noise complaints.

Program 1.C The City shall use the development review process to assure the use of buffers between sensitive receptors and incompatible land uses.

Program 1.C The City shall require that commercial compactors, loading zones, and large trash bins be located at a sufficient distance from residential properties to reduce noise impacts to its acceptable standard.

Policy 3 Private sector project proposals shall include measures that assure that noise exposures levels comply with State of California noise insulation standards as defined in Title 25 (California Noise Insulation Standards) and/or Banning Ordinances 1138 and 1234, whichever is more restrictive.

Policy 4 The City shall maintain a General Plan Circulation Map and assure low levels of traffic within neighborhoods by assigning truck routes to major roadways only.

Program 4.A The City shall review designated primary truck routes and ensure they are clearly marked throughout the community. Except for traffic providing location-specific services and deliveries, construction trucks and delivery trucks shall be limited to designated truck routes, including: Ramsey Street, and those portions of Lincoln Street, Highland Springs Avenue, Hathaway Street, Sunset Avenue, Eighth Street, San Gorgonio Avenue, and Hargrave Street so designated.

Program 4.B The City shall discourage development projects that result in through-traffic in residential neighborhoods.

Policy 6 All development proposals within the noise impact area of the I-10 Freeway and the railroad shall mitigate both noise levels and vibration to acceptable levels through the preparation of focused studies and analysis in the development review and environmental review process.

Policy 8 The City shall impose and integrate special design features into proposed development that minimize impacts associated with the operation of air conditioning and heating equipment, on-site traffic, and use of parking, loading and trash storage facilities.

2. City of Banning Municipal Ordinance

Title 8, Chapter 44 of the City's Municipal Code establishes citywide exterior noise level standards. The noise ordinance has been reviewed and the sections that are applicable to this analysis are outlined below.

Section 8.44.040 – Noise level measurement criteria.

B. The Factors which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the sound level of the objectionable noise; the sound level of the ambient noise; the proximity of the noise to residential sleeping facilities; the nature and zoning of the area within which the noise emanates; the number of persons affected by the noise source; the time of day or night the noise occurs; the duration of the noise and its tonal, informational or musical content; whether the noise is produced by a commercial or noncommercial activity.

C. The above factors shall be considered in addition to the noise levels set forth in this section in determining a violation. However, noises do not necessarily need to exceed those noise level limits to be considered unnecessary or unusual so as to cause discomfort or annoyance to persons in the area.

Section 8.44.050 – Base ambient noise level. All ambient noise measurements shall commence at the base ambient noise levels in decibels within the respective times and zones as shown below. As shown below, the base noise level for impacts to residential properties is 55 dBA between the hours of 7:00 AM and 10:00 PM and 45 dBA between the hours of 10:00 PM and 7:00 AM.

Base Ambient Noise Levels[1,2]		
Decibels	Time Period	Zone Use
45 dB(A)	10:00 PM – 7:00 AM	Residential
55 dB(A)	7:00 AM – 10:00 PM	Residential
75 dB(A)	Anytime	Industrial and Commercial

[1] Base ambient noise refers to the lowest ambient noise level for any particular zone.

[2] Source: City of Banning Code of Ordinances, 8.44.050.

Actual decibel measurements exceeding the levels set forth herein above at the times and within the zones corresponding thereto shall be employed as the "base ambient noise level" referred to in this chapter. Otherwise, no ambient noise shall be deemed to be less than the above specified levels.

As shown in Section III(B), the measured existing ambient noise exceeds the City's residential base ambient noise level standards for both day and night. Although the existing conditions have been identified as being above the City's base ambient noise level standards for residential uses, this report uses the base ambient noise levels as identified in Section 8.44.050 of the City's Municipal Code.

Section 8.44.060 – Exterior noise level measurement. Except as otherwise specifically provided within the Municipal Ordinance, all references to "exterior noise" or "exterior noise levels" as used in the Municipal Ordinance shall be as measured at any point relative to the closest point of the source of the noise at the property line of the complaining party. Measurements will not be made during extraordinary times, such as during the movement of a train or nearby airplane.

Section 8.44.070 – Maximum residential noise levels. No noise level shall exceed the standards presented below for the durations specified.

Maximum Allowable Residential Noise Levels[1]	
Decibels	Maximum Duration Period
5 dB(A) above Base Ambient Noise Level	5 minutes any hour
10 dB(A) above Base Ambient Noise Level	16 minutes any hour
15 dB(A) above Base Ambient Noise Level	1 minutes any hour
20 dB(A) above Base Ambient Noise Level	Not permitted
[1] Source: City of Banning Code of Ordinances, 8.44.070.	

Section 8.44.090 – Noises prohibited-unnecessary noise standard. Any other provision of this chapter notwithstanding, the following acts are expressly prohibited as a violation of this chapter. Such acts are hereby expressly declared to be loud, unusual and unnecessary noises in violation of this chapter, namely:

E. Construction, landscape maintenance or repair:

1. It is unlawful for any person to engage in or permit the generation of noise related to landscape maintenance, construction including erection, excavation, demolition, alteration or repair of any structure or improvement, at such sound levels, as measured at the property line of the nearest adjacent occupied property, as to be in excess of the sound levels permitted under this chapter, at other times than between the hours of 7:00 AM and 6:00 PM. The person engaged in such activity is hereby permitted to exceed sound levels otherwise set forth in this chapter for the duration of the activity during the above described hours for purposes of construction. However, nothing contained herein shall permit any person to cause sound levels to at any time exceed fifty-five dB(A) for intervals of

more than fifteen minutes per hour as measured in the interior of the nearest occupied residence or school.

G. Motor driven vehicles. It shall be unlawful for any person to operate any motor driven vehicle within the city that, due to the nature of the operation of the vehicle, or due to the operating condition of the vehicle, or due to any modification made to the vehicle, in such manner as to exceed noise levels set forth in Section 8.44.050 hereof.

1. Exhaust. It shall be unlawful for any person to discharge into the open air the exhaust of any steam engine, stationary internal combustion engine, motorboat or motor driven vehicle except through a muffler or other device which will effectively prevent loud or explosive noises therefrom.

A "motor-driven vehicle" shall include, but not be limited to, any automobile, truck, van, bus, motorcycle, minibike, go-cart or other self-propelled vehicle, on or off road, and aircraft.

H. Notwithstanding any other provisions of this chapter and in addition thereto, it shall be unlawful for any person to willfully make or continue, or to cause to be made or continued, any loud, unnecessary and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal hearing sensitivity residing in the area. The standard which may be considered in determining whether a violation of the provisions of this section exists may include, but not be limited to, the following:

1. The level of noise;
2. Whether the nature of the noise is usual or unusual;
3. Whether the origin of the noise is natural or unnatural;
4. The level and intensity of the background noise, if any;
5. The proximity of the noise to residential sleeping facilities;
6. The nature of the zoning of the area within which the noise emanates;
7. The density of the inhabitation of the area within which the noise emanates;
8. The time of day and night the noise occurs;
9. Whether the noise is recurrent, intermittent, or constant;
10. The duration of the noise; and
11. Whether the noise is produced by a commercial or noncommercial activity.

Section 8.44.100 – Application Between Zones. In applying the regulations set forth in this chapter, each source of noise shall be subject only to such regulation as shall apply to the zone, including any designated truck route, within which it is located. A use laying adjacent to a zone with a more restrictive noise requirement hereunder shall not be required to conform to that more restrictive requirement. For purposes of this subsection, "zone" shall be as utilized in Title 17 of the Banning Ordinance Code.

V. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

A. Noise Modeling and Input

1. Road Construction Model

A worst-case construction noise scenario was modeled using a version of the Federal Highway Administration's Roadway Construction Noise Model (RCNM). RCNM utilizes standard noise emission levels for many different types of equipment and includes utilization percentage, impact, and shielding parameters. Noise modeling input parameters and output are provided in Appendix D.

2. Federal Highway Administration (FHWA) Traffic Noise Prediction Model

Existing, Existing Plus Project, and Buildout noise levels along the I-10 Freeway were modeled utilizing the FHWA Traffic Noise Prediction Model FHWA-RD-77-108 in order to quantify the proposed project's contribution to increases in ambient noise levels and to calculate future noise levels at the project site due to vehicular traffic traveling on the I-10 Freeway.

The FHWA Traffic Noise Prediction Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for: total average daily traffic volumes (ADT), roadway classification, width, speed and truck mix, roadway grade and site conditions (hard or soft ground surface). Surfaces adjacent to all modeled roadways were assumed to have a "hard site" to predict worst-case, conservative noise levels. A hard site, such as pavement, is highly reflective and does not attenuate noise as quickly as grass or other soft sites. Possible reductions in noise levels due to intervening topography and buildings were not accounted for in this analysis.

Existing and Existing Plus Project vehicle trips provided in the Traffic Impact Analysis prepared for the project were utilized to evaluate the impact of project generated trips on affected road segments with adjacent sensitive receptors. The proposed project is anticipated to generate approximately 1,040 average daily passenger car trips, 109 two-axle truck trips, 145 three-axle truck trips, and 386 four-axle (and greater) truck trips. As neither the City of Banning or the County of San Bernardino have published vehicle mixes, the Riverside County Department of Industrial Hygiene published vehicle mix for use in Noise Studies were utilized for existing road segments.

Data from the California Department of Transportation Operations website was utilized for modeling the I-10 Freeway. An estimated 118,000 vehicle trips are expected to travel on the segment of the I-10 Freeway in the vicinity of the project site. The vehicle mix of traffic volumes travelling on the I-10 Freeway in the vicinity of the proposed project is 84 % passenger vehicles, 1% medium trucks and 14% heavy trucks (California Department of Transportation 2017). FHWA worksheets are included in Appendix E.

3. SoundPLAN

The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The SoundPLAN model was utilized to calculate future operational noise levels of the proposed warehouse. The model was utilized to calculate future noise levels using reference sound level data for the various stationary on-site sources. Loading/unloading was modeled as an area source and includes activities such as trucks' diesel engines, exhaust systems, braking, and forklifts. Noise levels associated with loading/unloading can range between 65 to 80 dBA. The parking lot was modeled with 623 parking spaces and 181 peak hour traffic movements. Noise levels associated with parking lots can reach peak levels of 80 dBA. Parking lot noise sources may include but are not limited to idling cars, doors closing, and starting engine noise.

VI. IMPACT ANALYSIS

A. Noise Impacts

This impact discussion analyzes the potential for project construction noise and operational noise to cause an exposure of person to or generation of noise levels in excess of established City of Banning noise standards related to construction noise, transportation, and stationary related noise impacts caused by the proposed project.

1. Construction Noise

Construction noise is considered a short-term impact and would be considered significant if construction activities are undertaken outside the allowable times as described by the City's Municipal Code Section 8.44.090 and as listed in Section IV – C2 of this report.

Existing single-family detached residential dwelling units may be temporarily affected by short-term noise impacts associated the transport of workers, the movement of construction materials to and from the project site, ground clearing, excavation, grading, and building activities.

On-Site Construction Noise

Project generated construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. Site grading is expected to produce the highest sustained construction noise levels. Typical noise sources and noise levels associated with the site grading phase of construction are shown in Table 7. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. A likely worst-case construction noise scenario during grading assumes the use of a two graders, a dozer, and a water truck (modeled as a dump truck) operating between 10 and 150 feet from the property line.

Assuming a usage factor of 40 percent for each piece of equipment, per the FWA Roadway Construction Noise Model User's Guide, unmitigated noise levels have the potential to reach 95 dBA L_{eq} and 99 dBA L_{max} at the property line during grading[1]. The nearest sensitive receptor is a single-family detached residential dwelling unit located at 1899 Westward Avenue, over 2,800 feet from the project site. Under these assumptions, unmitigated on-site construction noise levels have the potential to reach up to 50 dBA L_{eq} and 50 dBA L_{max} at the nearest sensitive receptor. The measured noise

[1] The FHWA Roadway Construction Noise Model (RCNM) User's Guide (2006) explains that a usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power. The usage factor of 40 percent used in this analysis was taken from the usage factor database provided in Table 1 of the RCNM User's Guide.

Table 7

Typical Construction Equipment Noise Levels[1]

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Rock Drills	83-99	96
Jack Hammers	75-85	82
Pneumatic Tools	78-88	85
Pumps	74-84	80
Dozers	77-90	85
Scrappers	83-91	87
Haul Trucks	83-94	88
Cranes	79-86	82
Portable Generators	71-87	80
Rollers	75-82	80
Tractors	77-82	80
Front-End Loaders	77-90	86
Hydraulic Excavators	81-90	86
Graders	79-89	86
Air Compressors	76-89	86
Trucks	81-87	86

[1] Source: Bolt, Beranek & Newman; Noise Control for Buildings and Manufacturing Plants, 1987.

level documented at short-term ambient noise level measurement N3, shown on Figure 6, (49.7 dBA Leq) is representative of noise levels at 1899 Westward Avenue.

Project construction is expected to 0.3 dB louder than ambient conditions at this location and will not be audible over ambient noise associated with the I-10 Freeway, surface road traffic, the Banning Municipal Airport and other industrial land uses and will not result in noise levels that exceed 75 dBA at any sensitive receptors. Construction noise was modeled using RCNM. Input and output data is available in Appendix D. Although the impact is considered less than significant, measures to further reduce construction noise impacts are include in Section VII of this report.

Off-Site Construction Noise

As described previously, the proposed project includes several off-site elements. Figures 3 and 5 show the proposed off-site improvements and the location of sensitive receptors that may be affected by construction of the west end of John Street. Construction equipment that is expected to be utilized to for these off-site improvements includes a dozer, a tractor, and a backhoe. Simultaneous operation of three pieces of this equipment within 25-50 feet of a sensitive receptor may result in noise levels of up to 86.7 dBA L_{eq} and 87.7 dBA L_{max}. Modeled data is available in Appendix D.

Construction noise is lawful between the hours of 7:00 AM and 6:00 PM as long as it does not cause interior noise levels to exceed 55 dBA for intervals of more than 15 minutes at a sensitive receptor. Otherwise, it is unlawful for any person to engage in or permit the generation of noise related to landscape maintenance, construction including erection, excavation, demolition, alteration or repair of any structure or improvement, at such sound levels, as measured at the property line of the nearest adjacent occupied residential property, as to be in excess of standards set forth in Section IV – C2 of this report. Construction activities associated with off-site improvements may result in interior noise levels that exceed 55 dBA for a period of 15 minutes or more. These exceedances however are expected to last for no longer than a week at any particular sensitive receptor as construction moves to a location further along the off-site improvement alignment. Measures to reduce construction noise impacts are include in Section VII of this report.

2. Noise Impacts to Off-Site Receptors Due to Project Generated Traffic

A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated 50 feet from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. Roadway input parameters including average daily traffic volumes (ADTs), speeds, and vehicle distribution data is shown in Table 8. The potential off-site noise impacts caused by an increase of traffic volumes from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Table 8

Project Average Daily Traffic Volumes and Roadway Parameters

Roadway	Segment	Average Daily Traffic Volume		Posted Travel Speeds (MPH)	Site Conditions
		Existing	Existing Plus Project		
East Lincoln Street	West of Hargrave Street	2,800	2,900	40	Hard
	Hargrave Street to John Street	1,400	3,600	40	Hard
John Street	North of East Lincoln Street	-	2,200	25	Hard
Hargrave Street	North of East Ramsey Street	6,800	6,900	30	Hard
	East Ramsey Street to I-10 Freeway WB Ramps	10,200	10,300	30	Hard
	I-10 Freeway WB Ramps to I-10 Freeway EB Ramps	8,100	9,200	30	Hard
	I-10 Freeway EB Ramps to East Lincoln Street	5,700	7,800	30	Hard

Vehicle Distribution (Heavy Mix)[2]				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Overall %
Automobiles	69.5	12.9	9.6	92
Medium Trucks	1.44	0.06	1.5	3
Heavy Trucks	2.4	0.1	2.5	5

Vehicle Distribution (Light Mix)[2]				
Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Overall %
Automobiles	73.6	13.6	10.22	97.4
Medium Trucks	0.9	0.04	0.9	1.84
Heavy Trucks	0.35	0.04	0.35	0.74

Vehicle Type Definitions[3]

Automobiles: all vehicles having two axles and four tires-designated primarily for transportation of nine or fewer passengers (i.e., automobiles, or for transportation of cargo, i.e., light trucks). Generally with gross vehicle weight less than 9,900 pounds.

Medium Trucks: all cargo vehicles with two axles and six tires - generally gross vehicle weight is greater than 9,900 pounds but less than 26,400 pounds.

Heavy Trucks: all cargo vehicles with three or more axles -generally with gross vehicle weight greater than 26,400 pounds.

[1] Average daily traffic volumes obtained from the Banning Distribution Center Traffic Impact Analysis prepared by Albert A. Webb Associates (April 2017).

[2] Existing vehicle daytime/evening/nighttime percentages are based on the Riverside County Industrial Hygiene Letter for Traffic Noise as neither the City of Banning nor the County of San Bernardino have published vehicle mixes. The Riverside County Industrial Hygiene Letter for Traffic Noise has been included at the end of Appendix E.

[3] Per California Department of Transportation Technical Noise Supplement (September 2013).

Existing Year (without Project): This scenario refers to existing year traffic noise conditions and is demonstrated in Table 8.

Existing Year (Plus Project): This scenario refers to existing year traffic noise conditions with incorporation of the proposed project and is demonstrated in Table 8.

As stated previously, noise impacts would be considered significant if the project increases noise levels at a noise sensitive land use by 3 CNEL and if the existing noise levels already exceed the residential land use compatibility standard of 60 CNEL or the project increases noise levels from below the 60 CNEL standard to above 60 CNEL. As stated in Section IV - C2 above, the measured existing conditions have been identified as being above both the City's base ambient noise level standards identified in Section 8.44.050 of the City's Municipal Code as well as the normally acceptable residential noise standards in Table 6.

As shown in Table 9, existing traffic noise levels without the project exceed the residential land use compatibility standard of 60 CNEL. Existing traffic noise modeling and noise measurements resulted in noise levels ranging between 63.13 and 66.64 CNEL at 50 feet from the centerline of the affected road segments; and the Existing Plus Project traffic noise model resulted in noise levels ranging between 63.95 and 66.70 CNEL at 50 feet from the affected roadway segments (see Table 9). In no case however would project generated vehicle trips cause an increase in the ambient noise levels that exceeds 3.0 CNEL. Project generated trips thus would not result in significant increases in ambient noise levels according to the City of Banning Municipal Code. No mitigation is required. Traffic noise calculation outputs are included as Appendix E.

Table 9

Change in Existing Noise Levels Along Roadways as a Result of Project (CNEL)[1]

Roadway	Segment	Modeled Noise Levels (dBA CNEL) @ 50 feet from centerline				
		Existing Without Project	Existing Plus Project	Change in Noise Level	Exceeds Residential Land Use Compatibility Standards[2] (See Table 6)	Greater than 3 CNEL Increase
East Lincoln Street	West of Hargrave Street	66.64	66.70	0.06	YES	NO
	Hargrave Street to John Street	63.63	65.73	2.10	YES	NO
Hargrave Street	North of East Ramsey Street	63.89	63.95	0.06	YES	NO
	East Ramsey Street to I-10 Freeway WB Ramps	65.65	65.69	0.04	YES	NO
	I-10 Freeway WB Ramps to I-10 Freeway EB Ramps	64.65	65.20	0.55	YES	NO
	I-10 Freeway EB Ramps to East Lincoln Street	63.13	64.49	1.36	YES	NO

[1] Exterior noise levels calculated 5-feet above pad elevation, perpendicular to subject roadway.

[2] In order for the proposed project to result in a "long-term substantial increase in ambient noise levels" per CEQA Guidelines Checklist questions, it was established that the project generated increase would need to result in an increase greater than 3 dB AND exceed land use compatibility criteria shown in Table 6. This is discussed on page 19 under the California Environmental Quality Act subtitle.

3. Traffic Noise Impacts to the Proposed Project

The City of Banning land use compatibility guidelines set forth noise/land use compatibility criteria for various land use types. The guidelines state that the proposed warehouse use is "normally acceptable" in areas with noise levels of up to 75 CNEL and "conditionally acceptable" in areas with noise levels of up to 80 CNEL (see Table 6).

The City's General Plan identifies principal roadways and their classifications at General Plan Buildout. Roadways in the vicinity of the proposed project that have the ability to impact noise levels include the I-10 Freeway. Volume and truck mix data for the I-10 Freeway were taken from the California Department of Transportation Operations website (California Department of Transportation 2016).

General Plan Buildout vehicle noise associated with the I-10 Freeway and rail noise associated with the rail line located directly north of the project site were modeled using the CREATE Rail model and the SoundPLAN model. CREATE was used to calculate an equivalent noise level for the recorded rail traffic at 50 feet and then included in the SoundPLAN model as a line source. CREATE data is included in this report as Appendix F. SoundPLAN input and output data is included as Appendix G.

As shown on Figure 7, the combined vehicle traffic noise levels associated with the I-10 Freeway and noise associated with the adjacent rail lines is expected to reach up to 80 CNEL at the northern property line of the proposed project and decreasing to below 65 CNEL in the southern portion of the site. The proposed building falls entirely outside of the 75 CNEL noise contour. Therefore, noise levels at the project site are within the City's "normally acceptable" noise/land use compatibility criteria of 75 CNEL for warehouse uses. No mitigation is required.

4. Noise Impacts to Off-Site Receptors Due to On-Site Operational Noise

Land uses immediately surrounding the project site consist of the Banning Municipal Airport to the south and west and vacant land to the east and west. The nearest sensitive receptors are the single-family detached residential dwelling units located approximately 0.61 miles northwest and 0.64 miles southwest of the project site.

The City of Banning land use compatibility guidelines set forth noise/land use compatibility criteria for various land use types. The guidelines state that single-family detached residential land uses would be "normally acceptable" in areas with noise levels of up to 60 CNEL and "conditionally acceptable" in areas with noise levels of up to 70 CNEL (see Table 6). As previously stated, the measured existing conditions have been identified as already being above both the City's base ambient noise level standards identified in Section 8.44.050 of the City's Municipal Code as well as the normally acceptable residential noise standards in Table 6.

A noisiest hour scenario was modeled utilizing the SoundPLAN model. The location of HVAC equipment was estimated based on other similar facilities. Each unit was given a sound power level of 80 dBA. Loading areas were assigned an area noise source of

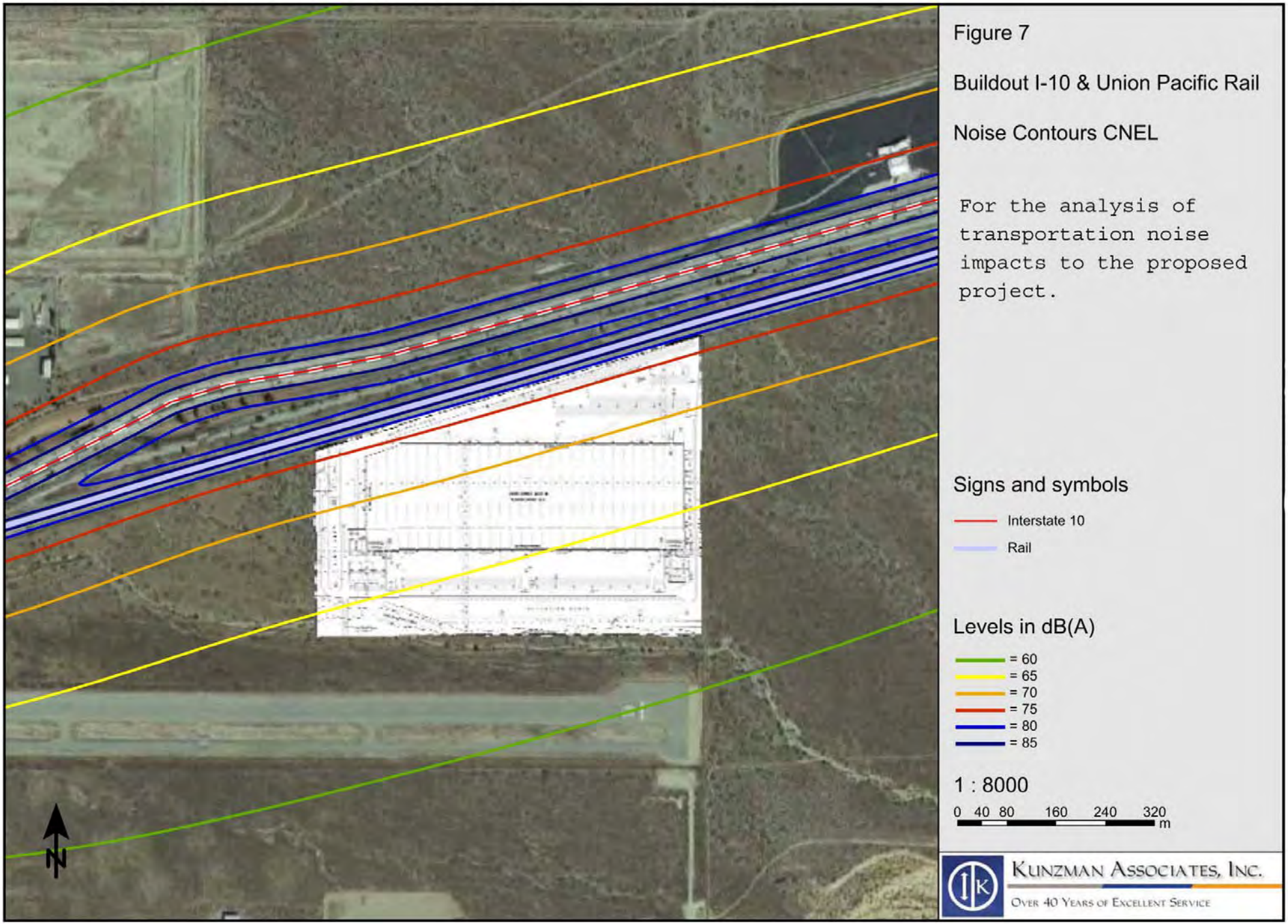


Figure 7
Buildout I-10 & Union Pacific Rail
Noise Contours CNEL
For the analysis of transportation noise impacts to the proposed project.
Signs and symbols
Interstate 10
Rail
Levels in dB(A)
= 60
= 65
= 70
= 75
= 80
= 85
1 : 8000
0 40 80 160 240 320 m
N
KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

70 dBA per meter and the parking lots were modeled based on the number of spaces, type (car or truck) and peak hour trip generation.

As shown on Figure 8, project peak hour operational noise levels will not result in noise levels that exceed 50 dBA L_{eq} at any sensitive receptors. No mitigation is required.

B. <u>Vibration Impacts</u>

This impact discussion analyzes the potential for the proposed project to cause an exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Vibration levels in the project area may be influenced by construction. A vibration impact would generally be considered significant if it involves any construction-related or operations-related impacts in excess of 0.2 inches per second (in/sec) PPV.

There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. However, there are no sensitive receptors adjacent to the proposed project's boundaries. Therefore, there will be no impacts.

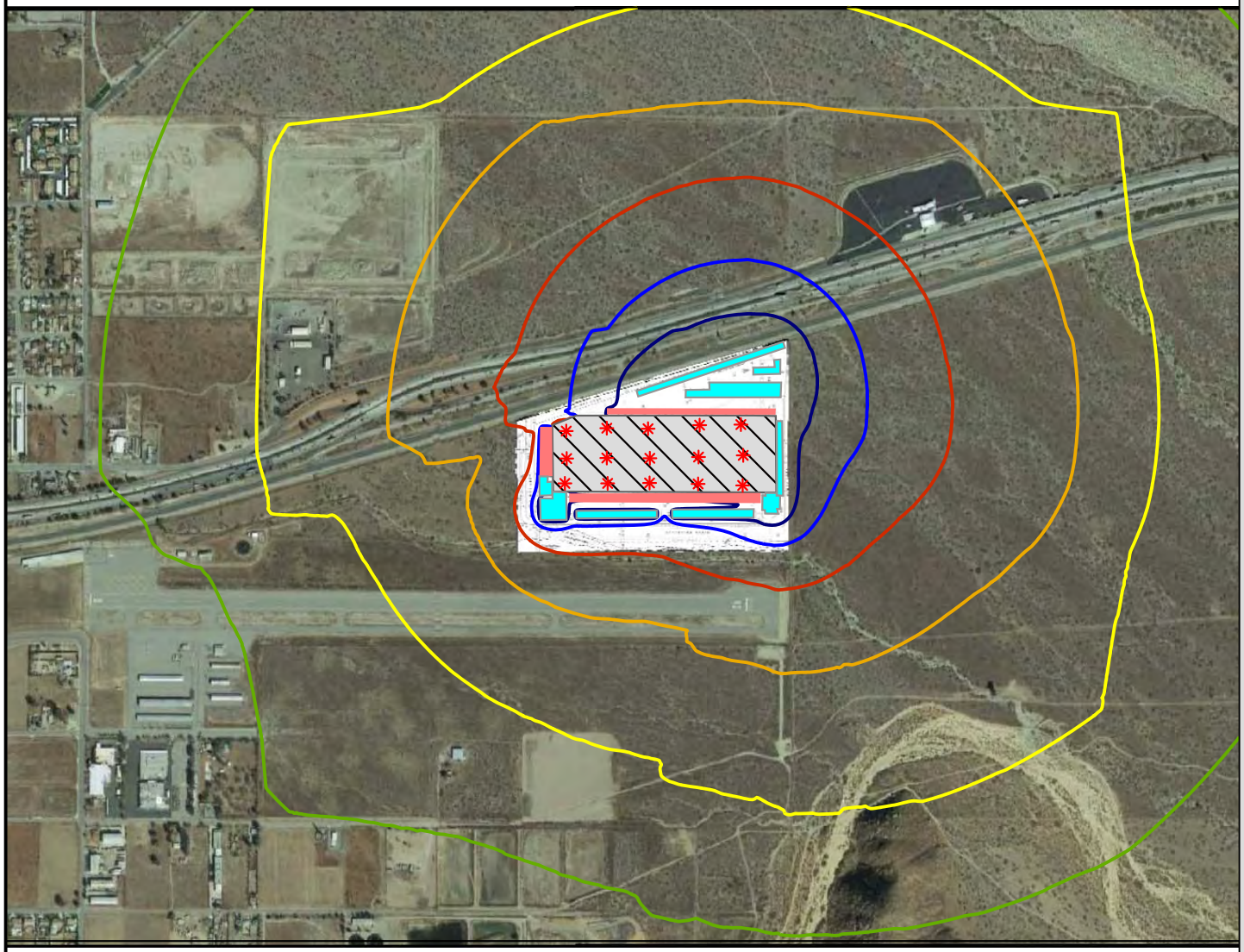


Figure 8

Project Operational Noise

(dBALeq)

Signs and symbols

- HVAC Equipment
- Loading Areas
- Parking lots

Levels in dB(A)

- = 50
- = 55
- = 60
- = 65
- = 70
- = 75

1 : 15000

0 100 200 400 600 800 m

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VII. MEASURES TO REDUCE IMPACTS

A. Construction Mitigation Measures

In addition to adherence to the City of Banning policies found in the Noise Element and Municipal Code limiting the construction hours of operation, the following measures are recommended to reduce construction noise, emanating from the proposed project:

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.

2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

3. Equipment shall be shut off and not left to idle when not in use.

4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and sensitive receptors nearest the project site during all project construction.

5. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.

VIII. REFERENCES

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APPENDICES

Appendix A – List of Acronyms

Appendix B – Definitions of Acoustical Terms

Appendix C – Noise Monitoring Field Worksheets

Appendix D – RCNM Noise Modeling Output

Appendix E – Project Generated Traffic FHWA Worksheets and Vehicle Mix Data

Appendix F – CREATE Data

Appendix G – SoundPLAN Input and Output

Appendix H – Federal Rail Administration Inventory Worksheets

APPENDIX A

List of Acronyms

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
dBA/DD	Decibel per Double Distance
dBA L_{eq}	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
L_{02},L_{08},L_{50},L_{90}	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
L_{dn}	Day-Night Average Noise Level
$L_{eq(x)}$	Equivalent Noise Level for '"x" period of time
L_{eq}	Equivalent Noise Level
L_{max}	Maximum Level of Noise (measured using a sound level meter)
L_{min}	Minimum Level of Noise (measured using a sound level meter)
LOS C	Level of Service C
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

APPENDIX B

Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
L_{02}, L_{08}, L_{50}, L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
Equivalent Continuous Noise Level, L_{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
L_{max}, L_{min}	L_{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L_{min} is the minimum level.
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
Offensive/ Offending/ Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.

APPENDIX C

Noise Monitoring Field Worksheets

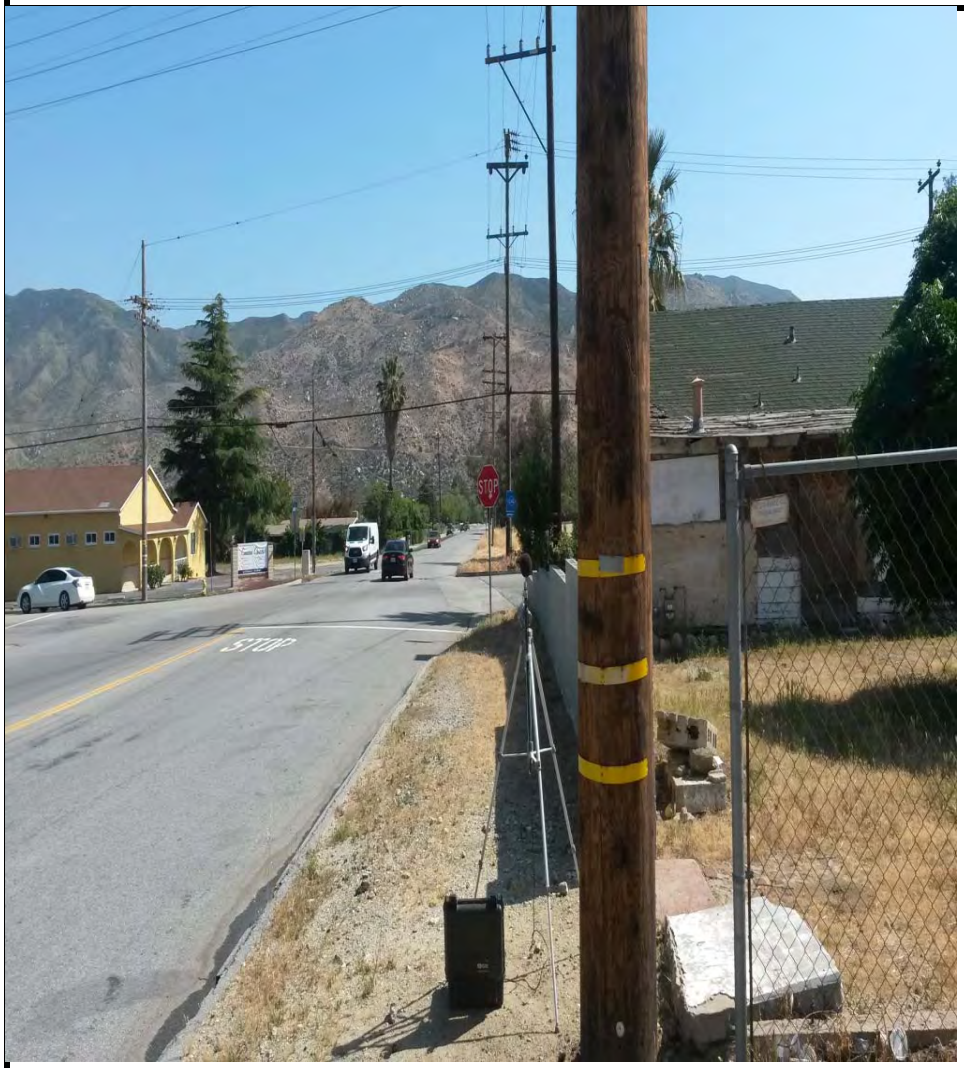
Noise Measurement
Field Data

Project Name:	**Banning CA Site**	Date:	**19 April 2017**
Project #:	6750		
Noise Measurement #:	NM1 **3099 LxT_Data188 .xlsx**	Technician:	**Ian Edward Gallagher**
Nearest Address or Cross Street:	**South Hargrave Street & Plaza Street**		
Site Description (Type of Existing Land Use and any other notable features)	**Lightly urban, low activity civilian airport, surrounding residential, 10 Freeway runs East to West just North of lot.**		
Weather:	**Clear blue skies, slight haze, high cloud on mountains to the North**	**Settings:**	**SLOW** **FAST** (Circle one)
Temperature: 76 deg F	**Wind: 5 - 10 mph** **Humidity: 35%**	**Terrain:**	**FLAT**
Start Time:	**3:30 PM** **End Time:** **3:40 PM**	**Run Time:**	**10mins**

Leq:	65 **dB**	**Primary Noise Source:**	**Traffic along South Hargrave Street**
Lmax	77.3 **dB**		
L2	74.1 **dB**	**Secondary Noise Sources:**	**Overhead aircraft, birdsong**
L8	68.3 **dB**		
L25	64.6 **dB**		
L50	61.7 **dB**		

NOISE METER:	SoundTrack LxT Class 1	**CALIBRATOR:**	Larson Davis CAL250 Acoustic Calibrator
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LxT1	**MODEL:**	Cal250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/4/2014	**FACTORY CALIBRATION DATE:**	11/3/2014
FIELD CALIBRATION DATE:	4/19/2017		

Additional Notes/Sketch



NM1 JN6750 looking South down S Hargrave Street towards E Lincoln St



NM1 JN6750 looking North up S Hargrave St

Noise Measurement
Field Data

Project Name:	**Banning CA Site**	Date:	**19 April 2017**
Project #:	6750		
Noise Measurement #:	NM2 **3099 LxT_Data189 .xlsx**	Technician:	**Ian Edward Gallagher**
Nearest Address or Cross Street:	**South Hargrave Street & East Lincoln Street**		
Site Description (Type of Existing Land Use and any other notable features)	**Lightly urban, low activity civilian airport, surrounding residential, 10 Freeway runs East to West just North of lot.**		
Weather:	**Clear blue skies, slight haze, high cloud on mountains to the North**	**Settings:**	**SLOW** **FAST** (Circle one)
Temperature: 76 deg F	**Wind: 5 - 10 mph** **Humidity: 35%**	**Terrain:**	**FLAT**
Start Time:	**3:45 PM** **End Time:** **3:55 PM**	**Run Time:**	**10mins**

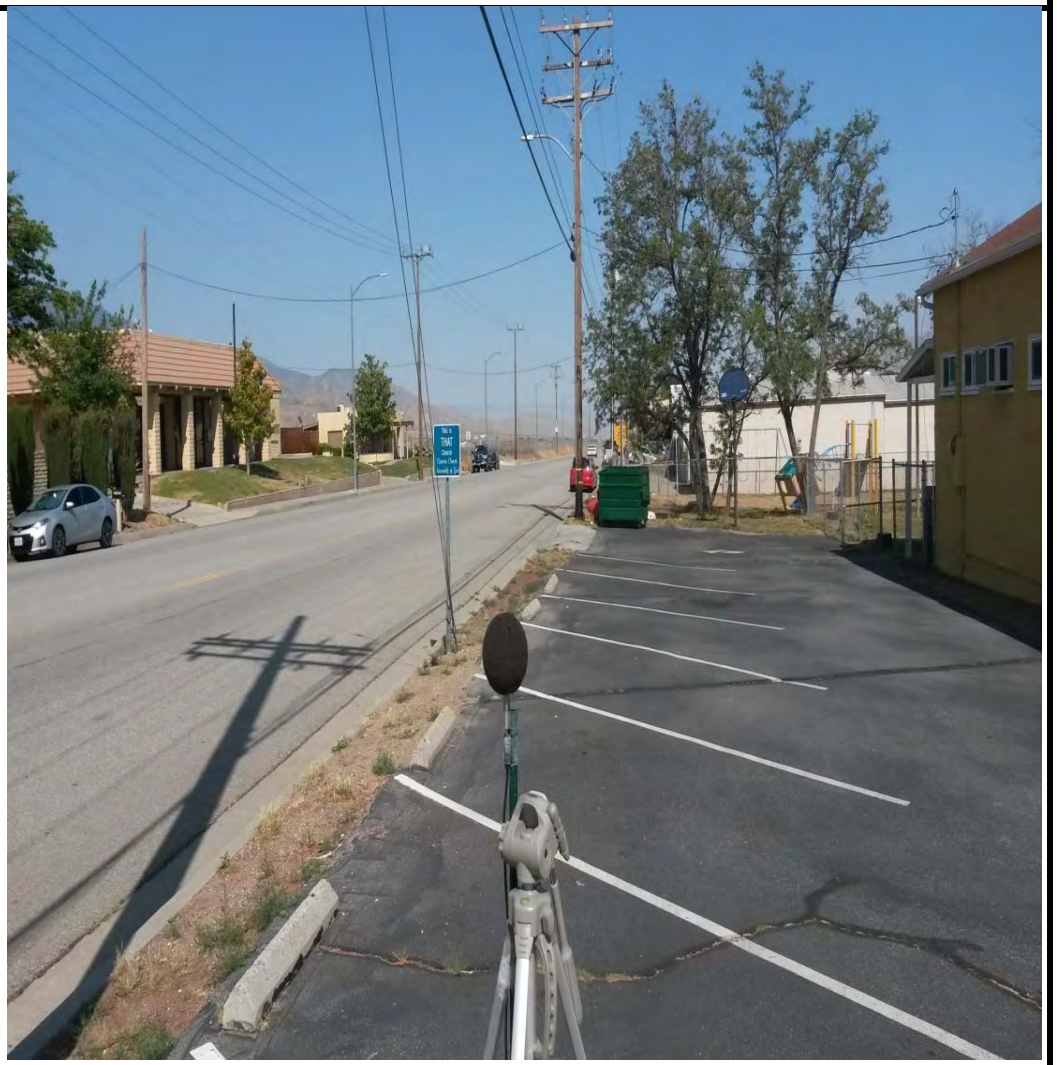
Leq:	65.7 **dB**	**Primary Noise Source:**	**Traffic along South Hargrave Street & East Lincoln Street**
Lmax	83.3 **dB**		
L2	73.4 **dB**	**Secondary Noise Sources:**	**Overhead aircraft, birdsong**
L8	67.7 **dB**		
L25	63.2 **dB**		
L50	59.8 **dB**		

NOISE METER:	SoundTrack LxT Class 1	**CALIBRATOR:**	Larson Davis CAL250 Acoustic Calibrator
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LxT1	**MODEL:**	Cal250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/4/2014	**FACTORY CALIBRATION DATE:**	11/3/2014
FIELD CALIBRATION DATE:	4/19/2017		

Additional Notes/Sketch



NM2 JN6750 looking West across S Hargrave St down East Lincoln Street



NM2 JN6780 looking East down East Lincoln Street

Noise Measurement
Field Data

Project Name:	**Banning CA Site**	Date:	**19 April 2017**
Project #:	6750		
Noise Measurement #:	NM3 **3099 LxT_Data190 .xlsx**	Technician:	**Ian Edward Gallagher**
Nearest Address or Cross Street:	**South Hathaway Street & E Westward Avenue**		
Site Description (Type of Existing Land Use and any other notable features)	**Lightly urban, low activity civilian airport, surrounding residential, 10 Freeway runs East to West just North of lot.**		
Weather:	**Clear blue skies, slight haze, high cloud on mountains to the North**	**Settings:**	**SLOW** **FAST** (Circle one)
Temperature: 76 deg F	**Wind: 5 - 10 mph** **Humidity: 35%**	**Terrain:**	**FLAT**
Start Time:	**4:18 PM** **End Time:** **4:28 PM**	**Run Time:**	**10mins**

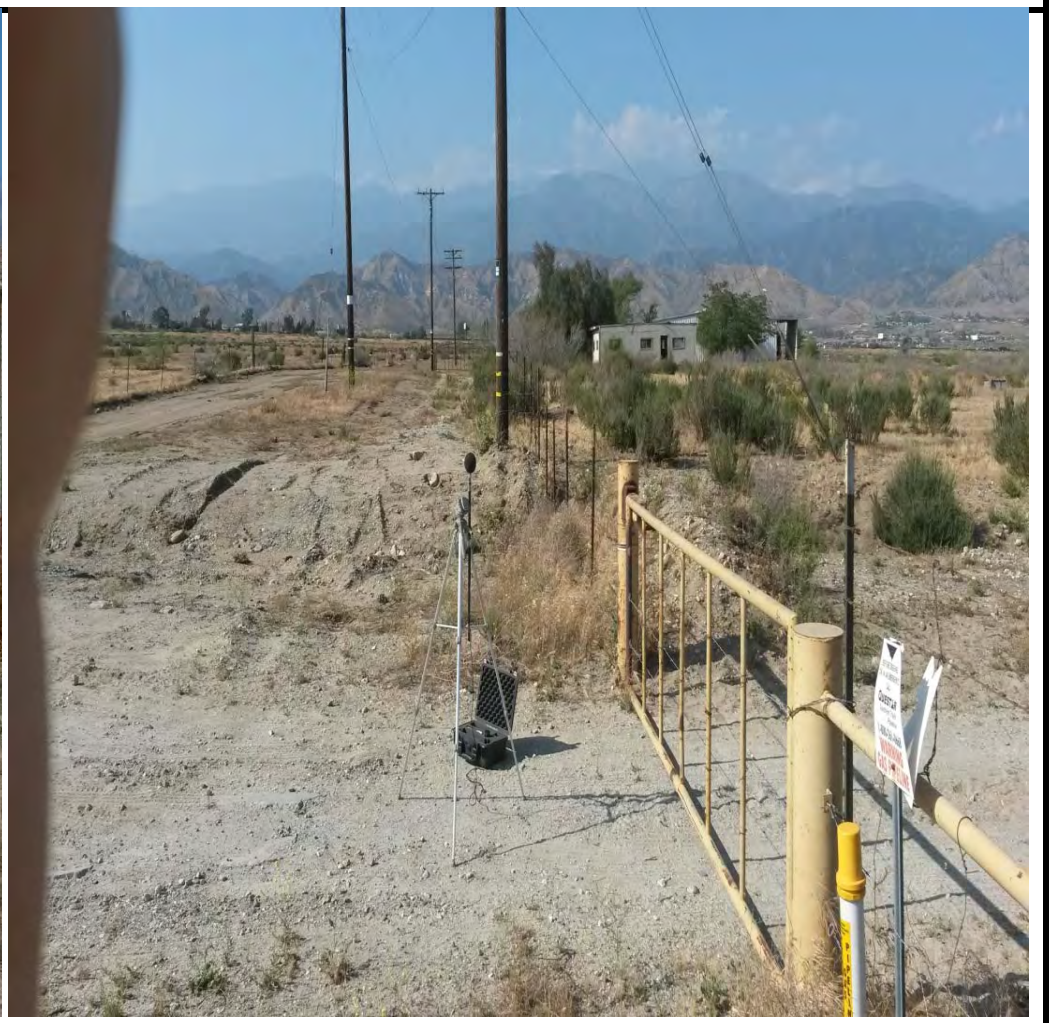
Leq:	49.7 **dB**	**Primary Noise Source:**	**Overhead aircraft, birdsong**
Lmax	55.6 **dB**		
L2	53.3 **dB**	**Secondary Noise Sources:**	Some machinery being operated somewhere in the area at a distance.
L8	51.8 **dB**		
L25	50.5 **dB**		
L50	49.2 **dB**		

NOISE METER:	SoundTrack LxT Class 1	**CALIBRATOR:**	Larson Davis CAL250 Acoustic Calibrator
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LxT1	**MODEL:**	Cal250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/4/2014	**FACTORY CALIBRATION DATE:**	11/3/2014
FIELD CALIBRATION DATE:	4/19/2017		

Additional Notes/Sketch



NM3 JN6750 looking East down East Westward Avehue



NM3 JN6780 looking North towards 10 Freeway across runway.

NM3 Actual around 2.640 ft West of NM3 intended due to NM3 intended being on restricted land.

Noise Measurement
Field Data

Project Name:	**Banning Distribution Facility, City of Banning.**	Date:	**5th to 6th Feb 2018**
Project #:	**6750a**		
Noise Measurement #:	**NM1** **3099 LxT_Data107.xlsx**	Technician:	**Ian Edward Gallagher**
Nearest Address or Cross Street:			
Site Description (Type of Existing Land Use and any other notable features)	**Banning Distribution Facility, Buildings, open storage areas, parking lot. Train tracks 700' North of NM1. 10 FWY 1000' North of NM1**		
Weather:	**Blue sunny skies. Slight distant haze near horizon, some high cloud.**	**Settings:**	**SLOW** **FAST** (Circle one)
Temperature: 78 - 46 deg F	**Wind: 3 - 13 mph** **Humidity: 16% - 27%**		**Flat**
Start Time:	**12:00 PM 5th Feb 2018** **End Time:** **12:00 PM 6th Feb 2018**	**Run Time:**	**24 Hours , 1440 x 1minute**

Leq:	60.1 **dB**	**Primary Noise Source:**	**Vehicles passing by along East Lincoln Street.**
Lmax	88.2 **dB**		
L2	66.7 **dB**	**Secondary Noise Sources:**	**Active train tracks ~ 700 feet North of NM1 running East - West**
L8	62.7 **dB**		**10 Freeway ~ 1000 feet North of NM1 running East - West**
L25	59.4 **dB**		**Bird song by day, noise from wild life. Wind blowing causing leaf rustle .**
L50	56.6 **dB**		**Aircraft flying overhead and occasional plane landing at Banning airport.**

NOISE METER:	SoundTrack LxT Class 1 ;	**CALIBRATOR:**	Larson Davis CAL250 Acoustic Calibrator
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LxT1	**MODEL:**	Cal250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	6/9/2017
FIELD CALIBRATION DATE:	2/5/2018		

Additional Notes/Sketch



NM1 looking North across E. Lincoln Street towards train tracks and 10 Freeway



NM1 looking West towarda adjacent residence.

Summary	
File Name	LxT_Data.107
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN6750a NM1 E.Lincoln St Banning
Job Description	24 Hour noise sample
Measurement Description	1440 x 1 minute
Start	2018-02-05 12:00:00
Stop	2018-02-06 12:00:00
Duration	0:00:00.0
Run Time	0:00:00.0
Pause	0:00:00.0
Pre Calibration	2018-02-05 10:58:40
Post Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamp	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	High		
OBA Bandwidth	1/1 and 1/3		
OBA Freq. Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	122.4 dB		
Results			
LAeq	60.1 dB		
LAE	109.5 dB		
EA	9.869 mPa²h		
EA8	3.290 mPa²h		
EA40	16.448 mPa²h		
LApeak (max)	2018-02-05 20:14:36	109.4 dB	
LASmax	2018-02-05 23:21:54	88.2 dB	
LASmin	2018-02-05 12:38:04	44.0 dB	
SEA	-99.9 dB		

		Statistics	
LCeq	70.3 dB	**LAS2.00**	66.7 dB
LAeq	60.1 dB	**LAS8.00**	62.7 dB
LCeq - LAeq	10.2 dB	**LAS25.00**	59.4 dB
LAIeq	61.8 dB	**LAS50.00**	56.6 dB
LAeq	60.1 dB	**LAS90.00**	50.4 dB
LAIeq - LAeq	1.7 dB	**LAS99.00**	47.3 dB
# Overloads	0		

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmax	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2018-02-05	12:00:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	48.3	68.6	67.4	59.0	51.0	50.4	48.5	48.4
2	2018-02-05	12:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	49.0	67.8	66.6	61.7	53.2	51.5	49.8	49.1
3	2018-02-05	12:02:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	49.0	62.0	61.2	55.9	52.9	50.8	49.8	49.1
4	2018-02-05	12:03:00	0:01:00.0	0:01:00.0	0:00:00.0	50.0	47.5	53.7	52.3	51.3	50.8	50.3	48.3	47.6
5	2018-02-05	12:04:00	0:01:00.0	0:01:00.0	0:00:00.0	50.9	47.3	59.3	58.5	53.5	49.9	49.2	48.3	47.4
6	2018-02-05	12:05:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	48.8	62.1	61.7	55.3	53.6	51.4	49.4	48.9
7	2018-02-05	12:06:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	48.8	63.5	62.2	58.6	56.5	54.7	50.6	48.9
8	2018-02-05	12:07:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	49.4	65.9	64.7	57.8	54.1	52.6	50.8	49.6
9	2018-02-05	12:08:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	48.2	60.1	58.8	57.8	54.8	52.0	49.4	48.5
10	2018-02-05	12:09:00	0:01:00.0	0:01:00.0	0:00:00.0	52.4	48.0	61.0	60.6	55.9	51.3	50.3	49.1	48.3
11	2018-02-05	12:10:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	47.8	61.9	61.4	59.2	55.9	51.0	48.4	48.0
12	2018-02-05	12:11:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	47.7	75.7	75.4	70.8	59.2	52.3	49.3	47.9
13	2018-02-05	12:12:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	47.8	69.8	68.8	66.3	61.7	56.3	49.0	47.9
14	2018-02-05	12:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	52.8	66.5	65.6	62.1	58.2	56.3	53.8	52.9
15	2018-02-05	12:14:00	0:01:00.0	0:01:00.0	0:00:00.0	52.9	51.2	56.3	55.2	53.9	53.4	52.9	51.6	51.3
16	2018-02-05	12:15:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	51.2	56.9	56.8	55.5	54.4	53.3	51.8	51.4
17	2018-02-05	12:16:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	52.1	59.8	59.4	57.9	56.2	54.7	53.1	52.2
18	2018-02-05	12:17:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	57.4	78.7	77.4	75.4	69.7	62.1	58.3	57.5
19	2018-02-05	12:18:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	55.4	64.4	64.0	63.2	60.6	58.6	56.0	55.5
20	2018-02-05	12:19:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	53.8	64.2	63.7	62.2	56.6	55.9	55.1	54.3
21	2018-02-05	12:20:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	52.8	58.9	58.7	58.2	55.4	54.8	53.4	52.9
22	2018-02-05	12:21:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	54.9	65.2	65.1	64.4	61.9	60.5	56.2	55.1
23	2018-02-05	12:22:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	48.1	66.0	65.4	62.0	56.9	54.2	49.0	48.2
24	2018-02-05	12:23:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	49.1	71.8	70.2	64.9	60.8	55.1	49.8	49.2
25	2018-02-05	12:24:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	50.3	69.3	68.2	63.8	59.8	54.0	50.9	50.4
26	2018-02-05	12:25:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	48.8	64.1	63.5	58.9	54.4	52.2	49.4	48.9
27	2018-02-05	12:26:00	0:01:00.0	0:01:00.0	0:00:00.0	51.1	46.2	61.4	60.8	54.7	48.7	47.9	47.1	46.4
28	2018-02-05	12:27:00	0:01:00.0	0:01:00.0	0:00:00.0	50.9	47.4	55.3	54.4	53.1	51.5	50.4	48.8	47.5
29	2018-02-05	12:28:00	0:01:00.0	0:01:00.0	0:00:00.0	48.9	47.8	50.3	50.0	49.6	49.1	48.8	48.1	47.9
30	2018-02-05	12:29:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	48.3	64.5	63.8	60.7	53.3	49.9	48.6	48.3
31	2018-02-05	12:30:00	0:01:00.0	0:01:00.0	0:00:00.0	53.9	47.5	62.4	62.0	59.6	53.0	48.9	48.2	47.6
32	2018-02-05	12:31:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	48.0	64.3	63.3	59.0	54.5	49.7	48.4	48.1
33	2018-02-05	12:32:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	49.2	67.4	65.9	63.8	58.3	57.7	51.1	49.3
34	2018-02-05	12:33:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	58.3	68.3	67.9	65.9	61.2	59.8	58.8	58.4
35	2018-02-05	12:34:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	57.2	62.2	61.7	61.4	60.5	59.2	57.8	57.4
36	2018-02-05	12:35:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	52.7	62.3	62.2	60.7	60.0	58.3	55.0	52.8
37	2018-02-05	12:36:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	47.7	66.3	65.4	57.9	52.4	51.0	49.0	47.9
38	2018-02-05	12:37:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	44.8	79.3	78.8	74.7	62.8	55.4	46.0	44.8
39	2018-02-05	12:38:00	0:01:00.0	0:01:00.0	0:00:00.0	46.7	44.0	50.4	49.3	48.3	47.9	46.2	44.6	44.1
40	2018-02-05	12:39:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	46.2	63.3	62.4	58.4	54.2	48.6	47.2	46.4
41	2018-02-05	12:40:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	47.4	64.6	63.3	59.6	56.1	53.5	48.1	47.5
42	2018-02-05	12:41:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	46.9	69.2	67.9	64.8	59.5	51.2	47.7	47.2
43	2018-02-05	12:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	46.3	69.9	69.5	67.3	63.0	57.8	47.1	46.5
44	2018-02-05	12:43:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	48.8	63.5	62.4	59.5	55.5	52.3	49.7	48.8
45	2018-02-05	12:44:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	49.7	62.7	62.5	59.4	55.2	53.3	50.4	49.8
46	2018-02-05	12:45:00	0:01:00.0	0:01:00.0	0:00:00.0	68.8	49.7	79.0	78.3	75.0	67.1	57.1	50.1	49.8
47	2018-02-05	12:46:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	55.8	62.6	61.9	60.9	59.3	58.4	57.4	55.9
48	2018-02-05	12:47:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	54.1	61.3	60.8	57.4	56.2	55.5	54.7	54.2
49	2018-02-05	12:48:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	54.2	61.5	61.0	59.0	58.1	56.6	55.1	54.3
50	2018-02-05	12:49:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	51.0	65.6	64.7	58.9	56.5	54.3	52.3	51.2
51	2018-02-05	12:50:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	51.7	65.1	64.0	61.3	54.5	52.6	52.0	51.7
52	2018-02-05	12:51:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	50.9	66.8	65.7	63.6	57.3	53.1	51.5	51.1
53	2018-02-05	12:52:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	51.6	56.7	56.3	55.7	55.2	54.3	52.6	51.6
54	2018-02-05	12:53:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	50.6	69.0	67.9	63.7	57.9	53.2	50.9	50.7
55	2018-02-05	12:54:00	0:01:00.0	0:01:00.0	0:00:00.0	53.3	47.9	61.8	61.1	55.8	53.2	52.0	48.7	48.0
56	2018-02-05	12:55:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	49.7	66.4	65.2	58.3	52.9	51.6	50.8	49.9
57	2018-02-05	12:56:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	48.7	61.4	60.6	56.6	54.7	53.0	50.1	48.9
58	2018-02-05	12:57:00	0:01:00.0	0:01:00.0	0:00:00.0	52.7	48.4	56.4	55.8	54.9	54.0	51.8	50.0	48.6
59	2018-02-05	12:58:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	50.5	55.9	55.6	55.2	54.5	53.9	52.2	50.6
60	2018-02-05	12:59:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	52.9	65.8	65.2	63.2	58.6	56.0	53.9	53.0
61	2018-02-05	13:00:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	52.9	66.1	65.2	59.4	56.2	55.1	54.0	53.1
62	2018-02-05	13:01:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	48.6	62.2	61.7	60.5	55.6	53.2	49.9	48.7
63	2018-02-05	13:02:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	48.7	60.9	60.4	59.5	56.2	53.9	50.4	48.8
64	2018-02-05	13:03:00	0:01:00.0	0:01:00.0	0:00:00.0	69.2	60.6	80.0	79.1	72.0	68.3	65.1	61.9	60.8
65	2018-02-05	13:04:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	56.0	72.9	72.0	67.3	61.6	60.4	57.1	56.1
66	2018-02-05	13:05:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	54.0	70.9	70.4	64.7	58.6	56.1	54.8	54.2
67	2018-02-05	13:06:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	53.5	67.1	66.0	62.5	58.7	55.8	54.1	53.6
68	2018-02-05	13:07:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	53.8	61.1	60.4	56.7	55.6	55.2	54.2	53.8
69	2018-02-05	13:08:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	52.3	68.0	66.9	61.1	54.8	53.7	52.8	52.5
70	2018-02-05	13:09:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	50.1	61.9	61.4	57.1	52.9	52.0	50.9	50.4
71	2018-02-05	13:10:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	49.9	67.1	66.1	61.9	56.2	53.2	50.6	50.0
72	2018-02-05	13:11:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	49.9	66.2	65.3	63.9	59.4	54.5	50.7	50.1
73	2018-02-05	13:12:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	50.2	61.1	59.8	53.1	52.5	52.0	50.7	50.3
74	2018-02-05	13:13:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	48.4	63.0	62.4	60.9	52.1	50.4	49.0	48.5
75	2018-02-05	13:14:00	0:01:00.0	0:01:00.0	0:00:00.0	51.4	46.3	55.9	55.3	54.8	52.7	50.2	47.3	46.4
76	2018-02-05	13:15:00	0:01:00.0	0:01:00.0	0:00:00.0	48.9	46.4	51.2	50.6	50.3	49.6	48.9	47.2	46.6

77	2018-02-05	13:16:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	49.2	62.8	62.4	57.4	51.6	51.2	49.7	49.3
78	2018-02-05	13:17:00	0:01:00.0	0:01:00.0	0:00:00.0	52.4	46.7	63.3	62.3	55.3	50.3	49.7	47.0	46.8
79	2018-02-05	13:18:00	0:01:00.0	0:01:00.0	0:00:00.0	51.4	48.9	53.5	53.2	52.8	52.3	51.5	49.3	49.1
80	2018-02-05	13:19:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	50.0	59.8	59.2	55.4	52.5	51.6	50.4	50.1
81	2018-02-05	13:20:00	0:01:00.0	0:01:00.0	0:00:00.0	52.6	48.9	59.4	59.2	56.4	51.8	51.2	49.8	49.0
82	2018-02-05	13:21:00	0:01:00.0	0:01:00.0	0:00:00.0	52.0	47.4	55.4	55.0	53.7	52.6	52.0	49.3	47.5
83	2018-02-05	13:22:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	47.3	61.2	60.9	56.1	52.4	51.2	49.5	48.0
84	2018-02-05	13:23:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	48.4	60.4	59.7	55.9	53.5	51.2	49.2	48.5
85	2018-02-05	13:24:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	54.1	68.6	68.1	63.3	61.9	58.6	55.4	54.9
86	2018-02-05	13:25:00	0:01:00.0	0:01:00.0	0:00:00.0	69.3	57.4	78.6	78.1	75.9	68.3	63.7	58.4	57.7
87	2018-02-05	13:26:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	51.4	62.0	61.6	59.8	55.9	54.7	51.9	51.5
88	2018-02-05	13:27:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	52.2	62.2	61.7	60.3	56.3	54.4	53.2	52.3
89	2018-02-05	13:28:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	53.9	65.4	64.1	60.0	55.5	54.9	54.3	54.0
90	2018-02-05	13:29:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	54.2	66.5	65.5	60.1	56.1	55.2	54.6	54.3
91	2018-02-05	13:30:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	57.3	71.5	69.3	65.7	63.8	62.5	58.8	57.5
92	2018-02-05	13:31:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	54.5	64.4	63.9	62.1	59.8	58.9	56.0	54.7
93	2018-02-05	13:32:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	51.5	66.6	66.0	64.0	60.8	57.0	52.1	51.6
94	2018-02-05	13:33:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	49.3	66.3	65.2	62.6	58.9	53.9	49.9	49.4
95	2018-02-05	13:34:00	0:01:00.0	0:01:00.0	0:00:00.0	51.9	49.3	53.9	53.8	53.5	53.1	51.3	50.1	49.4
96	2018-02-05	13:35:00	0:01:00.0	0:01:00.0	0:00:00.0	52.1	49.8	53.7	53.4	52.9	52.6	52.2	50.5	49.9
97	2018-02-05	13:36:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	52.8	66.0	65.2	59.5	55.2	54.6	53.4	52.9
98	2018-02-05	13:37:00	0:01:00.0	0:01:00.0	0:00:00.0	54.1	51.7	56.5	56.0	55.6	54.9	54.0	52.4	51.9
99	2018-02-05	13:38:00	0:01:00.0	0:01:00.0	0:00:00.0	68.2	53.6	78.7	78.1	74.9	63.6	58.8	54.6	53.8
100	2018-02-05	13:39:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	49.1	63.1	62.0	58.8	54.2	52.0	49.9	49.2
101	2018-02-05	13:40:00	0:01:00.0	0:01:00.0	0:00:00.0	53.9	50.3	59.5	59.3	56.6	54.1	52.9	52.0	50.4
102	2018-02-05	13:41:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	47.2	63.6	62.9	56.2	50.0	49.2	47.8	47.3
103	2018-02-05	13:42:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	48.0	69.0	67.6	62.6	55.1	51.8	49.8	48.1
104	2018-02-05	13:43:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	48.1	64.3	63.4	57.9	53.9	50.8	48.8	48.2
105	2018-02-05	13:44:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	49.0	61.4	60.7	55.2	52.7	51.7	50.0	49.2
106	2018-02-05	13:45:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	50.3	70.0	68.4	64.7	58.3	54.7	50.7	50.4
107	2018-02-05	13:46:00	0:01:00.0	0:01:00.0	0:00:00.0	54.1	50.4	62.4	61.9	56.7	53.2	52.6	51.0	50.5
108	2018-02-05	13:47:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	48.6	62.5	62.1	57.6	52.8	51.6	49.8	48.8
109	2018-02-05	13:48:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	51.7	64.4	63.8	60.9	56.0	53.6	52.2	51.8
110	2018-02-05	13:49:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	50.9	61.7	61.5	59.7	56.3	53.7	51.6	51.2
111	2018-02-05	13:50:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	52.0	71.5	66.0	62.6	57.7	55.3	52.7	52.1
112	2018-02-05	13:51:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	49.2	76.1	74.7	70.0	56.0	53.6	50.3	49.4
113	2018-02-05	13:52:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	52.2	70.6	69.7	62.1	54.1	53.8	52.8	52.3
114	2018-02-05	13:53:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	52.1	65.1	64.4	60.3	54.8	53.7	52.8	52.3
115	2018-02-05	13:54:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.5	65.8	65.1	59.8	57.3	56.3	55.3	54.8
116	2018-02-05	13:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	53.6	77.4	76.5	67.9	58.5	56.2	54.4	53.7
117	2018-02-05	13:56:00	0:01:00.0	0:01:00.0	0:00:00.0	51.5	48.6	54.6	54.2	53.6	52.1	51.4	49.1	48.7
118	2018-02-05	13:57:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	50.3	67.0	66.0	63.3	55.8	54.0	51.7	50.7
119	2018-02-05	13:58:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	49.4	64.7	63.7	57.3	51.7	51.1	50.0	49.5
120	2018-02-05	13:59:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	49.6	64.7	63.8	62.4	60.1	58.1	50.5	49.7
121	2018-02-05	14:00:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	51.5	63.9	63.3	59.2	54.5	53.3	51.9	51.6
122	2018-02-05	14:01:00	0:01:00.0	0:01:00.0	0:00:00.0	52.5	50.4	55.4	54.5	53.9	53.4	52.1	50.9	50.5
123	2018-02-05	14:02:00	0:01:00.0	0:01:00.0	0:00:00.0	52.0	50.3	55.6	54.4	53.4	52.3	51.6	50.7	50.4
124	2018-02-05	14:03:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	50.6	70.0	68.7	60.1	55.3	53.8	51.3	50.7
125	2018-02-05	14:04:00	0:01:00.0	0:01:00.0	0:00:00.0	52.7	48.1	60.1	59.5	55.2	53.0	51.6	49.6	48.4
126	2018-02-05	14:05:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	48.4	65.3	64.7	60.7	52.6	51.7	49.0	48.5
127	2018-02-05	14:06:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	48.2	63.9	63.2	60.3	54.3	50.8	49.1	48.3
128	2018-02-05	14:07:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	50.0	61.3	60.8	57.6	56.4	54.6	50.9	50.2
129	2018-02-05	14:08:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	50.7	61.1	60.3	56.1	53.1	52.5	51.3	50.8
130	2018-02-05	14:09:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	49.9	63.1	62.6	60.5	57.0	55.3	50.6	50.0
131	2018-02-05	14:10:00	0:01:00.0	0:01:00.0	0:00:00.0	53.9	50.1	58.8	57.0	56.3	54.9	53.8	51.4	50.5
132	2018-02-05	14:11:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	51.1	56.6	55.6	54.9	54.3	52.9	52.0	51.1
133	2018-02-05	14:12:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	52.5	62.1	61.7	60.4	57.5	55.4	53.3	52.6
134	2018-02-05	14:13:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	49.9	64.4	63.4	61.0	54.4	51.7	50.4	50.0
135	2018-02-05	14:14:00	0:01:00.0	0:01:00.0	0:00:00.0	52.3	49.8	55.1	54.6	53.9	53.2	51.8	50.2	49.8
136	2018-02-05	14:15:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	49.6	75.0	74.5	69.7	59.5	55.1	50.6	49.8
137	2018-02-05	14:16:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	49.8	62.5	61.6	57.2	54.1	53.1	50.6	50.0
138	2018-02-05	14:17:00	0:01:00.0	0:01:00.0	0:00:00.0	51.7	48.6	58.2	54.5	52.8	52.0	51.3	49.0	48.7
139	2018-02-05	14:18:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	47.6	63.5	63.0	58.9	51.4	50.5	48.6	47.7
140	2018-02-05	14:19:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	48.6	70.9	70.3	63.0	55.1	52.7	50.0	48.8
141	2018-02-05	14:20:00	0:01:00.0	0:01:00.0	0:00:00.0	51.2	47.8	55.2	54.9	53.5	52.1	50.9	48.5	47.9
142	2018-02-05	14:21:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	50.1	65.0	64.2	62.3	56.1	54.1	52.1	50.2
143	2018-02-05	14:22:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	50.6	63.0	62.2	57.1	54.7	54.1	51.7	50.6
144	2018-02-05	14:23:00	0:01:00.0	0:01:00.0	0:00:00.0	53.4	48.0	63.5	62.7	56.7	52.0	50.7	48.3	48.1
145	2018-02-05	14:24:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	52.2	67.2	66.6	65.6	64.1	62.3	56.0	52.3
146	2018-02-05	14:25:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	57.1	75.7	74.7	69.1	67.6	65.1	59.2	57.3
147	2018-02-05	14:26:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	54.0	60.6	59.9	58.8	57.8	56.8	54.9	54.2
148	2018-02-05	14:27:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	54.0	73.4	73.0	67.5	60.8	56.1	54.6	54.2
149	2018-02-05	14:28:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	52.8	58.1	57.6	57.1	55.9	55.0	53.4	52.9
150	2018-02-05	14:29:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	54.2	61.3	61.2	60.3	58.6	56.5	54.8	54.3
151	2018-02-05	14:30:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	55.3	64.3	64.0	63.4	62.7	59.9	56.1	55.4
152	2018-02-05	14:31:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	50.5	63.1	62.0	58.4	56.3	54.3	52.1	50.7
153	2018-02-05	14:32:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	50.8	66.2	66.0	64.8	61.7	57.5	53.3	50.9

154	2018-02-05	14:33:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	51.3	61.3	60.8	59.6	56.2	54.2	52.1	51.5
155	2018-02-05	14:34:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	49.3	64.3	63.7	61.6	57.0	53.5	50.6	49.5
156	2018-02-05	14:35:00	0:01:00.0	0:01:00.0	0:00:00.0	53.4	49.9	60.5	59.3	56.9	53.3	52.3	50.7	50.0
157	2018-02-05	14:36:00	0:01:00.0	0:01:00.0	0:00:00.0	54.1	51.1	57.9	57.6	57.0	54.7	53.5	51.9	51.3
158	2018-02-05	14:37:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	51.0	58.7	58.2	55.8	54.2	52.8	51.5	51.1
159	2018-02-05	14:38:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	51.5	60.3	59.7	58.4	55.3	54.4	52.9	51.9
160	2018-02-05	14:39:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	50.8	60.2	59.5	58.0	54.2	52.2	51.2	50.9
161	2018-02-05	14:40:00	0:01:00.0	0:01:00.0	0:00:00.0	51.6	49.6	57.1	55.0	53.0	51.7	51.3	50.2	49.6
162	2018-02-05	14:41:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	49.8	60.8	60.4	58.4	54.8	53.5	50.3	49.9
163	2018-02-05	14:42:00	0:01:00.0	0:01:00.0	0:00:00.0	52.6	49.1	58.5	57.7	55.9	52.9	51.7	50.1	49.2
164	2018-02-05	14:43:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	49.7	67.9	67.0	63.7	54.1	52.6	51.4	49.8
165	2018-02-05	14:44:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	48.3	64.3	63.4	59.7	56.3	52.7	49.6	48.4
166	2018-02-05	14:45:00	0:01:00.0	0:01:00.0	0:00:00.0	51.6	49.5	56.5	54.9	53.7	52.3	51.0	49.8	49.6
167	2018-02-05	14:46:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	49.4	62.3	62.1	60.3	54.4	51.7	50.4	49.5
168	2018-02-05	14:47:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	50.9	63.6	62.7	59.8	55.1	53.9	52.0	51.1
169	2018-02-05	14:48:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	49.6	65.9	64.9	58.8	54.4	52.8	50.3	49.7
170	2018-02-05	14:49:00	0:01:00.0	0:01:00.0	0:00:00.0	51.8	48.5	60.0	59.5	55.3	51.1	49.9	49.0	48.5
171	2018-02-05	14:50:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	48.7	58.3	57.7	56.5	54.0	53.0	49.2	48.8
172	2018-02-05	14:51:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	50.6	73.2	73.0	70.8	66.3	57.8	51.5	50.7
173	2018-02-05	14:52:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	49.7	59.8	59.7	59.4	57.1	52.7	50.1	49.9
174	2018-02-05	14:53:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	56.2	72.4	72.0	70.9	66.5	62.3	58.7	56.5
175	2018-02-05	14:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	56.6	65.1	64.8	63.2	60.5	59.1	57.1	56.7
176	2018-02-05	14:55:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	53.7	64.9	64.3	60.6	58.3	56.6	54.6	53.9
177	2018-02-05	14:56:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	52.7	56.0	55.5	55.1	54.7	54.2	53.3	53.0
178	2018-02-05	14:57:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	50.5	60.4	60.1	58.6	56.0	53.4	51.1	50.6
179	2018-02-05	14:58:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	49.4	66.2	65.6	60.0	52.3	51.2	49.9	49.5
180	2018-02-05	14:59:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	47.8	63.7	62.7	59.9	56.4	53.0	48.6	47.9
181	2018-02-05	15:00:00	0:01:00.0	0:01:00.0	0:00:00.0	49.7	47.8	51.4	51.2	50.9	50.3	49.7	48.4	47.9
182	2018-02-05	15:01:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	47.1	67.4	66.4	59.2	51.3	50.3	49.3	47.5
183	2018-02-05	15:02:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	46.9	64.7	63.6	56.4	50.8	49.8	48.8	47.0
184	2018-02-05	15:03:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	47.4	64.2	63.2	56.2	52.2	51.0	48.2	47.5
185	2018-02-05	15:04:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	47.1	69.4	68.0	63.0	53.7	49.3	48.0	47.2
186	2018-02-05	15:05:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	49.1	66.1	65.2	58.3	55.8	51.0	49.6	49.1
187	2018-02-05	15:06:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	49.2	65.1	63.9	61.0	55.0	51.2	49.9	49.3
188	2018-02-05	15:07:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	48.6	64.7	63.8	57.7	52.8	51.6	49.5	48.8
189	2018-02-05	15:08:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	48.3	64.2	63.0	56.5	50.7	50.1	49.0	48.5
190	2018-02-05	15:09:00	0:01:00.0	0:01:00.0	0:00:00.0	50.0	48.3	54.0	52.3	50.8	50.3	50.0	49.1	48.4
191	2018-02-05	15:10:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	49.6	57.8	57.1	56.1	54.8	52.3	50.5	49.7
192	2018-02-05	15:11:00	0:01:00.0	0:01:00.0	0:00:00.0	50.1	47.8	52.8	52.4	51.5	50.6	50.0	48.7	47.9
193	2018-02-05	15:12:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	46.5	62.9	62.4	58.8	53.6	50.2	47.2	46.6
194	2018-02-05	15:13:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	48.1	66.4	65.6	58.8	51.0	50.1	49.0	48.4
195	2018-02-05	15:14:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	47.8	67.2	66.1	58.6	51.0	50.2	48.2	47.9
196	2018-02-05	15:15:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	48.3	63.5	62.7	59.3	52.9	50.7	48.9	48.4
197	2018-02-05	15:16:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	48.3	72.9	71.6	62.7	54.3	50.2	48.6	48.3
198	2018-02-05	15:17:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	48.7	63.6	63.3	61.7	56.5	54.1	50.8	48.8
199	2018-02-05	15:18:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	49.9	62.0	61.3	58.8	54.8	53.4	50.7	49.9
200	2018-02-05	15:19:00	0:01:00.0	0:01:00.0	0:00:00.0	51.5	48.7	56.0	54.3	53.7	52.6	50.8	49.4	48.8
201	2018-02-05	15:20:00	0:01:00.0	0:01:00.0	0:00:00.0	50.0	46.5	52.1	51.9	51.6	51.0	50.2	47.7	46.6
202	2018-02-05	15:21:00	0:01:00.0	0:01:00.0	0:00:00.0	50.8	48.5	57.1	53.5	51.9	50.9	50.3	48.9	48.6
203	2018-02-05	15:22:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	50.0	63.2	62.7	57.2	51.8	51.2	50.5	50.2
204	2018-02-05	15:23:00	0:01:00.0	0:01:00.0	0:00:00.0	52.9	47.8	62.4	61.9	57.0	51.3	50.3	49.0	47.9
205	2018-02-05	15:24:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	49.9	66.8	65.9	63.8	56.4	51.9	50.9	50.0
206	2018-02-05	15:25:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	49.2	68.7	67.9	61.5	54.1	51.3	49.7	49.3
207	2018-02-05	15:26:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	49.9	61.2	61.0	55.7	52.3	51.8	51.1	49.9
208	2018-02-05	15:27:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	49.8	64.9	64.4	61.8	57.2	52.7	51.0	50.0
209	2018-02-05	15:28:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	48.1	74.1	72.9	64.6	53.5	50.5	48.7	48.2
210	2018-02-05	15:29:00	0:01:00.0	0:01:00.0	0:00:00.0	50.8	47.8	59.9	56.8	53.1	51.5	50.7	48.5	47.9
211	2018-02-05	15:30:00	0:01:00.0	0:01:00.0	0:00:00.0	48.3	45.9	52.6	52.0	50.5	48.7	47.5	46.6	46.0
212	2018-02-05	15:31:00	0:01:00.0	0:01:00.0	0:00:00.0	52.2	46.8	62.4	61.9	56.2	49.9	48.3	47.3	47.0
213	2018-02-05	15:32:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	50.2	62.5	62.3	59.8	54.7	52.6	50.9	50.4
214	2018-02-05	15:33:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	49.4	63.2	62.6	61.4	55.0	52.8	50.2	49.6
215	2018-02-05	15:34:00	0:01:00.0	0:01:00.0	0:00:00.0	69.9	53.6	80.8	79.6	76.2	65.7	60.8	55.8	53.7
216	2018-02-05	15:35:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	55.8	73.3	72.8	69.6	63.4	59.5	56.6	55.9
217	2018-02-05	15:36:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	54.6	74.8	73.8	68.2	63.4	59.4	55.5	54.9
218	2018-02-05	15:37:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	51.9	66.0	61.6	58.3	54.2	53.4	52.4	52.0
219	2018-02-05	15:38:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	52.1	64.3	63.6	61.7	56.9	54.0	52.8	52.3
220	2018-02-05	15:39:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	52.6	63.2	63.0	61.5	58.7	55.6	54.4	52.8
221	2018-02-05	15:40:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	54.2	65.1	64.8	64.0	61.7	56.1	54.7	54.2
222	2018-02-05	15:41:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	52.4	68.2	67.3	61.5	55.9	54.4	52.8	52.5
223	2018-02-05	15:42:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	52.9	64.2	63.6	62.0	59.0	54.8	53.6	52.9
224	2018-02-05	15:43:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	51.9	68.1	67.1	66.1	61.6	55.6	52.9	52.0
225	2018-02-05	15:44:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	52.7	68.8	67.5	59.4	57.1	55.0	53.1	52.8
226	2018-02-05	15:45:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	51.6	71.2	70.8	66.9	62.7	56.7	52.4	51.8
227	2018-02-05	15:46:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	53.4	60.1	59.9	59.6	58.4	57.2	56.6	53.4
228	2018-02-05	15:47:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	48.5	61.3	60.7	56.8	53.2	50.9	49.2	48.6
229	2018-02-05	15:48:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	48.2	64.9	63.5	60.0	53.3	50.6	49.3	48.3
230	2018-02-05	15:49:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	47.9	67.2	66.9	63.7	57.3	51.4	49.0	47.9

231	2018-02-05	15:50:00	0:01:00.0	0:01:00.0	0:00:00.0	52.3	50.8	54.5	53.9	53.2	52.5	52.0	51.5	51.1
232	2018-02-05	15:51:00	0:01:00.0	0:01:00.0	0:00:00.0	51.2	48.3	54.7	54.2	53.2	51.9	51.2	49.1	48.4
233	2018-02-05	15:52:00	0:01:00.0	0:01:00.0	0:00:00.0	50.9	48.0	56.9	56.6	53.2	50.6	49.7	48.9	48.2
234	2018-02-05	15:53:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	49.0	63.9	63.6	61.5	57.5	54.2	49.8	49.2
235	2018-02-05	15:54:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	48.0	64.0	63.3	57.8	52.7	49.6	48.5	48.0
236	2018-02-05	15:55:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	54.9	71.6	71.1	69.7	68.0	64.6	56.2	54.9
237	2018-02-05	15:56:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	58.2	73.3	72.3	69.1	64.9	61.7	59.4	58.4
238	2018-02-05	15:57:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	55.4	66.7	65.5	63.2	60.9	59.1	56.2	55.5
239	2018-02-05	15:58:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	52.7	62.4	62.0	60.4	55.9	54.6	53.7	52.7
240	2018-02-05	15:59:00	0:01:00.0	0:01:00.0	0:00:00.0	53.4	51.3	57.4	56.5	55.2	53.9	53.1	51.8	51.5
241	2018-02-05	16:00:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	48.6	68.4	67.3	64.8	51.8	50.5	49.4	48.7
242	2018-02-05	16:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	51.2	77.6	74.7	69.1	59.4	53.2	51.6	51.3
243	2018-02-05	16:02:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	53.5	75.9	74.3	71.3	62.4	58.3	54.4	53.6
244	2018-02-05	16:03:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	56.6	59.3	59.1	58.7	58.4	58.0	57.1	56.7
245	2018-02-05	16:04:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	49.6	64.2	63.4	59.8	57.4	52.4	49.9	49.7
246	2018-02-05	16:05:00	0:01:00.0	0:01:00.0	0:00:00.0	53.3	49.0	60.1	59.4	56.5	54.3	51.3	49.4	49.0
247	2018-02-05	16:06:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	50.0	66.3	65.4	58.0	52.6	52.0	50.5	50.1
248	2018-02-05	16:07:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	50.2	63.7	63.1	61.0	54.6	52.4	50.7	50.4
249	2018-02-05	16:08:00	0:01:00.0	0:01:00.0	0:00:00.0	52.1	50.2	53.7	53.5	53.1	52.8	52.0	50.7	50.3
250	2018-02-05	16:09:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	50.1	63.7	63.0	60.3	56.1	53.3	50.7	50.2
251	2018-02-05	16:10:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	52.8	71.5	70.4	65.2	56.4	54.9	53.3	52.9
252	2018-02-05	16:11:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	50.1	56.6	56.0	55.5	54.7	54.0	50.8	50.2
253	2018-02-05	16:12:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	50.3	58.6	57.0	55.8	53.9	52.7	50.7	50.3
254	2018-02-05	16:13:00	0:01:00.0	0:01:00.0	0:00:00.0	51.6	49.1	54.6	54.3	53.7	52.4	51.0	49.6	49.2
255	2018-02-05	16:14:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	48.4	65.5	64.9	62.1	54.2	52.3	48.9	48.7
256	2018-02-05	16:15:00	0:01:00.0	0:01:00.0	0:00:00.0	50.1	48.3	55.4	54.7	51.8	50.0	49.5	48.7	48.3
257	2018-02-05	16:16:00	0:01:00.0	0:01:00.0	0:00:00.0	49.5	47.0	51.2	50.9	50.7	50.2	49.5	48.0	47.1
258	2018-02-05	16:17:00	0:01:00.0	0:01:00.0	0:00:00.0	50.1	48.7	51.8	51.5	50.9	50.4	49.9	49.3	48.8
259	2018-02-05	16:18:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	48.2	63.2	62.3	56.5	50.9	49.4	48.8	48.3
260	2018-02-05	16:19:00	0:01:00.0	0:01:00.0	0:00:00.0	51.4	49.1	57.6	57.1	53.0	51.2	50.7	49.6	49.3
261	2018-02-05	16:20:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	50.2	67.2	65.8	61.2	55.7	51.3	50.6	50.3
262	2018-02-05	16:21:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	50.4	69.5	68.7	66.0	56.7	52.4	51.2	50.5
263	2018-02-05	16:22:00	0:01:00.0	0:01:00.0	0:00:00.0	52.6	51.3	54.1	54.0	53.4	52.9	52.5	51.7	51.4
264	2018-02-05	16:23:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	50.6	55.5	54.8	54.3	53.7	52.2	51.2	50.8
265	2018-02-05	16:24:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	50.6	64.4	63.6	60.5	55.9	52.1	51.3	50.9
266	2018-02-05	16:25:00	0:01:00.0	0:01:00.0	0:00:00.0	51.5	48.5	55.0	53.4	52.8	52.0	51.3	50.0	48.8
267	2018-02-05	16:26:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	49.1	66.2	66.0	64.8	58.0	53.6	49.5	49.2
268	2018-02-05	16:27:00	0:01:00.0	0:01:00.0	0:00:00.0	53.3	48.1	63.7	62.8	56.2	51.5	50.5	49.3	48.2
269	2018-02-05	16:28:00	0:01:00.0	0:01:00.0	0:00:00.0	52.4	48.2	61.1	60.5	55.6	51.1	50.4	49.5	48.3
270	2018-02-05	16:29:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	49.8	64.8	63.9	58.4	54.8	52.6	51.1	49.9
271	2018-02-05	16:30:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	49.4	61.3	60.8	56.3	54.2	52.2	50.2	49.5
272	2018-02-05	16:31:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	49.1	67.2	66.3	59.4	54.7	52.2	50.5	49.3
273	2018-02-05	16:32:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	49.8	60.9	60.5	56.0	53.1	52.1	50.6	50.0
274	2018-02-05	16:33:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	49.4	64.7	63.7	57.3	52.2	51.1	50.1	49.5
275	2018-02-05	16:34:00	0:01:00.0	0:01:00.0	0:00:00.0	51.8	50.1	54.0	53.6	53.2	52.1	51.6	50.7	50.2
276	2018-02-05	16:35:00	0:01:00.0	0:01:00.0	0:00:00.0	51.1	49.5	53.2	52.7	52.1	51.4	51.0	50.2	49.6
277	2018-02-05	16:36:00	0:01:00.0	0:01:00.0	0:00:00.0	53.4	49.7	60.9	60.6	58.3	52.0	51.1	50.3	49.8
278	2018-02-05	16:37:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	50.2	71.5	70.6	65.5	59.9	52.5	50.7	50.3
279	2018-02-05	16:38:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	51.0	63.4	62.9	57.9	53.3	52.2	51.4	51.1
280	2018-02-05	16:39:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	51.3	63.8	63.4	62.6	59.3	54.8	52.5	51.4
281	2018-02-05	16:40:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	51.2	66.9	65.7	61.3	54.4	52.7	51.4	51.2
282	2018-02-05	16:41:00	0:01:00.0	0:01:00.0	0:00:00.0	50.2	47.9	52.4	52.0	51.8	51.2	50.1	48.3	48.0
283	2018-02-05	16:42:00	0:01:00.0	0:01:00.0	0:00:00.0	51.0	49.7	53.2	52.9	52.1	51.3	50.8	50.0	49.8
284	2018-02-05	16:43:00	0:01:00.0	0:01:00.0	0:00:00.0	51.9	50.0	53.2	53.0	52.7	52.3	52.0	50.8	50.0
285	2018-02-05	16:44:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	51.7	83.3	82.0	73.0	61.5	55.6	52.5	51.8
286	2018-02-05	16:45:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	52.0	67.1	66.3	60.1	54.7	54.0	52.8	52.2
287	2018-02-05	16:46:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	51.1	71.0	70.5	65.9	56.6	53.3	51.9	51.2
288	2018-02-05	16:47:00	0:01:00.0	0:01:00.0	0:00:00.0	53.3	51.8	57.0	56.8	54.9	53.8	52.9	52.0	51.8
289	2018-02-05	16:48:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	51.8	64.9	64.3	59.2	54.7	53.4	52.3	51.8
290	2018-02-05	16:49:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	50.9	64.2	63.3	59.0	57.1	54.1	51.9	51.0
291	2018-02-05	16:50:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	50.8	67.9	67.0	63.2	58.5	55.5	51.7	50.9
292	2018-02-05	16:51:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	50.7	63.3	62.6	54.8	52.7	52.1	51.2	50.9
293	2018-02-05	16:52:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	51.5	59.5	56.6	54.4	53.4	52.9	52.2	51.7
294	2018-02-05	16:53:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	50.5	56.3	55.5	54.6	53.8	52.3	51.0	50.5
295	2018-02-05	16:54:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	50.4	61.3	60.9	59.0	54.5	52.3	51.2	50.6
296	2018-02-05	16:55:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	50.7	62.1	61.7	58.2	54.5	53.3	51.2	50.7
297	2018-02-05	16:56:00	0:01:00.0	0:01:00.0	0:00:00.0	52.1	50.3	54.3	53.9	53.3	52.8	52.0	50.9	50.4
298	2018-02-05	16:57:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	50.4	66.6	65.8	62.8	55.7	53.1	51.9	50.8
299	2018-02-05	16:58:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	50.3	68.5	67.5	65.2	58.8	53.8	51.8	50.5
300	2018-02-05	16:59:00	0:01:00.0	0:01:00.0	0:00:00.0	53.4	51.9	56.7	55.6	54.2	53.6	53.1	52.4	52.0
301	2018-02-05	17:00:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	51.2	63.0	62.5	56.9	53.2	52.6	51.5	51.2
302	2018-02-05	17:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	49.8	65.3	64.8	60.5	55.3	52.9	50.9	49.9
303	2018-02-05	17:02:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	52.6	70.8	69.9	62.3	56.1	53.8	52.9	52.6
304	2018-02-05	17:03:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	52.3	68.9	68.2	64.3	61.0	56.3	53.1	52.4
305	2018-02-05	17:04:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	51.0	81.0	79.9	72.6	62.0	57.7	52.5	51.1
306	2018-02-05	17:05:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	51.0	55.2	54.9	54.5	53.9	53.1	51.8	51.2
307	2018-02-05	17:06:00	0:01:00.0	0:01:00.0	0:00:00.0	53.0	51.6	56.0	55.6	53.8	53.3	52.8	51.9	51.6

308	2018-02-05	17:07:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	50.5	55.3	55.2	54.0	53.3	52.6	51.5	50.6
309	2018-02-05	17:08:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	51.0	67.3	66.7	63.7	55.0	53.2	51.9	51.1
310	2018-02-05	17:09:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	51.1	60.7	60.4	58.5	55.8	54.8	52.8	51.2
311	2018-02-05	17:10:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	55.5	70.3	70.0	67.2	65.7	62.2	57.8	55.7
312	2018-02-05	17:11:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	60.1	76.1	75.8	73.3	69.3	66.0	60.8	60.3
313	2018-02-05	17:12:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	57.2	69.9	68.4	63.7	62.0	60.3	58.9	57.4
314	2018-02-05	17:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	53.7	66.1	65.4	63.2	58.7	57.1	54.6	53.9
315	2018-02-05	17:14:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	52.5	56.7	56.3	55.7	55.3	54.5	53.4	52.7
316	2018-02-05	17:15:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	52.4	56.4	55.9	55.5	55.0	53.9	53.0	52.5
317	2018-02-05	17:16:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	51.4	55.3	55.1	54.7	54.2	53.7	52.4	51.5
318	2018-02-05	17:17:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	52.2	63.5	62.6	57.2	55.4	54.3	53.3	52.4
319	2018-02-05	17:18:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	51.9	57.5	56.8	55.5	54.4	53.3	52.4	52.0
320	2018-02-05	17:19:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	52.3	65.7	65.1	60.0	55.5	54.3	52.6	52.3
321	2018-02-05	17:20:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	52.9	63.2	62.7	58.3	55.4	54.2	53.3	53.0
322	2018-02-05	17:21:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	53.2	69.9	61.5	59.3	54.8	54.1	53.5	53.3
323	2018-02-05	17:22:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	53.1	71.9	70.4	58.5	55.2	54.6	53.9	53.2
324	2018-02-05	17:23:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	52.2	61.9	61.4	57.4	54.7	53.8	52.7	52.2
325	2018-02-05	17:24:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	52.5	61.4	60.9	57.7	54.5	53.9	53.0	52.6
326	2018-02-05	17:25:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.9	65.2	64.5	58.9	56.2	55.1	54.3	54.0
327	2018-02-05	17:26:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.4	60.2	60.0	59.0	57.6	55.9	54.8	53.7
328	2018-02-05	17:27:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	52.2	58.8	58.5	58.0	56.7	54.3	52.6	52.3
329	2018-02-05	17:28:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	53.1	57.1	57.0	56.8	56.3	55.6	53.9	53.2
330	2018-02-05	17:29:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	52.9	69.0	68.3	62.6	57.3	55.1	54.1	53.0
331	2018-02-05	17:30:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	53.4	58.1	57.5	56.6	56.1	55.5	54.3	53.5
332	2018-02-05	17:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	55.7	58.4	58.2	57.9	57.5	57.0	56.2	55.9
333	2018-02-05	17:32:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	53.6	59.0	58.4	57.0	56.3	55.7	54.6	53.7
334	2018-02-05	17:33:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	55.1	64.8	64.1	62.2	59.2	57.2	55.6	55.2
335	2018-02-05	17:34:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	55.7	59.0	58.7	58.2	57.8	57.4	56.6	55.8
336	2018-02-05	17:35:00	0:01:00.0	0:01:00.0	0:00:00.0	74.1	57.8	84.6	84.2	80.2	71.1	65.5	60.4	58.1
337	2018-02-05	17:36:00	0:01:00.0	0:01:00.0	0:00:00.0	70.2	59.5	81.2	80.2	75.8	67.1	64.8	60.3	59.5
338	2018-02-05	17:37:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.8	68.5	67.5	65.3	61.1	59.8	58.8	57.9
339	2018-02-05	17:38:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	56.7	66.3	64.7	60.0	58.6	58.1	57.4	56.8
340	2018-02-05	17:39:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	56.2	60.4	60.1	59.9	59.0	57.6	56.6	56.3
341	2018-02-05	17:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	60.4	68.0	67.6	67.3	66.2	63.7	61.6	60.5
342	2018-02-05	17:41:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	57.7	63.0	62.9	62.3	61.4	60.1	58.5	57.8
343	2018-02-05	17:42:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	55.0	68.0	67.1	61.8	59.0	58.0	55.7	55.1
344	2018-02-05	17:43:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	52.9	64.6	63.8	61.6	59.2	56.8	53.3	53.1
345	2018-02-05	17:44:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	52.8	62.3	61.7	57.2	55.4	54.6	53.3	52.9
346	2018-02-05	17:45:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	53.6	65.4	64.4	59.6	58.1	57.0	54.1	53.7
347	2018-02-05	17:46:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	52.7	64.2	63.5	58.7	57.4	56.4	54.3	52.7
348	2018-02-05	17:47:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	54.6	76.6	76.3	71.8	60.6	57.3	55.7	54.7
349	2018-02-05	17:48:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	53.3	66.2	65.5	61.0	58.5	56.8	54.8	53.5
350	2018-02-05	17:49:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	53.2	58.2	58.0	57.8	57.2	56.1	54.2	53.3
351	2018-02-05	17:50:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	55.9	67.6	66.8	61.4	58.4	57.8	56.7	56.0
352	2018-02-05	17:51:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.3	62.9	62.3	60.2	57.9	57.1	55.3	54.5
353	2018-02-05	17:52:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	54.4	64.6	64.1	60.0	57.0	56.3	55.2	54.5
354	2018-02-05	17:53:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	53.6	79.1	77.3	68.0	57.1	55.5	54.2	53.7
355	2018-02-05	17:54:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	56.2	66.2	66.0	64.7	62.3	60.3	58.7	56.4
356	2018-02-05	17:55:00	0:01:00.0	0:01:00.0	0:00:00.0	73.1	60.8	80.7	80.4	79.5	73.5	67.2	62.7	60.9
357	2018-02-05	17:56:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	57.8	67.4	66.4	65.1	63.1	61.0	58.9	58.0
358	2018-02-05	17:57:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	56.9	69.5	68.4	67.4	62.9	59.9	57.9	57.1
359	2018-02-05	17:58:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	56.4	63.6	63.4	61.9	60.3	58.4	57.2	56.6
360	2018-02-05	17:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.6	65.3	65.1	64.7	63.5	59.8	58.3	57.7
361	2018-02-05	18:00:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.1	60.9	60.1	59.2	58.1	57.3	56.0	55.2
362	2018-02-05	18:01:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	54.1	66.6	66.3	64.6	62.7	58.8	54.9	54.2
363	2018-02-05	18:02:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	52.8	67.1	66.3	60.6	56.6	54.5	53.5	52.8
364	2018-02-05	18:03:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	53.9	57.6	57.5	57.0	56.6	55.9	54.3	53.9
365	2018-02-05	18:04:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	52.0	59.1	58.8	56.5	54.9	54.1	52.5	52.1
366	2018-02-05	18:05:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	53.5	61.5	61.1	59.4	57.9	55.9	53.7	53.5
367	2018-02-05	18:06:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	54.6	65.6	64.7	60.9	58.2	56.4	55.2	54.8
368	2018-02-05	18:07:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	53.5	58.5	58.4	57.8	57.0	56.1	54.4	53.5
369	2018-02-05	18:08:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	53.9	67.9	66.5	63.5	60.0	56.4	54.9	54.0
370	2018-02-05	18:09:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	52.3	56.6	56.4	56.1	55.5	54.8	53.0	52.4
371	2018-02-05	18:10:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	53.9	69.2	68.1	64.0	58.1	55.8	54.4	54.0
372	2018-02-05	18:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	51.2	64.6	63.5	61.6	56.8	55.1	52.1	51.3
373	2018-02-05	18:12:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	52.4	58.0	57.6	56.5	55.0	53.9	52.7	52.5
374	2018-02-05	18:13:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	52.4	55.9	55.7	55.5	54.9	54.1	53.0	52.6
375	2018-02-05	18:14:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	51.5	61.5	61.0	59.9	56.6	54.5	52.8	51.7
376	2018-02-05	18:15:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	52.2	57.0	56.6	56.1	55.1	54.1	52.8	52.3
377	2018-02-05	18:16:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	53.6	59.8	59.7	58.3	56.7	55.3	54.0	53.7
378	2018-02-05	18:17:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	52.7	63.7	63.3	59.5	55.8	55.2	53.5	52.8
379	2018-02-05	18:18:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	53.6	63.5	62.9	60.9	57.2	55.3	54.0	53.7
380	2018-02-05	18:19:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	55.0	63.8	63.1	58.5	56.9	56.5	55.8	55.1
381	2018-02-05	18:20:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	55.9	62.7	61.3	60.1	59.2	58.5	57.2	56.0
382	2018-02-05	18:21:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	54.8	64.2	63.7	63.1	60.6	57.2	55.6	55.0
383	2018-02-05	18:22:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	52.2	62.5	61.8	61.2	59.2	56.0	53.0	52.3
384	2018-02-05	18:23:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	54.9	63.7	62.9	60.6	59.3	57.8	56.0	55.0

385	2018-02-05	18:24:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	54.2	68.2	67.3	62.2	59.2	56.8	55.0	54.4
386	2018-02-05	18:25:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	55.2	63.1	62.6	59.0	58.2	57.6	55.8	55.4
387	2018-02-05	18:26:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	52.4	60.2	59.7	57.9	56.4	54.9	53.0	52.5
388	2018-02-05	18:27:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	51.9	64.3	63.5	57.1	54.8	54.1	52.7	52.0
389	2018-02-05	18:28:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	50.9	57.3	56.9	56.4	54.9	54.1	52.5	51.1
390	2018-02-05	18:29:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	52.5	57.8	57.5	56.4	55.5	55.0	53.7	52.7
391	2018-02-05	18:30:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	53.9	57.4	56.9	56.4	55.9	55.4	54.4	54.2
392	2018-02-05	18:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	50.7	68.5	67.7	61.3	55.0	53.8	51.9	50.8
393	2018-02-05	18:32:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	50.8	67.2	66.4	62.5	56.9	54.9	53.2	50.9
394	2018-02-05	18:33:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	53.2	57.3	56.8	55.9	55.6	54.9	54.0	53.4
395	2018-02-05	18:34:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	51.8	61.0	56.3	55.5	54.6	54.1	53.3	52.0
396	2018-02-05	18:35:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	52.8	63.9	63.2	58.6	56.8	55.9	54.4	53.0
397	2018-02-05	18:36:00	0:01:00.0	0:01:00.0	0:00:00.0	53.9	52.2	57.5	56.6	55.9	54.3	53.5	52.6	52.3
398	2018-02-05	18:37:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	51.8	57.3	56.9	55.7	54.7	53.9	53.0	52.0
399	2018-02-05	18:38:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	52.4	66.1	65.2	62.2	56.9	54.8	53.5	52.6
400	2018-02-05	18:39:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	52.5	56.3	56.0	55.5	55.0	54.4	53.1	52.7
401	2018-02-05	18:40:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	53.6	58.5	58.1	57.5	56.6	56.0	54.2	53.7
402	2018-02-05	18:41:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	51.5	61.4	60.9	57.5	56.6	54.6	52.7	51.6
403	2018-02-05	18:42:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	51.0	63.0	62.6	59.1	54.9	54.2	51.6	51.1
404	2018-02-05	18:43:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	53.4	64.7	63.9	60.0	56.3	54.9	54.1	53.6
405	2018-02-05	18:44:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	52.4	70.3	69.3	62.8	56.2	55.2	53.5	52.5
406	2018-02-05	18:45:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	52.6	58.4	58.2	57.4	56.7	55.7	53.9	52.7
407	2018-02-05	18:46:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	52.8	63.7	63.5	61.6	58.6	57.5	53.5	53.0
408	2018-02-05	18:47:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	53.2	64.4	63.7	62.7	60.6	58.5	55.5	53.4
409	2018-02-05	18:48:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	52.7	61.4	61.1	59.3	57.5	56.8	53.9	53.0
410	2018-02-05	18:49:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	53.7	64.2	63.3	61.4	57.8	56.6	54.6	53.8
411	2018-02-05	18:50:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	54.9	66.6	66.0	63.6	57.6	56.9	55.6	55.0
412	2018-02-05	18:51:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.2	60.7	60.5	60.2	59.5	58.2	55.5	55.2
413	2018-02-05	18:52:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	55.1	70.9	70.5	67.0	60.8	58.6	55.6	55.2
414	2018-02-05	18:53:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	54.6	66.0	64.9	64.4	62.9	59.4	55.6	54.7
415	2018-02-05	18:54:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	53.2	63.5	63.0	58.3	55.6	54.9	53.5	53.2
416	2018-02-05	18:55:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	56.5	71.3	70.5	63.2	61.5	59.1	57.3	56.6
417	2018-02-05	18:56:00	0:01:00.0	0:01:00.0	0:00:00.0	72.3	64.4	81.5	80.2	76.8	70.6	69.3	65.6	64.5
418	2018-02-05	18:57:00	0:01:00.0	0:01:00.0	0:00:00.0	72.2	62.1	81.2	80.5	77.0	72.4	67.6	63.7	62.2
419	2018-02-05	18:58:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	60.2	68.4	67.7	65.5	63.2	61.9	60.6	60.4
420	2018-02-05	18:59:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	57.7	78.9	77.4	69.0	64.6	60.4	58.5	57.8
421	2018-02-05	19:00:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	57.6	61.1	61.0	60.3	59.3	58.7	57.9	57.6
422	2018-02-05	19:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	52.6	64.6	64.0	59.5	56.7	54.8	53.8	53.2
423	2018-02-05	19:02:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	51.2	60.6	59.1	57.7	56.7	55.5	53.6	51.3
424	2018-02-05	19:03:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	52.5	68.1	67.0	63.0	59.2	56.9	53.5	52.6
425	2018-02-05	19:04:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	51.7	57.4	57.3	56.8	55.7	54.9	52.5	51.8
426	2018-02-05	19:05:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	53.1	57.5	57.1	56.5	55.9	55.4	53.7	53.2
427	2018-02-05	19:06:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	50.6	65.1	64.3	59.7	54.8	53.5	51.7	50.7
428	2018-02-05	19:07:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	53.5	60.3	59.8	58.7	57.9	57.0	54.6	53.8
429	2018-02-05	19:08:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	55.1	64.4	63.7	62.8	60.4	57.9	56.0	55.2
430	2018-02-05	19:09:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	55.6	63.3	62.7	61.2	58.5	57.3	56.6	55.9
431	2018-02-05	19:10:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	55.0	64.4	63.8	59.8	57.7	57.0	55.8	55.1
432	2018-02-05	19:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	54.3	60.6	60.2	59.5	57.7	56.9	55.0	54.5
433	2018-02-05	19:12:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	53.9	57.8	57.5	57.0	56.5	55.6	54.5	54.0
434	2018-02-05	19:13:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	53.3	63.8	63.2	60.4	58.1	55.6	54.2	53.3
435	2018-02-05	19:14:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	52.4	64.1	63.3	61.5	58.2	56.7	53.5	52.6
436	2018-02-05	19:15:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	54.0	62.1	61.5	58.6	56.8	56.3	55.5	54.2
437	2018-02-05	19:16:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	55.9	59.8	59.3	58.6	57.8	57.1	56.2	56.0
438	2018-02-05	19:17:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	52.1	58.0	57.8	57.1	56.6	55.8	54.6	52.3
439	2018-02-05	19:18:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	50.8	66.2	65.1	62.5	58.4	56.6	51.4	51.0
440	2018-02-05	19:19:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	54.3	59.4	58.9	58.1	57.2	56.6	55.2	54.4
441	2018-02-05	19:20:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	53.8	57.4	57.2	56.7	56.5	56.0	54.4	53.9
442	2018-02-05	19:21:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	52.3	64.9	64.4	59.7	55.0	54.4	53.3	52.4
443	2018-02-05	19:22:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	52.9	58.4	57.8	57.6	57.2	56.8	53.9	53.0
444	2018-02-05	19:23:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	55.6	65.9	65.4	61.2	58.5	57.2	56.1	55.7
445	2018-02-05	19:24:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	54.8	65.1	64.5	61.8	58.3	57.3	55.6	54.9
446	2018-02-05	19:25:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.9	62.9	62.2	58.9	58.1	57.1	55.7	55.1
447	2018-02-05	19:26:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	52.9	60.1	59.7	58.7	58.1	57.4	53.8	53.0
448	2018-02-05	19:27:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	55.7	66.5	65.6	61.5	59.2	58.3	56.5	55.7
449	2018-02-05	19:28:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	53.4	61.6	59.9	58.6	57.5	56.7	55.1	53.5
450	2018-02-05	19:29:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	54.1	62.7	62.2	60.9	59.1	57.1	55.2	54.3
451	2018-02-05	19:30:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	53.9	59.7	58.9	58.4	57.5	57.1	55.0	54.0
452	2018-02-05	19:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	56.1	59.2	59.2	58.8	58.1	57.4	56.6	56.2
453	2018-02-05	19:32:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	53.9	61.8	61.4	59.4	57.5	56.4	54.6	54.0
454	2018-02-05	19:33:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	54.9	60.0	59.7	59.5	58.7	57.9	56.3	54.9
455	2018-02-05	19:34:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	53.9	57.4	57.3	57.0	56.2	55.2	54.3	53.9
456	2018-02-05	19:35:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.9	64.0	63.6	62.1	57.9	56.1	55.3	55.0
457	2018-02-05	19:36:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	51.9	63.9	62.9	60.1	56.3	55.1	53.2	52.0
458	2018-02-05	19:37:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	51.4	66.0	65.6	65.1	56.5	54.6	52.4	51.7
459	2018-02-05	19:38:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	59.5	70.3	70.2	69.8	66.9	64.9	60.7	59.6
460	2018-02-05	19:39:00	0:01:00.0	0:01:00.0	0:00:00.0	71.8	66.5	80.5	78.3	75.8	71.9	70.1	67.0	66.6
461	2018-02-05	19:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	58.9	69.4	69.3	68.3	66.3	62.8	59.5	59.0

462	2018-02-05	19:41:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.2	67.4	67.0	65.9	64.9	62.4	59.8	59.3
463	2018-02-05	19:42:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	60.1	67.2	66.7	66.1	64.8	61.9	60.6	60.2
464	2018-02-05	19:43:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.0	67.9	67.6	67.4	66.9	65.8	64.4	62.1
465	2018-02-05	19:44:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	57.3	69.3	68.9	67.6	66.2	62.0	58.1	57.5
466	2018-02-05	19:45:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	52.7	78.4	77.2	75.3	69.9	65.4	53.6	52.8
467	2018-02-05	19:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.0	68.4	68.1	67.4	66.6	64.7	61.5	61.1
468	2018-02-05	19:47:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.3	68.4	68.3	67.7	66.7	64.1	62.4	61.7
469	2018-02-05	19:48:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	53.7	68.5	68.2	67.6	65.7	62.8	54.5	53.8
470	2018-02-05	19:49:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	53.4	66.7	66.5	66.1	63.1	58.8	54.1	53.5
471	2018-02-05	19:50:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	53.4	65.3	65.2	64.7	63.6	58.1	55.4	53.4
472	2018-02-05	19:51:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	54.5	66.6	66.1	65.5	63.8	59.6	55.7	54.7
473	2018-02-05	19:52:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	51.6	80.0	78.8	72.3	59.7	55.3	52.4	51.7
474	2018-02-05	19:53:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	50.4	62.8	62.4	57.0	53.5	52.6	51.1	50.5
475	2018-02-05	19:54:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	49.5	69.4	68.9	65.7	54.5	52.0	50.2	49.6
476	2018-02-05	19:55:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	52.3	81.2	79.8	68.6	55.4	54.3	53.1	52.4
477	2018-02-05	19:56:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	51.2	65.7	63.0	61.3	56.3	54.0	51.8	51.3
478	2018-02-05	19:57:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	51.8	55.7	55.4	54.7	54.2	53.7	52.8	52.0
479	2018-02-05	19:58:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	52.4	67.1	66.4	61.5	55.9	53.7	52.8	52.5
480	2018-02-05	19:59:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	49.0	64.2	63.6	58.7	53.7	51.4	49.7	49.2
481	2018-02-05	20:00:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	50.9	67.0	65.8	61.7	54.5	53.2	51.9	51.0
482	2018-02-05	20:01:00	0:01:00.0	0:01:00.0	0:00:00.0	52.6	49.2	66.2	63.6	54.6	52.4	51.2	49.9	49.3
483	2018-02-05	20:02:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	51.3	66.3	66.0	65.0	59.4	54.8	52.2	51.5
484	2018-02-05	20:03:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	54.8	64.9	63.9	60.4	57.0	56.3	55.4	54.9
485	2018-02-05	20:04:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	53.5	58.2	57.8	57.3	56.5	55.7	54.8	53.7
486	2018-02-05	20:05:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	53.8	58.3	57.8	56.6	56.3	55.6	54.6	53.9
487	2018-02-05	20:06:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	54.2	64.0	63.5	59.8	58.1	56.6	54.6	54.3
488	2018-02-05	20:07:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.4	70.2	69.0	65.9	61.2	58.0	56.9	56.4
489	2018-02-05	20:08:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	56.4	62.2	61.2	60.2	59.0	58.5	56.8	56.5
490	2018-02-05	20:09:00	0:01:00.0	0:01:00.0	0:00:00.0	71.5	60.8	82.9	81.4	77.7	67.3	65.1	62.2	61.1
491	2018-02-05	20:10:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	60.8	79.0	76.7	70.2	69.3	67.5	63.2	60.9
492	2018-02-05	20:11:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	60.7	67.9	67.4	66.2	64.4	63.3	61.4	60.8
493	2018-02-05	20:12:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	59.0	65.5	65.1	63.9	62.7	61.4	59.7	59.1
494	2018-02-05	20:13:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	58.8	62.0	61.7	60.7	60.3	59.9	59.4	58.8
495	2018-02-05	20:14:00	0:01:00.0	0:01:00.0	0:00:00.0	74.3	59.1	87.9	86.6	78.5	63.7	60.8	59.4	59.2
496	2018-02-05	20:15:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	58.0	67.7	67.1	62.4	59.3	59.0	58.3	58.1
497	2018-02-05	20:16:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	57.9	68.8	68.4	65.4	60.9	58.9	58.3	58.0
498	2018-02-05	20:17:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	56.2	59.7	59.4	59.1	58.5	58.0	56.7	56.2
499	2018-02-05	20:18:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	56.3	66.9	65.6	63.3	60.8	58.6	57.6	56.4
500	2018-02-05	20:19:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	57.2	59.9	59.5	59.3	58.8	58.4	57.4	57.2
501	2018-02-05	20:20:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	57.1	59.3	59.2	59.0	58.7	58.4	57.6	57.2
502	2018-02-05	20:21:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	56.1	59.8	59.7	59.4	58.9	58.5	57.0	56.3
503	2018-02-05	20:22:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	54.0	58.7	58.4	58.0	57.0	56.5	54.9	54.1
504	2018-02-05	20:23:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	55.4	67.2	66.5	62.3	58.1	57.2	56.4	55.5
505	2018-02-05	20:24:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	55.8	72.1	71.5	65.4	58.2	57.6	56.4	56.0
506	2018-02-05	20:25:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	55.5	65.1	64.3	60.4	59.2	58.2	56.6	55.7
507	2018-02-05	20:26:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	56.0	60.2	60.1	59.9	59.0	57.7	56.9	56.1
508	2018-02-05	20:27:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	56.1	59.5	59.3	58.9	58.4	58.0	57.2	56.3
509	2018-02-05	20:28:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	55.6	62.5	62.2	61.3	59.3	58.5	56.1	55.6
510	2018-02-05	20:29:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	56.8	60.6	60.2	59.7	59.2	58.5	57.3	56.9
511	2018-02-05	20:30:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	55.2	60.1	59.7	59.2	58.6	57.5	55.9	55.3
512	2018-02-05	20:31:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.2	66.6	66.3	64.7	61.9	60.6	57.8	56.3
513	2018-02-05	20:32:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	52.5	59.8	59.3	58.4	57.4	56.5	53.8	52.8
514	2018-02-05	20:33:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	51.6	60.8	60.5	59.4	58.4	56.3	52.4	51.8
515	2018-02-05	20:34:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	58.9	71.9	71.2	66.4	63.2	61.6	59.5	59.0
516	2018-02-05	20:35:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	56.2	69.0	68.2	65.4	60.6	59.3	57.4	56.3
517	2018-02-05	20:36:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.3	61.7	61.1	60.8	60.1	59.1	58.2	57.5
518	2018-02-05	20:37:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.0	69.5	69.0	64.6	60.9	60.2	58.6	58.2
519	2018-02-05	20:38:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	57.0	61.2	60.3	60.0	59.6	58.9	57.3	57.0
520	2018-02-05	20:39:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	56.4	62.0	61.3	60.8	60.0	58.8	57.5	56.5
521	2018-02-05	20:40:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	56.6	65.9	65.2	63.5	60.8	59.9	57.5	56.6
522	2018-02-05	20:41:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	57.1	64.1	61.7	60.0	59.3	58.6	57.5	57.2
523	2018-02-05	20:42:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	56.5	59.7	59.5	59.3	58.9	58.2	57.0	56.7
524	2018-02-05	20:43:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.5	69.3	68.5	63.7	60.9	60.2	59.0	58.7
525	2018-02-05	20:44:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	58.8	61.4	61.2	60.8	60.4	59.8	59.3	58.9
526	2018-02-05	20:45:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	59.4	62.8	62.6	62.2	61.7	61.4	60.2	59.5
527	2018-02-05	20:46:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	58.0	66.8	66.3	63.3	60.9	60.3	58.8	58.2
528	2018-02-05	20:47:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	59.1	62.8	62.2	61.9	61.5	61.1	60.4	59.2
529	2018-02-05	20:48:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.8	61.7	61.3	60.8	59.8	59.0	58.2	57.9
530	2018-02-05	20:49:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	58.9	63.4	63.1	62.7	61.9	61.4	60.1	59.0
531	2018-02-05	20:50:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	55.9	63.4	63.3	62.9	62.1	59.6	56.4	55.9
532	2018-02-05	20:51:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	56.1	62.2	61.9	60.4	59.1	57.9	56.8	56.2
533	2018-02-05	20:52:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	58.2	63.3	62.9	62.6	61.9	60.9	59.1	58.3
534	2018-02-05	20:53:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	57.4	60.7	60.5	60.0	59.5	59.0	57.8	57.5
535	2018-02-05	20:54:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	59.0	64.7	64.1	62.5	61.2	60.7	59.8	59.5
536	2018-02-05	20:55:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	60.8	63.7	63.4	62.8	62.0	61.5	61.0	60.9
537	2018-02-05	20:56:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	59.7	64.3	64.1	63.7	62.9	61.6	60.1	59.8
538	2018-02-05	20:57:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	57.0	74.3	73.5	66.5	61.3	60.6	59.0	57.1

539	2018-02-05	20:58:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	57.7	63.6	62.6	62.0	61.6	60.4	58.1	57.8
540	2018-02-05	20:59:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	59.4	62.4	62.2	61.6	61.2	60.7	60.0	59.5
541	2018-02-05	21:00:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	58.9	62.6	62.4	62.1	61.6	60.9	59.6	59.0
542	2018-02-05	21:01:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	56.4	61.9	61.7	61.3	60.8	60.2	57.2	56.6
543	2018-02-05	21:02:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	57.0	62.5	61.9	61.1	60.1	59.6	58.3	57.1
544	2018-02-05	21:03:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	58.5	62.4	62.2	62.0	61.5	60.7	59.6	58.7
545	2018-02-05	21:04:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	59.5	63.6	63.0	62.6	62.1	61.6	60.6	59.7
546	2018-02-05	21:05:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	58.3	63.7	63.4	62.3	61.0	60.3	58.9	58.3
547	2018-02-05	21:06:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	59.5	64.7	63.9	63.4	62.5	61.7	60.2	59.6
548	2018-02-05	21:07:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	59.5	69.0	68.3	64.3	62.8	61.7	59.9	59.5
549	2018-02-05	21:08:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	61.4	66.5	65.1	63.8	63.5	62.9	61.8	61.5
550	2018-02-05	21:09:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.1	63.9	63.8	63.4	62.8	62.3	60.2	59.2
551	2018-02-05	21:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	59.5	66.3	65.9	63.7	62.9	62.2	60.1	59.7
552	2018-02-05	21:11:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	57.5	70.5	69.8	64.7	60.5	59.5	58.0	57.6
553	2018-02-05	21:12:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	57.9	62.5	62.4	62.2	61.3	60.6	59.6	58.0
554	2018-02-05	21:13:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	62.2	64.0	63.8	63.7	63.4	62.9	62.5	62.3
555	2018-02-05	21:14:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	60.5	63.9	63.8	63.7	63.2	62.1	61.4	60.6
556	2018-02-05	21:15:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	59.9	64.1	63.9	62.8	62.4	61.8	60.5	60.0
557	2018-02-05	21:16:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	60.5	63.8	63.7	63.5	63.1	62.7	61.4	60.7
558	2018-02-05	21:17:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	60.0	63.8	63.6	63.3	62.7	62.3	60.8	60.1
559	2018-02-05	21:18:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	59.3	63.0	62.9	62.7	62.3	62.0	61.2	59.5
560	2018-02-05	21:19:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.3	67.7	66.9	64.1	61.7	60.7	58.7	58.4
561	2018-02-05	21:20:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	60.1	65.1	63.4	62.6	62.1	61.8	60.8	60.2
562	2018-02-05	21:21:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	58.0	62.1	61.9	61.5	61.1	60.2	58.5	58.1
563	2018-02-05	21:22:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	60.0	63.4	63.2	62.8	62.1	61.5	60.5	60.1
564	2018-02-05	21:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	60.3	64.5	64.2	63.8	63.1	62.6	61.3	60.4
565	2018-02-05	21:24:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	59.3	61.7	61.6	61.2	60.9	60.7	59.9	59.3
566	2018-02-05	21:25:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	57.5	61.6	61.4	61.0	60.3	59.4	58.0	57.6
567	2018-02-05	21:26:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	60.7	64.5	64.0	63.8	63.4	62.7	61.8	60.8
568	2018-02-05	21:27:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.8	64.8	64.4	63.2	62.6	61.0	60.0	59.0
569	2018-02-05	21:28:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	59.3	63.0	62.7	62.5	62.1	61.5	59.7	59.5
570	2018-02-05	21:29:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	60.1	62.5	62.5	62.3	62.0	61.6	60.6	60.2
571	2018-02-05	21:30:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	59.3	64.7	64.5	62.5	61.9	61.5	60.3	59.4
572	2018-02-05	21:31:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	57.9	62.3	62.0	61.5	60.6	60.1	58.6	58.1
573	2018-02-05	21:32:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	57.3	65.0	64.7	63.5	62.3	61.4	58.3	57.5
574	2018-02-05	21:33:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	57.3	63.4	63.3	63.0	62.4	60.4	58.7	57.5
575	2018-02-05	21:34:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	60.8	66.0	65.5	65.1	64.4	63.2	61.5	60.9
576	2018-02-05	21:35:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	56.5	64.2	64.0	63.3	62.4	60.3	57.2	56.6
577	2018-02-05	21:36:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	57.2	65.5	64.9	61.5	59.4	58.9	57.7	57.2
578	2018-02-05	21:37:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	57.9	62.3	62.1	62.0	61.5	60.9	58.5	58.0
579	2018-02-05	21:38:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	58.4	62.7	62.6	62.3	60.9	60.2	59.3	58.6
580	2018-02-05	21:39:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	57.8	63.5	63.0	62.6	61.4	60.6	58.3	57.9
581	2018-02-05	21:40:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	60.3	65.9	65.8	65.5	64.7	63.9	61.1	60.5
582	2018-02-05	21:41:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	57.5	64.1	63.8	63.4	61.4	59.9	58.0	57.6
583	2018-02-05	21:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	58.8	63.2	62.8	62.4	62.0	61.4	59.7	58.9
584	2018-02-05	21:43:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	60.6	65.7	65.4	63.8	63.1	62.4	61.4	60.8
585	2018-02-05	21:44:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.8	65.4	64.8	64.6	63.4	62.9	61.3	60.8
586	2018-02-05	21:45:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.7	67.0	66.6	65.4	63.0	61.9	60.5	58.9
587	2018-02-05	21:46:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	59.3	63.9	63.6	62.7	62.2	61.3	60.4	59.4
588	2018-02-05	21:47:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	58.6	65.6	65.3	63.4	61.8	60.8	59.5	58.7
589	2018-02-05	21:48:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.6	61.8	61.4	60.9	60.6	58.9	57.1	56.7
590	2018-02-05	21:49:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	56.5	60.7	60.4	60.2	59.5	58.7	57.4	56.7
591	2018-02-05	21:50:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	57.0	64.2	63.7	63.1	61.1	59.1	57.6	57.1
592	2018-02-05	21:51:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	60.6	63.6	63.5	63.4	62.5	62.0	61.0	60.7
593	2018-02-05	21:52:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	57.5	63.0	62.7	62.2	60.7	60.2	58.4	57.6
594	2018-02-05	21:53:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	57.7	67.0	66.3	62.7	61.7	60.9	58.6	57.8
595	2018-02-05	21:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	57.3	63.1	62.9	61.9	61.2	60.5	58.2	57.4
596	2018-02-05	21:55:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	56.5	65.0	64.6	63.2	61.0	60.1	57.1	56.6
597	2018-02-05	21:56:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	57.4	65.4	64.7	61.0	60.4	59.6	58.2	57.6
598	2018-02-05	21:57:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	58.4	62.5	62.2	61.9	61.3	60.8	59.3	58.5
599	2018-02-05	21:58:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	59.1	63.3	62.8	62.4	61.2	60.7	59.8	59.2
600	2018-02-05	21:59:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	59.2	65.1	64.7	64.4	63.8	62.6	60.2	59.3
601	2018-02-05	22:00:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.6	66.9	66.6	64.4	63.6	63.2	60.8	59.7
602	2018-02-05	22:01:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	58.9	64.6	64.3	63.8	61.2	60.4	59.5	59.1
603	2018-02-05	22:02:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.2	66.3	66.0	65.2	64.3	62.7	60.5	60.2
604	2018-02-05	22:03:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	58.3	62.0	61.8	61.3	60.5	60.0	59.0	58.4
605	2018-02-05	22:04:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	55.9	60.9	60.8	60.2	59.3	58.0	56.9	56.0
606	2018-02-05	22:05:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	56.3	62.1	61.5	60.4	59.6	58.7	57.3	56.7
607	2018-02-05	22:06:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.2	58.2	58.0	57.8	57.3	56.5	53.7	53.3
608	2018-02-05	22:07:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	55.9	59.3	59.2	58.5	58.1	57.6	56.7	56.0
609	2018-02-05	22:08:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	55.8	63.2	62.3	60.8	59.5	58.3	56.6	55.9
610	2018-02-05	22:09:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	55.9	60.3	60.1	59.4	58.5	57.6	56.6	56.1
611	2018-02-05	22:10:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	54.4	61.5	60.8	58.5	57.6	56.7	55.3	54.5
612	2018-02-05	22:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	55.5	60.3	59.7	59.1	58.0	57.1	55.8	55.6
613	2018-02-05	22:12:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	55.5	60.2	59.8	59.1	58.5	58.0	56.8	55.6
614	2018-02-05	22:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	54.3	61.3	61.0	60.7	59.9	58.7	55.3	54.4
615	2018-02-05	22:14:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	54.5	72.3	71.7	65.5	61.3	59.4	56.4	54.6

616	2018-02-05	22:15:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	57.9	71.6	68.8	65.5	61.3	60.3	58.7	58.1
617	2018-02-05	22:16:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	56.5	61.2	61.0	60.0	59.4	58.8	57.5	56.6
618	2018-02-05	22:17:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	56.7	61.9	61.1	60.4	59.6	58.3	57.4	56.8
619	2018-02-05	22:18:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	55.9	63.7	63.5	61.1	59.0	58.2	57.2	56.1
620	2018-02-05	22:19:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	52.5	64.7	64.3	61.7	57.9	56.5	54.5	52.8
621	2018-02-05	22:20:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	54.9	67.2	66.9	64.2	59.0	58.3	55.9	55.1
622	2018-02-05	22:21:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	57.2	63.6	62.9	61.7	60.6	60.0	58.4	57.4
623	2018-02-05	22:22:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	57.0	61.4	60.9	60.5	59.9	59.2	57.8	57.2
624	2018-02-05	22:23:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	55.3	59.2	59.1	58.9	58.3	57.9	56.0	55.4
625	2018-02-05	22:24:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	57.3	62.8	62.7	62.3	61.6	60.6	58.1	57.5
626	2018-02-05	22:25:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.8	60.2	59.8	59.4	58.8	57.9	55.7	54.9
627	2018-02-05	22:26:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	55.8	60.6	60.3	59.8	58.9	58.1	56.7	55.8
628	2018-02-05	22:27:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	57.2	66.6	66.1	64.7	60.9	59.0	57.7	57.3
629	2018-02-05	22:28:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.6	62.4	61.9	60.9	59.8	59.1	57.6	56.7
630	2018-02-05	22:29:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	57.1	62.1	61.7	61.4	60.8	59.9	58.0	57.2
631	2018-02-05	22:30:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	56.7	61.3	61.1	60.4	59.9	59.2	57.7	56.8
632	2018-02-05	22:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	55.5	59.6	59.3	58.9	58.5	57.9	56.1	55.6
633	2018-02-05	22:32:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	56.9	60.9	60.7	60.3	59.8	58.7	57.3	56.9
634	2018-02-05	22:33:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	56.5	62.9	62.5	61.8	60.8	60.2	58.2	57.0
635	2018-02-05	22:34:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	54.6	59.4	58.8	57.9	57.2	56.4	55.2	54.8
636	2018-02-05	22:35:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	55.4	60.6	60.4	60.1	59.5	58.9	56.9	55.5
637	2018-02-05	22:36:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.9	63.5	62.4	60.7	59.9	59.2	57.5	57.0
638	2018-02-05	22:37:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.8	58.7	58.5	58.1	57.0	56.4	54.6	53.9
639	2018-02-05	22:38:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	54.0	58.7	58.6	58.3	57.3	56.8	55.1	54.1
640	2018-02-05	22:39:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	53.7	58.9	58.7	58.4	57.5	56.7	55.1	53.8
641	2018-02-05	22:40:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	54.6	59.6	59.3	58.7	57.9	57.2	55.4	54.7
642	2018-02-05	22:41:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	56.2	60.1	59.9	59.6	59.0	58.0	56.8	56.4
643	2018-02-05	22:42:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	54.3	59.9	59.6	59.3	58.5	57.7	55.0	54.3
644	2018-02-05	22:43:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	53.9	59.6	59.4	59.2	58.2	57.6	55.4	54.2
645	2018-02-05	22:44:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.1	60.3	59.9	59.2	58.6	57.3	55.4	54.3
646	2018-02-05	22:45:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	57.3	60.8	60.5	60.2	59.6	58.7	57.9	57.4
647	2018-02-05	22:46:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	57.4	61.0	60.7	60.2	59.7	59.2	58.0	57.6
648	2018-02-05	22:47:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	56.4	61.5	60.7	59.7	59.0	58.4	57.0	56.5
649	2018-02-05	22:48:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.6	61.3	61.0	60.4	59.8	59.3	58.2	57.9
650	2018-02-05	22:49:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	57.5	61.8	61.6	60.6	60.2	59.6	58.2	57.6
651	2018-02-05	22:50:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	58.0	60.8	60.5	60.1	59.5	59.3	58.6	58.2
652	2018-02-05	22:51:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	57.5	62.5	62.2	61.7	61.1	60.6	58.3	57.6
653	2018-02-05	22:52:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	58.0	61.5	60.7	60.3	59.7	59.2	58.6	58.1
654	2018-02-05	22:53:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	58.0	63.9	63.1	62.2	61.1	60.3	58.7	58.2
655	2018-02-05	22:54:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	56.2	65.3	64.8	62.3	59.9	58.7	57.0	56.4
656	2018-02-05	22:55:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	56.1	60.8	59.9	59.6	59.2	58.1	56.6	56.2
657	2018-02-05	22:56:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	52.7	60.0	59.7	59.0	57.8	55.5	53.6	52.9
658	2018-02-05	22:57:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	54.3	61.4	60.8	60.2	59.5	58.6	54.9	54.5
659	2018-02-05	22:58:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	57.5	61.1	60.7	60.4	59.9	59.4	58.6	57.7
660	2018-02-05	22:59:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	55.8	64.1	63.5	60.6	59.4	58.8	56.9	56.0
661	2018-02-05	23:00:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	54.0	64.0	63.7	62.3	60.6	59.7	55.8	54.1
662	2018-02-05	23:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	52.4	58.6	58.4	58.1	57.4	56.1	53.2	52.5
663	2018-02-05	23:02:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	57.4	61.3	60.9	60.7	60.0	59.3	58.3	57.6
664	2018-02-05	23:03:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.2	62.4	61.3	60.4	59.8	59.2	58.0	57.3
665	2018-02-05	23:04:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.3	63.6	63.3	63.0	62.5	61.3	59.4	58.4
666	2018-02-05	23:05:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	59.2	64.5	64.2	64.0	62.9	62.2	59.7	59.4
667	2018-02-05	23:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	59.7	64.1	63.8	63.4	63.1	62.5	60.4	59.8
668	2018-02-05	23:07:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	58.5	65.4	64.6	62.9	62.2	61.3	59.5	58.6
669	2018-02-05	23:08:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	56.8	63.7	63.0	62.5	61.7	60.1	57.9	56.9
670	2018-02-05	23:09:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	58.2	62.0	61.6	61.3	60.0	59.5	58.6	58.2
671	2018-02-05	23:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	60.4	64.9	64.5	63.6	63.3	62.9	60.9	60.5
672	2018-02-05	23:11:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	59.7	62.8	62.5	61.9	61.3	60.9	60.1	59.8
673	2018-02-05	23:12:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.3	66.2	65.7	64.2	63.4	62.3	59.0	58.4
674	2018-02-05	23:13:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	58.3	61.2	60.8	60.3	60.0	59.5	58.8	58.4
675	2018-02-05	23:14:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	58.1	61.6	61.3	60.7	60.3	59.6	58.4	58.2
676	2018-02-05	23:15:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	58.0	63.5	63.3	62.6	61.5	60.4	58.9	58.0
677	2018-02-05	23:16:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.9	63.2	63.0	62.8	62.4	61.6	60.3	59.1
678	2018-02-05	23:17:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	58.6	65.1	64.8	63.8	62.6	62.1	59.7	58.7
679	2018-02-05	23:18:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	58.4	64.2	64.0	63.7	62.8	59.3	58.7	58.4
680	2018-02-05	23:19:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.9	64.0	63.7	63.0	62.4	61.6	59.6	59.0
681	2018-02-05	23:20:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	58.4	66.7	66.1	64.0	62.3	61.2	59.2	58.4
682	2018-02-05	23:21:00	0:01:00.0	0:01:00.0	0:00:00.0	75.4	58.3	88.2	86.8	79.6	72.5	64.4	59.3	58.4
683	2018-02-05	23:22:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	62.0	76.7	76.1	71.5	66.1	65.3	63.0	62.0
684	2018-02-05	23:23:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	65.1	69.8	69.7	69.2	68.0	67.3	65.5	65.2
685	2018-02-05	23:24:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	63.4	68.8	68.7	68.4	67.7	66.8	63.9	63.5
686	2018-02-05	23:25:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	57.0	63.7	62.9	62.2	60.5	59.8	57.7	57.2
687	2018-02-05	23:26:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	55.6	59.9	59.6	59.0	58.5	57.5	56.1	55.7
688	2018-02-05	23:27:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	56.3	64.1	63.3	61.3	59.1	58.5	57.2	56.5
689	2018-02-05	23:28:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	53.7	62.4	62.0	61.5	60.0	58.3	55.5	53.8
690	2018-02-05	23:29:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.4	59.1	59.0	58.7	57.6	55.6	54.6	53.4
691	2018-02-05	23:30:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	56.4	60.8	60.6	60.0	59.2	58.4	57.0	56.5
692	2018-02-05	23:31:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.8	61.8	61.4	60.9	60.0	59.1	57.4	56.9

693	2018-02-05	23:32:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	58.1	64.0	63.4	63.1	62.4	60.7	59.2	58.5
694	2018-02-05	23:33:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	55.5	59.6	59.5	59.0	58.6	57.8	56.4	55.6
695	2018-02-05	23:34:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	54.4	63.2	62.5	60.1	58.1	57.3	55.5	54.7
696	2018-02-05	23:35:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	53.8	60.9	60.6	59.8	58.0	57.0	54.7	53.9
697	2018-02-05	23:36:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	53.5	58.1	58.0	57.6	56.6	55.8	54.6	53.6
698	2018-02-05	23:37:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	53.6	60.1	59.8	58.5	57.2	56.2	54.3	53.7
699	2018-02-05	23:38:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	52.3	63.7	63.4	60.9	55.8	54.8	53.0	52.4
700	2018-02-05	23:39:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.8	59.2	58.6	57.9	57.4	56.1	54.8	54.0
701	2018-02-05	23:40:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	54.0	60.4	59.9	58.7	57.7	57.0	55.0	54.1
702	2018-02-05	23:41:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.4	61.3	61.0	60.5	60.0	59.4	58.1	57.5
703	2018-02-05	23:42:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	56.9	63.3	62.8	62.4	61.6	60.0	58.1	57.1
704	2018-02-05	23:43:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	58.1	67.8	67.1	64.0	63.0	61.8	58.6	58.2
705	2018-02-05	23:44:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	59.2	69.6	68.9	65.6	64.0	62.7	61.1	59.3
706	2018-02-05	23:45:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	54.7	63.5	62.6	62.1	61.1	60.0	56.2	54.8
707	2018-02-05	23:46:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.4	59.6	59.4	58.7	58.1	57.1	55.9	55.5
708	2018-02-05	23:47:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.5	64.0	63.8	63.5	62.7	61.2	57.2	56.6
709	2018-02-05	23:48:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	54.7	62.1	61.6	60.9	59.9	58.6	55.6	54.8
710	2018-02-05	23:49:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	55.7	61.2	61.0	60.4	58.6	57.7	56.8	55.9
711	2018-02-05	23:50:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	54.9	62.4	62.0	61.7	59.5	57.2	55.3	55.0
712	2018-02-05	23:51:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	59.4	62.9	62.5	62.1	61.6	61.0	60.0	59.5
713	2018-02-05	23:52:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	55.9	61.1	60.5	60.0	59.4	58.4	56.6	56.0
714	2018-02-05	23:53:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	53.3	60.7	60.5	59.5	58.4	56.9	54.8	53.4
715	2018-02-05	23:54:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	54.9	63.0	62.5	61.5	59.7	58.0	55.9	55.0
716	2018-02-05	23:55:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	56.8	63.7	63.5	62.0	61.1	60.3	58.3	56.9
717	2018-02-05	23:56:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.8	61.9	61.6	61.1	60.0	59.1	57.1	56.8
718	2018-02-05	23:57:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	56.1	61.9	61.5	61.2	60.8	59.8	56.6	56.2
719	2018-02-05	23:58:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	56.6	61.4	61.1	60.2	59.5	58.6	57.3	56.7
720	2018-02-05	23:59:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	55.6	63.5	62.6	62.0	61.2	59.5	57.1	55.7
721	2018-02-06	0:00:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	55.2	62.7	62.5	62.1	61.0	59.2	57.4	55.3
722	2018-02-06	0:01:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	56.1	61.9	61.6	61.2	59.3	58.5	57.0	56.2
723	2018-02-06	0:02:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	53.0	62.5	62.3	60.7	60.0	56.6	53.7	53.2
724	2018-02-06	0:03:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.6	65.1	64.8	64.1	62.5	60.9	59.1	58.7
725	2018-02-06	0:04:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	54.7	62.5	62.3	61.5	59.5	58.3	55.2	54.8
726	2018-02-06	0:05:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	53.2	64.2	63.4	60.1	58.4	57.0	54.2	53.4
727	2018-02-06	0:06:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	53.8	61.8	61.5	60.2	58.9	56.5	54.6	54.0
728	2018-02-06	0:07:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	53.7	63.2	62.8	60.7	59.4	56.1	54.0	53.7
729	2018-02-06	0:08:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	54.9	62.5	62.3	61.3	59.5	58.0	55.4	55.1
730	2018-02-06	0:09:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	56.1	63.3	62.9	61.8	60.6	59.6	57.5	56.1
731	2018-02-06	0:10:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.3	65.9	65.4	63.5	62.3	60.0	56.4	55.4
732	2018-02-06	0:11:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	55.9	62.6	61.8	60.8	59.7	58.9	57.2	56.1
733	2018-02-06	0:12:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	55.3	61.8	61.5	61.0	59.9	58.2	56.4	55.4
734	2018-02-06	0:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	54.0	63.4	62.0	61.3	59.0	57.0	55.1	54.1
735	2018-02-06	0:14:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	53.6	64.3	63.8	60.4	58.8	57.0	54.7	53.7
736	2018-02-06	0:15:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	56.0	65.2	64.9	63.9	61.5	60.1	57.0	56.2
737	2018-02-06	0:16:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	54.6	61.9	60.9	59.9	59.1	57.7	55.8	54.7
738	2018-02-06	0:17:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.5	61.9	61.7	60.2	58.2	56.8	55.3	54.6
739	2018-02-06	0:18:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	52.8	60.2	59.8	59.0	57.6	56.2	53.8	52.9
740	2018-02-06	0:19:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	53.0	61.0	60.3	59.5	58.2	57.1	54.8	53.1
741	2018-02-06	0:20:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	53.9	62.8	62.4	59.8	58.4	57.0	54.3	54.0
742	2018-02-06	0:21:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	51.7	64.0	63.3	60.6	57.8	55.4	52.5	51.8
743	2018-02-06	0:22:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	53.2	63.2	62.8	61.9	60.1	58.7	54.6	53.4
744	2018-02-06	0:23:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	51.6	62.4	62.1	61.2	60.4	58.6	52.5	51.7
745	2018-02-06	0:24:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	49.2	57.0	56.2	55.8	55.1	53.3	50.7	49.4
746	2018-02-06	0:25:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	53.7	62.0	61.9	61.3	58.3	57.1	55.0	54.0
747	2018-02-06	0:26:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	52.0	60.5	60.2	59.5	57.5	55.1	53.3	52.2
748	2018-02-06	0:27:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.5	60.2	60.0	59.5	58.4	57.5	55.4	54.6
749	2018-02-06	0:28:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	55.4	61.8	61.6	60.6	59.0	58.2	56.5	55.8
750	2018-02-06	0:29:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	53.0	58.4	57.9	57.5	56.9	55.9	54.0	53.2
751	2018-02-06	0:30:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	53.4	63.4	62.7	62.2	60.4	56.7	54.6	53.6
752	2018-02-06	0:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	52.4	61.1	60.6	60.2	59.4	56.0	53.2	52.4
753	2018-02-06	0:32:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.6	61.1	60.6	60.2	59.1	57.9	56.5	55.8
754	2018-02-06	0:33:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	55.7	61.5	61.3	60.8	59.9	58.6	56.8	55.8
755	2018-02-06	0:34:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	53.5	60.5	59.9	59.1	57.6	56.6	54.6	53.6
756	2018-02-06	0:35:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	57.0	63.0	62.6	61.9	60.6	59.4	58.1	57.1
757	2018-02-06	0:36:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	55.9	63.8	63.5	62.7	61.3	59.0	57.5	56.2
758	2018-02-06	0:37:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	55.2	60.1	59.9	59.5	58.8	57.6	56.1	55.3
759	2018-02-06	0:38:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	51.0	59.7	59.2	57.5	55.6	54.9	52.5	51.3
760	2018-02-06	0:39:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	50.6	60.1	59.1	58.1	56.8	54.4	51.5	51.0
761	2018-02-06	0:40:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	51.0	60.6	59.6	57.7	56.3	55.3	52.6	51.2
762	2018-02-06	0:41:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	51.2	60.2	59.8	59.5	58.5	55.7	52.4	51.5
763	2018-02-06	0:42:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	53.5	60.1	59.9	59.2	58.2	57.6	54.9	53.7
764	2018-02-06	0:43:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	49.7	57.3	57.0	56.3	55.3	54.3	51.5	50.0
765	2018-02-06	0:44:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	50.8	59.8	59.5	59.1	58.5	56.8	51.8	50.9
766	2018-02-06	0:45:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.6	60.7	60.2	59.7	58.8	57.5	55.5	54.8
767	2018-02-06	0:46:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	58.3	63.8	63.5	62.5	60.9	60.1	59.1	58.4
768	2018-02-06	0:47:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	61.1	70.9	70.4	69.1	67.9	65.7	61.8	61.2
769	2018-02-06	0:48:00	0:01:00.0	0:01:00.0	0:00:00.0	74.6	65.7	82.4	81.7	80.2	74.7	70.6	66.9	65.8

770	2018-02-06	0:49:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	63.4	69.8	69.1	67.8	66.3	65.6	64.4	63.5
771	2018-02-06	0:50:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.1	68.9	68.4	66.8	65.7	65.1	61.9	61.2
772	2018-02-06	0:51:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	58.3	64.1	62.7	61.7	61.1	60.4	59.1	58.4
773	2018-02-06	0:52:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	56.8	66.0	65.6	64.3	62.1	60.0	57.6	57.0
774	2018-02-06	0:53:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	61.0	69.6	69.0	68.7	67.8	65.9	61.8	61.2
775	2018-02-06	0:54:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.0	68.7	67.9	66.2	64.2	62.1	60.0	59.1
776	2018-02-06	0:55:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	53.6	66.6	65.5	62.6	59.7	57.8	55.1	54.1
777	2018-02-06	0:56:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.8	60.2	60.0	59.4	58.0	57.1	55.7	54.9
778	2018-02-06	0:57:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	54.2	60.2	60.0	59.5	58.4	57.6	55.7	54.3
779	2018-02-06	0:58:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	54.3	59.3	58.7	58.4	57.7	57.1	55.6	54.6
780	2018-02-06	0:59:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	51.4	60.0	58.8	56.7	55.4	54.5	52.5	51.5
781	2018-02-06	1:00:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	53.0	60.8	59.7	58.8	57.6	56.4	54.9	53.3
782	2018-02-06	1:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	52.5	60.9	60.1	58.3	57.2	55.8	53.6	52.7
783	2018-02-06	1:02:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	47.5	59.6	57.4	55.5	54.1	53.1	48.9	47.7
784	2018-02-06	1:03:00	0:01:00.0	0:01:00.0	0:00:00.0	50.2	46.8	53.8	53.2	52.3	51.2	49.6	47.5	47.0
785	2018-02-06	1:04:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	50.4	60.8	60.0	59.0	57.2	55.5	51.4	50.5
786	2018-02-06	1:05:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	50.2	59.2	58.6	57.4	55.2	53.9	51.3	50.3
787	2018-02-06	1:06:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	49.9	58.5	57.0	56.5	55.2	54.4	52.2	50.1
788	2018-02-06	1:07:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	50.6	61.1	60.5	58.5	56.7	55.7	51.9	50.7
789	2018-02-06	1:08:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	50.0	58.2	57.9	57.2	55.7	53.7	50.9	50.1
790	2018-02-06	1:09:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	52.0	59.4	58.8	57.7	56.3	54.5	52.6	52.1
791	2018-02-06	1:10:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	51.9	57.9	57.4	57.0	56.0	55.0	52.8	52.0
792	2018-02-06	1:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	52.0	63.0	61.8	61.0	59.2	56.5	54.3	52.2
793	2018-02-06	1:12:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	54.5	59.2	59.0	58.5	57.7	57.2	55.8	54.7
794	2018-02-06	1:13:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	54.8	59.0	58.4	58.0	57.6	57.0	55.5	54.9
795	2018-02-06	1:14:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	54.3	59.5	59.0	58.6	58.0	57.0	55.6	54.5
796	2018-02-06	1:15:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	52.5	59.8	58.6	58.0	57.0	55.9	53.0	52.5
797	2018-02-06	1:16:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	53.6	61.2	60.2	59.3	58.4	56.8	54.4	53.7
798	2018-02-06	1:17:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	54.2	60.8	60.4	59.9	58.5	57.7	55.2	54.3
799	2018-02-06	1:18:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	51.8	61.1	60.7	59.8	55.8	54.5	52.7	51.9
800	2018-02-06	1:19:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	52.9	60.1	59.9	59.7	59.2	58.5	53.8	53.0
801	2018-02-06	1:20:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	51.5	58.3	57.8	56.9	56.1	55.3	52.9	51.7
802	2018-02-06	1:21:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	51.4	58.1	57.7	56.7	55.5	54.5	52.2	51.5
803	2018-02-06	1:22:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	53.0	59.9	59.3	57.9	57.2	55.7	53.6	53.1
804	2018-02-06	1:23:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	48.8	59.7	59.1	58.2	56.5	54.7	52.0	49.1
805	2018-02-06	1:24:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	48.9	58.3	57.7	56.0	54.7	53.7	51.7	48.9
806	2018-02-06	1:25:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	51.3	57.4	56.4	55.5	54.3	53.2	52.4	51.5
807	2018-02-06	1:26:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	50.8	58.8	58.1	57.2	55.3	54.1	52.0	50.9
808	2018-02-06	1:27:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	49.7	58.2	57.7	56.7	55.8	55.0	52.8	49.9
809	2018-02-06	1:28:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	54.5	60.9	60.2	58.4	57.6	56.8	55.5	54.6
810	2018-02-06	1:29:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	51.8	59.9	58.9	57.8	56.9	55.9	53.6	52.0
811	2018-02-06	1:30:00	0:01:00.0	0:01:00.0	0:00:00.0	51.5	46.9	55.0	54.8	54.1	53.2	50.6	47.9	47.0
812	2018-02-06	1:31:00	0:01:00.0	0:01:00.0	0:00:00.0	52.7	49.5	56.0	55.1	54.1	53.5	52.8	50.5	49.6
813	2018-02-06	1:32:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	51.8	58.2	58.0	57.2	55.6	54.6	52.4	51.9
814	2018-02-06	1:33:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	51.6	57.8	57.3	55.9	54.9	54.0	52.2	51.7
815	2018-02-06	1:34:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	52.3	57.4	57.0	56.3	55.6	55.0	53.1	52.5
816	2018-02-06	1:35:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	52.7	59.8	58.8	57.7	56.6	55.6	53.7	53.0
817	2018-02-06	1:36:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	52.4	57.8	57.5	57.1	55.7	54.5	53.7	52.5
818	2018-02-06	1:37:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	54.0	59.4	58.5	57.6	57.2	56.7	55.2	54.2
819	2018-02-06	1:38:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	52.8	58.7	58.4	57.9	56.3	55.2	53.7	53.0
820	2018-02-06	1:39:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	52.1	62.5	61.5	60.6	59.2	57.8	53.4	52.3
821	2018-02-06	1:40:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	52.0	61.4	61.0	59.9	58.5	57.5	52.8	52.1
822	2018-02-06	1:41:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.0	61.1	60.2	58.9	57.8	57.1	55.9	55.0
823	2018-02-06	1:42:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	54.8	60.6	60.1	59.4	58.3	57.7	56.1	55.0
824	2018-02-06	1:43:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	51.8	59.8	59.3	58.7	57.8	56.5	53.1	51.9
825	2018-02-06	1:44:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	52.0	58.1	57.2	56.1	55.3	54.6	52.9	52.2
826	2018-02-06	1:45:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	52.5	65.8	64.6	62.7	58.4	57.2	53.4	52.5
827	2018-02-06	1:46:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	54.7	70.3	69.4	64.7	59.6	57.2	55.4	54.8
828	2018-02-06	1:47:00	0:01:00.0	0:01:00.0	0:00:00.0	76.1	55.4	87.4	85.3	82.4	75.5	64.0	57.1	55.5
829	2018-02-06	1:48:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	57.7	65.7	64.2	63.3	62.9	62.1	58.7	57.8
830	2018-02-06	1:49:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	58.4	63.1	62.6	62.2	61.1	60.4	59.0	58.6
831	2018-02-06	1:50:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	58.4	62.2	61.7	61.3	60.8	60.0	59.0	58.5
832	2018-02-06	1:51:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.4	62.4	62.1	60.8	60.0	59.2	57.9	57.5
833	2018-02-06	1:52:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	52.9	61.6	61.3	59.9	58.1	55.9	53.7	53.1
834	2018-02-06	1:53:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	52.2	61.3	60.7	58.7	57.3	55.9	53.8	52.4
835	2018-02-06	1:54:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	53.0	59.0	58.0	57.0	56.5	55.0	53.5	53.1
836	2018-02-06	1:55:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	52.3	57.3	57.0	56.5	55.4	54.6	52.9	52.5
837	2018-02-06	1:56:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	52.6	60.2	59.5	58.5	57.5	56.3	54.6	52.8
838	2018-02-06	1:57:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	52.7	58.8	57.6	56.8	56.3	55.5	53.5	52.8
839	2018-02-06	1:58:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.0	59.5	59.3	58.3	57.2	56.6	54.7	53.3
840	2018-02-06	1:59:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	51.1	62.5	61.2	59.3	58.0	56.9	52.7	51.2
841	2018-02-06	2:00:00	0:01:00.0	0:01:00.0	0:00:00.0	52.5	49.3	55.9	55.1	54.6	53.2	52.1	50.0	49.5
842	2018-02-06	2:01:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	52.4	57.8	57.4	56.6	55.2	54.5	53.1	52.5
843	2018-02-06	2:02:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	50.6	57.8	57.4	56.7	55.7	53.9	52.0	50.7
844	2018-02-06	2:03:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	52.1	57.2	56.6	56.2	55.6	54.8	53.0	52.4
845	2018-02-06	2:04:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	50.8	56.4	56.0	55.5	54.7	53.8	51.5	50.9
846	2018-02-06	2:05:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	48.1	58.0	57.6	57.0	55.7	54.3	50.7	48.4

847	2018-02-06	2:06:00	0:01:00.0	0:01:00.0	0:00:00.0	51.0	45.1	55.1	54.7	53.5	52.1	51.1	46.4	45.2
848	2018-02-06	2:07:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	48.9	57.2	57.0	56.2	54.3	53.5	52.1	49.5
849	2018-02-06	2:08:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	49.6	65.2	63.8	57.1	53.7	52.6	50.6	49.9
850	2018-02-06	2:09:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	52.2	64.8	63.1	60.6	58.0	55.6	53.6	52.4
851	2018-02-06	2:10:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	50.1	56.0	55.5	55.2	54.4	52.6	50.8	50.2
852	2018-02-06	2:11:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	51.7	59.1	58.9	58.1	56.0	55.0	52.8	51.8
853	2018-02-06	2:12:00	0:01:00.0	0:01:00.0	0:00:00.0	52.0	45.8	56.7	56.5	55.0	53.4	51.6	47.3	45.8
854	2018-02-06	2:13:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	48.4	61.6	60.7	59.2	57.9	56.3	52.0	48.6
855	2018-02-06	2:14:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	50.4	59.5	59.0	58.5	56.9	55.5	51.3	50.6
856	2018-02-06	2:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	53.5	60.9	60.4	59.4	57.5	56.7	54.6	53.5
857	2018-02-06	2:16:00	0:01:00.0	0:01:00.0	0:00:00.0	54.1	49.9	57.1	56.6	56.2	55.0	53.9	51.7	50.0
858	2018-02-06	2:17:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	53.8	77.1	76.2	71.4	61.9	57.7	55.7	54.0
859	2018-02-06	2:18:00	0:01:00.0	0:01:00.0	0:00:00.0	68.4	60.7	81.6	79.8	71.9	64.0	62.3	61.2	60.8
860	2018-02-06	2:19:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	60.3	65.5	65.1	63.9	62.9	62.2	60.8	60.4
861	2018-02-06	2:20:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	55.9	62.9	62.6	62.1	61.2	59.1	56.8	56.1
862	2018-02-06	2:21:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	54.2	63.0	62.3	61.6	60.0	58.1	55.9	54.5
863	2018-02-06	2:22:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	54.4	60.4	59.9	58.0	57.0	56.3	54.9	54.5
864	2018-02-06	2:23:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	51.4	59.1	57.8	56.7	55.5	54.5	52.4	51.5
865	2018-02-06	2:24:00	0:01:00.0	0:01:00.0	0:00:00.0	50.3	46.4	55.7	54.6	52.3	51.0	49.7	47.3	46.5
866	2018-02-06	2:25:00	0:01:00.0	0:01:00.0	0:00:00.0	52.0	46.3	56.2	55.7	54.7	53.5	51.8	47.2	46.4
867	2018-02-06	2:26:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	45.7	63.4	62.8	61.0	56.4	53.0	46.5	45.8
868	2018-02-06	2:27:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	51.9	60.6	59.8	58.9	56.8	54.8	52.4	52.0
869	2018-02-06	2:28:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	50.6	59.9	58.8	57.9	57.0	56.3	52.2	50.9
870	2018-02-06	2:29:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	50.0	60.2	58.8	57.3	55.4	54.4	51.8	50.3
871	2018-02-06	2:30:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	52.8	59.0	58.3	57.5	56.8	55.6	53.5	52.9
872	2018-02-06	2:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	51.2	62.0	60.3	59.4	58.4	56.4	52.4	51.3
873	2018-02-06	2:32:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	51.6	62.4	61.9	60.5	58.9	56.3	53.8	51.7
874	2018-02-06	2:33:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	53.2	59.9	59.3	58.5	57.1	55.6	53.9	53.4
875	2018-02-06	2:34:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	52.6	67.6	66.7	61.8	59.7	58.9	54.4	53.0
876	2018-02-06	2:35:00	0:01:00.0	0:01:00.0	0:00:00.0	52.1	49.0	56.8	56.0	54.0	52.7	51.9	49.6	49.1
877	2018-02-06	2:36:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	48.5	56.3	56.1	55.7	54.9	53.6	49.5	48.7
878	2018-02-06	2:37:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	53.4	60.2	59.9	59.1	57.9	57.3	56.1	54.0
879	2018-02-06	2:38:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	48.3	60.0	59.1	58.0	56.9	55.2	49.7	48.5
880	2018-02-06	2:39:00	0:01:00.0	0:01:00.0	0:00:00.0	52.0	47.6	55.4	54.9	54.3	53.2	51.4	49.1	48.0
881	2018-02-06	2:40:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	54.3	59.1	58.7	58.3	57.6	56.7	55.2	54.5
882	2018-02-06	2:41:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	51.6	59.1	58.8	58.5	57.5	56.7	52.3	51.7
883	2018-02-06	2:42:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	50.9	58.2	57.4	56.3	54.1	53.2	52.0	50.9
884	2018-02-06	2:43:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	49.2	57.1	56.9	55.7	54.5	53.7	50.8	49.3
885	2018-02-06	2:44:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	50.2	56.4	55.9	55.3	54.1	53.2	51.4	50.3
886	2018-02-06	2:45:00	0:01:00.0	0:01:00.0	0:00:00.0	52.7	49.9	56.5	55.4	54.6	53.3	52.5	50.6	50.0
887	2018-02-06	2:46:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	50.5	66.2	65.7	60.0	56.0	53.5	51.7	50.6
888	2018-02-06	2:47:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	47.5	61.0	60.3	59.0	56.4	54.6	48.4	47.7
889	2018-02-06	2:48:00	0:01:00.0	0:01:00.0	0:00:00.0	52.9	49.3	56.3	56.0	55.1	54.3	52.5	50.4	49.4
890	2018-02-06	2:49:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	50.8	56.3	56.0	55.5	54.4	53.2	51.5	50.9
891	2018-02-06	2:50:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	51.4	59.3	59.0	57.4	56.0	54.9	52.4	51.6
892	2018-02-06	2:51:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	51.4	60.1	59.0	57.6	56.3	54.9	52.5	51.5
893	2018-02-06	2:52:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	51.5	63.2	62.7	61.4	60.3	56.1	52.3	51.7
894	2018-02-06	2:53:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	53.8	59.6	59.2	58.8	58.2	56.9	55.4	53.9
895	2018-02-06	2:54:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	55.7	61.4	60.6	60.0	58.7	57.6	56.5	55.9
896	2018-02-06	2:55:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	57.4	61.1	60.6	60.2	59.6	58.9	57.9	57.5
897	2018-02-06	2:56:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	53.8	61.2	60.3	59.5	58.6	57.7	55.4	54.0
898	2018-02-06	2:57:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	52.9	61.6	60.5	59.8	58.2	57.0	53.4	53.0
899	2018-02-06	2:58:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.3	59.7	59.5	58.9	57.9	57.3	56.2	55.4
900	2018-02-06	2:59:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	53.0	59.2	59.0	58.3	57.5	56.4	54.1	53.2
901	2018-02-06	3:00:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	55.3	64.5	63.3	62.3	60.2	58.4	56.5	55.4
902	2018-02-06	3:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	51.8	60.1	59.8	59.5	58.6	57.3	52.5	51.9
903	2018-02-06	3:02:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	52.6	60.4	59.6	58.7	57.4	56.3	53.4	52.7
904	2018-02-06	3:03:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.8	58.9	58.6	57.9	57.3	56.2	54.9	53.8
905	2018-02-06	3:04:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	52.0	55.7	55.1	54.5	53.9	53.4	52.6	52.2
906	2018-02-06	3:05:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	52.5	57.7	57.1	56.2	55.5	54.7	53.2	52.7
907	2018-02-06	3:06:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	52.9	59.2	58.6	57.5	56.3	55.5	53.8	53.1
908	2018-02-06	3:07:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	51.0	57.2	56.8	55.8	54.2	53.0	51.7	51.0
909	2018-02-06	3:08:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	52.7	58.0	57.7	56.4	54.9	54.3	53.1	52.7
910	2018-02-06	3:09:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	53.3	59.9	59.6	59.2	58.5	57.5	53.9	53.4
911	2018-02-06	3:10:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.7	59.1	59.0	58.4	57.4	56.5	55.0	53.9
912	2018-02-06	3:11:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	52.6	58.2	58.0	57.6	56.8	56.1	54.0	52.8
913	2018-02-06	3:12:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.2	60.5	60.2	59.4	58.0	55.7	53.7	53.3
914	2018-02-06	3:13:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.7	60.3	60.0	58.9	58.1	57.0	55.5	55.0
915	2018-02-06	3:14:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	53.4	58.8	58.4	57.9	57.2	56.7	55.0	53.5
916	2018-02-06	3:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	53.6	62.2	61.0	60.1	58.7	57.3	54.9	53.8
917	2018-02-06	3:16:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	50.9	58.1	57.7	57.2	55.9	54.6	52.0	51.0
918	2018-02-06	3:17:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	51.7	57.8	57.2	56.4	55.7	54.8	52.3	51.8
919	2018-02-06	3:18:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	50.5	58.5	57.8	56.7	55.9	55.2	51.9	50.6
920	2018-02-06	3:19:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	50.4	58.3	58.0	57.4	55.4	53.5	50.8	50.5
921	2018-02-06	3:20:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	53.3	58.7	57.8	56.8	56.2	55.5	54.4	53.4
922	2018-02-06	3:21:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	50.7	63.7	62.7	58.6	55.0	53.1	51.6	50.9
923	2018-02-06	3:22:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	51.0	59.1	57.4	54.4	53.3	52.5	51.7	51.3

924	2018-02-06	3:23:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	50.7	57.6	57.2	56.7	55.4	54.5	51.5	50.8
925	2018-02-06	3:24:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	50.8	56.9	56.5	55.5	54.5	53.6	51.6	51.1
926	2018-02-06	3:25:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	54.1	60.9	60.1	59.2	58.4	57.3	55.0	54.2
927	2018-02-06	3:26:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	54.6	59.4	59.2	58.6	57.9	57.2	55.8	54.8
928	2018-02-06	3:27:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	54.0	62.1	60.6	59.6	58.6	57.1	55.1	54.1
929	2018-02-06	3:28:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	50.6	59.3	58.9	57.2	56.0	54.5	51.1	50.7
930	2018-02-06	3:29:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	51.9	58.4	58.0	57.5	56.7	55.0	52.4	52.1
931	2018-02-06	3:30:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.8	60.3	60.0	59.6	58.5	57.4	56.1	55.0
932	2018-02-06	3:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.0	63.6	62.5	60.8	58.4	56.6	54.8	54.1
933	2018-02-06	3:32:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	54.0	59.8	59.5	58.5	57.2	56.3	54.9	54.2
934	2018-02-06	3:33:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	55.0	59.6	59.1	58.1	57.2	56.7	55.6	55.1
935	2018-02-06	3:34:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.4	61.5	60.9	60.0	59.0	58.2	56.6	55.6
936	2018-02-06	3:35:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.5	59.2	59.0	58.7	58.0	56.2	54.3	53.7
937	2018-02-06	3:36:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	54.8	63.0	61.9	59.8	58.2	57.4	56.2	55.0
938	2018-02-06	3:37:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	53.6	57.4	56.9	56.6	55.9	55.4	54.1	53.6
939	2018-02-06	3:38:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	53.0	60.5	60.0	59.3	58.3	57.5	54.1	53.3
940	2018-02-06	3:39:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	54.0	64.2	62.2	61.1	60.3	58.9	55.8	54.2
941	2018-02-06	3:40:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	54.3	60.1	59.5	58.1	57.3	56.4	54.7	54.4
942	2018-02-06	3:41:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	57.4	61.7	60.6	60.3	59.7	59.1	58.1	57.5
943	2018-02-06	3:42:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	55.6	62.3	62.0	61.6	60.4	59.4	56.8	55.6
944	2018-02-06	3:43:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	55.6	60.0	59.7	59.2	58.5	57.8	56.7	55.8
945	2018-02-06	3:44:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	54.8	62.7	62.2	60.5	59.6	57.9	56.0	55.1
946	2018-02-06	3:45:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	55.6	64.9	64.3	61.5	59.9	59.1	57.2	55.8
947	2018-02-06	3:46:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.2	63.5	63.1	60.0	57.7	56.4	55.3	54.4
948	2018-02-06	3:47:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	56.5	60.4	60.0	59.7	58.8	58.0	57.0	56.6
949	2018-02-06	3:48:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	49.9	59.1	58.7	58.0	56.5	54.8	52.3	50.1
950	2018-02-06	3:49:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	50.9	61.6	60.9	59.4	58.3	57.3	52.5	51.0
951	2018-02-06	3:50:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	53.4	61.6	61.0	60.5	59.5	58.4	55.3	53.9
952	2018-02-06	3:51:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	53.3	59.6	59.5	59.1	57.9	56.9	55.2	53.4
953	2018-02-06	3:52:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	57.3	60.9	60.6	60.0	59.4	58.6	57.7	57.4
954	2018-02-06	3:53:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	55.5	66.4	63.8	60.1	58.4	57.9	56.6	55.7
955	2018-02-06	3:54:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	52.4	62.2	61.9	60.4	57.2	55.2	52.8	52.5
956	2018-02-06	3:55:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	53.5	62.4	61.6	60.8	59.7	58.5	55.2	53.7
957	2018-02-06	3:56:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	51.5	58.3	57.8	56.6	56.0	55.3	53.2	51.8
958	2018-02-06	3:57:00	0:01:00.0	0:01:00.0	0:00:00.0	53.8	47.5	58.8	58.2	57.6	55.1	51.9	48.6	47.6
959	2018-02-06	3:58:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	54.2	62.4	61.9	60.0	58.4	57.5	55.8	54.9
960	2018-02-06	3:59:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	52.6	67.0	66.2	61.0	58.0	55.6	53.5	52.8
961	2018-02-06	4:00:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	54.2	58.7	58.3	57.6	57.2	56.8	55.4	54.3
962	2018-02-06	4:01:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	52.1	59.8	59.2	57.9	57.2	56.3	53.0	52.3
963	2018-02-06	4:02:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.7	60.1	59.3	58.8	57.5	56.1	54.5	53.8
964	2018-02-06	4:03:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	52.8	58.6	58.4	58.2	57.5	56.2	54.1	53.2
965	2018-02-06	4:04:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	53.7	61.5	61.0	60.0	59.0	58.0	54.6	53.8
966	2018-02-06	4:05:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	54.5	59.2	58.8	58.2	57.5	56.9	55.4	54.7
967	2018-02-06	4:06:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	50.6	58.6	58.4	57.8	56.9	55.6	51.6	50.8
968	2018-02-06	4:07:00	0:01:00.0	0:01:00.0	0:00:00.0	54.8	51.6	58.4	58.2	57.5	55.7	54.0	52.5	51.7
969	2018-02-06	4:08:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	52.8	60.6	60.3	58.3	56.4	54.9	53.1	52.9
970	2018-02-06	4:09:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	51.2	60.2	59.7	58.2	56.4	55.3	51.7	51.3
971	2018-02-06	4:10:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	54.2	66.4	66.0	60.7	57.6	56.9	55.3	54.3
972	2018-02-06	4:11:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	53.4	58.7	58.5	58.1	57.3	56.6	54.1	53.5
973	2018-02-06	4:12:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	54.3	58.4	57.9	57.5	57.0	56.4	55.1	54.4
974	2018-02-06	4:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	53.7	69.9	66.1	57.9	56.8	56.2	54.7	53.8
975	2018-02-06	4:14:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	53.2	69.9	68.0	60.9	57.4	55.5	54.0	53.3
976	2018-02-06	4:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	53.8	60.5	59.5	58.9	57.9	56.9	54.8	53.9
977	2018-02-06	4:16:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.3	60.7	60.5	60.1	59.2	58.0	56.2	55.5
978	2018-02-06	4:17:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	55.6	59.4	59.2	58.6	58.0	57.2	56.5	55.9
979	2018-02-06	4:18:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	52.7	59.5	59.1	58.7	58.0	57.3	54.6	52.9
980	2018-02-06	4:19:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	52.4	69.3	68.6	62.3	57.8	54.9	53.5	52.5
981	2018-02-06	4:20:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	57.2	62.6	62.3	61.4	60.6	59.7	58.0	57.4
982	2018-02-06	4:21:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.5	61.1	60.8	60.1	58.5	57.6	55.7	54.6
983	2018-02-06	4:22:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	50.9	58.6	57.9	57.3	56.5	55.7	51.8	51.1
984	2018-02-06	4:23:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	52.6	58.9	58.6	58.2	57.4	56.6	53.9	52.9
985	2018-02-06	4:24:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	55.9	59.8	59.6	59.3	58.5	57.6	56.5	56.0
986	2018-02-06	4:25:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	55.1	65.6	64.9	61.1	58.0	57.1	56.0	55.2
987	2018-02-06	4:26:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	56.2	64.8	64.4	63.9	62.2	59.5	57.3	56.2
988	2018-02-06	4:27:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	51.9	63.1	62.4	59.3	54.9	53.9	52.3	52.0
989	2018-02-06	4:28:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	51.9	67.2	63.9	56.2	55.2	54.2	53.1	52.4
990	2018-02-06	4:29:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	49.0	56.8	56.6	55.7	54.8	53.9	49.9	49.2
991	2018-02-06	4:30:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	52.8	59.9	59.7	57.4	56.0	55.3	53.2	53.0
992	2018-02-06	4:31:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	55.1	60.3	59.8	58.6	57.8	57.2	56.0	55.2
993	2018-02-06	4:32:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	53.8	59.3	58.8	58.3	57.4	56.6	54.5	53.9
994	2018-02-06	4:33:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.8	59.8	59.3	58.5	57.0	56.4	54.4	53.8
995	2018-02-06	4:34:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	51.4	56.7	56.3	56.0	55.5	54.8	52.3	51.6
996	2018-02-06	4:35:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	54.0	57.8	57.5	57.2	56.8	56.2	54.9	54.1
997	2018-02-06	4:36:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	54.5	77.7	77.1	73.3	66.9	57.6	55.3	54.6
998	2018-02-06	4:37:00	0:01:00.0	0:01:00.0	0:00:00.0	68.5	57.5	83.0	79.4	73.6	61.4	59.0	58.1	57.5
999	2018-02-06	4:38:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	56.8	74.0	73.2	66.2	58.7	58.2	57.5	56.9
1000	2018-02-06	4:39:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.3	68.6	67.6	65.2	62.0	60.0	58.3	57.4

1001	2018-02-06	4:40:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	57.8	64.8	64.3	62.1	60.0	59.3	58.5	57.9
1002	2018-02-06	4:41:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	57.8	63.3	63.1	62.8	62.4	61.7	58.2	57.9
1003	2018-02-06	4:42:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	62.7	70.3	69.9	69.4	67.9	65.7	63.3	62.8
1004	2018-02-06	4:43:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	59.5	65.1	64.9	64.5	63.8	63.0	60.6	59.7
1005	2018-02-06	4:44:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	60.5	65.5	65.2	64.8	64.2	63.3	61.3	60.7
1006	2018-02-06	4:45:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	57.4	63.7	63.4	62.2	61.3	59.7	58.3	57.6
1007	2018-02-06	4:46:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	58.7	65.7	64.9	62.8	61.8	60.3	59.4	58.9
1008	2018-02-06	4:47:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	58.0	63.2	63.0	62.5	61.9	61.0	58.9	58.2
1009	2018-02-06	4:48:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	56.3	62.8	62.4	62.1	61.2	60.4	57.0	56.4
1010	2018-02-06	4:49:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	57.3	62.0	61.8	61.0	60.6	60.0	58.6	57.5
1011	2018-02-06	4:50:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	56.2	60.9	60.6	60.1	58.7	58.0	56.7	56.3
1012	2018-02-06	4:51:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	55.7	61.8	61.3	60.6	59.8	59.0	56.9	55.8
1013	2018-02-06	4:52:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	56.4	63.1	62.2	60.7	59.4	58.6	57.4	56.7
1014	2018-02-06	4:53:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	54.0	60.1	59.6	58.1	56.6	55.9	54.7	54.1
1015	2018-02-06	4:54:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	56.6	60.4	60.1	60.0	59.7	59.0	58.0	56.9
1016	2018-02-06	4:55:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	58.0	66.5	65.5	63.4	61.1	60.2	58.9	58.1
1017	2018-02-06	4:56:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	55.8	63.0	62.4	61.3	59.2	57.6	56.7	55.9
1018	2018-02-06	4:57:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	57.3	60.3	60.0	59.8	59.5	59.2	58.1	57.4
1019	2018-02-06	4:58:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.6	67.9	66.3	64.7	61.5	60.5	59.1	58.8
1020	2018-02-06	4:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.3	64.4	64.0	63.6	62.2	61.4	59.9	58.5
1021	2018-02-06	5:00:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	57.8	62.4	62.2	61.9	60.9	60.0	58.8	57.9
1022	2018-02-06	5:01:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	53.6	62.1	61.9	61.2	59.2	57.5	54.5	53.7
1023	2018-02-06	5:02:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	53.0	65.8	64.9	59.9	56.3	54.8	53.7	53.1
1024	2018-02-06	5:03:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	54.4	57.9	57.7	57.4	56.7	56.2	55.1	54.6
1025	2018-02-06	5:04:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	54.2	64.3	63.8	60.1	58.0	57.2	55.0	54.3
1026	2018-02-06	5:05:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	53.7	64.3	63.7	60.1	57.6	56.2	54.7	53.9
1027	2018-02-06	5:06:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.0	64.4	64.0	60.0	57.5	56.6	54.6	54.1
1028	2018-02-06	5:07:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	56.0	65.5	65.2	61.1	59.8	59.4	57.9	56.5
1029	2018-02-06	5:08:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.1	59.8	59.6	59.0	58.1	57.4	55.1	54.2
1030	2018-02-06	5:09:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	52.8	67.1	66.7	63.1	60.6	56.5	53.7	53.0
1031	2018-02-06	5:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	59.8	64.2	63.7	63.2	62.6	61.9	60.6	59.9
1032	2018-02-06	5:11:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	55.4	61.7	61.6	61.2	60.7	59.9	56.4	55.5
1033	2018-02-06	5:12:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.5	66.7	65.7	61.0	59.0	58.1	56.9	56.5
1034	2018-02-06	5:13:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.0	64.6	64.4	63.9	63.2	61.6	60.2	59.1
1035	2018-02-06	5:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	62.1	66.3	65.9	64.7	63.8	63.1	62.5	62.2
1036	2018-02-06	5:15:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	61.8	65.0	64.7	64.3	63.7	63.4	62.5	61.9
1037	2018-02-06	5:16:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.6	66.6	66.3	65.3	64.8	63.5	62.2	61.7
1038	2018-02-06	5:17:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	61.4	66.1	66.0	65.6	64.9	64.1	62.2	61.5
1039	2018-02-06	5:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	60.9	66.4	66.3	64.9	64.0	62.7	61.5	61.0
1040	2018-02-06	5:19:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	63.7	68.2	68.0	67.5	66.9	65.8	64.4	63.8
1041	2018-02-06	5:20:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.4	66.7	66.4	65.2	64.7	64.2	63.1	61.6
1042	2018-02-06	5:21:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	63.0	66.9	66.6	66.0	65.3	64.8	63.6	63.1
1043	2018-02-06	5:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.2	66.6	66.4	65.7	64.6	64.0	61.7	61.3
1044	2018-02-06	5:23:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	61.3	65.2	65.0	64.8	64.3	63.6	61.9	61.5
1045	2018-02-06	5:24:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	61.0	64.9	64.3	63.9	63.1	62.5	61.5	61.1
1046	2018-02-06	5:25:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	60.8	64.9	64.7	64.5	63.9	63.1	61.6	61.0
1047	2018-02-06	5:26:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	62.3	65.9	65.7	65.2	64.8	63.6	62.6	62.3
1048	2018-02-06	5:27:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.9	64.7	64.3	63.7	62.6	61.9	61.0	60.1
1049	2018-02-06	5:28:00	0:01:00.0	0:01:00.0	0:00:00.0	69.0	61.1	79.5	77.6	73.9	67.7	64.8	62.6	61.1
1050	2018-02-06	5:29:00	0:01:00.0	0:01:00.0	0:00:00.0	72.8	63.4	83.4	82.0	79.1	68.7	66.4	64.1	63.5
1051	2018-02-06	5:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	62.5	66.2	65.8	65.4	64.9	64.1	63.1	62.6
1052	2018-02-06	5:31:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	62.0	66.1	65.8	65.3	64.5	63.8	62.5	62.1
1053	2018-02-06	5:32:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.1	65.4	65.2	64.4	62.8	62.1	60.0	59.3
1054	2018-02-06	5:33:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	58.3	64.4	64.1	63.4	62.0	61.3	59.6	58.5
1055	2018-02-06	5:34:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	56.5	67.5	66.8	63.3	62.3	60.6	58.0	56.7
1056	2018-02-06	5:35:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	57.2	62.8	62.6	61.7	60.2	59.7	58.0	57.3
1057	2018-02-06	5:36:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	55.7	62.9	62.0	60.4	58.3	57.8	56.2	55.7
1058	2018-02-06	5:37:00	0:01:00.0	0:01:00.0	0:00:00.0	57.8	56.0	61.1	60.9	60.2	58.6	57.1	56.3	56.1
1059	2018-02-06	5:38:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	56.6	62.7	62.3	61.6	60.6	59.5	57.4	56.7
1060	2018-02-06	5:39:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	55.9	65.3	64.9	62.1	59.3	58.4	56.5	56.0
1061	2018-02-06	5:40:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	55.6	61.0	59.9	59.3	58.2	57.7	55.9	55.7
1062	2018-02-06	5:41:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	55.9	60.3	59.9	59.7	58.9	58.1	56.3	56.0
1063	2018-02-06	5:42:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	54.8	65.5	64.8	61.2	58.9	57.0	55.6	54.9
1064	2018-02-06	5:43:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	54.9	60.0	59.3	58.5	57.8	57.3	55.8	54.9
1065	2018-02-06	5:44:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	55.0	59.1	58.8	58.2	57.6	57.1	55.8	55.2
1066	2018-02-06	5:45:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	56.7	68.4	67.7	63.4	59.4	58.2	57.2	56.8
1067	2018-02-06	5:46:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	55.4	67.9	66.7	60.1	57.6	57.1	55.9	55.4
1068	2018-02-06	5:47:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	56.2	65.2	64.6	62.9	60.5	58.7	57.8	56.2
1069	2018-02-06	5:48:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	53.5	58.2	58.0	57.7	56.7	55.9	54.5	53.7
1070	2018-02-06	5:49:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	54.9	58.8	58.3	58.0	57.5	57.2	55.7	55.0
1071	2018-02-06	5:50:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	56.6	68.6	67.6	64.9	61.3	59.2	57.3	56.7
1072	2018-02-06	5:51:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	56.5	61.5	60.9	60.4	59.8	58.7	57.6	56.7
1073	2018-02-06	5:52:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	56.7	66.4	65.8	63.2	61.3	58.9	57.2	56.8
1074	2018-02-06	5:53:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	54.7	68.2	67.5	61.6	58.3	57.3	55.1	54.7
1075	2018-02-06	5:54:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	55.2	61.4	61.1	60.1	58.5	57.7	56.1	55.2
1076	2018-02-06	5:55:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	57.3	65.6	65.2	61.5	60.3	59.1	57.9	57.4
1077	2018-02-06	5:56:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	57.0	63.4	63.1	62.1	60.6	59.4	57.6	57.1

1078	2018-02-06	5:57:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	55.7	62.2	61.8	61.1	59.4	58.0	56.4	55.8
1079	2018-02-06	5:58:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	55.3	61.8	60.9	60.0	58.9	58.2	56.2	55.4
1080	2018-02-06	5:59:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	55.1	58.8	58.7	58.0	57.6	57.1	56.0	55.2
1081	2018-02-06	6:00:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	55.8	58.6	58.4	58.3	57.8	57.4	56.1	55.9
1082	2018-02-06	6:01:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	55.6	63.2	62.8	60.8	59.3	57.8	56.3	55.8
1083	2018-02-06	6:02:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	55.6	63.9	63.3	60.5	58.9	57.8	56.5	55.7
1084	2018-02-06	6:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	58.5	67.8	67.5	67.2	66.2	63.9	59.4	58.5
1085	2018-02-06	6:04:00	0:01:00.0	0:01:00.0	0:00:00.0	68.9	60.7	78.3	77.0	73.1	68.9	66.7	62.1	61.2
1086	2018-02-06	6:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	59.0	73.0	71.6	65.1	63.2	61.5	59.8	59.1
1087	2018-02-06	6:06:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	57.0	71.1	69.2	65.1	60.8	59.2	57.4	57.1
1088	2018-02-06	6:07:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	56.8	64.4	64.1	61.2	59.1	58.4	57.2	56.9
1089	2018-02-06	6:08:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	57.4	64.2	63.5	62.5	60.1	58.8	58.0	57.5
1090	2018-02-06	6:09:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	56.5	62.9	62.1	61.8	61.1	59.1	57.6	56.6
1091	2018-02-06	6:10:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	59.4	66.7	66.1	63.3	61.9	61.2	60.0	59.6
1092	2018-02-06	6:11:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	56.6	62.3	62.0	60.2	59.4	58.7	57.5	56.7
1093	2018-02-06	6:12:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	55.2	60.2	59.6	58.9	57.4	56.6	55.5	55.3
1094	2018-02-06	6:13:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.7	60.5	60.3	59.4	58.0	57.4	55.5	54.8
1095	2018-02-06	6:14:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	56.3	66.2	65.4	61.2	57.7	57.3	56.5	56.3
1096	2018-02-06	6:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	55.8	59.6	59.1	58.8	58.1	57.6	56.6	55.9
1097	2018-02-06	6:16:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	55.6	60.1	59.7	59.2	58.2	57.8	56.8	55.6
1098	2018-02-06	6:17:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.5	59.0	58.8	58.6	58.3	57.1	56.2	55.6
1099	2018-02-06	6:18:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	55.4	64.1	63.6	60.0	58.1	57.2	56.1	55.5
1100	2018-02-06	6:19:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.5	65.6	65.3	61.7	57.5	56.8	55.8	55.6
1101	2018-02-06	6:20:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	55.2	65.4	64.7	60.4	57.8	57.1	55.8	55.2
1102	2018-02-06	6:21:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	54.3	58.4	58.2	57.6	56.8	55.4	54.5	54.4
1103	2018-02-06	6:22:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	53.5	62.9	60.8	57.7	56.2	55.0	53.9	53.6
1104	2018-02-06	6:23:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	53.6	59.4	58.8	58.0	57.2	55.4	54.0	53.7
1105	2018-02-06	6:24:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	54.0	57.0	56.9	56.6	56.3	55.8	54.6	54.1
1106	2018-02-06	6:25:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	54.0	56.4	56.2	56.1	55.7	55.2	54.6	54.1
1107	2018-02-06	6:26:00	0:01:00.0	0:01:00.0	0:00:00.0	54.6	52.5	56.0	55.8	55.5	55.1	54.7	53.3	52.6
1108	2018-02-06	6:27:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	53.6	58.1	57.3	56.4	55.8	55.3	54.5	53.7
1109	2018-02-06	6:28:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	53.2	55.6	55.4	55.1	54.9	54.4	53.7	53.3
1110	2018-02-06	6:29:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	53.7	57.1	57.0	56.7	56.2	55.7	55.0	53.9
1111	2018-02-06	6:30:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	54.0	57.6	57.4	57.2	56.0	55.5	54.4	54.1
1112	2018-02-06	6:31:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	54.4	56.8	56.3	55.9	55.6	55.3	54.8	54.5
1113	2018-02-06	6:32:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	52.6	56.6	56.3	55.7	54.8	54.1	53.0	52.7
1114	2018-02-06	6:33:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	54.1	58.2	58.1	57.7	57.1	56.1	54.5	54.1
1115	2018-02-06	6:34:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	52.7	58.1	57.6	57.2	56.4	55.4	53.4	52.8
1116	2018-02-06	6:35:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	54.5	57.5	57.3	57.0	56.7	56.2	55.0	54.6
1117	2018-02-06	6:36:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	54.9	60.7	60.6	59.9	59.1	57.3	55.5	55.1
1118	2018-02-06	6:37:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	55.5	60.5	60.3	60.2	59.8	59.2	56.2	55.7
1119	2018-02-06	6:38:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	56.6	64.0	63.4	60.3	59.2	58.7	57.1	56.7
1120	2018-02-06	6:39:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.4	59.6	59.4	59.2	58.0	57.3	55.9	54.7
1121	2018-02-06	6:40:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.2	65.4	64.8	60.8	57.9	57.2	55.9	55.4
1122	2018-02-06	6:41:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.7	65.5	64.7	59.3	57.6	57.2	56.6	55.8
1123	2018-02-06	6:42:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	56.6	64.4	60.9	60.4	59.4	58.9	57.3	56.7
1124	2018-02-06	6:43:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	56.6	65.0	64.4	60.3	59.5	58.2	57.0	56.7
1125	2018-02-06	6:44:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	58.2	64.8	64.2	61.4	60.4	59.8	59.2	58.4
1126	2018-02-06	6:45:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	56.8	65.3	64.6	61.4	60.7	59.8	57.5	57.0
1127	2018-02-06	6:46:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	58.8	70.1	69.7	64.8	60.2	59.7	59.3	58.9
1128	2018-02-06	6:47:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	58.1	71.0	70.1	66.5	64.8	61.6	58.5	58.2
1129	2018-02-06	6:48:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	57.2	73.8	72.6	67.2	62.6	59.9	58.2	57.4
1130	2018-02-06	6:49:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	58.5	71.9	70.2	67.7	62.7	60.2	59.2	58.6
1131	2018-02-06	6:50:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	56.2	73.6	73.1	71.6	64.2	60.2	58.3	56.6
1132	2018-02-06	6:51:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	56.6	60.8	60.2	59.7	58.9	58.3	57.1	56.6
1133	2018-02-06	6:52:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	56.5	61.4	61.3	61.1	60.7	59.9	57.1	56.6
1134	2018-02-06	6:53:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	59.3	70.2	69.5	65.6	62.3	61.1	60.0	59.5
1135	2018-02-06	6:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	56.9	66.6	66.1	63.4	61.4	59.8	57.9	57.0
1136	2018-02-06	6:55:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	57.7	63.4	63.2	63.0	62.3	60.5	58.3	57.9
1137	2018-02-06	6:56:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	58.5	64.2	63.5	61.5	61.1	60.3	58.9	58.6
1138	2018-02-06	6:57:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	58.5	67.2	66.5	62.3	60.7	60.0	58.8	58.6
1139	2018-02-06	6:58:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	56.7	69.9	68.9	65.2	60.8	58.1	57.2	56.7
1140	2018-02-06	6:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	55.7	71.0	69.7	64.4	61.2	58.5	56.1	55.7
1141	2018-02-06	7:00:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	55.1	58.6	58.2	57.5	57.0	56.6	55.6	55.1
1142	2018-02-06	7:01:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	55.3	66.2	65.8	60.7	57.5	57.0	55.9	55.4
1143	2018-02-06	7:02:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	56.9	68.3	67.3	64.5	59.5	58.4	57.4	57.0
1144	2018-02-06	7:03:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	56.3	61.2	61.0	59.1	58.3	57.8	56.6	56.3
1145	2018-02-06	7:04:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	57.1	65.8	65.4	62.7	60.4	59.4	57.7	57.2
1146	2018-02-06	7:05:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	57.4	69.7	69.2	64.0	60.0	58.9	58.0	57.5
1147	2018-02-06	7:06:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	57.5	61.7	61.3	60.8	59.7	59.3	58.1	57.6
1148	2018-02-06	7:07:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	57.9	67.6	66.6	62.3	61.4	60.1	58.8	58.1
1149	2018-02-06	7:08:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	55.5	73.8	71.0	63.7	59.5	58.4	56.2	55.6
1150	2018-02-06	7:09:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	56.8	60.1	59.9	59.6	58.8	58.2	57.5	56.9
1151	2018-02-06	7:10:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	56.4	63.4	62.4	59.9	58.7	58.2	56.9	56.5
1152	2018-02-06	7:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	55.7	61.1	61.0	58.9	58.0	57.1	56.1	55.8
1153	2018-02-06	7:12:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	56.7	62.0	61.4	60.3	59.6	58.9	57.4	56.8
1154	2018-02-06	7:13:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	55.7	67.2	65.6	62.9	59.2	58.4	56.9	55.8

1155	2018-02-06	7:14:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	54.5	59.9	59.7	58.6	57.7	57.0	55.2	54.7
1156	2018-02-06	7:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	54.5	61.9	61.1	58.8	57.8	57.2	55.8	54.7
1157	2018-02-06	7:16:00	0:01:00.0	0:01:00.0	0:00:00.0	57.7	54.6	63.5	63.2	59.8	57.8	56.8	55.2	54.8
1158	2018-02-06	7:17:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.3	63.6	63.1	59.5	57.1	56.5	55.7	55.4
1159	2018-02-06	7:18:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	56.0	63.9	63.0	61.1	58.8	58.1	56.6	56.1
1160	2018-02-06	7:19:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	55.1	64.2	63.6	59.9	57.9	57.3	56.2	55.3
1161	2018-02-06	7:20:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.2	71.2	70.3	65.1	59.2	57.4	56.0	55.4
1162	2018-02-06	7:21:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	56.0	63.8	63.4	59.8	59.4	58.6	57.1	56.1
1163	2018-02-06	7:22:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	56.4	60.9	60.5	59.1	58.3	57.9	57.1	56.5
1164	2018-02-06	7:23:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	55.4	60.5	59.7	58.9	58.0	57.2	56.0	55.5
1165	2018-02-06	7:24:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	55.5	66.6	65.8	61.5	60.0	58.6	56.2	55.5
1166	2018-02-06	7:25:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.7	75.4	72.1	65.2	60.5	59.5	58.2	57.9
1167	2018-02-06	7:26:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	57.2	64.5	63.8	62.3	60.3	59.1	58.3	57.3
1168	2018-02-06	7:27:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	56.0	63.9	63.3	61.0	59.3	58.3	56.7	56.1
1169	2018-02-06	7:28:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	57.4	63.1	62.9	61.2	59.7	58.8	57.8	57.5
1170	2018-02-06	7:29:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	56.3	67.4	65.8	62.2	59.7	58.5	57.1	56.5
1171	2018-02-06	7:30:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	55.7	66.7	65.9	62.5	58.9	57.8	56.5	55.9
1172	2018-02-06	7:31:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	55.1	66.6	65.2	60.0	57.7	57.0	56.1	55.2
1173	2018-02-06	7:32:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	54.2	57.8	57.4	56.9	56.3	55.8	54.8	54.3
1174	2018-02-06	7:33:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	55.1	63.0	62.6	58.6	57.3	56.7	55.6	55.2
1175	2018-02-06	7:34:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	52.8	58.9	58.6	57.6	56.6	55.2	53.1	52.9
1176	2018-02-06	7:35:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	54.7	64.1	63.3	60.7	58.5	57.2	55.6	54.8
1177	2018-02-06	7:36:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	54.6	61.3	61.1	59.7	57.5	56.7	55.4	54.8
1178	2018-02-06	7:37:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	54.7	68.5	67.2	62.9	60.2	57.6	55.2	54.8
1179	2018-02-06	7:38:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.5	72.0	65.6	63.9	60.1	58.2	57.1	56.6
1180	2018-02-06	7:39:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	57.6	76.9	75.7	74.0	65.7	61.6	58.0	57.6
1181	2018-02-06	7:40:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	57.6	66.7	65.3	63.5	60.7	59.8	58.4	57.7
1182	2018-02-06	7:41:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	58.7	64.0	63.5	61.0	60.5	59.8	58.9	58.7
1183	2018-02-06	7:42:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	54.6	66.2	65.2	59.9	58.8	57.2	54.9	54.7
1184	2018-02-06	7:43:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	53.1	57.0	56.4	56.1	55.8	55.2	53.7	53.2
1185	2018-02-06	7:44:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	54.1	56.4	56.1	55.8	55.5	55.1	54.4	54.2
1186	2018-02-06	7:45:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	53.4	72.3	70.9	66.9	61.1	56.5	54.0	53.4
1187	2018-02-06	7:46:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	52.1	62.3	62.0	56.1	54.8	54.4	52.8	52.2
1188	2018-02-06	7:47:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.0	65.8	65.0	59.2	55.0	54.4	53.4	53.1
1189	2018-02-06	7:48:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	53.5	60.2	59.6	56.4	55.6	55.1	54.1	53.6
1190	2018-02-06	7:49:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	53.0	65.1	63.6	57.9	55.4	54.7	53.7	53.1
1191	2018-02-06	7:50:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	54.2	69.4	68.1	61.9	57.3	55.7	54.8	54.4
1192	2018-02-06	7:51:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	54.5	64.0	62.6	57.6	56.2	55.4	54.8	54.6
1193	2018-02-06	7:52:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	54.8	65.0	64.5	59.5	57.1	56.0	55.2	55.0
1194	2018-02-06	7:53:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	55.3	62.5	62.1	59.3	57.1	56.5	55.7	55.3
1195	2018-02-06	7:54:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	54.6	62.6	61.9	57.6	56.5	56.1	54.9	54.6
1196	2018-02-06	7:55:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	53.6	64.7	64.3	60.3	56.2	55.8	54.2	53.7
1197	2018-02-06	7:56:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	53.4	61.0	60.7	56.8	55.5	54.7	53.8	53.4
1198	2018-02-06	7:57:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	53.9	67.7	65.9	61.0	57.1	54.8	54.2	54.0
1199	2018-02-06	7:58:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	52.5	71.0	69.7	63.7	59.5	55.4	53.1	52.6
1200	2018-02-06	7:59:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	52.3	58.7	56.5	55.6	55.0	54.4	52.7	52.3
1201	2018-02-06	8:00:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	52.8	70.1	68.8	66.5	60.8	57.2	54.1	52.9
1202	2018-02-06	8:01:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	54.1	73.7	72.3	69.9	62.3	58.8	54.7	54.1
1203	2018-02-06	8:02:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	55.3	58.3	58.1	57.8	57.0	56.5	55.9	55.4
1204	2018-02-06	8:03:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	56.2	63.6	63.2	61.2	58.6	57.4	56.5	56.3
1205	2018-02-06	8:04:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	55.3	62.8	62.2	58.9	57.9	57.1	55.9	55.4
1206	2018-02-06	8:05:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	53.7	64.4	63.8	59.7	56.4	55.3	54.4	53.8
1207	2018-02-06	8:06:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	53.1	57.0	56.9	56.2	55.4	54.9	53.7	53.3
1208	2018-02-06	8:07:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	52.9	60.1	59.7	57.8	56.3	55.6	54.0	53.0
1209	2018-02-06	8:08:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	54.0	62.8	62.3	58.1	57.2	55.8	54.8	54.0
1210	2018-02-06	8:09:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	53.0	63.1	62.6	60.0	55.8	55.2	53.8	53.1
1211	2018-02-06	8:10:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	54.3	66.3	66.0	61.0	58.7	57.2	54.7	54.4
1212	2018-02-06	8:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	54.9	66.5	66.2	60.8	57.3	55.9	55.2	55.0
1213	2018-02-06	8:12:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	53.9	63.1	62.0	60.0	57.5	55.8	54.4	54.0
1214	2018-02-06	8:13:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	51.9	62.5	61.1	56.4	54.8	54.2	53.1	52.0
1215	2018-02-06	8:14:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	53.4	58.4	58.2	55.6	54.5	54.1	53.7	53.5
1216	2018-02-06	8:15:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	53.9	77.1	75.8	67.7	59.6	56.3	54.5	54.0
1217	2018-02-06	8:16:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	53.3	65.0	64.4	61.7	56.9	55.5	53.7	53.4
1218	2018-02-06	8:17:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	52.9	66.8	65.0	61.2	56.2	54.2	53.2	53.0
1219	2018-02-06	8:18:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	52.9	65.6	64.3	58.8	57.7	55.4	53.7	53.0
1220	2018-02-06	8:19:00	0:01:00.0	0:01:00.0	0:00:00.0	52.3	51.1	54.3	53.8	53.4	52.7	52.2	51.5	51.2
1221	2018-02-06	8:20:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	51.1	64.3	62.9	56.6	53.7	52.4	51.5	51.2
1222	2018-02-06	8:21:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	49.9	68.3	67.1	59.7	52.5	51.9	50.6	50.0
1223	2018-02-06	8:22:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	49.6	68.0	66.1	58.5	52.5	51.2	50.0	49.6
1224	2018-02-06	8:23:00	0:01:00.0	0:01:00.0	0:00:00.0	53.9	51.1	61.6	60.9	57.7	53.0	52.2	51.5	51.1
1225	2018-02-06	8:24:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	49.9	64.9	64.5	56.2	52.8	51.9	50.7	50.2
1226	2018-02-06	8:25:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	49.0	63.2	62.3	58.8	51.9	50.6	49.5	49.1
1227	2018-02-06	8:26:00	0:01:00.0	0:01:00.0	0:00:00.0	51.2	49.6	53.0	52.4	52.1	51.6	51.0	50.3	49.8
1228	2018-02-06	8:27:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	49.2	63.9	63.1	56.3	52.0	51.1	49.5	49.3
1229	2018-02-06	8:28:00	0:01:00.0	0:01:00.0	0:00:00.0	57.4	49.1	69.4	68.6	61.5	52.0	50.6	49.6	49.2
1230	2018-02-06	8:29:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	49.6	62.9	62.3	56.1	51.4	50.7	50.0	49.7
1231	2018-02-06	8:30:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	49.3	67.3	65.4	61.4	54.8	51.6	49.7	49.5

1232	2018-02-06	8:31:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	51.1	67.0	66.7	65.0	59.7	53.9	51.8	51.2
1233	2018-02-06	8:32:00	0:01:00.0	0:01:00.0	0:00:00.0	52.9	50.1	65.0	62.5	54.8	52.2	51.6	50.6	50.1
1234	2018-02-06	8:33:00	0:01:00.0	0:01:00.0	0:00:00.0	53.3	50.0	63.9	62.6	54.7	51.5	51.1	50.5	50.2
1235	2018-02-06	8:34:00	0:01:00.0	0:01:00.0	0:00:00.0	51.3	49.5	53.2	52.9	52.4	51.8	51.1	50.1	49.7
1236	2018-02-06	8:35:00	0:01:00.0	0:01:00.0	0:00:00.0	50.5	48.5	53.2	53.0	52.2	51.6	49.9	48.8	48.6
1237	2018-02-06	8:36:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	49.7	61.3	60.8	56.1	52.5	50.8	50.1	49.8
1238	2018-02-06	8:37:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	49.1	68.6	67.3	64.4	56.6	50.7	49.9	49.3
1239	2018-02-06	8:38:00	0:01:00.0	0:01:00.0	0:00:00.0	51.9	48.1	62.3	60.8	57.0	51.6	49.5	48.6	48.3
1240	2018-02-06	8:39:00	0:01:00.0	0:01:00.0	0:00:00.0	52.6	47.5	62.9	62.1	54.5	51.2	50.2	48.3	47.7
1241	2018-02-06	8:40:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	48.0	66.1	65.5	62.2	54.2	51.6	49.1	48.1
1242	2018-02-06	8:41:00	0:01:00.0	0:01:00.0	0:00:00.0	50.6	47.9	53.3	53.1	52.6	51.7	50.4	48.5	47.9
1243	2018-02-06	8:42:00	0:01:00.0	0:01:00.0	0:00:00.0	53.9	46.9	65.5	63.9	57.3	51.9	49.7	47.8	47.0
1244	2018-02-06	8:43:00	0:01:00.0	0:01:00.0	0:00:00.0	54.1	47.5	65.1	63.8	57.0	52.2	51.3	48.4	47.7
1245	2018-02-06	8:44:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	47.7	62.2	61.5	58.4	52.7	49.8	48.5	47.8
1246	2018-02-06	8:45:00	0:01:00.0	0:01:00.0	0:00:00.0	48.0	45.2	52.7	51.0	49.4	49.0	48.3	45.6	45.3
1247	2018-02-06	8:46:00	0:01:00.0	0:01:00.0	0:00:00.0	51.1	45.4	61.3	60.8	54.1	48.7	47.9	46.4	45.5
1248	2018-02-06	8:47:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	48.5	64.8	63.5	62.0	56.8	51.2	49.0	48.7
1249	2018-02-06	8:48:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	47.5	71.6	71.2	64.9	52.1	49.4	48.0	47.6
1250	2018-02-06	8:49:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	48.4	59.7	59.4	58.0	52.5	50.3	49.0	48.5
1251	2018-02-06	8:50:00	0:01:00.0	0:01:00.0	0:00:00.0	49.4	45.9	59.9	59.0	51.8	49.0	48.3	46.6	46.1
1252	2018-02-06	8:51:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	48.4	73.4	71.3	62.9	56.1	51.0	49.1	48.6
1253	2018-02-06	8:52:00	0:01:00.0	0:01:00.0	0:00:00.0	49.5	47.8	52.7	52.0	51.2	50.1	49.0	48.2	47.8
1254	2018-02-06	8:53:00	0:01:00.0	0:01:00.0	0:00:00.0	49.3	48.1	50.2	50.1	49.9	49.6	49.4	48.7	48.3
1255	2018-02-06	8:54:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	47.4	66.8	65.4	58.6	51.1	50.2	48.3	47.5
1256	2018-02-06	8:55:00	0:01:00.0	0:01:00.0	0:00:00.0	50.5	47.0	59.4	59.0	53.8	48.8	48.1	47.5	47.1
1257	2018-02-06	8:56:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	47.8	74.6	71.8	65.5	59.6	54.2	49.9	47.9
1258	2018-02-06	8:57:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	53.1	67.8	66.6	63.7	59.5	56.6	53.9	53.2
1259	2018-02-06	8:58:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	52.4	63.7	63.5	62.8	60.3	55.7	53.6	52.4
1260	2018-02-06	8:59:00	0:01:00.0	0:01:00.0	0:00:00.0	55.3	48.6	60.5	60.1	58.8	57.5	53.5	49.1	48.7
1261	2018-02-06	9:00:00	0:01:00.0	0:01:00.0	0:00:00.0	52.6	47.3	63.0	62.0	56.1	50.4	49.8	48.2	47.6
1262	2018-02-06	9:01:00	0:01:00.0	0:01:00.0	0:00:00.0	48.5	47.1	50.7	50.3	49.7	49.0	48.3	47.6	47.2
1263	2018-02-06	9:02:00	0:01:00.0	0:01:00.0	0:00:00.0	52.5	47.7	63.0	62.2	56.3	49.7	48.6	48.0	47.8
1264	2018-02-06	9:03:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	48.2	70.6	69.4	61.9	58.9	49.5	48.4	48.2
1265	2018-02-06	9:04:00	0:01:00.0	0:01:00.0	0:00:00.0	70.1	49.8	80.0	79.7	76.7	66.2	60.1	50.6	49.9
1266	2018-02-06	9:05:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	48.1	66.2	64.8	62.1	54.3	49.8	48.6	48.2
1267	2018-02-06	9:06:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	47.7	76.0	75.9	72.4	62.8	56.6	49.1	47.9
1268	2018-02-06	9:07:00	0:01:00.0	0:01:00.0	0:00:00.0	57.0	48.4	67.8	67.4	62.6	53.0	51.5	48.9	48.5
1269	2018-02-06	9:08:00	0:01:00.0	0:01:00.0	0:00:00.0	56.6	49.9	67.4	66.7	61.0	54.7	52.0	50.3	50.0
1270	2018-02-06	9:09:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	49.1	66.3	65.3	61.6	57.3	53.7	49.5	49.2
1271	2018-02-06	9:10:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	47.5	78.7	77.0	74.2	58.3	50.1	48.2	47.6
1272	2018-02-06	9:11:00	0:01:00.0	0:01:00.0	0:00:00.0	48.5	45.5	50.9	50.4	50.0	49.5	48.2	46.1	45.6
1273	2018-02-06	9:12:00	0:01:00.0	0:01:00.0	0:00:00.0	56.5	48.7	66.5	65.2	62.4	54.8	51.6	49.2	48.9
1274	2018-02-06	9:13:00	0:01:00.0	0:01:00.0	0:00:00.0	49.8	47.5	52.5	52.2	51.6	50.5	49.3	48.2	47.7
1275	2018-02-06	9:14:00	0:01:00.0	0:01:00.0	0:00:00.0	50.2	48.2	51.9	51.7	51.5	51.0	50.1	48.8	48.4
1276	2018-02-06	9:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	48.5	66.6	66.2	63.1	57.3	51.7	49.5	48.6
1277	2018-02-06	9:16:00	0:01:00.0	0:01:00.0	0:00:00.0	53.0	46.8	62.8	62.1	56.6	52.2	50.1	47.3	46.8
1278	2018-02-06	9:17:00	0:01:00.0	0:01:00.0	0:00:00.0	47.9	46.7	49.5	49.4	48.9	48.1	47.7	47.0	46.8
1279	2018-02-06	9:18:00	0:01:00.0	0:01:00.0	0:00:00.0	50.0	48.0	52.1	51.9	51.3	50.5	49.9	48.9	48.2
1280	2018-02-06	9:19:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	47.7	64.2	63.2	59.2	51.9	50.2	48.8	47.8
1281	2018-02-06	9:20:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	49.5	67.3	66.1	64.3	58.2	51.9	50.0	49.6
1282	2018-02-06	9:21:00	0:01:00.0	0:01:00.0	0:00:00.0	55.6	47.3	65.0	64.8	62.2	50.3	49.0	48.0	47.4
1283	2018-02-06	9:22:00	0:01:00.0	0:01:00.0	0:00:00.0	51.4	48.4	59.4	56.5	53.7	51.9	50.9	49.2	48.5
1284	2018-02-06	9:23:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	48.4	68.5	67.0	61.5	54.6	51.4	49.7	48.5
1285	2018-02-06	9:24:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	47.0	65.2	64.8	62.7	50.0	48.6	47.4	47.1
1286	2018-02-06	9:25:00	0:01:00.0	0:01:00.0	0:00:00.0	48.9	47.0	51.2	50.8	50.3	49.7	48.5	47.4	47.0
1287	2018-02-06	9:26:00	0:01:00.0	0:01:00.0	0:00:00.0	51.1	48.7	53.7	53.4	52.7	51.5	50.9	49.7	48.8
1288	2018-02-06	9:27:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	49.1	75.5	74.4	67.7	59.8	53.1	50.2	49.3
1289	2018-02-06	9:28:00	0:01:00.0	0:01:00.0	0:00:00.0	52.4	47.1	57.3	56.8	56.0	54.8	49.5	48.1	47.2
1290	2018-02-06	9:29:00	0:01:00.0	0:01:00.0	0:00:00.0	51.6	49.9	54.2	53.6	53.2	52.3	51.5	50.3	50.0
1291	2018-02-06	9:30:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	49.0	65.6	64.8	62.2	55.8	53.4	50.2	49.2
1292	2018-02-06	9:31:00	0:01:00.0	0:01:00.0	0:00:00.0	52.1	50.7	55.3	54.2	53.7	52.4	51.8	51.1	50.9
1293	2018-02-06	9:32:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	49.1	67.4	66.3	60.9	51.9	50.6	49.7	49.2
1294	2018-02-06	9:33:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	48.1	66.8	65.6	57.7	52.3	50.8	49.2	48.2
1295	2018-02-06	9:34:00	0:01:00.0	0:01:00.0	0:00:00.0	51.6	49.0	54.2	54.0	53.2	52.3	51.5	49.8	49.1
1296	2018-02-06	9:35:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	50.1	64.0	63.8	61.2	54.7	52.1	50.7	50.4
1297	2018-02-06	9:36:00	0:01:00.0	0:01:00.0	0:00:00.0	51.0	49.7	52.8	52.6	52.0	51.6	50.8	50.0	49.8
1298	2018-02-06	9:37:00	0:01:00.0	0:01:00.0	0:00:00.0	55.1	49.7	64.3	63.2	60.7	53.4	50.8	50.0	49.8
1299	2018-02-06	9:38:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	47.9	62.9	62.6	61.7	54.9	51.1	48.8	48.0
1300	2018-02-06	9:39:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	49.9	65.6	64.7	57.9	52.6	50.9	50.2	50.0
1301	2018-02-06	9:40:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	51.2	68.4	67.6	62.6	56.5	53.7	52.0	51.4
1302	2018-02-06	9:41:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	49.9	71.8	70.3	65.2	56.2	52.0	51.0	50.1
1303	2018-02-06	9:42:00	0:01:00.0	0:01:00.0	0:00:00.0	50.8	48.6	53.2	52.9	52.5	51.7	50.3	49.3	48.7
1304	2018-02-06	9:43:00	0:01:00.0	0:01:00.0	0:00:00.0	51.9	50.1	53.8	53.6	53.4	52.5	51.8	50.4	50.2
1305	2018-02-06	9:44:00	0:01:00.0	0:01:00.0	0:00:00.0	55.7	47.2	68.3	66.7	58.3	52.3	50.8	47.6	47.3
1306	2018-02-06	9:45:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	49.7	65.6	64.7	62.2	56.7	52.4	50.1	49.8
1307	2018-02-06	9:46:00	0:01:00.0	0:01:00.0	0:00:00.0	55.5	48.1	65.1	64.8	61.7	50.3	49.7	48.6	48.2
1308	2018-02-06	9:47:00	0:01:00.0	0:01:00.0	0:00:00.0	49.2	47.3	61.0	57.0	50.3	49.8	49.0	48.2	47.4

1309	2018-02-06	9:48:00	0:01:00.0	0:01:00.0	0:00:00.0	50.9	49.5	52.3	52.0	51.7	51.3	50.8	49.9	49.6
1310	2018-02-06	9:49:00	0:01:00.0	0:01:00.0	0:00:00.0	49.7	48.6	50.8	50.5	50.3	50.0	49.7	49.2	48.8
1311	2018-02-06	9:50:00	0:01:00.0	0:01:00.0	0:00:00.0	50.2	49.0	52.0	51.4	50.8	50.5	50.1	49.5	49.1
1312	2018-02-06	9:51:00	0:01:00.0	0:01:00.0	0:00:00.0	50.4	48.7	53.2	52.7	51.9	50.8	50.2	49.3	48.9
1313	2018-02-06	9:52:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	49.1	69.9	68.8	64.3	55.1	50.7	49.6	49.2
1314	2018-02-06	9:53:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	48.1	70.4	69.1	60.2	51.2	50.5	48.7	48.2
1315	2018-02-06	9:54:00	0:01:00.0	0:01:00.0	0:00:00.0	54.0	47.8	64.5	63.5	57.9	51.7	49.9	48.6	47.9
1316	2018-02-06	9:55:00	0:01:00.0	0:01:00.0	0:00:00.0	49.3	47.5	51.3	50.8	50.5	50.0	49.2	48.0	47.6
1317	2018-02-06	9:56:00	0:01:00.0	0:01:00.0	0:00:00.0	51.8	47.3	62.7	61.5	50.0	49.2	48.8	47.8	47.4
1318	2018-02-06	9:57:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	46.2	66.8	65.5	59.3	49.9	48.8	47.0	46.3
1319	2018-02-06	9:58:00	0:01:00.0	0:01:00.0	0:00:00.0	55.0	46.7	65.5	64.2	61.2	50.1	48.4	47.5	46.9
1320	2018-02-06	9:59:00	0:01:00.0	0:01:00.0	0:00:00.0	56.0	45.5	64.9	64.5	62.4	54.5	49.5	46.9	45.7
1321	2018-02-06	10:00:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	45.6	67.1	66.3	62.2	51.2	48.4	46.4	45.8
1322	2018-02-06	10:01:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	46.1	63.7	62.7	60.3	54.5	50.6	47.2	46.3
1323	2018-02-06	10:02:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	47.1	66.8	65.5	61.1	54.4	49.2	47.7	47.2
1324	2018-02-06	10:03:00	0:01:00.0	0:01:00.0	0:00:00.0	47.9	46.5	50.4	49.8	49.3	48.5	47.6	46.8	46.6
1325	2018-02-06	10:04:00	0:01:00.0	0:01:00.0	0:00:00.0	52.8	47.3	63.9	63.2	56.0	49.4	48.6	47.9	47.5
1326	2018-02-06	10:05:00	0:01:00.0	0:01:00.0	0:00:00.0	51.8	45.1	63.4	62.7	55.2	48.1	47.1	46.0	45.3
1327	2018-02-06	10:06:00	0:01:00.0	0:01:00.0	0:00:00.0	48.2	46.2	55.8	51.5	49.0	48.0	47.3	46.6	46.3
1328	2018-02-06	10:07:00	0:01:00.0	0:01:00.0	0:00:00.0	58.0	47.3	69.9	68.7	63.9	54.2	48.8	47.9	47.4
1329	2018-02-06	10:08:00	0:01:00.0	0:01:00.0	0:00:00.0	52.3	46.4	61.3	60.7	57.1	50.9	49.6	47.4	46.5
1330	2018-02-06	10:09:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	46.4	65.5	64.8	61.4	57.3	49.7	47.3	46.5
1331	2018-02-06	10:10:00	0:01:00.0	0:01:00.0	0:00:00.0	50.8	45.7	59.3	58.5	54.9	50.2	48.6	46.4	45.7
1332	2018-02-06	10:11:00	0:01:00.0	0:01:00.0	0:00:00.0	46.7	45.6	48.3	47.7	47.5	47.1	46.8	46.0	45.7
1333	2018-02-06	10:12:00	0:01:00.0	0:01:00.0	0:00:00.0	54.7	45.5	65.4	64.6	61.1	50.9	47.7	46.1	45.6
1334	2018-02-06	10:13:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	47.2	63.4	62.9	60.8	50.4	48.4	47.4	47.3
1335	2018-02-06	10:14:00	0:01:00.0	0:01:00.0	0:00:00.0	46.3	45.0	48.4	48.0	47.7	46.6	46.1	45.4	45.1
1336	2018-02-06	10:15:00	0:01:00.0	0:01:00.0	0:00:00.0	51.4	45.5	63.3	62.3	51.5	47.4	46.5	45.8	45.6
1337	2018-02-06	10:16:00	0:01:00.0	0:01:00.0	0:00:00.0	48.6	46.6	57.5	53.7	50.1	49.2	48.6	47.4	46.8
1338	2018-02-06	10:17:00	0:01:00.0	0:01:00.0	0:00:00.0	54.1	46.5	64.4	63.7	59.9	50.4	48.6	47.0	46.5
1339	2018-02-06	10:18:00	0:01:00.0	0:01:00.0	0:00:00.0	57.3	48.4	67.1	66.5	62.5	57.2	52.2	49.2	48.5
1340	2018-02-06	10:19:00	0:01:00.0	0:01:00.0	0:00:00.0	56.1	51.3	63.5	62.8	60.8	55.2	54.3	51.9	51.4
1341	2018-02-06	10:20:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	51.6	59.8	59.5	56.3	54.6	53.5	52.4	51.8
1342	2018-02-06	10:21:00	0:01:00.0	0:01:00.0	0:00:00.0	52.5	48.2	55.0	54.6	54.2	53.5	52.4	49.3	48.4
1343	2018-02-06	10:22:00	0:01:00.0	0:01:00.0	0:00:00.0	49.9	47.4	52.9	52.4	51.5	50.4	49.6	48.0	47.6
1344	2018-02-06	10:23:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	49.9	66.5	66.2	61.5	54.2	52.9	50.6	50.1
1345	2018-02-06	10:24:00	0:01:00.0	0:01:00.0	0:00:00.0	50.9	48.0	58.7	55.0	52.8	51.3	50.2	49.0	48.1
1346	2018-02-06	10:25:00	0:01:00.0	0:01:00.0	0:00:00.0	50.5	48.4	53.0	52.4	51.8	51.0	50.4	49.0	48.5
1347	2018-02-06	10:26:00	0:01:00.0	0:01:00.0	0:00:00.0	55.8	48.3	65.8	65.0	60.0	54.8	52.1	49.0	48.4
1348	2018-02-06	10:27:00	0:01:00.0	0:01:00.0	0:00:00.0	58.2	47.5	69.7	68.8	62.9	56.4	51.7	48.1	47.6
1349	2018-02-06	10:28:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	47.4	62.6	62.3	60.0	52.7	50.0	48.1	47.5
1350	2018-02-06	10:29:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	47.5	71.5	70.5	63.3	54.0	51.5	48.8	47.6
1351	2018-02-06	10:30:00	0:01:00.0	0:01:00.0	0:00:00.0	49.2	47.2	52.2	51.6	50.7	49.6	48.8	47.9	47.4
1352	2018-02-06	10:31:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	47.7	68.7	68.2	64.7	54.2	49.8	48.4	47.8
1353	2018-02-06	10:32:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	48.0	68.7	68.2	66.2	55.8	49.5	48.3	48.1
1354	2018-02-06	10:33:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	48.3	69.3	68.3	61.6	54.0	50.3	49.1	48.4
1355	2018-02-06	10:34:00	0:01:00.0	0:01:00.0	0:00:00.0	50.4	47.2	57.3	56.1	53.0	51.3	49.0	47.6	47.3
1356	2018-02-06	10:35:00	0:01:00.0	0:01:00.0	0:00:00.0	52.5	47.4	61.8	61.2	55.3	51.7	50.1	48.2	47.6
1357	2018-02-06	10:36:00	0:01:00.0	0:01:00.0	0:00:00.0	49.4	47.9	52.4	52.1	50.9	49.7	49.0	48.3	48.0
1358	2018-02-06	10:37:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	47.1	65.3	64.2	55.8	49.7	48.5	47.5	47.2
1359	2018-02-06	10:38:00	0:01:00.0	0:01:00.0	0:00:00.0	52.0	45.7	63.6	62.6	55.3	48.4	47.9	46.1	45.7
1360	2018-02-06	10:39:00	0:01:00.0	0:01:00.0	0:00:00.0	47.8	46.5	50.3	49.5	48.4	48.0	47.8	47.0	46.6
1361	2018-02-06	10:40:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	45.2	68.5	67.1	58.8	50.3	48.5	46.1	45.4
1362	2018-02-06	10:41:00	0:01:00.0	0:01:00.0	0:00:00.0	56.8	51.2	61.2	61.0	60.1	57.6	55.1	53.3	51.3
1363	2018-02-06	10:42:00	0:01:00.0	0:01:00.0	0:00:00.0	70.1	57.6	81.8	80.5	73.6	67.6	64.9	58.9	57.7
1364	2018-02-06	10:43:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	52.4	65.2	64.9	61.4	56.4	53.8	52.9	52.6
1365	2018-02-06	10:44:00	0:01:00.0	0:01:00.0	0:00:00.0	53.6	52.0	55.7	55.5	54.6	54.1	53.6	52.6	52.2
1366	2018-02-06	10:45:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	50.4	66.4	66.0	61.6	55.8	53.1	51.0	50.5
1367	2018-02-06	10:46:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	55.2	66.8	66.1	65.1	64.2	62.5	57.8	55.3
1368	2018-02-06	10:47:00	0:01:00.0	0:01:00.0	0:00:00.0	55.9	48.8	64.5	63.4	61.2	55.0	52.0	49.5	49.0
1369	2018-02-06	10:48:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	48.3	68.8	68.5	64.3	60.0	53.6	49.6	48.6
1370	2018-02-06	10:49:00	0:01:00.0	0:01:00.0	0:00:00.0	54.3	47.5	63.6	63.0	61.2	51.4	49.5	48.2	47.7
1371	2018-02-06	10:50:00	0:01:00.0	0:01:00.0	0:00:00.0	56.4	46.8	66.4	65.9	62.9	53.5	48.5	47.7	46.9
1372	2018-02-06	10:51:00	0:01:00.0	0:01:00.0	0:00:00.0	48.3	45.9	52.3	51.3	50.3	48.4	47.7	46.8	46.0
1373	2018-02-06	10:52:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	46.2	63.8	63.2	57.6	51.3	49.6	46.8	46.4
1374	2018-02-06	10:53:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	47.6	65.4	64.7	62.3	59.1	57.9	52.0	47.8
1375	2018-02-06	10:54:00	0:01:00.0	0:01:00.0	0:00:00.0	56.2	47.4	65.2	64.1	59.7	57.5	53.6	48.8	47.5
1376	2018-02-06	10:55:00	0:01:00.0	0:01:00.0	0:00:00.0	54.9	45.6	64.6	63.9	60.3	54.4	49.4	46.0	45.6
1377	2018-02-06	10:56:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	45.9	64.9	63.8	56.2	49.7	49.0	46.8	46.0
1378	2018-02-06	10:57:00	0:01:00.0	0:01:00.0	0:00:00.0	50.3	48.0	53.0	52.6	52.1	51.0	49.9	48.6	48.1
1379	2018-02-06	10:58:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	47.1	62.7	61.9	54.9	52.8	51.7	48.2	47.2
1380	2018-02-06	10:59:00	0:01:00.0	0:01:00.0	0:00:00.0	49.4	45.8	58.8	57.8	52.0	48.6	47.3	46.2	46.0
1381	2018-02-06	11:00:00	0:01:00.0	0:01:00.0	0:00:00.0	53.1	47.1	63.8	63.2	56.8	50.4	48.8	47.7	47.3
1382	2018-02-06	11:01:00	0:01:00.0	0:01:00.0	0:00:00.0	52.9	47.1	63.1	62.7	56.1	50.9	49.7	47.6	47.2
1383	2018-02-06	11:02:00	0:01:00.0	0:01:00.0	0:00:00.0	57.5	48.1	66.7	65.9	62.4	57.6	53.4	49.2	48.2
1384	2018-02-06	11:03:00	0:01:00.0	0:01:00.0	0:00:00.0	57.1	48.5	69.0	68.0	61.3	52.9	51.1	49.2	48.7
1385	2018-02-06	11:04:00	0:01:00.0	0:01:00.0	0:00:00.0	53.5	48.8	61.5	61.0	59.0	51.6	50.8	49.4	49.0

1386	2018-02-06	11:05:00	0:01:00.0	0:01:00.0	0:00:00.0	54.4	48.0	64.5	61.1	57.7	52.1	51.5	48.7	48.1
1387	2018-02-06	11:06:00	0:01:00.0	0:01:00.0	0:00:00.0	51.1	48.5	64.6	62.1	53.0	50.6	50.0	48.8	48.6
1388	2018-02-06	11:07:00	0:01:00.0	0:01:00.0	0:00:00.0	54.2	50.4	58.9	58.0	56.6	55.3	53.4	51.2	50.5
1389	2018-02-06	11:08:00	0:01:00.0	0:01:00.0	0:00:00.0	48.4	45.6	52.3	51.0	49.9	49.5	48.5	46.0	45.7
1390	2018-02-06	11:09:00	0:01:00.0	0:01:00.0	0:00:00.0	53.2	46.3	65.0	64.0	56.2	49.6	48.5	47.3	46.4
1391	2018-02-06	11:10:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	48.6	66.5	65.3	62.4	55.6	51.2	49.1	48.7
1392	2018-02-06	11:11:00	0:01:00.0	0:01:00.0	0:00:00.0	51.9	49.2	54.4	54.1	53.2	52.8	51.9	49.6	49.4
1393	2018-02-06	11:12:00	0:01:00.0	0:01:00.0	0:00:00.0	53.7	51.9	55.3	55.0	54.6	54.2	53.7	52.6	52.0
1394	2018-02-06	11:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	50.7	69.8	69.3	64.4	53.9	52.7	51.1	50.7
1395	2018-02-06	11:14:00	0:01:00.0	0:01:00.0	0:00:00.0	52.9	50.0	55.6	55.3	54.8	53.6	52.7	50.6	50.1
1396	2018-02-06	11:15:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	50.3	74.9	73.7	66.6	57.8	55.5	51.7	50.4
1397	2018-02-06	11:16:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	52.5	63.1	62.5	57.1	54.5	53.9	52.9	52.6
1398	2018-02-06	11:17:00	0:01:00.0	0:01:00.0	0:00:00.0	55.2	53.3	56.8	56.5	56.1	55.5	55.1	54.5	53.5
1399	2018-02-06	11:18:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	52.9	58.2	58.0	57.8	57.2	56.6	53.2	52.9
1400	2018-02-06	11:19:00	0:01:00.0	0:01:00.0	0:00:00.0	56.3	54.0	58.4	58.2	57.7	57.4	56.3	54.4	54.1
1401	2018-02-06	11:20:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	55.0	63.8	63.4	63.2	61.4	59.6	56.6	55.1
1402	2018-02-06	11:21:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	57.0	78.3	75.9	69.3	65.4	63.7	59.1	57.2
1403	2018-02-06	11:22:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	58.5	60.1	59.7	59.6	59.4	59.1	58.8	58.6
1404	2018-02-06	11:23:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	57.0	62.4	62.2	62.0	61.6	60.7	59.2	57.2
1405	2018-02-06	11:24:00	0:01:00.0	0:01:00.0	0:00:00.0	54.5	50.5	61.9	61.1	57.6	55.0	52.9	51.3	50.6
1406	2018-02-06	11:25:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	52.7	67.7	66.6	64.3	57.4	55.5	53.5	52.8
1407	2018-02-06	11:26:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	56.6	65.2	65.0	61.0	59.4	58.5	57.3	56.6
1408	2018-02-06	11:27:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	52.3	65.7	65.2	63.7	61.2	57.5	53.8	52.7
1409	2018-02-06	11:28:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	54.3	65.4	64.8	60.3	59.2	58.6	54.8	54.4
1410	2018-02-06	11:29:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	53.1	70.2	63.1	57.9	56.1	55.4	53.6	53.2
1411	2018-02-06	11:30:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	52.7	75.1	74.2	64.8	59.4	56.8	54.4	52.8
1412	2018-02-06	11:31:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	54.5	66.8	66.3	64.4	62.1	58.6	55.4	54.5
1413	2018-02-06	11:32:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	55.2	68.6	66.7	65.5	61.4	58.3	55.9	55.4
1414	2018-02-06	11:33:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	58.1	67.2	66.2	63.6	61.4	60.5	58.9	58.2
1415	2018-02-06	11:34:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	55.0	68.0	67.0	63.0	59.2	57.5	55.8	55.1
1416	2018-02-06	11:35:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	56.0	66.0	65.3	63.4	60.7	59.4	57.2	56.2
1417	2018-02-06	11:36:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	55.5	67.2	66.6	64.4	59.7	58.1	56.8	55.6
1418	2018-02-06	11:37:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	56.1	66.2	64.9	61.2	59.6	59.1	57.4	56.2
1419	2018-02-06	11:38:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	57.7	72.1	71.0	67.6	62.9	59.6	58.2	57.7
1420	2018-02-06	11:39:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	53.3	70.3	69.1	65.3	59.4	56.9	54.0	53.4
1421	2018-02-06	11:40:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	55.2	62.4	62.0	61.7	61.1	59.6	56.0	55.4
1422	2018-02-06	11:41:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	55.6	74.1	73.1	66.7	61.5	57.9	56.7	55.8
1423	2018-02-06	11:42:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	57.8	63.9	63.4	62.2	61.3	60.8	59.4	57.9
1424	2018-02-06	11:43:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	58.6	68.0	67.2	63.0	61.5	60.9	59.1	58.7
1425	2018-02-06	11:44:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	56.2	67.3	66.4	61.6	60.1	59.1	56.8	56.3
1426	2018-02-06	11:45:00	0:01:00.0	0:01:00.0	0:00:00.0	57.6	54.7	63.0	62.7	59.1	58.1	57.1	55.6	54.8
1427	2018-02-06	11:46:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	55.8	63.6	62.8	61.2	60.4	59.1	56.8	55.9
1428	2018-02-06	11:47:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	57.1	61.3	61.0	60.7	60.1	59.6	58.4	57.2
1429	2018-02-06	11:48:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	53.8	67.8	67.0	64.2	62.5	61.2	54.7	53.9
1430	2018-02-06	11:49:00	0:01:00.0	0:01:00.0	0:00:00.0	56.7	53.7	59.2	59.1	58.4	57.2	56.6	54.8	53.8
1431	2018-02-06	11:50:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	55.8	67.5	66.3	60.5	58.8	58.2	57.3	55.9
1432	2018-02-06	11:51:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	54.0	61.5	61.2	59.9	58.9	57.8	54.9	54.1
1433	2018-02-06	11:52:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	55.7	66.1	65.6	60.6	59.4	58.4	56.4	55.8
1434	2018-02-06	11:53:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	56.3	61.4	60.8	59.9	58.9	58.1	57.1	56.4
1435	2018-02-06	11:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	57.3	66.0	65.3	64.4	60.5	59.4	58.0	57.4
1436	2018-02-06	11:55:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	56.7	61.2	60.7	60.1	59.6	58.7	57.1	56.8
1437	2018-02-06	11:56:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	56.7	63.6	63.3	61.4	60.3	59.3	58.0	56.9
1438	2018-02-06	11:57:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	55.2	65.9	64.8	62.7	59.0	57.8	56.0	55.2
1439	2018-02-06	11:58:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	57.6	64.1	63.7	62.3	60.4	59.5	58.2	57.8
1440	2018-02-06	11:59:00	0:01:00.0	0:01:00.0	0:00:00.0	58.6	55.2	62.1	61.6	60.1	59.4	58.3	56.6	55.4

NM1

12:00 PM-1:00 PM			**59.42**	
12:00:00	55.94	5.5941	392704.6104	
12:01:00	56.59	5.6589	455886.7815	
12:02:00	53.19	5.3192	208543.6642	
12:03:00	50.03	5.0029	100672.9976	
12:04:00	50.89	5.0887	122661.1409	
12:05:00	53.72	5.3718	235373.1936	
12:06:00	55.49	5.5491	354057.6643	
12:07:00	55.41	5.5412	347709.0545	
12:08:00	53.83	5.3827	241377.0638	
12:09:00	52.39	5.2393	173503.8036	
12:10:00	54.52	5.4523	283305.4962	
12:11:00	64.67	6.4673	2933053.6030	
12:12:00	60.62	6.0624	1154587.8952	
12:13:00	58.16	5.8158	654279.0283	
12:14:00	52.89	5.2890	194542.2794	
12:15:00	53.76	5.3756	237473.9631	
12:16:00	55.57	5.5574	360896.7740	
12:17:00	69.48	6.9476	8863005.1162	
12:18:00	59.61	5.9607	913402.0879	
12:19:00	57.67	5.7675	585419.2514	
12:20:00	55.45	5.5451	350816.4908	
12:21:00	60.86	6.0860	1219006.4400	
12:22:00	56.98	5.6983	499243.0181	
12:23:00	60.72	6.0719	1180089.6462	
12:24:00	58.90	5.8904	777039.3277	
12:25:00	54.82	5.4818	303257.8139	
12:26:00	51.14	5.1141	130050.1927	
12:27:00	50.87	5.0865	122053.1521	
12:28:00	48.90	4.8896	77553.7853	
12:29:00	55.01	5.5010	316938.5013	
12:30:00	53.86	5.3862	243337.4765	
12:31:00	54.61	5.4613	289270.4026	
12:32:00	58.81	5.8807	759801.2435	
12:33:00	61.75	6.1747	1495350.4991	
12:34:00	59.48	5.9482	887603.4876	
12:35:00	58.72	5.8723	745179.6735	
12:36:00	54.93	5.4926	310866.5547	
12:37:00	68.11	6.8111	6473005.8573	
12:38:00	46.72	4.6721	46999.3660	
12:39:00	54.02	5.4018	252245.2518	
12:40:00	55.52	5.5524	356791.0897	
12:41:00	59.45	5.9448	880554.0117	
12:42:00	61.84	6.1838	1526926.0345	
12:43:00	55.11	5.5109	324258.9709	
12:44:00	55.35	5.5349	342719.6456	
12:45:00	68.82	6.8825	7628883.8008	
12:46:00	58.92	5.8921	780031.2465	
12:47:00	56.08	5.6081	405596.3144	
12:48:00	57.33	5.7330	540731.9110	
12:49:00	56.48	5.6478	444456.2319	
12:50:00	56.16	5.6159	412914.3727	
12:51:00	57.98	5.7979	627893.5185	
12:52:00	54.34	5.4338	271544.4932	
12:53:00	58.62	5.8624	728532.6166	
12:54:00	53.25	5.3252	211460.8629	
12:55:00	55.27	5.5273	336765.8150	
12:56:00	54.20	5.4205	263327.3690	
12:57:00	52.70	5.2702	186293.6278	
12:58:00	53.82	5.3820	241014.9598	
12:59:00	58.54	5.8541	714595.0442	
			52517455.5864	875290.9264

NM1

1:00 PM-2:00 PM			**59.64**	
13:00:00	57.0	5.6951	495612.2132	
13:01:00	55.5	5.5529	357187.2927	
13:02:00	55.8	5.5850	384567.8728	
13:03:00	69.2	6.9183	8285715.1719	
13:04:00	63.1	6.3121	2051757.3601	
13:05:00	60.8	6.0836	1212352.7446	
13:06:00	58.6	5.8643	731592.0879	
13:07:00	55.7	5.5681	369886.9421	
13:08:00	57.2	5.7248	530658.3472	
13:09:00	53.8	5.3789	239263.2513	
13:10:00	57.1	5.7085	511110.7319	
13:11:00	58.5	5.8537	713976.6356	
13:12:00	53.1	5.3128	205480.6827	
13:13:00	54.4	5.4354	272524.1539	
13:14:00	51.4	5.1423	138773.3269	
13:15:00	48.9	4.8874	77165.1136	
13:16:00	53.6	5.3588	228428.8745	
13:17:00	52.4	5.2355	171993.8824	
13:18:00	51.4	5.1366	136959.1336	
13:19:00	52.8	5.2803	190684.3277	
13:20:00	52.6	5.2617	182703.9766	
13:21:00	52.0	5.1961	157060.8704	
13:22:00	53.1	5.3129	205561.6050	
13:23:00	52.8	5.2774	189401.3194	
13:24:00	61.0	6.0996	1257896.7643	
13:25:00	69.3	6.9291	8492782.4618	
13:26:00	55.7	5.5706	372010.3304	
13:27:00	56.2	5.6178	414775.4088	
13:28:00	57.2	5.7180	522367.3211	
13:29:00	56.9	5.6850	484194.6651	
13:30:00	63.1	6.3142	2061341.7526	
13:31:00	59.5	5.9476	886253.5749	
13:32:00	59.7	5.9750	944026.0964	
13:33:00	57.8	5.7843	608607.0796	
13:34:00	51.9	5.1878	154116.0963	
13:35:00	52.1	5.2109	162510.7146	
13:36:00	56.6	5.6576	454574.4270	
13:37:00	54.1	5.4101	257069.1728	
13:38:00	68.2	6.8170	6561029.6442	
13:39:00	54.5	5.4512	282631.7841	
13:40:00	53.9	5.3852	242791.2326	
13:41:00	52.8	5.2815	191194.7664	
13:42:00	57.6	5.7565	570790.8466	
13:43:00	54.3	5.4297	268980.0067	
13:44:00	53.2	5.3160	207035.5860	
13:45:00	59.4	5.9407	872406.7155	
13:46:00	54.1	5.4126	258604.4537	
13:47:00	53.7	5.3713	235142.9704	
13:48:00	56.5	5.6537	450464.9450	
13:49:00	55.5	5.5458	351380.7779	
13:50:00	60.0	5.9968	992674.8068	
13:51:00	63.5	6.3480	2228655.8001	
13:52:00	58.6	5.8600	724442.6324	
13:53:00	56.5	5.6467	443280.8807	
13:54:00	57.6	5.7597	574998.8816	
13:55:00	64.5	6.4509	2824242.6032	
13:56:00	51.5	5.1514	141712.7742	
13:57:00	57.7	5.7684	586683.6699	
13:58:00	54.0	5.4006	251527.8045	
13:59:00	59.0	5.9000	794253.2489	
			55167870.6154	919464.5103

NM1

2:00 PM-3:00 PM			**58.01**	
14:00:00	54.9	5.4944	312140.4125	
14:01:00	52.5	5.2460	176205.7190	
14:02:00	52.0	5.1991	158177.6066	
14:03:00	57.8	5.7830	606755.8888	
14:04:00	52.7	5.2723	187175.9302	
14:05:00	55.6	5.5572	360743.0726	
14:06:00	54.8	5.4797	301795.6669	
14:07:00	55.3	5.5279	337197.2313	
14:08:00	53.7	5.3703	234598.9154	
14:09:00	56.5	5.6531	449927.9781	
14:10:00	53.9	5.3926	246940.8849	
14:11:00	53.5	5.3490	223351.0508	
14:12:00	56.8	5.6779	476315.8133	
14:13:00	55.6	5.5571	360684.1018	
14:14:00	52.3	5.2272	168727.1613	
14:15:00	63.9	6.3943	2479179.6591	
14:16:00	54.3	5.4338	271504.4799	
14:17:00	51.7	5.1664	146700.2993	
14:18:00	53.6	5.3631	230742.1846	
14:19:00	59.1	5.9133	819086.9375	
14:20:00	51.2	5.1241	133088.6439	
14:21:00	57.1	5.7071	509430.5669	
14:22:00	55.0	5.5013	317207.1734	
14:23:00	53.4	5.3383	217945.0451	
14:24:00	63.0	6.2982	1986977.7319	
14:25:00	66.7	6.6654	4627815.1128	
14:26:00	56.9	5.6919	491887.7421	
14:27:00	62.7	6.2734	1876812.9871	
14:28:00	55.2	5.5233	333679.8641	
14:29:00	57.7	5.7678	585866.9510	
14:30:00	60.7	6.0712	1178077.8757	
14:31:00	55.7	5.5733	374402.7242	
14:32:00	60.1	6.0101	1023462.6541	
14:33:00	55.6	5.5596	362760.5068	
14:34:00	56.8	5.6753	473528.3661	
14:35:00	53.4	5.3421	219815.8478	
14:36:00	54.1	5.4094	256692.9848	
14:37:00	53.6	5.3593	228727.2982	
14:38:00	55.2	5.5233	333673.7176	
14:39:00	54.0	5.3990	250605.7319	
14:40:00	51.6	5.1581	143922.2699	
14:41:00	54.7	5.4679	293720.3249	
14:42:00	52.6	5.2637	183529.9727	
14:43:00	57.6	5.7624	578603.4249	
14:44:00	55.4	5.5411	347583.3783	
14:45:00	51.6	5.1613	144987.6464	
14:46:00	55.0	5.4982	314891.5452	
14:47:00	55.7	5.5737	374733.0518	
14:48:00	55.7	5.5662	368301.9345	
14:49:00	51.8	5.1836	152602.2721	
14:50:00	53.2	5.3244	211034.7625	
14:51:00	65.5	6.5542	3582704.5890	
14:52:00	55.4	5.5374	344658.5051	
14:53:00	65.7	6.5672	3691305.5868	
14:54:00	60.0	5.9968	992757.0960	
14:55:00	57.8	5.7849	609417.6105	
14:56:00	54.3	5.4259	266619.5555	
14:57:00	55.2	5.5206	331608.7641	
14:58:00	55.3	5.5311	339701.9188	
14:59:00	55.4	5.5400	346703.3196	
			37949798.0485	632496.6341

NM1

3:00 PM-4:00 PM			**58.68**	
15:00:00	49.7	4.9741	94212.8193	
15:01:00	55.4	5.5425	348776.3272	
15:02:00	53.5	5.3473	222494.8690	
15:03:00	53.5	5.3478	222755.7893	
15:04:00	57.4	5.7438	554366.5277	
15:05:00	55.6	5.5635	366031.1110	
15:06:00	55.7	5.5673	369269.1273	
15:07:00	54.3	5.4265	266974.6341	
15:08:00	53.2	5.3235	210626.4946	
15:09:00	50.0	4.9958	99026.4020	
15:10:00	53.5	5.3489	223312.9969	
15:11:00	50.1	5.0113	102625.1961	
15:12:00	54.0	5.3973	249638.1756	
15:13:00	55.0	5.5039	319058.2656	
15:14:00	55.1	5.5107	324090.2755	
15:15:00	54.2	5.4223	264419.2080	
15:16:00	59.8	5.9831	961802.7179	
15:17:00	56.7	5.6730	471027.2144	
15:18:00	54.8	5.4848	305345.1316	
15:19:00	51.5	5.1498	141180.9175	
15:20:00	50.0	4.9979	99512.1249	
15:21:00	50.8	5.0847	121540.4948	
15:22:00	53.7	5.3721	235575.9765	
15:23:00	52.9	5.2896	194782.5289	
15:24:00	57.7	5.7701	588920.9446	
15:25:00	57.4	5.7364	545004.3893	
15:26:00	53.6	5.3583	228166.0374	
15:27:00	56.7	5.6663	463791.7296	
15:28:00	61.0	6.1028	1267015.7105	
15:29:00	50.8	5.0764	119234.5179	
15:30:00	48.3	4.8270	67135.9286	
15:31:00	52.2	5.2194	165724.9894	
15:32:00	55.6	5.5640	366417.3251	
15:33:00	55.6	5.5618	364610.3562	
15:34:00	69.9	6.9926	9831618.0900	
15:35:00	64.0	6.4004	2514316.8161	
15:36:00	64.3	6.4250	2660964.0058	
15:37:00	54.2	5.4221	264284.0783	
15:38:00	57.0	5.6960	496639.2050	
15:39:00	57.9	5.7910	618076.1705	
15:40:00	59.6	5.9607	913391.5720	
15:41:00	57.8	5.7776	599200.2695	
15:42:00	57.8	5.7816	604732.0691	
15:43:00	60.7	6.0740	1185719.6032	
15:44:00	57.9	5.7864	611458.5189	
15:45:00	62.2	6.2152	1641303.8945	
15:46:00	57.7	5.7703	589288.5463	
15:47:00	53.1	5.3110	204639.7516	
15:48:00	54.8	5.4764	299494.6025	
15:49:00	58.2	5.8169	655956.4397	
15:50:00	52.3	5.2266	168508.1847	
15:51:00	51.2	5.1244	133170.4907	
15:52:00	50.9	5.0862	121967.4657	
15:53:00	56.9	5.6861	485389.0782	
15:54:00	53.8	5.3847	242465.5266	
15:55:00	65.9	6.5861	3855431.5767	
15:56:00	64.7	6.4717	2962824.9964	
15:57:00	60.1	6.0051	1011777.4597	
15:58:00	56.2	5.6218	418631.5927	
15:59:00	53.4	5.3388	218181.5386	
			44253898.7974	737565

NM1

4:00 PM-5:00 PM			**57.65**	
16:00:00	58.1	5.8100	645654.2290	
16:01:00	64.0	6.4038	2534037.2811	
16:02:00	65.0	6.5026	3181471.2280	
16:03:00	58.0	5.7996	630409.8641	
16:04:00	55.9	5.5922	391011.9226	
16:05:00	53.3	5.3329	215231.0875	
16:06:00	55.4	5.5379	345043.6188	
16:07:00	55.7	5.5699	371475.3495	
16:08:00	52.1	5.2070	161051.2129	
16:09:00	55.9	5.5902	389215.3860	
16:10:00	60.2	6.0244	1057898.4967	
16:11:00	53.6	5.3626	230480.9312	
16:12:00	53.2	5.3238	210771.0699	
16:13:00	51.6	5.1641	145899.9019	
16:14:00	56.3	5.6302	426809.4239	
16:15:00	50.1	5.0096	102240.0375	
16:16:00	49.5	4.9520	89529.2611	
16:17:00	50.1	5.0092	102152.5001	
16:18:00	52.8	5.2837	192162.6592	
16:19:00	51.4	5.1397	137951.0467	
16:20:00	56.4	5.6446	441212.6951	
16:21:00	59.5	5.9547	900865.5928	
16:22:00	52.6	5.2570	180724.4867	
16:23:00	52.8	5.2773	189344.6332	
16:24:00	56.0	5.5996	397751.6592	
16:25:00	51.5	5.1522	141955.7537	
16:26:00	58.6	5.8593	723215.9573	
16:27:00	53.3	5.3264	212045.9588	
16:28:00	52.4	5.2420	174582.6173	
16:29:00	55.3	5.5330	341230.6237	
16:30:00	53.7	5.3685	233623.7550	
16:31:00	56.3	5.6277	424364.4550	
16:32:00	53.5	5.3452	221416.5095	
16:33:00	54.2	5.4222	264353.4606	
16:34:00	51.8	5.1776	150505.0249	
16:35:00	51.1	5.1057	127552.8010	
16:36:00	53.4	5.3425	220055.8913	
16:37:00	60.6	6.0590	1145518.2167	
16:38:00	54.5	5.4475	280236.6934	
16:39:00	58.0	5.7963	625547.0783	
16:40:00	56.5	5.6507	447397.9605	
16:41:00	50.2	5.0235	105560.1503	
16:42:00	51.0	5.0980	125302.5762	
16:43:00	51.9	5.1875	153989.1068	
16:44:00	69.5	6.9481	8874195.6621	
16:45:00	56.9	5.6858	485013.6932	
16:46:00	60.4	6.0412	1099537.3844	
16:47:00	53.3	5.3302	213879.4211	
16:48:00	55.8	5.5808	380921.9510	
16:49:00	56.3	5.6278	424411.3601	
16:50:00	58.4	5.8427	696172.7181	
16:51:00	54.2	5.4186	262206.2262	
16:52:00	53.1	5.3067	202642.2505	
16:53:00	52.8	5.2826	191684.5016	
16:54:00	54.6	5.4568	286300.4298	
16:55:00	54.7	5.4689	294384.5409	
16:56:00	52.1	5.2087	161685.1002	
16:57:00	57.3	5.7272	533526.5055	
16:58:00	59.2	5.9245	840415.3963	
16:59:00	53.4	5.3365	217002.6313	
			34952829.9376	582547.2

NM1

5:00 PM-6:00 PM			**62.84**	
17:00:00	54.3	5.4326	270781.5064	
17:01:00	56.4	5.6424	438948.9353	
17:02:00	59.1	5.9131	818672.1187	
17:03:00	60.1	6.0084	1019619.1885	
17:04:00	68.1	6.8125	6493950.8902	
17:05:00	53.2	5.3211	209439.2143	
17:06:00	53.0	5.2964	197856.3532	
17:07:00	52.8	5.2782	189766.6977	
17:08:00	58.0	5.7984	628663.1438	
17:09:00	55.6	5.5608	363757.5365	
17:10:00	64.3	6.4289	2684559.2897	
17:11:00	68.6	6.8557	7173134.9268	
17:12:00	61.8	6.1802	1514373.4954	
17:13:00	58.7	5.8702	741574.8627	
17:14:00	54.6	5.4610	289044.0275	
17:15:00	54.2	5.4211	263668.9562	
17:16:00	53.7	5.3738	236503.7330	
17:17:00	55.6	5.5588	362066.2134	
17:18:00	53.8	5.3781	238840.5156	
17:19:00	56.6	5.6627	459913.3329	
17:20:00	55.7	5.5682	369980.6406	
17:21:00	57.6	5.7566	570952.5277	
17:22:00	57.9	5.7879	613583.9628	
17:23:00	54.9	5.4925	310825.7570	
17:24:00	55.1	5.5053	320114.2446	
17:25:00	56.7	5.6732	471215.9692	
17:26:00	56.7	5.6693	467018.4090	
17:27:00	55.3	5.5321	340518.7261	
17:28:00	55.5	5.5496	354461.4421	
17:29:00	58.9	5.8930	781572.0139	
17:30:00	55.5	5.5495	354438.5898	
17:31:00	57.1	5.7112	514268.5903	
17:32:00	55.8	5.5823	382220.5209	
17:33:00	58.7	5.8746	749259.0546	
17:34:00	57.5	5.7458	556930.4969	
17:35:00	74.1	7.4069	25519901.8648	
17:36:00	70.2	7.0158	10370220.7195	
17:37:00	61.7	6.1657	1464431.2909	
17:38:00	58.5	5.8506	708949.0094	
17:39:00	58.2	5.8229	665081.7027	
17:40:00	64.8	6.4752	2986915.9363	
17:41:00	60.4	6.0423	1102386.7890	
17:42:00	59.5	5.9490	889102.8451	
17:43:00	58.0	5.8030	635259.2536	
17:44:00	55.5	5.5515	356026.2337	
17:45:00	57.8	5.7804	603164.8157	
17:46:00	57.1	5.7136	517139.8439	
17:47:00	65.6	6.5592	3624273.8039	
17:48:00	58.3	5.8312	678019.2120	
17:49:00	56.3	5.6260	422620.9287	
17:50:00	59.3	5.9263	843999.1320	
17:51:00	57.6	5.7646	581545.9024	
17:52:00	57.5	5.7484	560269.5246	
17:53:00	65.1	6.5147	3271018.4971	
17:54:00	61.6	6.1585	1440349.8774	
17:55:00	73.1	7.3144	20623767.3071	
17:56:00	62.2	6.2190	1655850.0290	
17:57:00	62.4	6.2374	1727611.1567	
17:58:00	59.5	5.9500	891320.7150	
17:59:00	61.7	6.1670	1468777.4628	
			115360499.7368	1922675

NM1

6:00 PM-7:00 PM			**60.75**	
18:00:00	57.4	5.7400	549540.8739	
18:01:00	60.9	6.0897	1229433.3790	
18:02:00	57.4	5.7414	551283.5074	
18:03:00	55.9	5.5932	391882.6173	
18:04:00	54.5	5.4474	280151.5309	
18:05:00	56.9	5.6868	486232.5180	
18:06:00	58.0	5.8005	631698.7245	
18:07:00	56.3	5.6287	425294.7288	
18:08:00	59.5	5.9502	891601.9302	
18:09:00	54.7	5.4728	297045.5154	
18:10:00	59.3	5.9321	855285.2847	
18:11:00	57.1	5.7125	515873.2398	
18:12:00	54.5	5.4452	278733.3921	
18:13:00	54.2	5.4225	264534.9143	
18:14:00	56.0	5.6047	402401.8790	
18:15:00	54.4	5.4404	275649.3673	
18:16:00	56.1	5.6123	409536.8636	
18:17:00	56.4	5.6360	432562.6329	
18:18:00	57.1	5.7094	512199.3229	
18:19:00	57.3	5.7252	531077.6196	
18:20:00	58.8	5.8779	754989.6535	
18:21:00	59.2	5.9173	826623.9803	
18:22:00	57.7	5.7746	595067.1826	
18:23:00	58.6	5.8579	721002.8809	
18:24:00	59.1	5.9132	818834.2501	
18:25:00	58.0	5.7972	626875.0716	
18:26:00	55.5	5.5540	358087.3672	
18:27:00	55.5	5.5521	356552.9221	
18:28:00	54.4	5.4412	276215.4710	
18:29:00	55.0	5.5040	319145.7019	
18:30:00	55.4	5.5428	349012.5148	
18:31:00	57.5	5.7501	562482.4803	
18:32:00	58.2	5.8208	661972.5791	
18:33:00	55.0	5.5015	317329.1731	
18:34:00	54.6	5.4636	290835.8909	
18:35:00	56.7	5.6687	466372.5709	
18:36:00	53.9	5.3893	245060.8864	
18:37:00	54.2	5.4206	263420.1544	
18:38:00	57.5	5.7535	566917.6784	
18:39:00	54.4	5.4426	277092.6461	
18:40:00	56.1	5.6099	407240.5356	
18:41:00	55.7	5.5738	374821.0734	
18:42:00	55.3	5.5261	335825.7552	
18:43:00	56.8	5.6806	479327.1180	
18:44:00	59.2	5.9182	828235.8025	
18:45:00	55.9	5.5929	391610.2045	
18:46:00	58.4	5.8397	691369.1552	
18:47:00	59.4	5.9420	875082.5023	
18:48:00	57.1	5.7146	518285.4298	
18:49:00	57.7	5.7745	595035.6690	
18:50:00	59.1	5.9125	817519.2731	
18:51:00	58.3	5.8256	669197.0226	
18:52:00	61.7	6.1680	1472380.3065	
18:53:00	61.0	6.0962	1247946.5938	
18:54:00	56.2	5.6249	421620.7728	
18:55:00	62.2	6.2163	1645394.3436	
18:56:00	72.3	7.2268	16859395.5476	
18:57:00	72.2	7.2203	16608484.2889	
18:58:00	62.9	6.2880	1940970.7915	
18:59:00	66.3	6.6291	4256758.3832	
			71302411.4662	1188374

NM1

7:00 PM-8:00 PM			**61.69**	
19:00:00	58.9	5.8918	779429.7889	
19:01:00	56.8	5.6765	474752.2154	
19:02:00	55.8	5.5840	383704.5949	
19:03:00	59.1	5.9080	809099.6252	
19:04:00	54.9	5.4906	309457.4910	
19:05:00	55.4	5.5366	344004.4020	
19:06:00	56.0	5.5991	397257.4038	
19:07:00	57.1	5.7107	513668.5780	
19:08:00	59.5	5.9478	886733.2631	
19:09:00	58.2	5.8162	654880.4112	
19:10:00	57.9	5.7850	609574.7932	
19:11:00	57.2	5.7152	519086.8177	
19:12:00	55.8	5.5826	382495.2093	
19:13:00	57.4	5.7379	546844.6908	
19:14:00	57.8	5.7786	600556.6772	
19:15:00	56.9	5.6913	491204.1191	
19:16:00	57.3	5.7341	542083.2649	
19:17:00	55.9	5.5854	384937.3037	
19:18:00	58.2	5.8192	659500.3039	
19:19:00	56.7	5.6683	465908.8929	
19:20:00	55.9	5.5946	393183.2426	
19:21:00	56.4	5.6374	433881.3672	
19:22:00	56.7	5.6684	466025.8422	
19:23:00	58.6	5.8636	730489.5373	
19:24:00	58.4	5.8419	694881.9008	
19:25:00	57.6	5.7573	571852.4683	
19:26:00	57.2	5.7202	525079.4238	
19:27:00	59.3	5.9259	843142.5365	
19:28:00	57.0	5.6978	498707.6153	
19:29:00	58.1	5.8096	645010.8201	
19:30:00	56.9	5.6946	495028.2686	
19:31:00	57.7	5.7652	582321.7346	
19:32:00	57.0	5.7011	502422.4072	
19:33:00	58.0	5.7969	626413.3432	
19:34:00	55.5	5.5481	353294.6005	
19:35:00	57.8	5.7845	608857.9765	
19:36:00	56.7	5.6680	465547.5013	
19:37:00	59.0	5.9012	796575.6012	
19:38:00	66.0	6.5964	3948362.3318	
19:39:00	71.8	7.1825	15223867.6598	
19:40:00	64.4	6.4442	2781185.7787	
19:41:00	63.3	6.3324	2149794.7601	
19:42:00	63.2	6.3247	2112180.3598	
19:43:00	66.0	6.6007	3987897.6174	
19:44:00	64.2	6.4186	2622001.8876	
19:45:00	69.5	6.9535	8983674.3343	
19:46:00	65.0	6.5041	3192037.6118	
19:47:00	65.1	6.5120	3250640.9344	
19:48:00	63.4	6.3441	2208604.7405	
19:49:00	61.5	6.1478	1405338.6807	
19:50:00	60.9	6.0910	1233073.6010	
19:51:00	61.7	6.1731	1489865.2820	
19:52:00	67.2	6.7199	5247252.9454	
19:53:00	54.7	5.4686	294172.4517	
19:54:00	59.4	5.9431	877251.2587	
19:55:00	67.0	6.6991	5001865.3919	
19:56:00	56.1	5.6088	406242.1668	
19:57:00	53.8	5.3801	239947.3733	
19:58:00	57.3	5.7306	537794.0587	
19:59:00	54.6	5.4582	287194.4216	
			88468141.6812	1474469

NM1

8:00 PM-9:00 PM			**62.44**	
20:00:00	57.3	5.7300	537031.7964	
20:01:00	52.6	5.2627	183123.0445	
20:02:00	59.2	5.9215	834703.0492	
20:03:00	57.3	5.7341	542087.0095	
20:04:00	55.9	5.5902	389267.3692	
20:05:00	55.7	5.5740	374985.9536	
20:06:00	57.5	5.7545	568232.4090	
20:07:00	61.3	6.1336	1360244.5672	
20:08:00	58.7	5.8729	746280.3388	
20:09:00	71.5	7.1497	14114223.8170	
20:10:00	68.6	6.8554	7167587.4438	
20:11:00	63.7	6.3692	2339995.3802	
20:12:00	61.7	6.1666	1467475.9755	
20:13:00	60.0	6.0032	1007397.8044	
20:14:00	74.3	7.4324	27063128.5222	
20:15:00	60.2	6.0205	1048264.7934	
20:16:00	61.5	6.1456	1398408.3226	
20:17:00	57.9	5.7899	616387.7514	
20:18:00	60.2	6.0214	1050628.0704	
20:19:00	58.4	5.8421	695153.9582	
20:20:00	58.3	5.8316	678614.2890	
20:21:00	58.3	5.8334	681318.2151	
20:22:00	56.5	5.6488	445430.5501	
20:23:00	59.1	5.9071	807491.5754	
20:24:00	61.4	6.1416	1385546.1630	
20:25:00	58.9	5.8853	767928.8788	
20:26:00	58.2	5.8203	661096.7163	
20:27:00	58.0	5.8035	636078.9155	
20:28:00	58.7	5.8651	733062.4939	
20:29:00	58.6	5.8564	718434.2031	
20:30:00	57.7	5.7747	595302.9025	
20:31:00	61.3	6.1262	1337146.5250	
20:32:00	56.5	5.6463	442852.3973	
20:33:00	56.8	5.6816	480422.1252	
20:34:00	63.4	6.3413	2194183.7784	
20:35:00	61.2	6.1198	1317576.9847	
20:36:00	59.4	5.9378	866576.6844	
20:37:00	61.6	6.1634	1456709.6593	
20:38:00	58.9	5.8920	779810.3589	
20:39:00	59.1	5.9117	815928.3063	
20:40:00	60.6	6.0603	1149047.5471	
20:41:00	58.6	5.8638	730836.1145	
20:42:00	58.3	5.8289	674417.7625	
20:43:00	61.5	6.1497	1411399.6324	
20:44:00	60.0	5.9969	992896.5462	
20:45:00	61.3	6.1330	1358169.5831	
20:46:00	60.9	6.0942	1242281.4492	
20:47:00	61.1	6.1112	1291766.4477	
20:48:00	59.4	5.9366	864086.0622	
20:49:00	61.4	6.1407	1382735.1404	
20:50:00	60.3	6.0309	1073789.1219	
20:51:00	58.6	5.8592	723104.3931	
20:52:00	61.1	6.1075	1280728.2819	
20:53:00	59.0	5.9044	802346.5693	
20:54:00	61.0	6.1030	1267681.0550	
20:55:00	61.8	6.1806	1515720.0657	
20:56:00	61.9	6.1937	1562025.0704	
20:57:00	63.6	6.3570	2275249.3554	
20:58:00	60.5	6.0537	1131548.0486	
20:59:00	60.8	6.0812	1205552.1447	
			105241499.4899	1754025

NM1

9:00 PM-10:00 PM			**61.49**	
21:00:00	60.9	6.0927	1237941.1517	
21:01:00	59.7	5.9713	936000.3260	
21:02:00	59.7	5.9715	936407.7513	
21:03:00	60.8	6.0803	1203001.0323	
21:04:00	61.6	6.1647	1461019.4582	
21:05:00	60.6	6.0647	1160750.8223	
21:06:00	61.9	6.1907	1551140.0095	
21:07:00	62.6	6.2603	1820803.1666	
21:08:00	62.9	6.2939	1967473.9914	
21:09:00	62.2	6.2197	1658345.4365	
21:10:00	62.3	6.2268	1685947.3188	
21:11:00	61.6	6.1557	1431350.5196	
21:12:00	60.9	6.0856	1217915.0580	
21:13:00	63.0	6.3045	2016234.3063	
21:14:00	62.5	6.2462	1762686.1819	
21:15:00	61.9	6.1859	1534373.1847	
21:16:00	62.6	6.2573	1808618.6298	
21:17:00	62.3	6.2273	1687660.1667	
21:18:00	61.9	6.1930	1559487.8661	
21:19:00	61.6	6.1560	1432250.5576	
21:20:00	61.7	6.1679	1471898.9653	
21:21:00	60.1	6.0136	1031886.6647	
21:22:00	61.7	6.1651	1462456.6445	
21:23:00	62.6	6.2641	1836796.3174	
21:24:00	60.6	6.0622	1154101.4854	
21:25:00	59.6	5.9563	904296.8124	
21:26:00	62.8	6.2826	1917078.9564	
21:27:00	61.5	6.1480	1406008.6741	
21:28:00	61.3	6.1339	1361112.4297	
21:29:00	61.6	6.1569	1435039.9780	
21:30:00	61.6	6.1582	1439458.0076	
21:31:00	60.2	6.0152	1035580.8241	
21:32:00	61.4	6.1427	1388980.0245	
21:33:00	61.0	6.1032	1268180.2926	
21:34:00	63.5	6.3476	2226568.1890	
21:35:00	60.8	6.0826	1209525.4196	
21:36:00	59.5	5.9548	901241.1229	
21:37:00	60.7	6.0746	1187358.8675	
21:38:00	60.6	6.0551	1135227.7535	
21:39:00	60.6	6.0599	1147833.7758	
21:40:00	63.8	6.3841	2421541.9666	
21:41:00	60.4	6.0405	1097761.5116	
21:42:00	61.4	6.1410	1383661.9557	
21:43:00	62.7	6.2654	1842502.1360	
21:44:00	63.0	6.3006	1998025.3774	
21:45:00	62.4	6.2427	1748694.7251	
21:46:00	61.6	6.1629	1455271.4189	
21:47:00	61.2	6.1239	1330264.4955	
21:48:00	59.3	5.9275	846344.1565	
21:49:00	58.9	5.8858	768742.6916	
21:50:00	60.2	6.0223	1052730.0016	
21:51:00	62.1	6.2069	1610167.2906	
21:52:00	60.3	6.0332	1079503.3639	
21:53:00	61.2	6.1217	1323454.4544	
21:54:00	60.5	6.0460	1111767.5659	
21:55:00	60.4	6.0406	1097976.3862	
21:56:00	60.1	6.0076	1017637.2601	
21:57:00	60.8	6.0760	1191340.7578	
21:58:00	60.9	6.0939	1241306.4156	
21:59:00	62.8	6.2817	1912885.6095	
			84521617.6802	1408694

NM1

10:00 PM-11:00 PM			**59.19**	
22:00:00	63.1	6.3066	2025713.3956	
22:01:00	61.2	6.1227	1326435.0828	
22:02:00	63.0	6.2980	1986026.3213	
22:03:00	60.1	6.0126	1029420.9442	
22:04:00	58.4	5.8381	688872.7412	
22:05:00	58.9	5.8926	780929.8078	
22:06:00	56.4	5.6382	434690.3509	
22:07:00	57.7	5.7682	586468.9179	
22:08:00	58.8	5.8790	756916.5479	
22:09:00	57.9	5.7855	610234.8413	
22:10:00	57.1	5.7064	508668.6825	
22:11:00	57.3	5.7341	542129.4500	
22:12:00	58.0	5.8046	637655.3385	
22:13:00	58.6	5.8648	732441.5955	
22:14:00	62.6	6.2606	1822162.0610	
22:15:00	61.3	6.1271	1340006.7931	
22:16:00	58.8	5.8813	760911.2410	
22:17:00	58.8	5.8810	760240.4967	
22:18:00	58.9	5.8940	783359.2933	
22:19:00	58.0	5.7983	628434.4724	
22:20:00	60.0	6.0048	1011148.6352	
22:21:00	60.1	6.0088	1020568.1249	
22:22:00	59.2	5.9225	836592.5639	
22:23:00	57.7	5.7694	587983.3117	
22:24:00	60.6	6.0555	1136242.4226	
22:25:00	57.8	5.7831	606904.0002	
22:26:00	58.2	5.8241	666981.8254	
22:27:00	60.9	6.0851	1216452.0651	
22:28:00	59.3	5.9292	849577.4958	
22:29:00	59.9	5.9945	987520.2273	
22:30:00	59.2	5.9151	822420.6379	
22:31:00	57.8	5.7793	601611.3208	
22:32:00	58.9	5.8930	781618.8058	
22:33:00	60.2	6.0154	1036088.8500	
22:34:00	56.7	5.6662	463708.4394	
22:35:00	58.9	5.8923	780449.8473	
22:36:00	59.3	5.9303	851667.3535	
22:37:00	56.4	5.6410	437488.8612	
22:38:00	56.8	5.6782	476664.7100	
22:39:00	56.9	5.6857	484918.7757	
22:40:00	57.3	5.7266	532807.0958	
22:41:00	58.2	5.8218	663422.1998	
22:42:00	57.7	5.7675	585527.0995	
22:43:00	57.5	5.7487	560603.7519	
22:44:00	57.6	5.7555	569479.3754	
22:45:00	59.0	5.8986	791749.8687	
22:46:00	59.2	5.9208	833237.8699	
22:47:00	58.5	5.8486	705714.4337	
22:48:00	59.4	5.9369	864808.6005	
22:49:00	59.6	5.9617	915560.3995	
22:50:00	59.3	5.9284	847996.3833	
22:51:00	60.5	6.0479	1116503.2716	
22:52:00	59.4	5.9354	861824.8253	
22:53:00	60.5	6.0457	1110994.7329	
22:54:00	59.5	5.9542	899922.2715	
22:55:00	58.2	5.8246	667777.8353	
22:56:00	56.4	5.6408	437342.8190	
22:57:00	58.5	5.8459	701335.7867	
22:58:00	59.5	5.9484	887971.4447	
22:59:00	59.1	5.9122	817033.7562	
			49769940.4696	829499

NM1

11:00 PM-12:00 AM			**62.46**	
23:00:00	59.7	5.9700	933254.3008	
23:01:00	56.1	5.6148	411946.6733	
23:02:00	59.5	5.9453	881590.6998	
23:03:00	59.4	5.9369	864691.1220	
23:04:00	61.5	6.1472	1403550.3602	
23:05:00	62.1	6.2112	1626282.5423	
23:06:00	62.3	6.2299	1697895.6669	
23:07:00	61.4	6.1439	1392868.1253	
23:08:00	60.4	6.0449	1108916.8943	
23:09:00	59.8	5.9790	952796.1640	
23:10:00	62.7	6.2656	1843372.0575	
23:11:00	60.9	6.0931	1239215.9654	
23:12:00	62.4	6.2382	1730589.2434	
23:13:00	59.6	5.9588	909389.6352	
23:14:00	59.7	5.9681	929268.0382	
23:15:00	60.8	6.0835	1212068.0405	
23:16:00	61.6	6.1596	1444272.0276	
23:17:00	62.1	6.2132	1633695.0757	
23:18:00	60.9	6.0905	1231771.0705	
23:19:00	61.6	6.1648	1461399.6534	
23:20:00	61.7	6.1679	1472068.4337	
23:21:00	75.4	7.5362	34368770.8110	
23:22:00	67.4	6.7442	5548569.1133	
23:23:00	67.3	6.7322	5397417.3406	
23:24:00	66.7	6.6688	4664090.8362	
23:25:00	59.9	5.9863	968998.2662	
23:26:00	57.8	5.7764	597519.3858	
23:27:00	59.1	5.9052	803933.2665	
23:28:00	58.8	5.8789	756634.2565	
23:29:00	56.4	5.6392	435745.5895	
23:30:00	58.5	5.8536	713838.5536	
23:31:00	59.3	5.9302	851490.8785	
23:32:00	61.2	6.1168	1308506.8485	
23:33:00	57.8	5.7850	609497.6002	
23:34:00	57.9	5.7893	615558.0285	
23:35:00	57.3	5.7274	533857.0718	
23:36:00	56.0	5.6002	398335.4882	
23:37:00	56.5	5.6524	449184.7465	
23:38:00	56.7	5.6699	467610.2260	
23:39:00	56.4	5.6402	436757.1265	
23:40:00	57.1	5.7096	512370.3619	
23:41:00	59.4	5.9446	880178.9947	
23:42:00	60.5	6.0508	1124089.7818	
23:43:00	62.1	6.2141	1637283.9329	
23:44:00	63.6	6.3590	2285435.6628	
23:45:00	59.9	5.9866	969696.8839	
23:46:00	57.4	5.7352	543499.3137	
23:47:00	61.3	6.1332	1359076.8033	
23:48:00	58.8	5.8825	763014.8669	
23:49:00	58.2	5.8201	660771.0390	
23:50:00	58.5	5.8507	709128.5978	
23:51:00	61.1	6.1118	1293457.0134	
23:52:00	58.5	5.8487	705811.9385	
23:53:00	57.4	5.7414	551311.4344	
23:54:00	58.8	5.8795	757743.1168	
23:55:00	60.4	6.0410	1099094.4124	
23:56:00	59.3	5.9302	851547.7387	
23:57:00	59.5	5.9547	900936.1224	
23:58:00	58.9	5.8865	770021.7635	
23:59:00	59.8	5.9806	956361.3139	
			105638048.3163	1760634

NM1

12:00 AM-1:00 AM			**61.41**	
0:00:00	59.8	5.9800	954992.5860	
0:01:00	58.8	5.8838	765258.2143	
0:02:00	58.3	5.8323	679726.1842	
0:03:00	61.5	6.1507	1414672.7889	
0:04:00	58.6	5.8615	726915.6182	
0:05:00	57.8	5.7755	596342.8273	
0:06:00	57.7	5.7720	591605.2237	
0:07:00	57.8	5.7807	603495.4498	
0:08:00	58.7	5.8691	739773.8917	
0:09:00	59.8	5.9818	958875.0094	
0:10:00	60.9	6.0874	1222843.8395	
0:11:00	59.0	5.8997	793702.9601	
0:12:00	58.8	5.8783	755530.4982	
0:13:00	58.3	5.8295	675361.0344	
0:14:00	58.0	5.8046	637725.8187	
0:15:00	60.7	6.0699	1174594.6002	
0:16:00	58.0	5.8042	637022.8342	
0:17:00	57.6	5.7580	572801.3067	
0:18:00	56.7	5.6656	463054.3837	
0:19:00	57.5	5.7493	561471.8664	
0:20:00	57.6	5.7566	570902.5726	
0:21:00	57.0	5.7045	506389.8591	
0:22:00	59.2	5.9155	823125.3936	
0:23:00	58.5	5.8457	700890.2200	
0:24:00	53.8	5.3763	237821.9852	
0:25:00	58.0	5.7998	630643.6106	
0:26:00	56.4	5.6427	439200.6761	
0:27:00	57.6	5.7598	575112.7555	
0:28:00	58.5	5.8488	706006.9885	
0:29:00	56.0	5.6047	402477.8645	
0:30:00	58.6	5.8581	721240.3243	
0:31:00	57.3	5.7260	532081.3050	
0:32:00	58.3	5.8302	676409.9695	
0:33:00	59.0	5.8973	789365.2433	
0:34:00	56.8	5.6803	478959.7297	
0:35:00	60.0	5.9974	993992.2539	
0:36:00	60.0	6.0002	1000419.1583	
0:37:00	58.0	5.7951	623846.8693	
0:38:00	55.0	5.4971	314110.8948	
0:39:00	55.4	5.5420	348342.9296	
0:40:00	55.5	5.5458	351373.4963	
0:41:00	56.7	5.6691	466759.3216	
0:42:00	57.5	5.7476	559297.6570	
0:43:00	54.4	5.4399	275375.9447	
0:44:00	57.0	5.7017	503199.2672	
0:45:00	57.8	5.7810	603927.7701	
0:46:00	60.6	6.0583	1143604.8802	
0:47:00	66.5	6.6481	4447664.2978	
0:48:00	74.6	7.4554	28536782.1600	
0:49:00	65.9	6.5905	3894807.5213	
0:50:00	65.1	6.5086	3225521.9377	
0:51:00	60.6	6.0558	1137231.8126	
0:52:00	61.2	6.1217	1323463.5965	
0:53:00	66.2	6.6246	4213305.9825	
0:54:00	63.1	6.3063	2024603.5779	
0:55:00	59.1	5.9133	819011.5002	
0:56:00	57.4	5.7409	550652.9878	
0:57:00	57.7	5.7664	584028.4452	
0:58:00	57.1	5.7065	508772.9347	
0:59:00	54.8	5.4813	302914.4562	
			83069407.0866	1384490

NM1

1:00 AM-2:00 AM			**60.54**	
1:00:00	56.8	5.6841	483135.5557	
1:01:00	56.3	5.6266	423284.1437	
1:02:00	53.2	5.3160	207004.6017	
1:03:00	50.2	5.0218	105157.6809	
1:04:00	55.9	5.5937	392391.8694	
1:05:00	54.6	5.4648	291607.0369	
1:06:00	54.4	5.4415	276356.0649	
1:07:00	56.1	5.6124	409596.2765	
1:08:00	54.4	5.4382	274294.4372	
1:09:00	55.2	5.5206	331580.5137	
1:10:00	55.1	5.5077	321856.2893	
1:11:00	57.8	5.7791	601312.1788	
1:12:00	57.2	5.7229	528273.7122	
1:13:00	56.9	5.6912	491140.7850	
1:14:00	57.2	5.7214	526449.8424	
1:15:00	55.9	5.5915	390417.2517	
1:16:00	57.4	5.7374	546223.0212	
1:17:00	57.7	5.7691	587672.0014	
1:18:00	55.9	5.5917	390540.4299	
1:19:00	58.1	5.8053	638700.1233	
1:20:00	55.3	5.5347	342545.2897	
1:21:00	54.6	5.4560	285729.4466	
1:22:00	56.2	5.6173	414311.5113	
1:23:00	55.4	5.5364	343841.2682	
1:24:00	54.0	5.4015	252047.2713	
1:25:00	53.8	5.3818	240901.2203	
1:26:00	54.5	5.4473	280115.4091	
1:27:00	55.2	5.5175	329201.6475	
1:28:00	57.2	5.7168	520905.5684	
1:29:00	55.9	5.5872	386578.7701	
1:30:00	51.5	5.1466	140141.8996	
1:31:00	52.7	5.2733	187607.8472	
1:32:00	54.9	5.4872	307074.6744	
1:33:00	54.3	5.4281	267964.9551	
1:34:00	55.0	5.4966	313761.0285	
1:35:00	55.9	5.5869	386309.1546	
1:36:00	55.1	5.5078	321940.7860	
1:37:00	56.7	5.6718	469706.9649	
1:38:00	55.7	5.5744	375284.8218	
1:39:00	58.0	5.7987	629087.4191	
1:40:00	57.4	5.7377	546579.0733	
1:41:00	57.4	5.7363	544837.5107	
1:42:00	57.9	5.7867	611906.4063	
1:43:00	56.4	5.6395	436008.5442	
1:44:00	54.7	5.4683	293970.6685	
1:45:00	58.6	5.8610	726176.1815	
1:46:00	60.6	6.0615	1152128.7127	
1:47:00	76.1	7.6097	40708584.3542	
1:48:00	62.0	6.1963	1571400.9089	
1:49:00	60.6	6.0563	1138520.8805	
1:50:00	60.2	6.0176	1041343.4747	
1:51:00	59.4	5.9358	862559.3754	
1:52:00	57.0	5.7050	506954.5205	
1:53:00	56.3	5.6269	423508.3720	
1:54:00	55.5	5.5452	350905.3584	
1:55:00	54.8	5.4807	302514.3635	
1:56:00	56.7	5.6675	465003.2626	
1:57:00	55.5	5.5509	355530.6117	
1:58:00	56.7	5.6733	471281.0746	
1:59:00	56.9	5.6864	485712.1865	
			68007476.6104	1133458

NM1			**52.64**	
2:00 AM-3:00 AM				
2:00:00	49.3	4.9338	85865.7564	
2:01:00	52.4	5.2394	173527.3761	
2:02:00	50.6	5.0551	113520.1614	
2:03:00	52.1	5.2083	161549.6420	
2:04:00	50.8	5.0765	119265.8204	
2:05:00	48.1	4.8078	64235.0402	
2:06:00	45.1	4.5077	32189.9276	
2:07:00	48.9	4.8897	77565.3935	
2:08:00	49.6	4.9595	91091.9502	
2:09:00	52.2	5.2208	166268.5081	
2:10:00	50.1	5.0130	103029.1223	
2:11:00	51.7	5.1664	146698.6104	
2:12:00	45.8	4.5768	37742.6161	
2:13:00	48.4	4.8447	69928.7878	
2:14:00	50.4	5.0414	109997.0404	
2:15:00	53.5	5.3456	221595.0220	
2:16:00	49.9	4.9913	98013.2974	
2:17:00	53.8	5.3784	238994.5514	
2:18:00	60.7	6.0739	1185610.3994	
2:19:00	60.3	6.0286	1068038.7259	
2:20:00	55.9	5.5895	388603.7615	
2:21:00	54.2	5.4217	264047.4636	
2:22:00	54.4	5.4371	273579.7825	
2:23:00	51.4	5.1427	138898.6421	
2:24:00	46.4	4.6402	43668.1708	
2:25:00	46.3	4.6278	42438.6930	
2:26:00	45.7	4.5670	36901.5833	
2:27:00	51.9	5.1875	153976.6973	
2:28:00	50.6	5.0637	115798.2510	
2:29:00	50.0	5.0035	100810.5537	
2:30:00	52.8	5.2757	188655.2954	
2:31:00	51.2	5.1246	133220.4818	
2:32:00	51.6	5.1586	144063.1810	
2:33:00	53.2	5.3189	208390.5400	
2:34:00	52.6	5.2600	181985.1705	
2:35:00	49.0	4.8975	78984.1593	
2:36:00	48.5	4.8493	70680.8885	
2:37:00	53.4	5.3354	216448.7091	
2:38:00	48.3	4.8301	67618.1057	
2:39:00	47.6	4.7596	57494.3277	
2:40:00	54.3	5.4346	272003.8179	
2:41:00	51.6	5.1598	144467.7803	
2:42:00	50.9	5.0854	121731.7877	
2:43:00	49.2	4.9199	83150.1429	
2:44:00	50.2	5.0158	103700.5357	
2:45:00	49.9	4.9860	96830.4611	
2:46:00	50.5	5.0509	112446.2561	
2:47:00	47.5	4.7501	56251.4860	
2:48:00	49.3	4.9254	84213.5548	
2:49:00	50.8	5.0752	118898.3971	
2:50:00	51.4	5.1371	137122.9033	
2:51:00	51.4	5.1441	139339.4205	
2:52:00	51.5	5.1512	141630.5690	
2:53:00	53.8	5.3806	240222.6757	
2:54:00	55.7	5.5746	375476.7067	
2:55:00	57.4	5.7412	551114.7061	
2:56:00	53.8	5.3827	241397.0731	
2:57:00	52.9	5.2885	194314.4063	
2:58:00	55.3	5.5276	337005.5088	
2:59:00	53.0	5.3041	201411.8414	
			11023722.2372	183728.7

NM1			**56.9780**	
3:00 AM-4:00 AM				
3:00:00	59.4	5.9351	861241.6018	
3:01:00	56.9	5.6924	492491.7956	
3:02:00	56.6	5.6587	455715.7096	
3:03:00	56.4	5.6443	440902.9453	
3:04:00	53.5	5.3526	225232.4702	
3:05:00	54.8	5.4826	303806.4570	
3:06:00	55.7	5.5713	372631.8735	
3:07:00	53.6	5.3560	226980.7360	
3:08:00	54.6	5.4644	291313.0901	
3:09:00	57.4	5.7368	545453.8356	
3:10:00	56.7	5.6745	472572.0152	
3:11:00	56.0	5.5993	397467.8449	
3:12:00	56.7	5.6726	470505.8201	
3:13:00	57.4	5.7354	543707.0946	
3:14:00	56.6	5.6642	461521.5665	
3:15:00	57.7	5.7674	585296.5983	
3:16:00	54.9	5.4949	312545.3198	
3:17:00	54.8	5.4789	301215.2808	
3:18:00	55.1	5.5075	321699.2141	
3:19:00	54.3	5.4273	267466.2569	
3:20:00	55.7	5.5712	372557.2335	
3:21:00	55.3	5.5338	341794.4449	
3:22:00	53.1	5.3142	206173.5743	
3:23:00	54.6	5.4605	288761.3078	
3:24:00	53.8	5.3786	239136.0217	
3:25:00	57.5	5.7528	566017.6840	
3:26:00	57.3	5.7250	530938.2328	
3:27:00	57.5	5.7499	562245.5153	
3:28:00	54.9	5.4902	309200.3665	
3:29:00	55.4	5.5384	345438.7075	
3:30:00	57.8	5.7784	600310.5834	
3:31:00	57.8	5.7762	597252.5326	
3:32:00	56.6	5.6587	455698.9207	
3:33:00	56.8	5.6802	478828.5090	
3:34:00	58.3	5.8322	679455.4711	
3:35:00	56.7	5.6707	468463.7602	
3:36:00	57.9	5.7939	622169.9050	
3:37:00	55.4	5.5421	348389.4539	
3:38:00	57.5	5.7481	559876.1919	
3:39:00	59.1	5.9106	813866.1765	
3:40:00	56.6	5.6621	459264.6302	
3:41:00	59.2	5.9220	835508.7452	
3:42:00	59.5	5.9471	885360.2101	
3:43:00	57.9	5.7894	615695.5292	
3:44:00	58.5	5.8531	713038.5330	
3:45:00	59.6	5.9559	903522.5581	
3:46:00	57.4	5.7450	555847.9394	
3:47:00	58.3	5.8301	676235.5530	
3:48:00	55.1	5.5139	326481.8179	
3:49:00	57.0	5.7048	506742.1153	
3:50:00	58.3	5.8305	676874.2613	
3:51:00	57.2	5.7225	527803.1770	
3:52:00	58.8	5.8828	763478.8312	
3:53:00	58.5	5.8495	707097.0087	
3:54:00	56.6	5.6578	454740.8822	
3:55:00	58.7	5.8735	747260.4550	
3:56:00	55.2	5.5241	334248.9102	
3:57:00	53.8	5.3763	237841.1521	
3:58:00	57.9	5.7889	614987.0914	
3:59:00	58.1	5.8067	640830.2439	
			29919201.7630	498653.4

NM1			**60.0217**	
4:00 AM-5:00 AM				
4:00:00	56.7	5.6652	462635.5480	
4:01:00	56.2	5.6193	416175.0113	
4:02:00	56.7	5.6672	464693.9304	
4:03:00	56.3	5.6330	429566.0991	
4:04:00	58.0	5.8021	634001.0834	
4:05:00	56.9	5.6922	492223.1099	
4:06:00	55.6	5.5582	361562.1831	
4:07:00	54.8	5.4842	304912.3394	
4:08:00	55.7	5.5684	370202.2040	
4:09:00	55.6	5.5614	364238.6268	
4:10:00	58.3	5.8290	674582.3904	
4:11:00	56.5	5.6491	445737.3225	
4:12:00	56.4	5.6395	436044.6878	
4:13:00	58.9	5.8898	775834.3428	
4:14:00	57.4	5.7360	544559.0751	
4:15:00	57.1	5.7125	515849.4835	
4:16:00	58.3	5.8292	674865.1472	
4:17:00	57.5	5.7454	556462.6249	
4:18:00	57.2	5.7160	519991.2072	
4:19:00	58.8	5.8850	767297.8831	
4:20:00	59.8	5.9834	962547.1224	
4:21:00	57.8	5.7789	600973.0542	
4:22:00	55.4	5.5400	346697.7315	
4:23:00	56.6	5.6593	456302.6595	
4:24:00	57.8	5.7847	609092.1467	
4:25:00	58.4	5.8364	686085.1195	
4:26:00	60.8	6.0829	1210216.3056	
4:27:00	55.0	5.4995	315897.3626	
4:28:00	55.8	5.5827	382547.1757	
4:29:00	53.7	5.3702	234539.5027	
4:30:00	55.6	5.5569	360495.6263	
4:31:00	57.3	5.7318	539264.7093	
4:32:00	56.6	5.6581	455125.3228	
4:33:00	56.4	5.6435	440078.3463	
4:34:00	54.7	5.4672	293254.7126	
4:35:00	56.2	5.6162	413233.0037	
4:36:00	67.4	6.7429	5532036.0301	
4:37:00	68.5	6.8545	7152551.6069	
4:38:00	62.6	6.2596	1818209.8241	
4:39:00	61.7	6.1694	1477076.5386	
4:40:00	59.8	5.9825	960585.4410	
4:41:00	61.5	6.1487	1408305.9041	
4:42:00	66.6	6.6615	4586611.9687	
4:43:00	62.9	6.2924	1960518.7493	
4:44:00	63.2	6.3241	2109055.4592	
4:45:00	60.3	6.0251	1059556.2071	
4:46:00	61.1	6.1140	1300022.8925	
4:47:00	61.0	6.0964	1248498.4284	
4:48:00	60.1	6.0064	1014740.5137	
4:49:00	60.0	5.9961	990966.5611	
4:50:00	58.3	5.8272	671800.0008	
4:51:00	59.1	5.9055	804485.0910	
4:52:00	59.0	5.8968	788525.9676	
4:53:00	56.3	5.6326	429170.6363	
4:54:00	59.1	5.9084	809832.1237	
4:55:00	60.9	6.0925	1237425.3250	
4:56:00	58.6	5.8624	728423.5867	
4:57:00	59.1	5.9121	816693.3137	
4:58:00	61.6	6.1551	1429354.6538	
4:59:00	61.6	6.1607	1447718.0861	
			60299949.1104	1004999

NM1			**62.27**	
5:00 AM-6:00 AM				
5:00:00	60.3	6.0285	1067930.5243	
5:01:00	58.1	5.8116	648032.8177	
5:02:00	56.9	5.6909	490782.4225	
5:03:00	56.2	5.6226	419374.4810	
5:04:00	57.8	5.7847	609107.5743	
5:05:00	57.6	5.7634	579921.2195	
5:06:00	57.4	5.7436	554152.1212	
5:07:00	59.9	5.9891	975124.3468	
5:08:00	57.4	5.7379	546892.5408	
5:09:00	59.6	5.9563	904176.0517	
5:10:00	62.0	6.1951	1567230.9514	
5:11:00	59.4	5.9366	864175.6003	
5:12:00	59.3	5.9256	842525.3949	
5:13:00	62.2	6.2163	1645640.6250	
5:14:00	63.5	6.3454	2215164.5876	
5:15:00	63.4	6.3403	2189434.7158	
5:16:00	63.9	6.3873	2439220.1556	
5:17:00	64.1	6.4094	2566918.0273	
5:18:00	63.1	6.3146	2063450.2383	
5:19:00	66.0	6.6022	4001658.2848	
5:20:00	64.2	6.4187	2622593.6178	
5:21:00	64.9	6.4914	3100266.3034	
5:22:00	63.9	6.3872	2439012.3535	
5:23:00	63.6	6.3596	2288858.7904	
5:24:00	62.7	6.2699	1861714.1516	
5:25:00	63.1	6.3142	2061393.9638	
5:26:00	63.9	6.3865	2435061.8687	
5:27:00	62.2	6.2183	1652928.2416	
5:28:00	69.0	6.8955	7861619.1330	
5:29:00	72.8	7.2838	19221089.4584	
5:30:00	64.3	6.4257	2665090.7381	
5:31:00	63.9	6.3899	2453889.4869	
5:32:00	62.2	6.2186	1654131.3778	
5:33:00	61.4	6.1426	1388516.3564	
5:34:00	61.4	6.1369	1370613.4838	
5:35:00	59.8	5.9784	951415.0127	
5:36:00	58.2	5.8187	658670.1769	
5:37:00	57.8	5.7770	598360.6152	
5:38:00	59.8	5.9757	945686.0876	
5:39:00	59.2	5.9185	828901.6421	
5:40:00	57.7	5.7739	594190.9050	
5:41:00	58.1	5.8147	652661.5079	
5:42:00	58.5	5.8471	703248.8004	
5:43:00	57.3	5.7304	537469.7176	
5:44:00	57.1	5.7105	513450.9952	
5:45:00	60.1	6.0124	1028856.9604	
5:46:00	58.6	5.8573	719873.1907	
5:47:00	60.0	5.9988	997337.1581	
5:48:00	56.1	5.6134	410578.3074	
5:49:00	57.1	5.7055	507522.1487	
5:50:00	61.1	6.1062	1276970.8984	
5:51:00	59.0	5.9028	799500.9792	
5:52:00	60.3	6.0281	1066910.5264	
5:53:00	59.0	5.9042	802008.5533	
5:54:00	58.0	5.8004	631560.5583	
5:55:00	60.0	5.9956	990001.8360	
5:56:00	59.9	5.9860	968255.5611	
5:57:00	58.6	5.8571	719612.9994	
5:58:00	58.2	5.8238	666446.0527	
5:59:00	57.1	5.7091	511809.0960	
			101348992.2926	1689150

NM1			**60.12**	
6:00 AM-7:00 AM				
6:00:00	57.3	5.7303	537395.4685	
6:01:00	58.6	5.8561	717967.8544	
6:02:00	58.5	5.8544	715204.1075	
6:03:00	64.4	6.4419	2766502.0731	
6:04:00	68.9	6.8883	7732982.0129	
6:05:00	63.5	6.3462	2219366.3654	
6:06:00	61.5	6.1507	1414744.4536	
6:07:00	59.1	5.9072	807539.9191	
6:08:00	59.8	5.9843	964408.4346	
6:09:00	59.7	5.9693	931697.6498	
6:10:00	61.7	6.1679	1471929.4682	
6:11:00	58.9	5.8907	777535.0940	
6:12:00	57.0	5.7017	503118.1676	
6:13:00	57.4	5.7390	548261.8157	
6:14:00	58.6	5.8558	717405.9925	
6:15:00	57.7	5.7662	583649.3417	
6:16:00	57.9	5.7872	612604.2423	
6:17:00	57.4	5.7398	549325.8040	
6:18:00	58.1	5.8085	643493.2564	
6:19:00	58.3	5.8300	676011.3692	
6:20:00	58.1	5.8089	644050.6161	
6:21:00	56.0	5.6006	398656.6381	
6:22:00	55.9	5.5909	389864.7771	
6:23:00	56.0	5.6023	400194.3934	
6:24:00	55.8	5.5781	378526.2480	
6:25:00	55.2	5.5244	334516.8511	
6:26:00	54.6	5.4594	288004.9817	
6:27:00	55.4	5.5437	349668.8941	
6:28:00	54.4	5.4410	276034.2677	
6:29:00	55.8	5.5802	380393.4235	
6:30:00	55.7	5.5681	369884.3871	
6:31:00	55.3	5.5328	341074.3028	
6:32:00	54.3	5.4269	267250.1761	
6:33:00	56.2	5.6214	418225.0098	
6:34:00	55.6	5.5599	362995.2984	
6:35:00	56.1	5.6114	408651.4084	
6:36:00	58.0	5.7966	626080.2443	
6:37:00	58.9	5.8871	771052.5894	
6:38:00	59.0	5.8964	787700.2803	
6:39:00	57.4	5.7430	553311.8865	
6:40:00	58.3	5.8328	680485.6950	
6:41:00	58.3	5.8254	668888.9169	
6:42:00	59.2	5.9161	824320.3094	
6:43:00	58.8	5.8838	765247.6419	
6:44:00	60.3	6.0260	1061795.7923	
6:45:00	60.1	6.0070	1016323.5756	
6:46:00	61.7	6.1725	1487804.9524	
6:47:00	63.4	6.3444	2209789.9800	
6:48:00	63.5	6.3451	2213813.3395	
6:49:00	63.1	6.3092	2037844.3048	
6:50:00	65.2	6.5216	3323647.8285	
6:51:00	58.4	5.8426	695993.2056	
6:52:00	59.9	5.9885	973865.5429	
6:53:00	62.8	6.2789	1900456.7915	
6:54:00	60.8	6.0796	1201110.6008	
6:55:00	60.9	6.0940	1241626.5768	
6:56:00	60.5	6.0481	1116999.5547	
6:57:00	60.7	6.0735	1184464.3667	
6:58:00	61.0	6.1037	1269673.3383	
6:59:00	61.2	6.1165	1307564.1354	
			61818996.0135	1030317

NM1			**59.12**	
7:00 AM-8:00 AM				
7:00:00	56.6	5.6616	458806.9627	
7:01:00	58.7	5.8683	738473.6440	
7:02:00	60.3	6.0314	1074934.4956	
7:03:00	57.9	5.7948	623414.6445	
7:04:00	60.2	6.0192	1045218.2883	
7:05:00	60.9	6.0907	1232295.8900	
7:06:00	59.4	5.9423	875544.0480	
7:07:00	61.0	6.0967	1249332.3912	
7:08:00	61.2	6.1219	1323945.1713	
7:09:00	58.4	5.8405	692621.5501	
7:10:00	58.5	5.8481	704845.6114	
7:11:00	57.5	5.7532	566438.8077	
7:12:00	59.0	5.9023	798505.6621	
7:13:00	59.5	5.9512	893675.8046	
7:14:00	57.1	5.7115	514609.7378	
7:15:00	57.4	5.7450	555874.8177	
7:16:00	57.7	5.7684	586671.5121	
7:17:00	57.4	5.7356	544053.9904	
7:18:00	58.8	5.8784	755720.1463	
7:19:00	57.9	5.7931	621004.8614	
7:20:00	60.9	6.0910	1233235.4493	
7:21:00	58.9	5.8921	780059.9844	
7:22:00	58.1	5.8063	640188.6939	
7:23:00	57.4	5.7402	549767.4208	
7:24:00	59.6	5.9629	918150.7641	
7:25:00	62.6	6.2552	1799554.4838	
7:26:00	59.9	5.9893	975636.4112	
7:27:00	59.1	5.9055	804535.1072	
7:28:00	59.3	5.9319	854936.7777	
7:29:00	59.7	5.9723	938190.4330	
7:30:00	59.3	5.9315	854021.8850	
7:31:00	58.3	5.8269	671268.0859	
7:32:00	55.8	5.5847	384348.3314	
7:33:00	57.3	5.7336	541523.1159	
7:34:00	55.5	5.5536	357739.5860	
7:35:00	58.0	5.8037	636370.4428	
7:36:00	57.2	5.7237	529248.9438	
7:37:00	59.9	5.9905	978358.4493	
7:38:00	61.3	6.1333	1359201.9846	
7:39:00	67.2	6.7247	5305508.3209	
7:40:00	60.6	6.0640	1158750.6746	
7:41:00	60.1	6.0116	1027079.3557	
7:42:00	58.3	5.8265	670727.3257	
7:43:00	55.1	5.5092	322986.2246	
7:44:00	55.1	5.5120	325050.6209	
7:45:00	61.8	6.1788	1509412.7008	
7:46:00	55.2	5.5172	329036.4417	
7:47:00	56.4	5.6381	434597.2761	
7:48:00	55.4	5.5415	347929.2973	
7:49:00	56.1	5.6061	403746.7133	
7:50:00	58.9	5.8905	777071.5340	
7:51:00	56.4	5.6367	433196.5607	
7:52:00	57.5	5.7504	562798.5891	
7:53:00	57.2	5.7227	528075.4770	
7:54:00	56.4	5.6433	439824.0770	
7:55:00	57.1	5.7148	518579.0885	
7:56:00	55.4	5.5386	345598.6203	
7:57:00	57.6	5.7620	578100.0408	
7:58:00	60.0	6.0042	1009715.4463	
7:59:00	54.3	5.4299	269117.5374	
			48959226.3102	815987.1

NM1			**56.78**	
8:00 AM-9:00 AM				
8:00:00	61.2	6.1193	1316036.6984	
8:01:00	63.6	6.3612	2297317.3896	
8:02:00	56.7	5.6695	467181.8908	
8:03:00	58.4	5.8430	696575.1867	
8:04:00	57.6	5.7567	571060.3406	
8:05:00	56.8	5.6834	482374.1208	
8:06:00	55.0	5.4959	313277.3526	
8:07:00	55.9	5.5913	390197.0665	
8:08:00	56.7	5.6690	466608.8805	
8:09:00	56.4	5.6429	439413.0998	
8:10:00	59.1	5.9113	815327.3295	
8:11:00	57.5	5.7545	568235.0258	
8:12:00	57.1	5.7079	510395.6919	
8:13:00	55.0	5.4995	315877.7239	
8:14:00	54.5	5.4530	283810.2002	
8:15:00	64.2	6.4217	2640839.4558	
8:16:00	57.5	5.7469	558364.7588	
8:17:00	56.9	5.6937	493951.1490	
8:18:00	57.1	5.7124	515715.2809	
8:19:00	52.3	5.2321	170636.5257	
8:20:00	54.5	5.4468	279773.7732	
8:21:00	56.4	5.6394	435918.1984	
8:22:00	55.5	5.5524	356789.4466	
8:23:00	53.9	5.3926	246939.1791	
8:24:00	55.3	5.5347	342539.7686	
8:25:00	53.5	5.3486	223176.2624	
8:26:00	51.2	5.1172	130983.9250	
8:27:00	53.7	5.3669	232733.5532	
8:28:00	57.4	5.7390	548304.7396	
8:29:00	53.2	5.3245	211091.1374	
8:30:00	56.5	5.6469	443512.6383	
8:31:00	59.5	5.9516	894443.6805	
8:32:00	52.9	5.2869	193601.6258	
8:33:00	53.3	5.3262	211947.3544	
8:34:00	51.3	5.1286	134476.0673	
8:35:00	50.5	5.0463	111246.6649	
8:36:00	53.1	5.3091	203769.4156	
8:37:00	58.5	5.8485	705547.0819	
8:38:00	51.9	5.1885	154340.8899	
8:39:00	52.6	5.2596	181800.0507	
8:40:00	56.5	5.6490	445687.0343	
8:41:00	50.6	5.0598	114770.4277	
8:42:00	53.9	5.3944	247981.3386	
8:43:00	54.1	5.4085	256142.1202	
8:44:00	53.6	5.3586	228339.4760	
8:45:00	48.0	4.8047	63778.4558	
8:46:00	51.1	5.1050	127361.4515	
8:47:00	56.5	5.6536	450349.8267	
8:48:00	59.7	5.9729	939446.3859	
8:49:00	53.2	5.3242	210980.3459	
8:50:00	49.4	4.9373	86553.1743	
8:51:00	59.8	5.9844	964730.4800	
8:52:00	49.5	4.9487	88851.5483	
8:53:00	49.3	4.9347	86033.7791	
8:54:00	54.9	5.4896	308736.5167	
8:55:00	50.5	5.0474	111543.4313	
8:56:00	61.6	6.1571	1435942.3359	
8:57:00	58.9	5.8916	779113.9851	
8:58:00	58.6	5.8563	718306.8367	
8:59:00	55.3	5.5286	337752.8326	
			28558532.4033	475975.5

NM1			**58.01**	
9:00 AM-10:00 AM				
9:00:00	52.6	5.2642	183718.9692	
9:01:00	48.5	4.8506	70893.4318	
9:02:00	52.5	5.2513	178375.8271	
9:03:00	59.8	5.9812	957597.4921	
9:04:00	70.1	7.0150	10350253.8162	
9:05:00	56.0	5.5980	396248.8365	
9:06:00	65.8	6.5778	3782796.6869	
9:07:00	57.0	5.7027	504293.0699	
9:08:00	56.6	5.6596	456692.6267	
9:09:00	56.9	5.6937	493962.5228	
9:10:00	66.6	6.6632	4604844.8267	
9:11:00	48.5	4.8488	70604.9256	
9:12:00	56.5	5.6536	450423.4575	
9:13:00	49.8	4.9787	95216.8917	
9:14:00	50.2	5.0179	104215.1841	
9:15:00	57.6	5.7571	571578.6522	
9:16:00	53.0	5.2958	197623.6881	
9:17:00	47.9	4.7872	61268.0418	
9:18:00	50.0	5.0040	100932.9577	
9:19:00	54.2	5.4159	260577.5521	
9:20:00	58.2	5.8221	663905.0926	
9:21:00	55.6	5.5614	364259.5947	
9:22:00	51.4	5.1378	137343.7813	
9:23:00	56.8	5.6836	482589.6462	
9:24:00	55.5	5.5542	358225.0896	
9:25:00	48.9	4.8883	77319.1374	
9:26:00	51.1	5.1098	128764.1603	
9:27:00	63.3	6.3303	2139301.5213	
9:28:00	52.4	5.2403	173897.3645	
9:29:00	51.6	5.1628	145490.9568	
9:30:00	56.8	5.6770	475312.2420	
9:31:00	52.1	5.2111	162581.4528	
9:32:00	56.2	5.6190	415954.6656	
9:33:00	55.0	5.4973	314245.4513	
9:34:00	51.6	5.1595	144363.3661	
9:35:00	55.8	5.5760	376700.3294	
9:36:00	51.0	5.0960	124731.4583	
9:37:00	55.1	5.5106	324066.3965	
9:38:00	55.7	5.5667	368738.9375	
9:39:00	54.7	5.4682	293888.0992	
9:40:00	58.4	5.8411	693662.1537	
9:41:00	59.8	5.9839	963576.0568	
9:42:00	50.8	5.0779	119642.0925	
9:43:00	51.9	5.1913	155335.9579	
9:44:00	55.7	5.5680	369829.0313	
9:45:00	56.9	5.6872	486592.0398	
9:46:00	55.5	5.5461	351678.6471	
9:47:00	49.2	4.9192	83031.3310	
9:48:00	50.9	5.0871	122201.9117	
9:49:00	49.7	4.9714	93623.9586	
9:50:00	50.2	5.0162	103809.9543	
9:51:00	50.4	5.0417	110066.4603	
9:52:00	58.6	5.8594	723515.7673	
9:53:00	57.2	5.7198	524518.7288	
9:54:00	54.0	5.3959	248851.9224	
9:55:00	49.3	4.9262	84369.6019	
9:56:00	51.8	5.1797	151250.2148	
9:57:00	54.2	5.4232	264965.2986	
9:58:00	55.0	5.4977	314558.1920	
9:59:00	56.0	5.5985	396754.6268	
			37925632.1482	632093.9

NM1			**56.96**	
10:00 AM-11:00 AM				
10:00:00	55.9	5.5854	384978.9645	
10:01:00	54.7	5.4660	292387.6333	
10:02:00	55.8	5.5842	383848.6345	
10:03:00	47.9	4.7944	62294.2555	
10:04:00	52.8	5.2777	189530.0163	
10:05:00	51.8	5.1772	150374.0858	
10:06:00	48.2	4.8187	65873.6913	
10:07:00	58.0	5.8003	631451.5011	
10:08:00	52.3	5.2313	170350.7304	
10:09:00	56.3	5.6330	429526.5364	
10:10:00	50.8	5.0841	121379.1243	
10:11:00	46.7	4.6722	47007.2668	
10:12:00	54.7	5.4733	297363.7329	
10:13:00	54.2	5.4229	264807.9383	
10:14:00	46.3	4.6289	42551.8063	
10:15:00	51.4	5.1402	138111.8682	
10:16:00	48.6	4.8629	72935.0021	
10:17:00	54.1	5.4075	255573.6056	
10:18:00	57.3	5.7291	535966.9376	
10:19:00	56.1	5.6085	406012.1218	
10:20:00	54.4	5.4400	275423.5045	
10:21:00	52.5	5.2525	178836.4334	
10:22:00	49.9	4.9851	96632.4521	
10:23:00	56.7	5.6704	468133.8011	
10:24:00	50.9	5.0901	123050.1082	
10:25:00	50.5	5.0453	110991.5714	
10:26:00	55.8	5.5796	379800.9092	
10:27:00	58.2	5.8187	658676.2435	
10:28:00	54.2	5.4224	264510.5509	
10:29:00	59.0	5.8990	792421.0433	
10:30:00	49.2	4.9152	82255.5101	
10:31:00	58.7	5.8715	743866.4988	
10:32:00	58.4	5.8416	694426.0433	
10:33:00	57.6	5.7572	571751.0884	
10:34:00	50.4	5.0362	108685.8484	
10:35:00	52.5	5.2460	176184.2167	
10:36:00	49.4	4.9438	87862.9944	
10:37:00	53.1	5.3136	205875.6579	
10:38:00	52.0	5.1956	156881.2352	
10:39:00	47.8	4.7778	59950.5263	
10:40:00	55.4	5.5426	348849.4158	
10:41:00	56.8	5.6801	478706.1423	
10:42:00	70.1	7.0147	10344607.0925	
10:43:00	57.2	5.7185	522959.4317	
10:44:00	53.6	5.3633	230826.1458	
10:45:00	57.1	5.7094	512208.7580	
10:46:00	62.5	6.2547	1797583.1977	
10:47:00	55.9	5.5938	392502.1138	
10:48:00	59.7	5.9662	925038.9081	
10:49:00	54.3	5.4311	269847.2521	
10:50:00	56.4	5.6356	432139.5347	
10:51:00	48.3	4.8305	67689.9199	
10:52:00	53.5	5.3468	222217.3683	
10:53:00	58.6	5.8643	731561.7666	
10:54:00	56.2	5.6205	417368.8186	
10:55:00	54.9	5.4924	310712.6965	
10:56:00	53.1	5.3137	205903.1544	
10:57:00	50.3	5.0328	107852.4463	
10:58:00	53.2	5.3198	208810.3397	
10:59:00	49.4	4.9371	86507.5475	
			29792433.7405	496540.6

NM1			**59.29**	
11:00 AM-12:00 PM				
11:00:00	53.1	5.3083	203358.8138	
11:01:00	52.9	5.2864	193390.4393	
11:02:00	57.5	5.7513	563999.8650	
11:03:00	57.1	5.7072	509613.5889	
11:04:00	53.5	5.3518	224788.4538	
11:05:00	54.4	5.4409	276010.1162	
11:06:00	51.1	5.1141	130053.4867	
11:07:00	54.2	5.4207	263443.2042	
11:08:00	48.4	4.8429	69643.4056	
11:09:00	53.2	5.3220	209902.6879	
11:10:00	56.7	5.6737	471767.4793	
11:11:00	51.9	5.1887	154409.8496	
11:12:00	53.7	5.3683	233512.9659	
11:13:00	58.8	5.8834	764469.2130	
11:14:00	52.9	5.2925	196114.6332	
11:15:00	62.5	6.2473	1767095.4148	
11:16:00	55.2	5.5179	329546.7250	
11:17:00	55.2	5.5203	331388.1694	
11:18:00	56.3	5.6290	425611.1530	
11:19:00	56.3	5.6303	426918.5247	
11:20:00	60.3	6.0293	1069741.8834	
11:21:00	66.4	6.6356	4321156.5447	
11:22:00	59.2	5.9170	826026.5375	
11:23:00	60.7	6.0679	1169251.6730	
11:24:00	54.5	5.4511	282545.8937	
11:25:00	59.2	5.9161	824278.5529	
11:26:00	59.0	5.9036	800936.3421	
11:27:00	59.7	5.9685	929991.5446	
11:28:00	58.8	5.8763	752195.9660	
11:29:00	57.9	5.7924	619979.0296	
11:30:00	62.4	6.2450	1757826.4702	
11:31:00	60.6	6.0563	1138481.5581	
11:32:00	60.6	6.0643	1159658.1913	
11:33:00	61.2	6.1244	1331766.2356	
11:34:00	59.5	5.9492	889668.0616	
11:35:00	60.3	6.0271	1064388.0744	
11:36:00	60.1	6.0128	1029826.3503	
11:37:00	59.8	5.9781	950764.5930	
11:38:00	63.0	6.3047	2017139.8070	
11:39:00	60.4	6.0447	1108477.8007	
11:40:00	59.8	5.9773	949161.2509	
11:41:00	63.0	6.3014	2001847.5460	
11:42:00	60.8	6.0846	1215035.5923	
11:43:00	61.4	6.1376	1372701.1578	
11:44:00	60.0	5.9983	996035.9185	
11:45:00	57.6	5.7624	578656.7187	
11:46:00	59.4	5.9384	867774.7318	
11:47:00	59.6	5.9601	912180.9538	
11:48:00	61.6	6.1588	1441584.1545	
11:49:00	56.7	5.6745	472577.4559	
11:50:00	59.2	5.9227	836854.5852	
11:51:00	58.1	5.8050	638317.8658	
11:52:00	59.2	5.9177	827383.7748	
11:53:00	58.4	5.8430	696655.3875	
11:54:00	60.7	6.0667	1165968.9897	
11:55:00	58.7	5.8700	741248.7944	
11:56:00	59.8	5.9754	944848.1129	
11:57:00	59.1	5.9137	819775.6232	
11:58:00	60.1	6.0070	1016236.9929	
11:59:00	58.6	5.8604	725066.7671	
			51009051.6728	850150.9

NM1
CNEL

Hr Start	Hr End	Hourly Leq
7:00 AM	8:00 AM	59.12
8:00 AM	9:00 AM	56.78
9:00 AM	10:00 AM	58.00
10:00 AM	11:00 AM	56.96
11:00 AM	12:00 PM	59.29
12:00 PM	1:00 PM	59.42
1:00 PM	2:00 PM	59.64
2:00 PM	3:00 PM	58.01
3:00 PM	4:00 PM	58.68
4:00 PM	5:00 PM	57.65
5:00 PM	6:00 PM	62.84
6:00 PM	7:00 PM	60.75
7:00 PM	8:00 PM	61.69
8:00 PM	9:00 PM	62.44
9:00 PM	10:00 PM	61.49
10:00 PM	11:00 PM	59.19
11:00 PM	12:00 AM	62.46
12:00 AM	1:00 AM	61.41
1:00 AM	2:00 AM	60.54
2:00 AM	3:00 AM	52.64
3:00 AM	4:00 AM	56.97
4:00 AM	5:00 AM	60.02
5:00 AM	6:00 AM	62.27
6:00 AM	7:00 AM	60.12

The Daytime Average is:

LD = 59.26

The Evening Average is:

LE = 61.89

The Nighttime Average is:

LN = 60.24

CNEL = 67.0 dBA

Noise Measurement
Field Data

Project Name:	**Banning Distribution Facility, City of Banning.**	Date:	**8th to 9th Feb 2018**
Project #:	**6750a**		
Noise Measurement #:	**NM2** **3099 LxT_Data108.xlsx**	Technician:	**Ian Edward Gallagher**
Nearest Address or Cross Street:	**Hargrave Street & Lincolm Street**		
Site Description (Type of Existing Land Use and any other notable features)	**Banning Distribution Facility, Buildings, open storage areas, parking lot. Train tracks 200' North of NM2. 10 FWY 500' North of NM2**		
Weather:	**Blue sunny skies. Slight distant haze near horizon, some high cloud. Clear skies at night.**	**Settings:**	**SLOW** **FAST** (Circle one)
Temperature: 73 - 47 deg F	**Wind: 5 - 11mph** **Humidity: 13 - 22%**		**Flat**
Start Time:	**1:00 PM 8th Feb 2018** **End Time:** **1:00 PM 9th Feb 2018**	**Run Time:**	**24 Hours , 1440 x 1minute**

Leq:	72.2 **dB**	**Primary Noise Source:**	**Vehicles passing by along South Hargrave Street.**
Lmax	103.4 **dB**		**Train horn.**
L2	75.1 **dB**	**Secondary Noise Sources:**	**Active train tracks ~ 200 feet North of NM2 running East - West**
L8	69.0 **dB**		**10 Freeway ~ 500 feet North of NM2 running East - West**
L25	66.1 **dB**		**Bird song by day, noise from wild life. Wind blowing causing leaf rustle .**
L50	63.9 **dB**		**Aircraft flying overhead and occasional plane landing at Banning airport.**

NOISE METER:	SoundTrack LxT Class 1 ;	**CALIBRATOR:**	Larson Davis CAL250 Acoustic Calibrator
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LxT1	**MODEL:**	Cal250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	6/23/2017	**FACTORY CALIBRATION DATE:**	6/9/2017
FIELD CALIBRATION DATE:	2/8/2018		

Additional Notes/Sketch



NM2 location inside large fallen tree



Looking North fom NM2 towards train tracks and beyond towards 10 Freeway

Summary	
File Name	LxT_Data.108
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN6750a NM2 S. Hargrave St Banning
Job Description	24 Hour noise sample
Measurement Description	1440 x 1 minute
Start	2018-02-08 13:00:00
Stop	2018-02-09 13:00:00
Duration	0:00:00.0
Run Time	0:00:00.0
Pause	0:00:00.0
Pre Calibration	2018-02-08 11:30:31
Post Calibration	None
Calibration Deviation	---

Overall Settings		
RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRMLxT1L	
Microphone Correction	Off	
Integration Method	Linear	
OBA Range	High	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	A Weighting	
OBA Max Spectrum	Bin Max	
Overload	122.3	dB
Results		
LAeq	72.2	dB
LAE	121.6	dB
EA	159.209	mPa²h
EA8	53.070	mPa²h
EA40	265.349	mPa²h
LApeak (max)	2018-02-08 20:27:44	117.3 dB
LASmax	2018-02-08 20:27:45	103.4 dB
LASmin	2018-02-09 0:15:13	47.6 dB
SEA	-99.9	dB

			Statistics	
LCeq	78.8	dB	**LAS2.00**	75.1 dB
LAeq	72.2	dB	**LAS8.00**	69.0 dB
LCeq - LAeq	6.6	dB	**LAS25.00**	66.1 dB
LAIeq	74.5	dB	**LAS50.00**	63.9 dB
LAeq	72.2	dB	**LAS90.00**	59.5 dB
LAIeq - LAeq	2.3	dB	**LAS99.00**	55.8 dB
# Overloads	0			

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmax	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2018-02-08	13:00:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	63.4	70.7	70.4	68.6	67.5	66.3	64.0	63.4
2	2018-02-08	13:01:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	62.3	70.7	70.2	68.5	66.4	65.5	62.9	62.4
3	2018-02-08	13:02:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	64.6	69.6	69.4	68.7	67.6	66.7	65.6	64.6
4	2018-02-08	13:03:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	60.9	71.5	71.0	68.8	67.2	64.7	62.2	61.0
5	2018-02-08	13:04:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	62.8	70.3	69.7	68.4	67.0	66.2	64.6	63.1
6	2018-02-08	13:05:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	62.6	70.1	69.7	69.0	68.2	67.5	64.2	62.7
7	2018-02-08	13:06:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	64.0	69.7	69.4	68.5	67.1	66.4	64.8	64.2
8	2018-02-08	13:07:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	61.3	69.4	69.0	68.1	66.5	65.0	63.1	61.4
9	2018-02-08	13:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.1	70.3	69.7	66.9	65.2	63.8	60.9	60.2
10	2018-02-08	13:09:00	0:01:00.0	0:01:00.0	0:00:00.0	68.7	61.6	77.5	76.5	73.4	68.3	66.1	63.4	61.8
11	2018-02-08	13:10:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	61.8	70.4	70.3	67.9	66.0	65.0	62.8	61.9
12	2018-02-08	13:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	62.0	72.1	71.8	68.7	66.2	64.6	63.2	62.1
13	2018-02-08	13:12:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.0	70.0	69.2	65.8	64.1	63.4	61.6	61.0
14	2018-02-08	13:13:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.4	68.3	68.0	66.6	65.8	64.3	60.8	59.5
15	2018-02-08	13:14:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	64.5	70.3	69.8	69.3	67.9	66.5	64.9	64.5
16	2018-02-08	13:15:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	60.3	68.7	68.5	68.0	67.0	65.1	62.0	60.4
17	2018-02-08	13:16:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	61.0	69.3	68.9	67.6	66.1	65.0	62.7	61.3
18	2018-02-08	13:17:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	59.7	68.1	67.8	66.9	65.6	63.3	60.6	60.0
19	2018-02-08	13:18:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.4	73.0	72.0	67.1	65.6	64.3	61.2	60.6
20	2018-02-08	13:19:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.8	70.8	69.7	67.9	65.6	63.6	60.6	59.9
21	2018-02-08	13:20:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	61.2	76.1	75.2	73.6	68.2	65.8	62.9	61.3
22	2018-02-08	13:21:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	59.7	74.6	73.6	68.2	64.4	62.7	60.8	59.8
23	2018-02-08	13:22:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	59.4	73.6	72.8	67.3	63.9	62.0	60.1	59.5
24	2018-02-08	13:23:00	0:01:00.0	0:01:00.0	0:00:00.0	70.7	62.1	83.1	82.1	73.1	67.2	65.3	63.3	62.2
25	2018-02-08	13:24:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	62.6	73.3	71.9	70.4	68.2	65.8	63.2	62.7
26	2018-02-08	13:25:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	58.5	73.5	73.4	71.6	66.8	64.5	60.0	58.5
27	2018-02-08	13:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	61.8	69.7	68.8	66.8	65.2	63.9	62.3	61.9
28	2018-02-08	13:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.4	71.2	70.9	69.1	66.3	65.0	62.9	62.5
29	2018-02-08	13:28:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	61.6	68.9	68.6	67.4	65.0	63.7	62.2	61.7
30	2018-02-08	13:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.7	67.6	67.3	66.7	65.3	62.9	61.7	60.8
31	2018-02-08	13:30:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	60.5	66.8	66.4	66.0	65.0	63.7	61.1	60.6
32	2018-02-08	13:31:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.4	66.7	66.4	65.4	64.3	63.1	60.2	59.4
33	2018-02-08	13:32:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	61.4	71.3	70.7	69.1	66.9	65.0	62.6	61.5
34	2018-02-08	13:33:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.4	71.2	70.3	67.7	66.4	65.1	62.5	61.6
35	2018-02-08	13:34:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	60.4	71.2	70.3	68.4	66.7	64.6	61.6	60.4
36	2018-02-08	13:35:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	57.8	68.3	68.0	67.4	65.0	63.7	58.6	57.9
37	2018-02-08	13:36:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	63.2	70.8	70.4	68.3	66.9	66.4	64.9	63.4
38	2018-02-08	13:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	59.3	69.2	68.4	67.4	65.9	64.2	61.1	59.4
39	2018-02-08	13:38:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	61.2	77.8	77.0	72.0	66.1	64.6	62.5	61.4
40	2018-02-08	13:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	60.9	68.2	68.1	67.1	65.8	64.3	61.9	61.0
41	2018-02-08	13:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	61.6	68.2	67.7	66.8	65.4	63.9	62.3	61.8
42	2018-02-08	13:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.8	68.1	67.8	66.2	64.8	63.6	62.6	61.9
43	2018-02-08	13:42:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	63.4	71.0	68.7	67.8	66.0	65.0	64.1	63.5
44	2018-02-08	13:43:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	62.1	72.1	71.5	68.0	66.3	65.4	62.6	62.2
45	2018-02-08	13:44:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.0	69.5	68.9	66.8	65.3	63.5	60.0	59.1
46	2018-02-08	13:45:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	59.1	72.7	71.8	67.1	65.5	63.8	60.1	59.2
47	2018-02-08	13:46:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	59.7	67.5	67.3	66.7	64.9	63.8	60.3	59.8
48	2018-02-08	13:47:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	57.7	69.6	68.9	67.0	64.6	62.4	58.7	57.9
49	2018-02-08	13:48:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	59.5	72.4	71.9	68.5	65.5	64.0	60.2	59.7
50	2018-02-08	13:49:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.5	67.5	67.4	65.6	64.4	62.3	60.1	59.6
51	2018-02-08	13:50:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	60.4	66.6	66.4	65.9	64.5	63.2	61.6	60.6
52	2018-02-08	13:51:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	59.7	71.2	70.6	66.7	63.9	62.8	60.3	59.8
53	2018-02-08	13:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	60.1	71.0	70.6	67.5	65.3	64.0	61.0	60.2
54	2018-02-08	13:53:00	0:01:00.0	0:01:00.0	0:00:00.0	83.7	64.1	95.4	94.9	90.5	69.6	67.7	65.3	64.7
55	2018-02-08	13:54:00	0:01:00.0	0:01:00.0	0:00:00.0	69.0	65.4	73.1	72.8	71.6	70.2	68.1	66.2	65.5
56	2018-02-08	13:55:00	0:01:00.0	0:01:00.0	0:00:00.0	68.8	64.5	75.1	74.4	72.5	68.1	67.3	65.6	64.6
57	2018-02-08	13:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	59.6	72.2	71.8	69.7	65.7	62.5	60.7	59.8
58	2018-02-08	13:57:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	60.0	67.2	66.6	65.4	63.4	62.3	60.6	60.1
59	2018-02-08	13:58:00	0:01:00.0	0:01:00.0	0:00:00.0	86.0	62.2	97.3	96.7	91.3	82.4	74.6	63.6	62.3
60	2018-02-08	13:59:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	63.9	70.6	68.8	68.3	67.1	65.4	64.2	64.0
61	2018-02-08	14:00:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	63.0	72.0	69.3	67.3	66.4	65.2	63.3	63.0
62	2018-02-08	14:01:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	63.8	69.7	68.8	67.7	67.3	66.2	64.9	63.9
63	2018-02-08	14:02:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	61.5	74.0	73.3	71.5	66.6	65.1	62.6	61.8
64	2018-02-08	14:03:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	63.5	69.5	68.8	68.1	67.0	65.8	64.3	63.7
65	2018-02-08	14:04:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	60.2	68.2	67.9	67.1	66.3	64.7	61.1	60.3
66	2018-02-08	14:05:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	61.8	71.0	70.4	67.7	66.8	65.9	63.7	61.9
67	2018-02-08	14:06:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.2	67.8	67.6	67.2	65.5	64.4	62.3	61.3
68	2018-02-08	14:07:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	63.6	69.1	68.9	68.1	67.3	66.1	64.2	63.7
69	2018-02-08	14:08:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	61.4	69.2	68.4	68.1	67.1	66.1	62.7	61.6
70	2018-02-08	14:09:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	56.2	67.3	67.1	66.0	63.5	59.5	56.8	56.3
71	2018-02-08	14:10:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.8	69.4	69.0	68.1	66.3	64.5	62.9	61.0
72	2018-02-08	14:11:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	60.0	66.3	66.1	65.5	64.3	63.5	61.2	60.2
73	2018-02-08	14:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	61.1	70.8	70.4	68.5	66.5	65.2	62.4	61.2
74	2018-02-08	14:13:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.3	68.4	67.8	66.6	65.5	64.2	61.8	60.4
75	2018-02-08	14:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	59.4	66.5	66.3	65.5	64.6	63.2	60.4	59.5
76	2018-02-08	14:15:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	62.1	77.3	76.6	71.5	67.6	65.1	63.1	62.5

77	2018-02-08	14:16:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.6	67.7	67.5	67.1	65.7	64.8	63.2	62.8
78	2018-02-08	14:17:00	0:01:00.0	0:01:00.0	0:00:00.0	68.0	63.4	74.2	73.4	72.4	68.3	65.9	64.2	63.5
79	2018-02-08	14:18:00	0:01:00.0	0:01:00.0	0:00:00.0	82.7	63.8	95.0	94.5	87.3	78.7	68.8	64.6	63.9
80	2018-02-08	14:19:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	63.3	68.2	67.7	67.4	66.5	65.5	64.0	63.4
81	2018-02-08	14:20:00	0:01:00.0	0:01:00.0	0:00:00.0	68.5	65.3	73.5	73.0	71.3	68.6	67.9	65.9	65.4
82	2018-02-08	14:21:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	59.7	72.5	72.1	68.7	67.2	65.9	60.4	59.8
83	2018-02-08	14:22:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	62.1	72.8	72.5	68.6	67.2	66.4	63.3	62.3
84	2018-02-08	14:23:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.6	70.3	69.1	67.2	65.6	64.2	62.1	61.6
85	2018-02-08	14:24:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	61.7	76.6	76.4	71.6	68.2	65.6	62.5	61.9
86	2018-02-08	14:25:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	58.8	66.9	66.7	66.3	65.8	64.0	59.6	58.9
87	2018-02-08	14:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.4	70.3	69.8	68.1	65.1	63.1	60.9	60.5
88	2018-02-08	14:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	61.9	77.0	75.1	68.6	66.5	64.9	62.9	62.0
89	2018-02-08	14:28:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	61.9	74.1	73.3	68.2	65.1	64.2	62.7	62.1
90	2018-02-08	14:29:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	59.8	75.0	72.1	71.5	65.8	62.7	61.3	59.9
91	2018-02-08	14:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	56.4	75.5	74.9	66.8	64.9	62.4	59.1	56.6
92	2018-02-08	14:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.2	68.9	68.2	67.0	65.8	64.5	63.1	62.4
93	2018-02-08	14:32:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	61.8	69.2	69.0	68.5	67.2	65.9	63.0	62.0
94	2018-02-08	14:33:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	60.0	68.8	68.7	68.1	67.1	65.8	60.9	60.2
95	2018-02-08	14:34:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	59.9	72.6	72.0	68.3	67.1	65.3	61.2	60.0
96	2018-02-08	14:35:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	62.0	67.0	66.8	66.3	65.3	64.4	63.1	62.1
97	2018-02-08	14:36:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	59.9	71.0	70.4	69.1	66.5	64.1	61.0	60.1
98	2018-02-08	14:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	56.6	67.0	66.4	65.1	64.0	61.0	58.0	56.7
99	2018-02-08	14:38:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.2	69.9	69.3	68.1	65.9	64.5	62.3	61.4
100	2018-02-08	14:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	59.9	70.2	69.4	68.5	66.0	63.8	61.1	60.1
101	2018-02-08	14:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	60.6	68.7	68.1	66.6	65.0	63.4	61.6	60.7
102	2018-02-08	14:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	62.2	66.8	66.6	65.9	65.2	63.9	62.8	62.3
103	2018-02-08	14:42:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	60.1	70.3	69.9	67.6	63.2	62.3	60.6	60.1
104	2018-02-08	14:43:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	61.7	72.7	72.0	69.8	66.4	64.7	63.3	62.0
105	2018-02-08	14:44:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	62.5	70.4	70.1	68.3	67.1	66.1	63.4	62.7
106	2018-02-08	14:45:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.0	73.2	72.3	69.3	66.0	64.5	63.6	62.8
107	2018-02-08	14:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	59.4	74.7	74.2	68.5	64.5	62.8	60.8	59.5
108	2018-02-08	14:47:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	60.9	74.8	74.1	69.6	67.4	65.4	62.0	61.1
109	2018-02-08	14:48:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	61.0	68.2	67.7	65.4	64.1	62.9	61.7	61.1
110	2018-02-08	14:49:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	58.2	69.4	69.1	67.6	66.0	63.8	59.7	58.3
111	2018-02-08	14:50:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.5	68.5	68.3	67.4	66.8	65.5	61.5	60.6
112	2018-02-08	14:51:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	60.7	66.8	66.4	65.6	64.9	64.1	62.4	60.9
113	2018-02-08	14:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.1	70.9	70.2	66.2	65.1	64.2	61.7	60.3
114	2018-02-08	14:53:00	0:01:00.0	0:01:00.0	0:00:00.0	75.1	58.7	87.8	86.5	79.7	70.0	65.4	59.7	58.8
115	2018-02-08	14:54:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.0	73.1	72.5	68.4	66.1	62.8	60.6	60.2
116	2018-02-08	14:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.8	68.5	67.3	66.7	65.9	64.9	61.6	61.0
117	2018-02-08	14:56:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	61.4	72.5	70.5	69.8	67.3	65.1	63.1	61.4
118	2018-02-08	14:57:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	60.7	69.1	68.9	68.1	65.9	64.9	61.4	60.8
119	2018-02-08	14:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	58.3	67.7	67.0	66.2	65.1	63.5	59.9	58.5
120	2018-02-08	14:59:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	59.1	69.5	69.0	67.1	65.6	64.1	60.3	59.2
121	2018-02-08	15:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.8	69.1	68.8	66.3	65.8	64.0	61.6	60.9
122	2018-02-08	15:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.4	67.8	67.6	66.7	64.4	63.7	61.7	60.5
123	2018-02-08	15:02:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	59.9	71.9	71.2	68.4	66.2	64.5	62.2	60.2
124	2018-02-08	15:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.8	67.5	67.2	65.8	64.8	63.9	62.4	61.9
125	2018-02-08	15:04:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.3	69.0	68.7	67.9	66.0	64.9	62.5	61.5
126	2018-02-08	15:05:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	59.4	70.0	69.3	67.8	66.0	64.4	60.7	59.5
127	2018-02-08	15:06:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	61.1	69.0	68.7	67.8	66.8	65.6	62.4	61.2
128	2018-02-08	15:07:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.4	68.3	67.2	66.1	64.8	63.8	61.3	60.6
129	2018-02-08	15:08:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.6	67.0	66.8	65.8	64.4	63.1	59.7	58.7
130	2018-02-08	15:09:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	60.7	74.5	73.2	69.3	66.3	64.1	62.4	60.7
131	2018-02-08	15:10:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	59.9	76.0	75.6	70.1	66.2	65.1	60.8	60.0
132	2018-02-08	15:11:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.2	67.0	66.7	66.0	63.7	62.0	58.2	57.3
133	2018-02-08	15:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	57.0	72.6	71.9	68.0	66.6	64.4	58.8	57.1
134	2018-02-08	15:13:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	61.1	73.6	72.7	71.3	66.9	65.0	62.1	61.2
135	2018-02-08	15:14:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	61.0	67.0	66.9	66.6	66.0	65.3	63.1	61.1
136	2018-02-08	15:15:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	60.0	71.3	71.0	68.3	66.4	65.2	62.6	60.1
137	2018-02-08	15:16:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.6	69.5	69.3	68.4	67.4	65.7	63.6	62.8
138	2018-02-08	15:17:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.9	67.7	67.4	66.9	66.3	65.7	64.0	63.1
139	2018-02-08	15:18:00	0:01:00.0	0:01:00.0	0:00:00.0	78.8	63.5	92.8	89.3	84.4	73.5	66.2	64.3	63.6
140	2018-02-08	15:19:00	0:01:00.0	0:01:00.0	0:00:00.0	88.7	63.2	100.8	100.4	94.1	81.7	65.1	63.6	63.4
141	2018-02-08	15:20:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	62.2	64.4	64.2	63.8	63.5	63.0	62.5	62.3
142	2018-02-08	15:21:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	62.1	64.7	64.5	64.3	64.1	63.8	62.7	62.2
143	2018-02-08	15:22:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	60.8	64.7	64.2	63.8	63.3	62.8	61.3	60.8
144	2018-02-08	15:23:00	0:01:00.0	0:01:00.0	0:00:00.0	68.2	61.4	81.9	77.7	70.6	67.2	64.4	62.9	61.5
145	2018-02-08	15:24:00	0:01:00.0	0:01:00.0	0:00:00.0	72.6	62.8	77.8	77.7	77.3	74.3	69.0	65.0	63.0
146	2018-02-08	15:25:00	0:01:00.0	0:01:00.0	0:00:00.0	71.2	64.2	82.0	81.5	77.0	67.4	66.3	64.7	64.3
147	2018-02-08	15:26:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	63.5	68.1	67.9	67.4	65.7	65.1	64.0	63.6
148	2018-02-08	15:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	60.4	73.0	72.6	71.6	65.9	64.4	61.0	60.6
149	2018-02-08	15:28:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	62.0	70.7	68.9	67.6	65.7	64.5	62.8	62.1
150	2018-02-08	15:29:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	62.0	71.6	70.9	68.7	66.4	64.6	62.8	62.1
151	2018-02-08	15:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	59.8	69.5	67.4	66.9	65.7	64.8	60.6	59.9
152	2018-02-08	15:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.8	69.0	68.8	67.7	65.9	64.5	62.3	61.9
153	2018-02-08	15:32:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	63.2	68.6	68.1	66.9	65.8	65.0	64.1	63.3

154	2018-02-08	15:33:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	59.9	69.1	68.4	67.4	66.0	64.9	60.7	60.1
155	2018-02-08	15:34:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.9	69.8	69.1	67.6	66.1	65.1	63.3	63.0
156	2018-02-08	15:35:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	59.9	68.9	68.3	67.1	65.4	64.2	61.1	60.0
157	2018-02-08	15:36:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	59.5	67.8	67.1	65.8	64.3	62.9	60.6	59.8
158	2018-02-08	15:37:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	62.6	68.5	68.4	67.5	66.6	65.5	63.3	62.7
159	2018-02-08	15:38:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.1	68.1	67.8	66.9	65.6	64.6	62.0	61.3
160	2018-02-08	15:39:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	59.4	77.4	77.1	73.4	65.6	64.6	60.8	59.7
161	2018-02-08	15:40:00	0:01:00.0	0:01:00.0	0:00:00.0	68.2	59.6	78.4	76.8	72.1	66.2	63.9	60.6	59.7
162	2018-02-08	15:41:00	0:01:00.0	0:01:00.0	0:00:00.0	83.8	64.4	94.1	93.8	89.5	81.8	75.6	66.4	64.5
163	2018-02-08	15:42:00	0:01:00.0	0:01:00.0	0:00:00.0	70.8	62.9	77.7	77.5	77.1	69.1	65.2	63.6	63.0
164	2018-02-08	15:43:00	0:01:00.0	0:01:00.0	0:00:00.0	72.1	62.6	79.5	79.0	78.4	70.9	67.2	64.3	62.7
165	2018-02-08	15:44:00	0:01:00.0	0:01:00.0	0:00:00.0	69.6	60.1	76.2	75.8	74.8	69.7	66.6	62.3	60.2
166	2018-02-08	15:45:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	59.3	69.1	68.6	67.0	65.5	64.4	61.3	59.5
167	2018-02-08	15:46:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	59.6	75.1	73.7	70.4	66.6	65.4	62.5	59.9
168	2018-02-08	15:47:00	0:01:00.0	0:01:00.0	0:00:00.0	68.8	60.5	78.9	78.1	73.2	67.8	65.3	61.6	60.6
169	2018-02-08	15:48:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.0	68.5	68.1	67.0	65.8	64.7	61.9	61.1
170	2018-02-08	15:49:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	60.3	71.6	71.0	67.6	65.0	63.8	61.7	60.4
171	2018-02-08	15:50:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	61.7	68.1	67.7	66.8	65.4	63.9	62.5	61.8
172	2018-02-08	15:51:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.0	67.4	66.9	66.2	64.3	62.6	60.5	59.1
173	2018-02-08	15:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	59.6	69.3	68.5	67.1	65.2	63.2	60.7	59.6
174	2018-02-08	15:53:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	58.1	69.0	68.7	66.7	63.8	62.9	59.2	58.2
175	2018-02-08	15:54:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	61.5	76.1	74.9	70.0	67.7	66.2	62.9	61.6
176	2018-02-08	15:55:00	0:01:00.0	0:01:00.0	0:00:00.0	69.7	64.3	76.8	76.5	75.3	69.6	66.3	64.8	64.3
177	2018-02-08	15:56:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.5	67.6	66.9	65.8	65.1	64.4	62.3	59.6
178	2018-02-08	15:57:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	58.5	70.1	69.8	68.9	65.9	63.3	59.8	58.6
179	2018-02-08	15:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	59.0	68.7	68.2	66.2	64.9	63.4	59.7	59.1
180	2018-02-08	15:59:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	60.4	72.1	71.5	69.6	67.1	65.4	61.8	60.7
181	2018-02-08	16:00:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	58.3	66.5	65.9	65.1	63.7	62.7	59.1	58.5
182	2018-02-08	16:01:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	60.0	68.2	67.9	67.3	66.2	64.5	62.2	60.1
183	2018-02-08	16:02:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.4	69.4	68.9	67.1	64.9	63.3	60.9	60.5
184	2018-02-08	16:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.9	68.0	67.6	66.6	65.8	64.9	62.2	61.9
185	2018-02-08	16:04:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.5	68.5	68.3	67.6	66.3	65.4	62.8	60.5
186	2018-02-08	16:05:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.9	69.2	69.0	68.4	67.2	65.4	63.5	63.1
187	2018-02-08	16:06:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	59.6	67.8	67.2	65.2	64.0	62.7	60.2	59.7
188	2018-02-08	16:07:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	59.5	74.8	73.4	68.1	66.4	65.3	61.9	59.6
189	2018-02-08	16:08:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	63.5	69.0	68.8	68.1	67.0	65.5	63.8	63.6
190	2018-02-08	16:09:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.6	67.8	67.3	67.1	64.3	63.2	61.1	60.7
191	2018-02-08	16:10:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	59.4	72.9	72.7	70.8	66.3	64.5	61.7	59.6
192	2018-02-08	16:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	58.9	71.1	70.1	67.9	66.3	64.9	61.1	59.0
193	2018-02-08	16:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	60.7	70.1	69.5	68.1	66.8	65.2	62.5	61.2
194	2018-02-08	16:13:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	61.3	74.9	74.4	70.0	65.7	64.5	62.4	61.4
195	2018-02-08	16:14:00	0:01:00.0	0:01:00.0	0:00:00.0	84.7	64.6	97.6	95.8	90.9	74.7	68.7	65.1	64.7
196	2018-02-08	16:15:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	65.0	69.8	69.5	67.6	66.3	65.9	65.6	65.1
197	2018-02-08	16:16:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	64.6	68.2	68.0	67.8	67.1	66.2	65.2	64.8
198	2018-02-08	16:17:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	63.2	72.6	71.6	70.1	65.2	64.6	63.8	63.3
199	2018-02-08	16:18:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	60.1	73.7	72.8	68.0	66.1	65.2	63.0	60.2
200	2018-02-08	16:19:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	59.6	72.1	70.8	68.2	66.4	64.2	60.5	59.9
201	2018-02-08	16:20:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	60.4	70.5	70.0	68.5	65.9	63.9	61.2	60.6
202	2018-02-08	16:21:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	60.9	74.2	73.6	68.3	65.6	64.5	61.7	61.1
203	2018-02-08	16:22:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	58.9	69.8	69.6	69.0	66.5	64.3	60.1	59.0
204	2018-02-08	16:23:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	60.9	70.2	69.7	66.9	65.7	64.5	62.3	61.1
205	2018-02-08	16:24:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	57.6	69.0	68.3	66.6	64.9	64.1	59.1	57.8
206	2018-02-08	16:25:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	59.6	68.9	68.6	68.1	66.8	65.9	61.0	59.7
207	2018-02-08	16:26:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	61.1	69.4	69.1	68.1	66.5	64.0	62.0	61.2
208	2018-02-08	16:27:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	58.3	67.3	67.0	65.4	64.3	63.1	59.4	58.4
209	2018-02-08	16:28:00	0:01:00.0	0:01:00.0	0:00:00.0	69.2	60.5	81.1	79.8	72.2	66.1	65.3	62.2	60.7
210	2018-02-08	16:29:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	60.4	69.2	68.7	66.9	63.9	62.0	60.9	60.4
211	2018-02-08	16:30:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	59.5	69.8	69.4	67.4	63.4	62.0	60.1	59.6
212	2018-02-08	16:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	60.7	70.2	69.8	68.0	65.8	64.0	61.4	60.9
213	2018-02-08	16:32:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.3	68.7	68.1	67.5	66.6	64.4	62.2	61.4
214	2018-02-08	16:33:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.0	68.8	68.4	67.0	65.2	63.5	60.7	60.1
215	2018-02-08	16:34:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	62.5	79.6	78.3	71.4	67.1	65.3	63.6	62.5
216	2018-02-08	16:35:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	60.1	69.0	68.5	65.5	64.4	62.9	61.5	60.2
217	2018-02-08	16:36:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	61.8	67.7	67.3	66.4	64.2	63.5	62.2	61.9
218	2018-02-08	16:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.7	67.5	67.0	64.9	63.7	61.9	60.8	59.8
219	2018-02-08	16:38:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	60.3	69.2	69.0	67.2	64.8	63.4	61.2	60.3
220	2018-02-08	16:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.5	66.7	66.6	66.1	65.4	63.6	62.3	61.8
221	2018-02-08	16:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	57.8	70.7	70.1	66.2	64.5	63.2	59.4	58.0
222	2018-02-08	16:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.5	69.8	69.3	67.3	65.5	63.1	60.2	59.6
223	2018-02-08	16:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	62.1	66.4	66.2	65.2	64.6	64.2	63.3	62.3
224	2018-02-08	16:43:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	60.9	70.5	70.3	67.9	66.6	65.8	62.3	61.1
225	2018-02-08	16:44:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	56.3	72.8	71.8	68.3	65.1	63.5	58.1	56.4
226	2018-02-08	16:45:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	61.2	69.0	68.6	68.0	66.6	65.6	62.8	61.3
227	2018-02-08	16:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	60.4	70.3	69.8	68.3	66.8	65.6	62.6	60.6
228	2018-02-08	16:47:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.5	70.2	69.8	67.5	65.1	63.6	61.9	60.7
229	2018-02-08	16:48:00	0:01:00.0	0:01:00.0	0:00:00.0	72.3	60.3	84.7	83.7	67.8	65.2	63.9	61.1	60.5
230	2018-02-08	16:49:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	57.5	84.0	80.3	69.5	66.1	63.4	60.0	57.6

231	2018-02-08	16:50:00	0:01:00.0	0:01:00.0	0:00:00.0	83.2	64.2	96.5	95.5	86.4	72.1	70.1	65.6	64.3
232	2018-02-08	16:51:00	0:01:00.0	0:01:00.0	0:00:00.0	70.2	67.4	74.3	74.1	73.4	70.4	69.7	68.1	67.5
233	2018-02-08	16:52:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	60.0	71.3	71.1	69.7	69.0	68.0	60.9	60.1
234	2018-02-08	16:53:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	63.1	69.7	69.3	68.4	66.9	66.0	64.0	63.3
235	2018-02-08	16:54:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	59.4	68.7	68.2	67.2	65.6	64.2	61.7	59.5
236	2018-02-08	16:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.2	69.1	68.8	67.6	65.7	64.3	61.9	61.3
237	2018-02-08	16:56:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.5	68.9	68.4	66.4	65.1	63.8	61.7	60.6
238	2018-02-08	16:57:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	58.5	71.1	70.1	68.2	65.8	63.8	60.4	58.5
239	2018-02-08	16:58:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	60.6	74.9	74.4	72.0	66.6	64.7	62.0	60.7
240	2018-02-08	16:59:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.6	68.4	68.0	67.0	65.2	64.3	62.1	61.7
241	2018-02-08	17:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.5	69.5	69.0	67.4	65.5	64.6	62.0	61.6
242	2018-02-08	17:01:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	58.5	69.9	69.1	66.0	63.6	61.6	59.3	58.7
243	2018-02-08	17:02:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.3	68.9	68.7	67.2	65.2	63.9	61.0	60.4
244	2018-02-08	17:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.5	71.1	70.8	67.7	64.9	63.8	62.1	61.5
245	2018-02-08	17:04:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	59.0	68.6	68.1	66.3	64.8	63.2	59.5	59.1
246	2018-02-08	17:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	58.7	68.9	68.2	66.7	64.5	63.1	60.3	58.9
247	2018-02-08	17:06:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	58.9	76.7	75.8	71.0	65.2	63.7	60.2	59.1
248	2018-02-08	17:07:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	63.1	70.7	70.1	67.6	66.5	65.5	63.9	63.2
249	2018-02-08	17:08:00	0:01:00.0	0:01:00.0	0:00:00.0	70.8	63.0	80.7	80.1	75.8	68.0	65.7	63.7	63.1
250	2018-02-08	17:09:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	63.3	73.8	71.1	69.0	67.2	65.6	64.3	63.5
251	2018-02-08	17:10:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.0	69.4	68.9	66.8	65.4	64.3	61.8	61.1
252	2018-02-08	17:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.2	68.4	68.0	67.3	65.8	65.0	62.0	61.4
253	2018-02-08	17:12:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.0	68.9	68.8	68.4	67.5	65.6	62.8	62.1
254	2018-02-08	17:13:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	62.2	73.2	71.2	70.0	67.6	65.5	63.4	62.3
255	2018-02-08	17:14:00	0:01:00.0	0:01:00.0	0:00:00.0	71.0	62.0	82.3	81.7	74.7	68.4	66.3	63.3	62.1
256	2018-02-08	17:15:00	0:01:00.0	0:01:00.0	0:00:00.0	84.4	65.3	93.0	92.5	91.3	82.6	77.0	67.9	65.6
257	2018-02-08	17:16:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	61.7	65.3	64.9	64.3	62.9	62.5	61.9	61.7
258	2018-02-08	17:17:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	62.2	65.2	65.0	64.7	64.1	63.6	62.6	62.3
259	2018-02-08	17:18:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.4	67.0	66.5	65.9	65.0	64.6	63.6	62.5
260	2018-02-08	17:19:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	61.2	65.1	64.6	64.3	63.3	62.7	61.7	61.3
261	2018-02-08	17:20:00	0:01:00.0	0:01:00.0	0:00:00.0	85.4	62.1	97.6	97.4	90.4	71.9	70.9	63.3	62.5
262	2018-02-08	17:21:00	0:01:00.0	0:01:00.0	0:00:00.0	72.8	69.1	75.4	75.0	74.5	73.7	72.8	70.5	69.2
263	2018-02-08	17:22:00	0:01:00.0	0:01:00.0	0:00:00.0	74.0	69.7	78.1	77.9	77.3	74.9	73.0	70.2	69.8
264	2018-02-08	17:23:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	61.0	74.2	73.9	72.9	69.4	66.5	62.2	61.1
265	2018-02-08	17:24:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	60.3	71.0	70.6	68.1	67.1	65.9	61.2	60.3
266	2018-02-08	17:25:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	59.5	67.4	67.0	64.5	63.1	62.1	60.6	59.6
267	2018-02-08	17:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	59.5	70.3	69.3	68.1	66.4	63.9	60.1	59.8
268	2018-02-08	17:27:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	57.3	70.0	69.7	68.7	66.1	65.0	60.0	57.5
269	2018-02-08	17:28:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	55.9	68.9	67.8	66.0	63.9	60.8	56.7	56.0
270	2018-02-08	17:29:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.3	73.7	69.2	67.7	65.6	64.2	62.1	61.5
271	2018-02-08	17:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	61.1	74.7	73.9	65.9	64.4	63.7	62.3	61.3
272	2018-02-08	17:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.6	69.0	68.7	67.3	66.1	65.1	63.7	62.7
273	2018-02-08	17:32:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	63.0	72.7	72.2	68.3	66.2	65.3	63.6	63.3
274	2018-02-08	17:33:00	0:01:00.0	0:01:00.0	0:00:00.0	68.7	60.0	79.1	78.2	70.7	68.2	66.4	61.3	60.2
275	2018-02-08	17:34:00	0:01:00.0	0:01:00.0	0:00:00.0	82.7	64.8	95.2	94.3	86.0	80.4	73.7	67.2	65.5
276	2018-02-08	17:35:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	62.7	65.3	65.0	64.7	64.3	63.8	63.0	62.7
277	2018-02-08	17:36:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	63.4	67.6	67.3	66.9	66.1	65.5	64.4	63.8
278	2018-02-08	17:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	62.1	67.1	66.4	66.0	65.5	64.7	63.2	62.3
279	2018-02-08	17:38:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	61.2	69.6	69.5	69.1	68.4	67.6	62.7	61.2
280	2018-02-08	17:39:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	60.1	68.9	68.7	68.4	67.1	65.9	62.1	60.2
281	2018-02-08	17:40:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.5	70.8	70.4	68.5	66.2	64.0	62.8	61.6
282	2018-02-08	17:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.5	65.8	65.6	65.5	65.2	64.4	62.3	61.6
283	2018-02-08	17:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.0	69.4	69.1	66.9	65.6	64.1	62.2	61.1
284	2018-02-08	17:43:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	59.1	68.9	68.1	66.6	64.9	62.9	60.2	59.2
285	2018-02-08	17:44:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.6	70.3	69.6	66.8	65.8	64.3	62.0	61.7
286	2018-02-08	17:45:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.2	71.5	70.9	68.4	66.7	64.2	61.9	61.5
287	2018-02-08	17:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	62.9	69.2	68.7	67.6	65.9	64.5	63.6	63.0
288	2018-02-08	17:47:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.2	69.2	68.8	67.5	65.3	63.3	61.2	60.4
289	2018-02-08	17:48:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	62.0	74.7	73.6	68.3	66.4	65.4	62.6	62.1
290	2018-02-08	17:49:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.0	69.7	69.3	68.3	67.0	65.8	62.5	62.0
291	2018-02-08	17:50:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.9	67.9	67.3	67.0	66.3	65.3	62.4	60.9
292	2018-02-08	17:51:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	60.9	71.4	71.2	69.4	67.8	66.7	62.2	61.1
293	2018-02-08	17:52:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	59.7	71.8	71.1	68.4	66.8	65.3	62.4	60.4
294	2018-02-08	17:53:00	0:01:00.0	0:01:00.0	0:00:00.0	89.6	59.1	101.7	101.1	93.8	80.8	74.2	61.4	59.2
295	2018-02-08	17:54:00	0:01:00.0	0:01:00.0	0:00:00.0	68.5	64.9	74.0	73.5	72.9	70.1	66.0	65.2	65.0
296	2018-02-08	17:55:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	63.4	68.1	67.9	66.9	66.4	66.0	63.9	63.5
297	2018-02-08	17:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.3	68.5	68.2	67.3	66.5	65.2	63.8	62.4
298	2018-02-08	17:57:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	62.8	70.5	70.1	68.8	67.6	65.9	63.5	63.0
299	2018-02-08	17:58:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.2	68.9	68.5	67.2	65.7	64.6	63.3	62.4
300	2018-02-08	17:59:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	62.6	72.4	71.6	67.5	65.9	64.5	63.5	62.7
301	2018-02-08	18:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.9	67.4	66.8	66.1	64.8	64.2	61.6	60.9
302	2018-02-08	18:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	62.1	68.8	68.5	66.5	65.2	64.0	62.8	62.2
303	2018-02-08	18:02:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	62.4	69.3	69.1	68.5	67.2	66.1	63.8	62.5
304	2018-02-08	18:03:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	59.5	67.3	66.8	66.1	64.4	62.6	60.1	59.6
305	2018-02-08	18:04:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	58.3	67.3	67.1	64.1	63.5	62.8	60.5	58.4
306	2018-02-08	18:05:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.1	67.8	67.6	66.3	65.4	64.4	61.0	60.2
307	2018-02-08	18:06:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	58.6	69.6	68.9	68.1	65.9	64.0	60.0	58.8

308	2018-02-08	18:07:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	60.9	65.8	65.7	65.3	63.6	62.9	61.5	61.0
309	2018-02-08	18:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	61.9	67.2	67.1	65.9	65.0	64.2	62.8	62.3
310	2018-02-08	18:09:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	59.8	68.6	68.4	67.2	66.1	64.0	61.4	60.0
311	2018-02-08	18:10:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	62.4	70.4	70.1	68.3	65.5	64.3	63.1	62.5
312	2018-02-08	18:11:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	61.2	75.3	74.8	70.8	66.9	65.9	63.9	61.4
313	2018-02-08	18:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.3	69.1	68.8	67.6	66.4	64.8	61.9	61.4
314	2018-02-08	18:13:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	60.2	76.4	75.5	69.4	66.4	65.0	62.0	60.3
315	2018-02-08	18:14:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.9	68.6	68.4	67.9	66.6	64.8	62.0	61.2
316	2018-02-08	18:15:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	61.3	74.7	74.1	69.7	65.5	64.4	62.2	61.4
317	2018-02-08	18:16:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.0	70.2	69.6	68.2	66.5	64.5	62.4	62.1
318	2018-02-08	18:17:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.5	70.2	69.9	67.8	66.2	64.8	62.3	61.7
319	2018-02-08	18:18:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	60.5	69.6	69.0	68.0	66.8	65.1	61.5	60.7
320	2018-02-08	18:19:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	62.4	70.9	70.5	69.7	68.0	66.4	63.9	62.6
321	2018-02-08	18:20:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.8	69.1	68.9	68.2	66.2	64.9	63.7	62.9
322	2018-02-08	18:21:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	58.8	73.5	73.0	69.3	65.9	63.6	60.6	58.9
323	2018-02-08	18:22:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.3	72.0	71.5	68.4	65.3	63.9	61.0	60.4
324	2018-02-08	18:23:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	60.4	69.7	69.6	68.9	67.8	66.8	61.8	60.5
325	2018-02-08	18:24:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	61.5	68.0	67.8	67.0	65.6	64.2	61.8	61.5
326	2018-02-08	18:25:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	62.3	71.8	71.2	68.8	67.4	66.1	63.2	62.5
327	2018-02-08	18:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	59.8	69.6	68.8	67.5	65.9	64.0	60.4	60.0
328	2018-02-08	18:27:00	0:01:00.0	0:01:00.0	0:00:00.0	70.6	62.1	81.1	80.1	76.1	67.7	65.1	62.8	62.3
329	2018-02-08	18:28:00	0:01:00.0	0:01:00.0	0:00:00.0	81.7	64.2	92.9	92.4	86.9	80.1	72.2	66.7	64.6
330	2018-02-08	18:29:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	63.5	70.4	69.9	69.0	66.3	65.6	64.7	63.7
331	2018-02-08	18:30:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	63.2	75.1	74.7	69.5	66.2	65.7	63.9	63.2
332	2018-02-08	18:31:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	62.3	75.4	74.8	74.5	70.6	67.6	65.9	62.8
333	2018-02-08	18:32:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.8	73.0	72.1	68.4	65.7	63.6	61.9	60.8
334	2018-02-08	18:33:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	60.2	68.7	68.2	66.5	64.2	62.7	60.8	60.3
335	2018-02-08	18:34:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	58.9	72.5	72.2	70.1	63.4	61.8	60.1	59.0
336	2018-02-08	18:35:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.1	69.3	68.9	66.9	65.5	64.3	61.2	60.4
337	2018-02-08	18:36:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	60.8	67.5	66.8	65.3	64.0	62.5	61.4	61.0
338	2018-02-08	18:37:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.9	68.6	68.4	67.9	66.7	64.5	63.0	62.0
339	2018-02-08	18:38:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	60.9	70.4	69.9	68.5	66.8	65.2	61.8	60.9
340	2018-02-08	18:39:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	59.4	70.2	69.7	68.3	65.8	64.3	60.4	59.5
341	2018-02-08	18:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	59.7	69.7	69.2	68.2	65.2	62.9	60.7	59.9
342	2018-02-08	18:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	61.7	68.1	67.6	66.5	65.3	64.2	62.0	61.8
343	2018-02-08	18:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	59.8	68.5	68.3	67.7	65.1	63.0	60.8	59.9
344	2018-02-08	18:43:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.4	69.6	69.2	67.1	65.8	64.7	62.4	61.6
345	2018-02-08	18:44:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.9	68.8	68.6	67.6	64.4	62.7	59.5	59.1
346	2018-02-08	18:45:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	63.7	70.8	70.3	68.7	67.6	66.2	64.4	63.9
347	2018-02-08	18:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	60.9	72.8	72.3	69.4	65.8	64.6	61.8	61.1
348	2018-02-08	18:47:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.0	69.9	69.7	69.1	67.0	65.2	62.9	62.1
349	2018-02-08	18:48:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	61.6	67.6	67.2	65.8	65.0	64.4	62.6	61.8
350	2018-02-08	18:49:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	62.9	70.0	69.8	69.1	67.1	65.8	63.6	63.1
351	2018-02-08	18:50:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.6	69.3	68.9	67.0	65.2	64.6	62.7	61.9
352	2018-02-08	18:51:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	61.3	70.0	69.3	68.1	66.9	65.1	62.5	61.5
353	2018-02-08	18:52:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.1	69.1	68.9	67.2	66.4	64.7	61.8	60.2
354	2018-02-08	18:53:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.3	70.8	70.2	68.0	66.1	64.9	61.3	60.5
355	2018-02-08	18:54:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.8	68.7	68.4	67.9	67.1	66.0	63.7	63.0
356	2018-02-08	18:55:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	59.0	74.2	73.6	69.1	67.3	65.4	61.8	59.2
357	2018-02-08	18:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.9	69.2	68.8	67.5	66.1	65.4	62.1	61.0
358	2018-02-08	18:57:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	62.7	68.2	68.0	66.8	65.8	64.9	63.9	62.7
359	2018-02-08	18:58:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	61.3	70.5	70.1	68.3	67.5	66.4	62.5	61.5
360	2018-02-08	18:59:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	60.7	68.3	67.9	67.1	66.4	65.4	64.0	60.9
361	2018-02-08	19:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.1	67.2	66.8	65.9	65.0	63.9	61.6	61.1
362	2018-02-08	19:01:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	59.4	68.7	68.3	67.9	66.9	65.2	60.8	59.5
363	2018-02-08	19:02:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	59.9	67.3	67.0	66.3	65.2	63.9	60.7	60.0
364	2018-02-08	19:03:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.0	68.1	67.8	67.3	66.3	65.6	62.3	61.1
365	2018-02-08	19:04:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	60.7	69.6	69.2	67.2	66.7	65.8	62.5	60.8
366	2018-02-08	19:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	59.0	66.5	66.3	65.5	64.5	62.5	59.8	59.1
367	2018-02-08	19:06:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.4	70.0	69.6	67.7	66.0	64.6	62.1	60.5
368	2018-02-08	19:07:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	63.4	68.5	68.1	67.4	66.2	65.5	64.3	63.5
369	2018-02-08	19:08:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	62.7	69.1	68.9	67.9	66.5	65.5	63.7	62.8
370	2018-02-08	19:09:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.0	66.4	66.2	65.8	65.4	64.1	60.8	60.1
371	2018-02-08	19:10:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	60.1	67.7	67.4	66.5	65.3	64.1	60.6	60.2
372	2018-02-08	19:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	61.0	69.5	69.2	68.0	66.7	65.3	63.1	61.5
373	2018-02-08	19:12:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	61.4	70.6	70.0	67.9	67.1	65.9	62.3	61.5
374	2018-02-08	19:13:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.1	68.4	68.0	67.3	66.6	64.9	61.0	60.2
375	2018-02-08	19:14:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	61.5	68.8	68.4	67.4	66.1	65.2	62.4	61.7
376	2018-02-08	19:15:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.3	66.7	66.5	65.6	64.8	63.5	62.0	61.4
377	2018-02-08	19:16:00	0:01:00.0	0:01:00.0	0:00:00.0	86.6	65.5	99.2	97.9	91.6	79.9	69.4	67.3	66.0
378	2018-02-08	19:17:00	0:01:00.0	0:01:00.0	0:00:00.0	71.9	68.7	74.2	74.1	73.6	72.9	72.0	69.0	68.7
379	2018-02-08	19:18:00	0:01:00.0	0:01:00.0	0:00:00.0	75.5	71.5	83.3	81.3	78.4	75.5	74.1	72.3	71.8
380	2018-02-08	19:19:00	0:01:00.0	0:01:00.0	0:00:00.0	85.0	64.2	97.3	95.8	90.4	78.1	76.0	65.2	64.3
381	2018-02-08	19:20:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	64.0	66.6	66.4	66.2	65.6	65.2	64.7	64.3
382	2018-02-08	19:21:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	63.5	67.9	67.8	67.5	66.6	65.6	64.2	63.6
383	2018-02-08	19:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.4	66.2	65.9	65.6	64.5	63.4	62.6	61.6
384	2018-02-08	19:23:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	60.9	76.2	75.7	72.3	65.6	64.7	61.8	61.0

385	2018-02-08	19:24:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	60.8	68.1	67.7	66.2	64.0	63.1	61.6	60.9
386	2018-02-08	19:25:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	59.8	66.5	66.3	65.7	63.9	63.2	61.4	59.9
387	2018-02-08	19:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	62.2	68.5	68.0	66.3	65.4	64.5	62.9	62.4
388	2018-02-08	19:27:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	61.1	68.6	68.0	66.8	65.9	64.0	61.8	61.3
389	2018-02-08	19:28:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.3	73.3	72.6	68.9	65.1	64.1	61.2	60.5
390	2018-02-08	19:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.3	69.9	69.5	66.0	64.8	63.7	60.1	59.4
391	2018-02-08	19:30:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	60.7	68.6	68.4	67.8	66.0	65.3	62.4	60.8
392	2018-02-08	19:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	62.1	68.7	68.4	67.4	65.6	64.5	63.3	62.2
393	2018-02-08	19:32:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	61.8	75.0	73.2	69.4	65.9	64.3	62.8	61.9
394	2018-02-08	19:33:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	63.5	69.5	69.2	68.3	66.3	65.4	63.9	63.6
395	2018-02-08	19:34:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.1	68.8	68.4	67.5	66.5	65.7	62.5	61.2
396	2018-02-08	19:35:00	0:01:00.0	0:01:00.0	0:00:00.0	67.5	62.1	74.8	74.5	72.8	66.9	65.1	63.2	62.1
397	2018-02-08	19:36:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	59.6	69.1	68.7	68.2	66.4	62.3	60.5	59.7
398	2018-02-08	19:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	60.5	68.8	68.4	66.8	65.3	63.5	61.2	60.6
399	2018-02-08	19:38:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	62.0	67.4	67.0	66.4	65.9	65.5	63.8	62.1
400	2018-02-08	19:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.3	67.8	67.5	66.0	65.1	63.6	62.2	61.4
401	2018-02-08	19:40:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	62.5	70.8	70.2	67.0	66.4	65.4	63.2	62.7
402	2018-02-08	19:41:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	59.4	67.6	67.3	65.8	64.7	63.9	60.4	59.6
403	2018-02-08	19:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	61.0	69.2	68.9	66.7	64.9	64.2	61.7	61.1
404	2018-02-08	19:43:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	58.5	67.5	67.2	66.8	65.8	64.2	59.8	58.7
405	2018-02-08	19:44:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	61.7	66.7	66.5	66.2	65.0	64.3	62.8	61.9
406	2018-02-08	19:45:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.4	69.1	68.7	67.8	67.2	66.2	63.4	62.5
407	2018-02-08	19:46:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	61.0	66.8	66.6	66.3	65.5	64.1	62.1	61.2
408	2018-02-08	19:47:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.3	67.2	66.7	66.3	65.9	65.5	63.2	62.4
409	2018-02-08	19:48:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	58.1	67.2	66.8	65.8	64.3	63.4	60.3	58.2
410	2018-02-08	19:49:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.2	70.7	69.6	68.0	66.3	64.9	63.0	62.4
411	2018-02-08	19:50:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.3	70.6	70.1	68.1	65.3	63.8	61.8	61.4
412	2018-02-08	19:51:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	60.8	70.1	69.5	68.4	67.3	65.7	61.9	60.8
413	2018-02-08	19:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.3	69.6	69.1	68.5	65.2	63.2	61.7	60.4
414	2018-02-08	19:53:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	59.6	68.6	68.3	67.7	66.4	65.2	62.2	59.7
415	2018-02-08	19:54:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.3	69.6	69.3	66.8	65.2	63.9	61.2	60.4
416	2018-02-08	19:55:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	59.3	70.0	69.6	68.0	67.3	66.3	62.9	59.4
417	2018-02-08	19:56:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	58.1	67.3	66.4	65.4	64.3	62.5	59.8	58.2
418	2018-02-08	19:57:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.9	72.1	71.6	68.1	66.8	65.2	63.4	63.0
419	2018-02-08	19:58:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	62.1	70.1	69.3	69.0	66.3	64.7	62.9	62.2
420	2018-02-08	19:59:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	62.8	72.0	71.5	70.3	68.0	66.4	63.9	62.9
421	2018-02-08	20:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.9	67.5	67.3	66.6	65.6	63.9	60.8	59.9
422	2018-02-08	20:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.7	67.1	66.7	66.5	65.6	63.9	61.6	60.9
423	2018-02-08	20:02:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.4	69.4	69.0	67.4	66.2	64.5	63.1	62.5
424	2018-02-08	20:03:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.3	65.6	65.2	64.8	64.0	63.1	60.9	59.4
425	2018-02-08	20:04:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	61.3	66.4	66.3	65.8	64.5	63.3	61.7	61.4
426	2018-02-08	20:05:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	60.6	72.8	72.0	68.4	66.5	64.5	61.9	60.8
427	2018-02-08	20:06:00	0:01:00.0	0:01:00.0	0:00:00.0	78.1	62.9	90.0	87.8	83.8	71.6	65.3	63.5	62.9
428	2018-02-08	20:07:00	0:01:00.0	0:01:00.0	0:00:00.0	83.5	67.3	94.9	94.7	87.5	81.5	76.2	68.4	67.3
429	2018-02-08	20:08:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	63.1	69.2	69.1	68.3	66.2	64.8	63.6	63.2
430	2018-02-08	20:09:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.1	68.6	68.2	67.2	66.4	64.6	62.7	62.2
431	2018-02-08	20:10:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.9	67.6	67.1	66.2	65.7	64.9	63.6	63.0
432	2018-02-08	20:11:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.2	66.9	66.6	66.3	65.1	64.4	63.0	62.3
433	2018-02-08	20:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.2	68.8	68.5	68.0	67.2	64.9	62.1	61.3
434	2018-02-08	20:13:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	59.8	70.1	68.9	67.5	66.0	64.5	61.0	59.9
435	2018-02-08	20:14:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.1	70.6	70.1	67.6	65.6	64.9	62.2	61.2
436	2018-02-08	20:15:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	60.0	66.5	65.7	65.0	64.3	63.7	61.0	60.1
437	2018-02-08	20:16:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.6	67.6	67.3	67.2	66.5	64.8	62.4	61.7
438	2018-02-08	20:17:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	63.2	70.3	69.5	68.6	66.2	65.3	64.3	63.3
439	2018-02-08	20:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	60.2	67.8	67.3	65.5	64.5	63.4	61.4	60.3
440	2018-02-08	20:19:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.7	66.8	66.5	66.1	65.4	64.6	63.3	62.7
441	2018-02-08	20:20:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	62.3	67.0	66.6	66.4	65.8	64.9	63.1	62.4
442	2018-02-08	20:21:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.8	69.0	68.4	66.7	65.4	64.2	62.3	61.9
443	2018-02-08	20:22:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	63.0	72.7	72.2	69.1	66.6	65.4	63.3	63.1
444	2018-02-08	20:23:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.0	69.8	69.5	68.6	66.1	64.3	62.9	62.1
445	2018-02-08	20:24:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	58.6	66.8	65.7	65.3	63.6	62.8	59.5	58.7
446	2018-02-08	20:25:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.1	68.7	68.1	66.8	65.9	64.7	62.8	62.2
447	2018-02-08	20:26:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.0	67.9	67.5	67.1	66.3	64.8	63.0	62.1
448	2018-02-08	20:27:00	0:01:00.0	0:01:00.0	0:00:00.0	91.0	62.1	103.4	102.8	95.4	84.7	74.7	63.2	62.3
449	2018-02-08	20:28:00	0:01:00.0	0:01:00.0	0:00:00.0	72.4	63.9	81.8	81.1	79.4	72.0	67.1	64.5	64.0
450	2018-02-08	20:29:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	61.9	72.8	72.5	70.9	65.1	63.8	62.8	62.2
451	2018-02-08	20:30:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	62.3	65.1	64.8	64.4	64.1	63.7	63.0	62.4
452	2018-02-08	20:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	63.3	68.1	67.3	66.3	65.6	65.2	63.9	63.4
453	2018-02-08	20:32:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	62.7	65.7	65.4	64.8	64.3	63.8	63.2	62.9
454	2018-02-08	20:33:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	62.6	66.8	65.7	64.9	64.5	64.1	63.3	62.8
455	2018-02-08	20:34:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	63.7	72.8	72.2	69.6	68.5	67.4	64.5	63.8
456	2018-02-08	20:35:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.8	68.7	68.3	67.0	66.4	65.4	63.3	62.9
457	2018-02-08	20:36:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.3	69.1	68.6	67.4	65.9	65.0	63.4	61.4
458	2018-02-08	20:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.9	68.3	68.1	67.3	65.6	64.0	62.7	62.0
459	2018-02-08	20:38:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.2	68.9	68.5	67.5	65.8	64.2	62.2	61.3
460	2018-02-08	20:39:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	60.8	74.2	72.3	71.6	67.2	64.4	62.1	61.0
461	2018-02-08	20:40:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	64.1	68.0	67.6	67.4	66.9	66.0	64.8	64.1

462	2018-02-08	20:41:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	63.5	68.0	67.9	67.7	67.2	66.1	64.2	63.6
463	2018-02-08	20:42:00	0:01:00.0	0:01:00.0	0:00:00.0	68.5	61.4	77.7	77.1	74.0	66.9	64.5	62.4	61.5
464	2018-02-08	20:43:00	0:01:00.0	0:01:00.0	0:00:00.0	69.2	62.2	77.0	75.7	73.8	69.4	66.5	64.3	62.3
465	2018-02-08	20:44:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	63.4	72.7	72.0	68.6	67.3	65.8	64.3	63.5
466	2018-02-08	20:45:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	61.3	70.2	69.8	68.4	66.7	65.5	62.7	61.4
467	2018-02-08	20:46:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.8	66.6	66.4	66.0	64.7	63.9	62.5	61.9
468	2018-02-08	20:47:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	58.8	69.3	68.5	66.4	65.3	64.0	59.8	58.9
469	2018-02-08	20:48:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.3	68.5	68.2	67.7	67.1	64.8	62.9	62.4
470	2018-02-08	20:49:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.2	69.5	69.1	67.7	65.9	64.6	62.8	62.3
471	2018-02-08	20:50:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	59.1	65.4	64.9	64.5	63.6	62.9	60.4	59.3
472	2018-02-08	20:51:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.4	68.9	68.6	67.0	65.2	63.8	59.7	59.5
473	2018-02-08	20:52:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.7	67.0	66.8	66.1	64.8	62.4	59.6	58.9
474	2018-02-08	20:53:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	59.7	66.3	66.2	65.7	64.2	62.4	60.1	59.8
475	2018-02-08	20:54:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	60.3	65.2	64.9	63.9	63.2	62.5	61.4	60.4
476	2018-02-08	20:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	58.6	67.7	67.6	66.9	65.5	64.5	61.4	58.8
477	2018-02-08	20:56:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	58.6	69.2	68.8	66.7	65.1	62.8	60.4	58.7
478	2018-02-08	20:57:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	60.1	70.1	69.8	68.7	66.5	64.5	61.3	60.2
479	2018-02-08	20:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	59.3	68.6	67.9	66.3	64.7	63.3	59.9	59.4
480	2018-02-08	20:59:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.3	68.4	67.7	65.4	63.0	62.4	61.0	60.5
481	2018-02-08	21:00:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	58.7	69.6	69.3	67.7	64.4	62.3	59.4	58.8
482	2018-02-08	21:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.7	67.8	67.4	66.4	65.7	64.3	63.2	62.8
483	2018-02-08	21:02:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	61.0	66.0	65.4	64.7	63.4	62.4	61.5	61.1
484	2018-02-08	21:03:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	60.6	74.6	74.4	69.5	64.5	63.2	61.4	60.7
485	2018-02-08	21:04:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.2	67.2	66.6	65.9	65.0	64.2	62.3	61.3
486	2018-02-08	21:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	60.2	64.9	64.8	64.6	64.2	63.2	61.1	60.4
487	2018-02-08	21:06:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	58.9	70.4	70.2	67.5	64.6	63.7	59.8	59.0
488	2018-02-08	21:07:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.4	69.3	69.0	68.1	66.0	65.3	63.0	62.5
489	2018-02-08	21:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	60.9	68.2	67.9	67.0	65.3	64.4	61.9	61.1
490	2018-02-08	21:09:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	62.0	68.5	68.4	67.7	65.0	64.2	62.6	62.1
491	2018-02-08	21:10:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	62.5	69.9	69.6	68.9	67.2	65.7	63.6	62.6
492	2018-02-08	21:11:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	63.4	70.0	69.8	69.2	67.8	66.2	64.9	63.5
493	2018-02-08	21:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	63.8	67.4	67.2	66.9	66.2	65.6	64.3	63.9
494	2018-02-08	21:13:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.8	68.0	67.8	67.4	66.8	64.2	62.4	61.9
495	2018-02-08	21:14:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.9	67.6	67.3	66.9	65.4	64.6	63.4	62.4
496	2018-02-08	21:15:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.2	68.6	68.4	68.1	66.8	65.1	63.1	62.3
497	2018-02-08	21:16:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.9	69.7	69.0	66.4	65.6	65.1	63.3	62.0
498	2018-02-08	21:17:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	63.8	68.8	68.5	68.0	67.4	66.8	65.3	64.1
499	2018-02-08	21:18:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.4	69.2	68.3	66.4	65.1	64.4	61.4	60.6
500	2018-02-08	21:19:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.1	67.7	67.5	67.1	65.4	64.7	62.5	61.2
501	2018-02-08	21:20:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.0	67.6	67.5	67.3	65.8	64.9	62.9	62.1
502	2018-02-08	21:21:00	0:01:00.0	0:01:00.0	0:00:00.0	67.8	63.7	76.3	75.5	70.5	67.5	66.1	64.4	63.8
503	2018-02-08	21:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.3	67.4	67.1	65.6	64.7	64.0	62.1	61.4
504	2018-02-08	21:23:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	62.7	70.1	69.5	67.3	65.6	64.9	63.3	62.8
505	2018-02-08	21:24:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.6	67.6	67.4	66.7	65.9	64.4	61.9	61.7
506	2018-02-08	21:25:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.5	67.5	67.2	66.2	65.2	64.1	61.5	60.6
507	2018-02-08	21:26:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	62.5	68.9	68.5	66.0	65.4	64.9	63.7	62.6
508	2018-02-08	21:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	64.4	69.5	69.1	68.6	67.5	67.0	65.0	64.4
509	2018-02-08	21:28:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	60.8	68.9	68.3	66.8	66.3	65.4	63.4	61.1
510	2018-02-08	21:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.1	67.6	67.2	66.6	65.5	64.0	60.6	60.2
511	2018-02-08	21:30:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	58.9	68.6	68.3	66.7	63.5	61.4	59.8	59.0
512	2018-02-08	21:31:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	59.6	65.5	65.2	64.7	63.8	62.4	60.6	59.7
513	2018-02-08	21:32:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	61.2	67.2	66.9	65.5	64.5	63.5	61.6	61.3
514	2018-02-08	21:33:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.8	66.5	66.3	64.6	63.6	62.5	60.3	60.1
515	2018-02-08	21:34:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	61.3	66.6	66.2	65.2	63.6	63.0	61.9	61.4
516	2018-02-08	21:35:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	56.8	63.6	63.4	63.1	62.1	60.7	57.5	56.8
517	2018-02-08	21:36:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	56.5	70.3	69.6	68.2	65.8	63.0	58.5	56.6
518	2018-02-08	21:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.5	69.9	67.7	66.9	65.5	64.4	62.5	61.7
519	2018-02-08	21:38:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	58.9	65.9	65.7	64.9	63.6	62.8	60.3	59.0
520	2018-02-08	21:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	57.6	67.9	67.7	67.2	66.2	63.8	58.2	57.6
521	2018-02-08	21:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	61.3	67.3	66.9	66.1	65.1	64.3	62.4	61.4
522	2018-02-08	21:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.5	69.9	69.4	67.1	65.3	63.6	61.7	60.6
523	2018-02-08	21:42:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	59.0	66.0	65.5	65.2	63.9	62.2	60.0	59.2
524	2018-02-08	21:43:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.1	68.2	67.8	66.7	65.0	64.4	62.2	60.2
525	2018-02-08	21:44:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	57.3	65.7	65.3	65.0	63.3	61.9	59.2	57.3
526	2018-02-08	21:45:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	60.1	66.8	66.5	65.7	63.8	63.3	62.0	60.4
527	2018-02-08	21:46:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	61.6	67.7	67.4	65.2	64.0	63.3	62.3	61.7
528	2018-02-08	21:47:00	0:01:00.0	0:01:00.0	0:00:00.0	87.6	63.0	99.2	98.7	94.0	78.9	71.2	66.8	63.8
529	2018-02-08	21:48:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	67.5	72.2	71.9	71.1	69.9	69.2	68.1	67.7
530	2018-02-08	21:49:00	0:01:00.0	0:01:00.0	0:00:00.0	68.7	66.4	69.8	69.7	69.5	69.1	68.9	67.0	66.5
531	2018-02-08	21:50:00	0:01:00.0	0:01:00.0	0:00:00.0	73.4	67.1	80.8	80.5	79.5	69.6	68.8	67.7	67.3
532	2018-02-08	21:51:00	0:01:00.0	0:01:00.0	0:00:00.0	70.5	62.2	79.1	78.6	75.5	70.7	68.9	65.1	62.6
533	2018-02-08	21:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	60.0	68.3	67.8	66.6	65.3	63.1	61.2	60.1
534	2018-02-08	21:53:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	59.1	66.5	66.2	65.4	64.3	63.0	59.7	59.3
535	2018-02-08	21:54:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.6	68.7	68.4	66.1	64.9	63.9	62.4	60.8
536	2018-02-08	21:55:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.6	68.4	68.1	67.0	66.3	65.5	63.4	62.7
537	2018-02-08	21:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.4	67.6	67.3	66.8	66.2	65.0	62.7	61.5
538	2018-02-08	21:57:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	59.5	68.6	68.3	67.7	66.8	65.5	60.3	59.6

539	2018-02-08	21:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.8	68.3	68.0	67.0	64.9	62.3	60.4	59.4
540	2018-02-08	21:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	56.1	68.3	68.0	63.8	62.0	59.1	57.2	56.2
541	2018-02-08	22:00:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	56.0	67.5	67.2	66.0	63.3	62.0	56.5	56.1
542	2018-02-08	22:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.9	66.9	66.8	66.3	65.5	64.4	62.2	61.1
543	2018-02-08	22:02:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	58.7	69.1	68.3	66.8	64.8	62.7	59.4	58.8
544	2018-02-08	22:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	62.2	67.1	66.7	65.9	65.5	64.4	63.1	62.2
545	2018-02-08	22:04:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.5	68.6	68.1	65.4	64.1	62.5	60.2	59.6
546	2018-02-08	22:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	59.4	69.3	68.7	66.3	64.2	63.0	60.6	59.5
547	2018-02-08	22:06:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	59.0	69.5	69.0	66.7	65.1	63.5	59.8	59.1
548	2018-02-08	22:07:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.2	69.5	68.9	67.1	64.6	63.8	61.7	60.3
549	2018-02-08	22:08:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	59.9	69.2	69.1	68.0	62.2	61.4	60.6	60.0
550	2018-02-08	22:09:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	60.3	66.9	66.4	64.8	63.8	62.7	60.7	60.4
551	2018-02-08	22:10:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	58.1	67.8	67.6	67.1	66.4	64.5	58.6	58.2
552	2018-02-08	22:11:00	0:01:00.0	0:01:00.0	0:00:00.0	83.7	65.4	96.0	94.9	87.7	78.8	73.9	67.3	65.7
553	2018-02-08	22:12:00	0:01:00.0	0:01:00.0	0:00:00.0	68.8	67.0	71.0	70.8	70.5	69.6	68.2	67.5	67.1
554	2018-02-08	22:13:00	0:01:00.0	0:01:00.0	0:00:00.0	70.2	61.3	74.7	74.4	73.4	71.1	69.6	64.1	61.5
555	2018-02-08	22:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	58.3	70.7	70.1	66.1	64.8	63.3	59.9	58.4
556	2018-02-08	22:15:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	59.0	66.3	66.0	64.0	63.0	62.2	60.0	59.0
557	2018-02-08	22:16:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.8	65.9	65.5	64.7	64.2	62.9	60.7	59.9
558	2018-02-08	22:17:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	60.2	67.8	67.5	67.2	64.1	63.0	61.3	60.2
559	2018-02-08	22:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	57.2	66.6	66.4	65.6	64.4	63.0	57.9	57.3
560	2018-02-08	22:19:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	58.0	66.4	66.2	65.2	64.7	63.3	59.1	58.1
561	2018-02-08	22:20:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.2	66.3	65.5	64.7	63.7	62.7	60.0	59.3
562	2018-02-08	22:21:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	60.1	67.4	67.2	66.7	64.7	63.0	61.0	60.1
563	2018-02-08	22:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	59.4	67.9	67.1	65.6	63.9	62.8	60.5	59.5
564	2018-02-08	22:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	59.0	67.0	64.9	64.4	63.2	61.9	60.2	59.2
565	2018-02-08	22:24:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.3	67.9	67.7	66.9	64.9	63.9	62.2	61.4
566	2018-02-08	22:25:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	59.7	68.7	68.4	66.4	64.8	63.2	60.5	59.8
567	2018-02-08	22:26:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	59.1	66.0	65.5	63.7	62.4	61.4	59.7	59.1
568	2018-02-08	22:27:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	59.7	72.3	71.7	67.4	64.9	63.1	61.5	59.8
569	2018-02-08	22:28:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.6	63.9	63.6	63.4	62.3	61.4	59.1	58.7
570	2018-02-08	22:29:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	60.2	66.4	66.2	64.9	63.8	63.0	61.2	60.3
571	2018-02-08	22:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	60.6	69.6	68.9	67.3	65.6	64.3	61.6	60.7
572	2018-02-08	22:31:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.4	66.3	66.1	65.5	64.1	62.4	61.0	60.5
573	2018-02-08	22:32:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	60.3	67.4	67.1	66.3	64.5	63.4	61.0	60.4
574	2018-02-08	22:33:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	58.4	68.7	67.7	65.5	62.0	61.0	59.9	58.7
575	2018-02-08	22:34:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	56.9	64.2	63.5	62.1	61.3	59.5	58.1	57.1
576	2018-02-08	22:35:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	58.0	69.9	69.6	65.4	62.6	61.4	59.8	58.1
577	2018-02-08	22:36:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	57.8	69.2	66.1	64.5	61.8	60.8	58.4	57.9
578	2018-02-08	22:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	56.8	66.3	65.9	64.9	63.4	61.1	58.0	56.8
579	2018-02-08	22:38:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	55.7	65.6	65.3	63.1	59.2	58.7	56.9	55.8
580	2018-02-08	22:39:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.6	65.1	64.6	63.9	62.2	61.1	57.6	56.7
581	2018-02-08	22:40:00	0:01:00.0	0:01:00.0	0:00:00.0	59.5	54.9	64.4	64.0	62.3	61.2	57.9	56.0	55.1
582	2018-02-08	22:41:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	57.9	66.4	65.4	63.9	63.0	61.6	59.6	58.3
583	2018-02-08	22:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	58.0	70.4	69.8	67.8	64.4	62.8	60.6	58.2
584	2018-02-08	22:43:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.3	66.0	65.7	64.0	62.6	60.6	57.4	56.5
585	2018-02-08	22:44:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	57.9	66.1	65.8	64.5	62.7	61.4	59.6	58.0
586	2018-02-08	22:45:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	54.6	68.7	67.7	61.4	60.2	58.5	56.1	54.7
587	2018-02-08	22:46:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	57.0	67.6	64.4	63.6	61.4	60.0	57.7	57.1
588	2018-02-08	22:47:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	57.5	65.5	65.2	64.5	63.0	61.0	58.6	57.6
589	2018-02-08	22:48:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	54.5	66.5	66.0	64.0	62.6	61.7	55.6	54.6
590	2018-02-08	22:49:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	58.1	67.3	67.1	65.4	63.0	61.9	59.5	58.3
591	2018-02-08	22:50:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	57.6	64.6	64.1	63.5	62.5	61.0	58.6	57.7
592	2018-02-08	22:51:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	55.6	67.1	66.8	66.0	64.0	62.7	56.7	55.8
593	2018-02-08	22:52:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	57.7	76.0	75.7	71.8	64.8	60.7	58.3	57.8
594	2018-02-08	22:53:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	57.1	65.9	65.5	63.9	61.9	61.0	59.4	57.2
595	2018-02-08	22:54:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	57.1	66.6	66.2	65.5	64.4	62.6	57.7	57.2
596	2018-02-08	22:55:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	56.2	66.8	66.4	63.7	60.9	58.8	57.0	56.3
597	2018-02-08	22:56:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	57.3	67.5	66.9	64.5	63.5	62.3	59.2	57.5
598	2018-02-08	22:57:00	0:01:00.0	0:01:00.0	0:00:00.0	55.4	52.4	59.0	58.7	57.8	56.6	54.8	53.2	52.6
599	2018-02-08	22:58:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	52.4	64.0	63.7	63.4	62.4	59.9	57.4	52.5
600	2018-02-08	22:59:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	55.8	63.9	63.7	63.1	62.0	58.1	56.2	55.9
601	2018-02-08	23:00:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	55.6	68.6	68.2	64.4	63.2	62.0	56.3	55.7
602	2018-02-08	23:01:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	56.3	66.4	66.1	64.6	62.2	60.9	57.9	56.4
603	2018-02-08	23:02:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	57.5	65.6	65.2	64.0	62.5	61.4	58.1	57.6
604	2018-02-08	23:03:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	56.8	67.6	66.9	66.4	63.4	61.9	57.4	56.8
605	2018-02-08	23:04:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	57.5	63.8	63.6	63.2	62.1	60.9	59.0	57.6
606	2018-02-08	23:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.7	65.6	65.4	64.9	64.3	63.1	61.3	59.8
607	2018-02-08	23:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.8	66.5	64.0	63.4	62.7	61.9	60.3	59.9
608	2018-02-08	23:07:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	55.4	66.9	66.1	64.5	62.1	61.3	57.8	55.7
609	2018-02-08	23:08:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	55.1	66.6	66.1	65.5	60.1	58.7	56.3	55.3
610	2018-02-08	23:09:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	57.8	71.2	70.4	66.9	63.8	60.6	58.6	57.9
611	2018-02-08	23:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	59.8	64.4	64.1	63.9	63.0	61.4	60.4	59.9
612	2018-02-08	23:11:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	59.1	67.2	66.9	65.9	63.3	62.1	60.3	59.1
613	2018-02-08	23:12:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.1	68.2	67.7	64.4	62.7	61.7	59.3	58.1
614	2018-02-08	23:13:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	58.5	66.7	66.1	63.7	62.4	61.3	59.9	58.5
615	2018-02-08	23:14:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	57.2	74.6	73.9	67.5	62.6	60.3	57.9	57.2

616	2018-02-08	23:15:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	55.8	66.1	65.8	64.6	62.6	59.1	57.4	55.9
617	2018-02-08	23:16:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	56.0	68.1	67.7	66.0	63.1	61.3	58.0	56.1
618	2018-02-08	23:17:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	57.6	70.8	70.3	67.1	64.2	61.6	58.8	57.8
619	2018-02-08	23:18:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	55.5	70.5	69.5	64.6	62.0	60.1	56.5	55.6
620	2018-02-08	23:19:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	54.0	65.5	65.1	64.7	62.0	60.4	54.7	54.2
621	2018-02-08	23:20:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	55.0	63.7	63.6	62.9	62.1	60.9	56.3	55.0
622	2018-02-08	23:21:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	56.6	64.0	63.3	62.7	61.5	60.8	57.1	56.7
623	2018-02-08	23:22:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	55.2	66.5	66.0	63.7	61.5	59.2	57.1	55.3
624	2018-02-08	23:23:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	55.0	62.9	62.5	62.0	61.2	60.2	56.9	55.1
625	2018-02-08	23:24:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	56.9	64.9	63.8	62.3	61.7	60.7	57.9	57.1
626	2018-02-08	23:25:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	58.9	67.3	66.8	65.3	63.5	62.4	60.3	59.0
627	2018-02-08	23:26:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	54.7	66.6	66.2	65.8	63.7	62.3	56.2	54.9
628	2018-02-08	23:27:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	57.3	63.1	62.5	61.9	61.3	60.1	58.3	57.5
629	2018-02-08	23:28:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	55.9	63.2	62.8	62.2	60.7	59.1	56.4	56.0
630	2018-02-08	23:29:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	55.5	65.2	64.8	63.5	61.4	58.9	56.6	55.6
631	2018-02-08	23:30:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	58.2	67.6	67.0	64.7	63.7	62.1	59.1	58.3
632	2018-02-08	23:31:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	57.4	65.5	65.2	65.0	62.9	61.1	58.1	57.5
633	2018-02-08	23:32:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	59.7	65.4	65.1	64.2	63.3	62.4	60.7	59.8
634	2018-02-08	23:33:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	58.4	69.8	69.0	66.0	65.1	62.4	59.0	58.5
635	2018-02-08	23:34:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.5	65.2	64.5	64.3	63.7	62.5	59.6	57.6
636	2018-02-08	23:35:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	56.8	65.1	64.8	64.3	63.6	62.2	57.3	56.9
637	2018-02-08	23:36:00	0:01:00.0	0:01:00.0	0:00:00.0	56.9	53.0	63.0	61.2	58.9	57.2	56.1	54.7	53.1
638	2018-02-08	23:37:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.2	68.5	67.7	63.6	62.4	59.0	56.4	55.3
639	2018-02-08	23:38:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	59.0	64.3	63.6	63.1	62.3	61.3	59.7	59.2
640	2018-02-08	23:39:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	55.5	67.6	67.4	67.0	61.3	59.7	56.3	55.7
641	2018-02-08	23:40:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.0	65.9	65.3	64.1	62.2	60.3	57.0	55.1
642	2018-02-08	23:41:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	57.7	63.8	63.3	63.0	62.4	61.7	59.6	57.8
643	2018-02-08	23:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	55.5	68.9	67.5	64.5	62.2	60.6	58.4	56.2
644	2018-02-08	23:43:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	54.7	67.0	66.2	63.4	60.4	58.2	55.4	54.8
645	2018-02-08	23:44:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	58.8	65.3	65.2	64.2	62.6	61.6	59.7	58.8
646	2018-02-08	23:45:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	60.0	64.8	64.5	64.0	63.4	63.0	60.9	60.1
647	2018-02-08	23:46:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	56.2	63.5	63.3	62.7	61.9	61.0	57.8	56.3
648	2018-02-08	23:47:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.1	67.5	66.3	63.8	62.9	62.1	60.0	59.2
649	2018-02-08	23:48:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	55.5	63.1	62.9	62.5	61.7	60.0	56.9	55.6
650	2018-02-08	23:49:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	55.9	62.2	61.9	61.2	60.1	58.3	57.1	56.1
651	2018-02-08	23:50:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	56.5	65.3	64.9	61.8	60.2	59.6	57.4	56.8
652	2018-02-08	23:51:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	53.3	67.1	66.7	64.4	60.6	58.2	54.3	53.3
653	2018-02-08	23:52:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	55.6	68.1	67.3	65.1	62.6	61.4	58.3	56.0
654	2018-02-08	23:53:00	0:01:00.0	0:01:00.0	0:00:00.0	58.1	54.0	62.0	61.5	61.1	59.7	56.8	55.0	54.2
655	2018-02-08	23:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	56.1	64.8	64.6	63.9	62.4	59.5	56.6	56.2
656	2018-02-08	23:55:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	55.2	63.3	63.1	62.0	60.5	58.5	56.4	55.3
657	2018-02-08	23:56:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.9	66.0	65.7	63.8	62.9	60.0	57.4	57.0
658	2018-02-08	23:57:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	54.6	66.1	65.8	65.5	63.7	60.3	56.5	54.8
659	2018-02-08	23:58:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	55.5	69.0	68.3	65.9	64.2	61.2	56.3	55.7
660	2018-02-08	23:59:00	0:01:00.0	0:01:00.0	0:00:00.0	60.3	55.1	65.9	65.3	62.6	61.1	59.7	56.9	55.1
661	2018-02-09	0:00:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	58.9	68.6	68.0	65.0	63.7	62.8	60.4	59.0
662	2018-02-09	0:01:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	57.4	66.0	65.7	64.5	61.5	60.2	58.5	57.5
663	2018-02-09	0:02:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	59.7	66.7	66.4	65.7	64.7	63.8	61.3	59.8
664	2018-02-09	0:03:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	56.1	66.1	64.8	64.1	63.4	61.2	58.5	56.2
665	2018-02-09	0:04:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	56.9	68.1	67.5	64.6	62.8	61.1	58.1	56.9
666	2018-02-09	0:05:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	54.1	62.4	62.1	61.4	60.1	58.2	55.2	54.3
667	2018-02-09	0:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	58.2	66.3	65.9	65.3	63.0	61.8	59.7	58.3
668	2018-02-09	0:07:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	56.9	65.5	65.3	64.9	62.8	61.1	57.8	57.0
669	2018-02-09	0:08:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	57.4	67.6	67.0	64.1	63.0	62.2	58.4	57.4
670	2018-02-09	0:09:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	56.5	64.4	63.9	63.2	62.4	61.6	58.1	56.7
671	2018-02-09	0:10:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	55.3	62.5	62.0	61.5	60.9	58.6	56.5	55.6
672	2018-02-09	0:11:00	0:01:00.0	0:01:00.0	0:00:00.0	57.9	50.7	62.2	62.0	60.7	59.7	56.1	52.9	50.9
673	2018-02-09	0:12:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	54.1	66.2	66.1	65.6	63.3	61.9	55.0	54.2
674	2018-02-09	0:13:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	51.9	64.7	64.4	62.0	59.5	58.0	53.6	52.0
675	2018-02-09	0:14:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	54.5	63.4	62.6	61.4	60.6	59.1	55.7	54.8
676	2018-02-09	0:15:00	0:01:00.0	0:01:00.0	0:00:00.0	57.2	47.6	61.8	61.2	60.3	59.1	56.1	49.8	47.7
677	2018-02-09	0:16:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.5	63.7	63.4	62.8	62.2	61.4	59.9	59.2
678	2018-02-09	0:17:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	55.2	63.4	63.1	62.5	59.6	57.7	55.8	55.4
679	2018-02-09	0:18:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	55.5	65.9	65.7	64.0	61.5	59.9	56.8	55.7
680	2018-02-09	0:19:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	53.9	62.9	62.8	62.2	60.5	57.8	54.7	54.0
681	2018-02-09	0:20:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	56.9	66.8	66.1	64.5	62.0	60.5	57.9	57.0
682	2018-02-09	0:21:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	54.4	67.9	67.5	64.2	60.0	58.2	55.6	54.5
683	2018-02-09	0:22:00	0:01:00.0	0:01:00.0	0:00:00.0	76.9	53.8	91.4	85.0	77.3	63.3	60.2	56.6	54.0
684	2018-02-09	0:23:00	0:01:00.0	0:01:00.0	0:00:00.0	85.8	66.4	98.9	98.0	91.7	77.0	68.9	66.9	66.5
685	2018-02-09	0:24:00	0:01:00.0	0:01:00.0	0:00:00.0	69.4	66.3	72.6	72.3	71.9	70.5	68.4	66.9	66.4
686	2018-02-09	0:25:00	0:01:00.0	0:01:00.0	0:00:00.0	69.4	61.6	73.4	73.2	72.8	71.9	69.3	62.2	61.7
687	2018-02-09	0:26:00	0:01:00.0	0:01:00.0	0:00:00.0	83.0	55.8	94.9	94.3	88.0	74.5	64.2	57.2	55.9
688	2018-02-09	0:27:00	0:01:00.0	0:01:00.0	0:00:00.0	73.7	65.2	83.6	82.8	79.9	73.9	69.0	66.3	65.4
689	2018-02-09	0:28:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	64.6	69.0	68.9	68.6	66.5	65.7	64.9	64.7
690	2018-02-09	0:29:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	65.4	71.1	70.9	69.9	67.5	66.7	65.6	65.4
691	2018-02-09	0:30:00	0:01:00.0	0:01:00.0	0:00:00.0	72.3	60.0	79.6	78.7	76.9	74.1	68.7	66.1	60.1
692	2018-02-09	0:31:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	56.9	68.5	68.1	66.7	65.7	62.5	58.9	57.0

693	2018-02-09	0:32:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	55.7	63.3	63.0	61.0	60.2	59.4	56.8	55.8
694	2018-02-09	0:33:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	56.7	67.4	67.2	65.6	63.6	62.0	58.1	56.8
695	2018-02-09	0:34:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	55.9	65.9	65.7	64.9	63.9	61.4	56.8	56.0
696	2018-02-09	0:35:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	54.2	64.7	64.3	63.7	61.8	60.4	55.6	54.3
697	2018-02-09	0:36:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	56.9	66.3	65.9	64.7	63.6	62.0	58.9	57.1
698	2018-02-09	0:37:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	55.0	65.2	64.7	64.0	62.9	61.4	56.6	55.1
699	2018-02-09	0:38:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.1	70.6	70.3	67.5	65.2	63.6	60.1	59.1
700	2018-02-09	0:39:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	58.6	67.0	66.6	65.7	65.0	63.6	59.6	58.7
701	2018-02-09	0:40:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.0	65.2	65.1	64.7	63.7	62.6	60.0	59.1
702	2018-02-09	0:41:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	53.6	64.0	63.6	63.3	61.7	60.3	54.3	53.7
703	2018-02-09	0:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	55.1	65.6	65.3	64.9	62.6	61.3	56.9	55.3
704	2018-02-09	0:43:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	60.2	67.8	67.4	66.5	65.0	63.7	60.8	60.4
705	2018-02-09	0:44:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	55.8	66.7	66.2	65.6	63.5	62.4	60.1	56.1
706	2018-02-09	0:45:00	0:01:00.0	0:01:00.0	0:00:00.0	59.6	52.6	64.2	64.0	63.1	60.7	58.0	53.9	52.7
707	2018-02-09	0:46:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.3	65.6	65.3	64.5	63.6	62.4	60.5	59.7
708	2018-02-09	0:47:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	56.5	66.2	65.7	64.5	63.1	61.8	57.5	56.6
709	2018-02-09	0:48:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	57.4	63.3	62.9	61.8	60.3	59.3	57.9	57.5
710	2018-02-09	0:49:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	55.4	63.9	63.3	62.5	62.0	60.9	56.8	55.6
711	2018-02-09	0:50:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	56.2	66.9	66.5	63.5	62.0	60.1	57.2	56.2
712	2018-02-09	0:51:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	58.4	67.1	66.5	65.4	63.5	62.3	59.3	58.5
713	2018-02-09	0:52:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	58.7	67.5	66.7	65.6	64.4	63.1	60.2	58.9
714	2018-02-09	0:53:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	55.8	65.8	65.4	64.8	64.1	62.0	56.5	55.9
715	2018-02-09	0:54:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.3	67.7	67.1	65.5	63.6	62.5	60.0	59.4
716	2018-02-09	0:55:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.9	68.3	67.6	65.6	64.3	62.6	60.2	59.0
717	2018-02-09	0:56:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	56.6	66.3	65.4	64.7	63.8	62.4	57.8	56.7
718	2018-02-09	0:57:00	0:01:00.0	0:01:00.0	0:00:00.0	82.9	58.0	97.3	93.0	80.1	72.9	60.9	59.0	58.2
719	2018-02-09	0:58:00	0:01:00.0	0:01:00.0	0:00:00.0	79.8	64.0	97.6	95.3	83.3	76.9	67.7	64.7	64.2
720	2018-02-09	0:59:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	63.4	68.6	68.0	66.2	65.0	64.6	63.8	63.4
721	2018-02-09	1:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	62.7	65.8	65.4	65.1	64.6	64.1	63.3	62.8
722	2018-02-09	1:01:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	62.5	67.5	67.4	67.0	65.2	64.5	63.1	62.6
723	2018-02-09	1:02:00	0:01:00.0	0:01:00.0	0:00:00.0	73.1	62.8	79.4	79.1	78.6	75.8	66.1	63.4	62.9
724	2018-02-09	1:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.3	68.1	67.7	66.6	65.8	65.1	60.2	59.5
725	2018-02-09	1:04:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	56.9	64.2	63.6	63.1	62.5	59.7	57.4	57.0
726	2018-02-09	1:05:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	58.6	64.5	64.0	63.5	62.9	62.0	60.1	58.7
727	2018-02-09	1:06:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	59.4	65.6	65.3	64.8	63.9	63.1	60.4	59.6
728	2018-02-09	1:07:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	59.9	65.3	65.1	64.8	64.3	63.5	60.8	60.0
729	2018-02-09	1:08:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	57.6	65.3	64.9	64.0	62.5	61.8	60.0	57.7
730	2018-02-09	1:09:00	0:01:00.0	0:01:00.0	0:00:00.0	58.9	53.9	63.5	63.3	62.9	60.5	57.0	54.7	54.0
731	2018-02-09	1:10:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	56.1	65.3	64.7	62.3	61.6	60.8	56.8	56.2
732	2018-02-09	1:11:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	56.6	66.6	66.2	63.6	62.7	61.5	58.8	56.7
733	2018-02-09	1:12:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	56.7	64.9	64.7	64.0	62.3	60.6	58.0	56.8
734	2018-02-09	1:13:00	0:01:00.0	0:01:00.0	0:00:00.0	70.7	59.8	81.2	80.9	75.7	68.0	64.0	61.3	59.9
735	2018-02-09	1:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	57.1	70.7	70.0	65.7	63.2	61.8	58.5	57.2
736	2018-02-09	1:15:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	57.2	68.1	64.6	63.5	62.2	61.0	58.0	57.3
737	2018-02-09	1:16:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	57.3	64.0	63.9	63.3	62.3	60.6	58.3	57.6
738	2018-02-09	1:17:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	56.9	67.2	66.5	65.7	63.5	61.8	58.7	57.4
739	2018-02-09	1:18:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	56.1	64.6	64.2	63.8	61.8	59.9	56.7	56.2
740	2018-02-09	1:19:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	58.5	66.4	65.7	64.2	63.1	61.7	59.6	58.7
741	2018-02-09	1:20:00	0:01:00.0	0:01:00.0	0:00:00.0	59.0	53.6	62.7	61.6	60.9	60.2	59.0	55.4	53.8
742	2018-02-09	1:21:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	54.2	65.6	64.0	63.0	59.6	56.8	55.1	54.3
743	2018-02-09	1:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	56.7	66.7	66.5	66.0	64.9	63.5	58.0	56.9
744	2018-02-09	1:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	57.2	67.7	67.3	65.3	62.5	61.3	57.9	57.3
745	2018-02-09	1:24:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	54.3	65.9	65.4	64.9	63.6	60.8	56.4	54.6
746	2018-02-09	1:25:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	53.9	67.0	66.3	65.3	63.5	62.1	54.9	54.0
747	2018-02-09	1:26:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	59.3	67.8	66.6	66.0	64.2	63.1	60.7	59.4
748	2018-02-09	1:27:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	52.1	67.6	67.0	66.4	64.0	61.8	55.1	52.2
749	2018-02-09	1:28:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	56.1	69.0	68.2	67.2	64.5	63.1	57.8	56.2
750	2018-02-09	1:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.4	68.9	68.5	67.3	65.7	64.6	62.1	61.6
751	2018-02-09	1:30:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.1	64.9	64.5	63.8	63.0	62.0	60.5	59.3
752	2018-02-09	1:31:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	53.2	65.7	65.1	64.2	63.0	61.2	54.2	53.4
753	2018-02-09	1:32:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	49.9	67.1	66.8	66.2	64.3	62.2	50.8	50.0
754	2018-02-09	1:33:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	55.4	66.0	65.1	64.7	63.9	63.0	56.2	55.5
755	2018-02-09	1:34:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	53.9	63.6	63.2	62.9	60.8	59.0	55.0	54.0
756	2018-02-09	1:35:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	57.5	69.3	69.0	68.4	67.3	64.6	61.1	57.7
757	2018-02-09	1:36:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	56.6	64.4	64.2	63.2	62.2	61.4	57.3	56.6
758	2018-02-09	1:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	57.6	64.8	64.4	63.7	62.9	62.2	60.0	57.8
759	2018-02-09	1:38:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	55.5	66.3	66.1	65.3	64.2	62.9	56.3	55.6
760	2018-02-09	1:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	58.2	66.9	66.6	65.7	65.1	64.5	59.2	58.4
761	2018-02-09	1:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.8	68.6	67.2	65.8	65.0	64.0	62.1	60.9
762	2018-02-09	1:41:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	54.5	67.3	66.3	64.5	62.3	61.1	55.8	54.7
763	2018-02-09	1:42:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	60.7	66.1	65.4	64.8	64.0	63.5	61.6	60.9
764	2018-02-09	1:43:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	58.9	66.4	66.1	65.6	64.4	62.8	60.0	59.0
765	2018-02-09	1:44:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	58.7	64.6	63.7	63.1	62.1	61.0	59.3	58.9
766	2018-02-09	1:45:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	58.6	68.1	67.7	64.9	63.5	62.7	60.6	58.8
767	2018-02-09	1:46:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	56.7	64.4	64.2	63.8	62.4	60.9	57.6	57.0
768	2018-02-09	1:47:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	56.0	67.9	67.7	67.0	65.6	63.3	57.4	56.2
769	2018-02-09	1:48:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.0	68.1	67.6	67.2	66.1	64.1	61.7	61.2

770	2018-02-09	1:49:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	60.3	66.1	66.0	65.8	65.0	63.7	61.2	60.4
771	2018-02-09	1:50:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	58.8	67.3	66.3	64.8	64.0	62.9	60.4	58.9
772	2018-02-09	1:51:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.7	68.3	67.2	66.3	60.8	59.4	57.3	56.8
773	2018-02-09	1:52:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	53.4	67.7	67.4	64.5	61.5	60.0	56.0	53.5
774	2018-02-09	1:53:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	57.1	66.3	66.1	65.4	64.2	63.5	59.6	57.5
775	2018-02-09	1:54:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	59.1	68.3	67.7	65.7	63.6	62.7	60.9	59.3
776	2018-02-09	1:55:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.3	65.1	64.8	63.5	62.5	61.3	58.6	58.3
777	2018-02-09	1:56:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.1	66.3	65.5	64.5	63.6	62.8	61.2	60.2
778	2018-02-09	1:57:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	58.0	66.2	65.9	63.7	63.0	61.3	58.7	58.1
779	2018-02-09	1:58:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	59.8	63.9	63.4	63.2	62.8	62.1	60.7	59.9
780	2018-02-09	1:59:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	59.2	65.7	65.2	64.5	63.0	61.7	60.0	59.3
781	2018-02-09	2:00:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	56.1	68.1	67.4	64.4	63.6	62.2	59.3	56.3
782	2018-02-09	2:01:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	55.8	64.5	64.2	61.9	59.1	57.7	56.5	55.8
783	2018-02-09	2:02:00	0:01:00.0	0:01:00.0	0:00:00.0	58.5	51.1	64.3	63.5	62.3	60.4	56.9	51.7	51.2
784	2018-02-09	2:03:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	56.8	78.3	76.9	68.7	64.3	61.6	58.2	56.9
785	2018-02-09	2:04:00	0:01:00.0	0:01:00.0	0:00:00.0	84.6	61.6	97.5	95.7	88.6	81.8	71.3	62.7	61.7
786	2018-02-09	2:05:00	0:01:00.0	0:01:00.0	0:00:00.0	70.0	68.2	71.9	71.7	71.5	70.3	69.8	68.9	68.3
787	2018-02-09	2:06:00	0:01:00.0	0:01:00.0	0:00:00.0	70.2	60.1	79.0	77.9	75.8	70.9	65.1	60.6	60.2
788	2018-02-09	2:07:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	58.4	69.7	69.1	66.1	62.8	61.7	59.4	58.6
789	2018-02-09	2:08:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	57.7	69.2	68.9	65.9	64.4	63.0	58.7	57.8
790	2018-02-09	2:09:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	61.3	67.0	66.8	65.6	64.4	63.4	62.3	61.4
791	2018-02-09	2:10:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.1	65.3	65.2	64.9	63.9	62.8	60.9	60.2
792	2018-02-09	2:11:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.6	65.8	65.3	64.1	62.5	61.6	58.7	57.7
793	2018-02-09	2:12:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	55.0	66.2	65.4	64.8	63.4	58.6	55.7	55.1
794	2018-02-09	2:13:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	57.1	67.0	66.3	65.7	64.3	63.4	58.0	57.1
795	2018-02-09	2:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	57.0	66.8	66.5	66.0	64.7	62.9	58.4	57.1
796	2018-02-09	2:15:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	58.6	66.2	65.6	64.9	63.6	62.7	60.2	58.7
797	2018-02-09	2:16:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	50.9	65.4	65.1	63.3	61.0	58.9	51.6	51.0
798	2018-02-09	2:17:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	54.1	64.9	64.7	63.0	61.7	60.4	55.7	54.3
799	2018-02-09	2:18:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.4	63.3	63.0	62.7	62.2	61.2	57.0	55.5
800	2018-02-09	2:19:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	59.2	66.7	66.5	65.3	63.9	62.7	59.9	59.3
801	2018-02-09	2:20:00	0:01:00.0	0:01:00.0	0:00:00.0	59.7	56.0	63.7	63.2	62.1	60.4	59.3	56.4	56.0
802	2018-02-09	2:21:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	60.4	73.0	72.6	69.1	66.5	64.6	62.2	60.6
803	2018-02-09	2:22:00	0:01:00.0	0:01:00.0	0:00:00.0	87.0	62.2	98.8	97.8	92.1	86.0	70.0	63.9	62.3
804	2018-02-09	2:23:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	66.8	73.7	73.3	72.8	69.4	68.5	67.7	66.9
805	2018-02-09	2:24:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	62.4	71.5	71.3	70.8	69.3	68.2	64.3	63.2
806	2018-02-09	2:25:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	55.0	64.8	64.1	63.3	61.6	58.0	55.8	55.2
807	2018-02-09	2:26:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	57.1	64.5	63.9	62.2	61.5	59.9	58.1	57.4
808	2018-02-09	2:27:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	52.7	66.9	66.7	63.9	61.5	58.0	53.5	52.8
809	2018-02-09	2:28:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	54.4	64.8	64.5	64.0	62.8	60.8	55.1	54.5
810	2018-02-09	2:29:00	0:01:00.0	0:01:00.0	0:00:00.0	59.1	56.5	62.7	62.2	61.0	59.9	58.2	57.1	56.6
811	2018-02-09	2:30:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	56.4	62.7	62.4	62.0	60.3	58.8	56.9	56.6
812	2018-02-09	2:31:00	0:01:00.0	0:01:00.0	0:00:00.0	58.3	51.5	62.5	61.0	60.3	59.7	58.7	53.1	51.5
813	2018-02-09	2:32:00	0:01:00.0	0:01:00.0	0:00:00.0	59.8	53.5	66.5	65.8	64.5	61.1	57.6	54.3	53.6
814	2018-02-09	2:33:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	57.0	71.3	70.2	64.4	62.0	60.6	58.7	57.4
815	2018-02-09	2:34:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	56.9	70.4	69.5	66.7	65.4	63.3	60.2	57.0
816	2018-02-09	2:35:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	52.8	68.0	67.1	63.1	62.5	60.7	55.4	53.0
817	2018-02-09	2:36:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	55.6	64.7	64.3	61.4	60.2	58.7	56.2	55.7
818	2018-02-09	2:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	55.3	68.8	68.6	66.0	62.8	61.6	57.5	55.4
819	2018-02-09	2:38:00	0:01:00.0	0:01:00.0	0:00:00.0	59.3	56.3	62.5	62.2	61.7	60.1	58.9	56.9	56.5
820	2018-02-09	2:39:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	52.3	64.6	64.0	62.7	61.9	60.7	53.7	52.4
821	2018-02-09	2:40:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	60.7	65.8	65.5	65.1	64.5	63.2	61.9	61.1
822	2018-02-09	2:41:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	58.2	64.4	64.2	64.1	63.1	61.7	59.0	58.3
823	2018-02-09	2:42:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.3	67.1	66.4	64.8	63.1	61.8	59.8	58.5
824	2018-02-09	2:43:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.3	68.9	68.3	67.0	66.0	65.1	62.1	60.4
825	2018-02-09	2:44:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	56.5	65.1	64.9	64.1	63.5	61.7	58.6	56.8
826	2018-02-09	2:45:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	56.5	67.2	67.0	66.5	65.8	64.4	61.7	56.6
827	2018-02-09	2:46:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	56.1	67.3	66.6	65.9	65.1	63.0	57.4	56.2
828	2018-02-09	2:47:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.4	64.5	64.3	63.5	62.7	61.2	58.0	56.5
829	2018-02-09	2:48:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	58.0	64.5	64.0	63.7	62.8	60.9	59.2	58.1
830	2018-02-09	2:49:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.0	68.8	68.4	67.3	65.1	63.0	59.0	58.1
831	2018-02-09	2:50:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	54.6	66.1	65.7	64.6	63.3	61.9	57.5	55.0
832	2018-02-09	2:51:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	54.0	63.3	62.9	61.9	60.0	58.5	55.4	54.1
833	2018-02-09	2:52:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.5	64.7	64.4	63.9	63.5	63.0	61.6	60.6
834	2018-02-09	2:53:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	57.4	66.5	65.9	61.8	60.9	59.8	58.4	57.5
835	2018-02-09	2:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	57.0	63.4	62.8	62.3	61.5	60.8	58.1	57.1
836	2018-02-09	2:55:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	58.8	63.8	63.5	63.0	62.0	61.0	60.0	59.2
837	2018-02-09	2:56:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	57.6	65.2	64.5	63.3	62.2	60.7	58.4	57.7
838	2018-02-09	2:57:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	52.5	66.5	65.9	62.5	60.2	58.3	53.2	52.6
839	2018-02-09	2:58:00	0:01:00.0	0:01:00.0	0:00:00.0	59.4	55.3	63.0	62.2	61.4	60.5	59.6	55.9	55.4
840	2018-02-09	2:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	54.7	68.1	67.6	65.0	61.4	59.3	55.3	54.8
841	2018-02-09	3:00:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.2	64.9	64.0	62.8	62.2	60.5	57.6	55.5
842	2018-02-09	3:01:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.6	66.3	65.7	65.4	63.7	61.7	59.4	58.7
843	2018-02-09	3:02:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	60.6	66.3	66.1	65.7	64.9	63.5	61.7	60.8
844	2018-02-09	3:03:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.1	65.8	65.6	65.1	64.5	63.7	59.8	59.2
845	2018-02-09	3:04:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	57.4	66.8	66.2	64.8	63.5	61.1	58.4	57.5
846	2018-02-09	3:05:00	0:01:00.0	0:01:00.0	0:00:00.0	58.8	56.5	61.9	61.5	60.8	59.7	58.2	56.9	56.6

847	2018-02-09	3:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.1	64.7	64.4	63.9	63.2	62.3	60.4	58.2
848	2018-02-09	3:07:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	58.1	65.1	64.6	64.2	62.8	61.5	60.2	58.2
849	2018-02-09	3:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	58.6	69.1	68.8	66.3	64.9	64.1	60.4	58.7
850	2018-02-09	3:09:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	57.5	68.9	68.5	67.5	66.2	64.6	58.2	57.7
851	2018-02-09	3:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	56.7	67.5	67.1	65.8	64.7	62.3	57.4	56.8
852	2018-02-09	3:11:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.1	65.7	65.6	65.0	64.2	63.4	59.5	59.1
853	2018-02-09	3:12:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	59.7	67.2	66.8	66.1	64.7	63.1	61.1	59.8
854	2018-02-09	3:13:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.5	66.9	66.7	65.9	65.4	64.6	63.2	62.6
855	2018-02-09	3:14:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	59.6	69.1	68.6	68.3	67.1	66.2	61.6	59.8
856	2018-02-09	3:15:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.5	66.9	66.6	65.7	65.0	64.0	59.5	58.6
857	2018-02-09	3:16:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	58.6	65.2	64.8	64.1	63.2	62.2	59.8	58.7
858	2018-02-09	3:17:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	57.1	64.4	63.9	63.2	62.4	60.2	57.9	57.2
859	2018-02-09	3:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	59.5	66.6	66.1	65.7	64.7	63.5	60.7	59.9
860	2018-02-09	3:19:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.2	66.8	66.3	66.0	64.6	63.5	62.4	60.4
861	2018-02-09	3:20:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	57.8	65.6	65.2	64.6	63.7	62.4	58.7	58.0
862	2018-02-09	3:21:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	61.7	69.5	68.8	67.4	66.1	64.8	62.7	61.8
863	2018-02-09	3:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	58.4	67.2	66.9	66.1	64.5	63.2	59.6	58.5
864	2018-02-09	3:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	57.5	68.3	68.0	67.0	62.9	60.3	58.9	57.6
865	2018-02-09	3:24:00	0:01:00.0	0:01:00.0	0:00:00.0	59.2	56.4	63.0	62.5	62.0	60.0	58.6	56.8	56.4
866	2018-02-09	3:25:00	0:01:00.0	0:01:00.0	0:00:00.0	58.7	55.2	61.3	61.1	60.8	59.2	58.4	56.8	55.3
867	2018-02-09	3:26:00	0:01:00.0	0:01:00.0	0:00:00.0	60.0	54.3	63.8	62.9	62.4	61.7	59.5	56.2	54.5
868	2018-02-09	3:27:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	57.8	62.8	62.7	62.3	61.6	60.9	59.6	57.9
869	2018-02-09	3:28:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	60.5	66.5	66.1	65.5	63.5	62.5	61.1	60.6
870	2018-02-09	3:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.9	66.9	66.7	65.9	65.3	63.8	62.7	62.1
871	2018-02-09	3:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.8	70.2	69.8	66.2	64.6	63.8	60.7	59.9
872	2018-02-09	3:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.2	68.9	68.4	66.7	66.0	65.0	62.4	61.2
873	2018-02-09	3:32:00	0:01:00.0	0:01:00.0	0:00:00.0	77.6	58.8	92.0	89.8	80.3	71.2	65.5	61.1	58.9
874	2018-02-09	3:33:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	59.4	68.1	67.5	63.6	62.5	61.6	60.2	59.6
875	2018-02-09	3:34:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	56.8	65.8	65.7	65.3	63.2	61.2	58.0	56.9
876	2018-02-09	3:35:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	58.6	70.7	70.0	65.0	63.2	62.3	60.4	58.8
877	2018-02-09	3:36:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	59.5	67.4	66.9	64.4	63.6	62.8	61.2	59.7
878	2018-02-09	3:37:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	57.6	65.7	65.5	64.7	62.5	60.5	58.3	57.6
879	2018-02-09	3:38:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	56.6	66.5	66.1	62.4	61.2	59.3	58.0	56.6
880	2018-02-09	3:39:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	58.5	66.6	66.2	65.0	64.1	62.8	59.8	58.6
881	2018-02-09	3:40:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.3	69.7	69.0	65.3	63.3	61.3	57.8	57.4
882	2018-02-09	3:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	60.9	69.0	68.0	66.7	65.9	64.4	61.8	61.0
883	2018-02-09	3:42:00	0:01:00.0	0:01:00.0	0:00:00.0	70.2	60.1	81.8	80.0	73.5	70.1	64.6	61.1	60.3
884	2018-02-09	3:43:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.2	69.2	66.9	66.3	65.0	63.7	62.8	61.2
885	2018-02-09	3:44:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	59.9	68.6	67.5	66.0	64.6	62.9	60.6	60.0
886	2018-02-09	3:45:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	61.7	66.9	66.7	66.3	65.2	64.0	62.5	61.9
887	2018-02-09	3:46:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	60.9	68.3	68.1	67.5	66.4	63.8	61.4	61.0
888	2018-02-09	3:47:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	59.3	66.7	66.6	66.1	65.2	64.1	60.5	59.3
889	2018-02-09	3:48:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	59.0	68.8	68.4	66.9	65.6	63.3	59.9	59.1
890	2018-02-09	3:49:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	57.7	65.2	65.0	63.6	61.9	61.1	58.7	57.9
891	2018-02-09	3:50:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	59.5	68.4	67.8	65.8	64.3	62.7	61.1	59.6
892	2018-02-09	3:51:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.8	69.2	68.9	66.8	64.3	63.0	60.9	58.8
893	2018-02-09	3:52:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.6	69.5	69.2	66.6	64.2	63.3	59.9	58.7
894	2018-02-09	3:53:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	58.4	69.8	69.3	65.4	63.4	62.3	59.2	58.5
895	2018-02-09	3:54:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	61.5	66.7	66.5	65.8	65.1	64.3	62.5	61.6
896	2018-02-09	3:55:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	57.6	67.1	66.9	66.3	63.8	62.1	58.6	57.7
897	2018-02-09	3:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.4	69.6	69.4	68.0	66.1	65.2	63.4	62.5
898	2018-02-09	3:57:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	58.2	67.8	67.5	66.1	64.9	63.0	59.7	58.3
899	2018-02-09	3:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	57.9	66.6	66.4	65.3	64.9	62.8	60.0	58.0
900	2018-02-09	3:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	55.3	67.9	67.5	64.6	63.4	59.4	56.9	55.3
901	2018-02-09	4:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.1	67.7	67.4	66.8	65.7	64.2	62.4	61.2
902	2018-02-09	4:01:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.5	70.5	70.1	69.1	64.6	63.7	62.2	60.7
903	2018-02-09	4:02:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	56.6	63.9	63.7	63.2	62.7	61.7	59.2	56.9
904	2018-02-09	4:03:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	58.9	69.6	68.4	67.4	66.2	65.0	62.9	59.0
905	2018-02-09	4:04:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	55.0	67.1	66.8	66.4	64.3	61.2	56.4	55.2
906	2018-02-09	4:05:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.9	67.0	66.2	65.4	64.6	63.7	62.5	61.1
907	2018-02-09	4:06:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	59.0	64.5	64.1	63.8	62.8	61.3	59.6	59.0
908	2018-02-09	4:07:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.1	69.2	68.8	66.9	65.2	63.5	61.4	60.2
909	2018-02-09	4:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.8	68.1	67.5	66.9	65.5	64.6	62.2	61.8
910	2018-02-09	4:09:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	60.9	65.6	65.5	65.3	64.8	64.0	61.8	61.0
911	2018-02-09	4:10:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.5	67.5	67.3	66.6	66.0	65.1	62.7	61.6
912	2018-02-09	4:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	60.1	70.2	69.1	68.1	66.7	64.3	60.9	60.2
913	2018-02-09	4:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	62.7	68.8	68.6	68.0	67.4	65.0	63.4	62.8
914	2018-02-09	4:13:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	59.5	68.3	67.9	66.1	64.3	63.4	61.2	59.6
915	2018-02-09	4:14:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	59.5	70.0	69.4	68.5	67.2	64.8	61.7	59.9
916	2018-02-09	4:15:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	60.2	67.9	67.7	66.9	65.2	63.6	61.5	60.3
917	2018-02-09	4:16:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	61.3	67.9	67.5	66.4	65.0	63.3	61.8	61.4
918	2018-02-09	4:17:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	58.1	67.4	67.1	65.3	63.5	62.3	58.8	58.3
919	2018-02-09	4:18:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	60.9	67.9	67.6	66.4	65.6	64.7	62.9	61.2
920	2018-02-09	4:19:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	60.2	68.5	67.7	65.3	64.5	63.3	61.3	60.2
921	2018-02-09	4:20:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	60.5	65.2	64.8	64.7	64.1	63.6	61.5	60.6
922	2018-02-09	4:21:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	61.1	65.4	65.2	64.7	64.2	63.4	61.8	61.3
923	2018-02-09	4:22:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	61.1	70.6	69.8	66.5	65.2	64.6	62.0	61.2

924	2018-02-09	4:23:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	61.3	72.4	72.0	71.3	67.7	64.6	62.8	61.8
925	2018-02-09	4:24:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	59.2	69.4	65.0	64.0	62.4	61.5	59.7	59.3
926	2018-02-09	4:25:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.4	70.0	69.5	66.5	65.6	64.5	61.0	60.5
927	2018-02-09	4:26:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.2	70.6	70.1	69.0	66.5	65.4	63.4	62.4
928	2018-02-09	4:27:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	60.8	67.6	67.2	66.0	64.4	63.1	62.2	60.8
929	2018-02-09	4:28:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.8	66.9	66.5	65.8	63.7	62.8	61.5	60.0
930	2018-02-09	4:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	61.4	66.5	66.2	65.9	65.2	64.3	63.0	61.5
931	2018-02-09	4:30:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	60.0	69.5	69.2	67.9	66.6	63.8	61.6	60.1
932	2018-02-09	4:31:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	60.8	67.8	67.5	66.9	66.2	63.9	61.7	61.0
933	2018-02-09	4:32:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	61.9	71.9	71.3	67.9	64.7	63.6	62.3	61.9
934	2018-02-09	4:33:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	59.9	69.0	68.2	67.3	65.9	64.1	60.3	60.0
935	2018-02-09	4:34:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	60.2	68.4	68.1	67.5	65.9	64.8	62.6	60.5
936	2018-02-09	4:35:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	61.7	73.5	73.2	70.5	66.5	64.5	62.8	61.8
937	2018-02-09	4:36:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	60.3	66.0	64.9	64.2	63.2	62.4	61.0	60.3
938	2018-02-09	4:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.3	61.2	69.9	69.0	66.1	64.9	63.4	62.0	61.3
939	2018-02-09	4:38:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.0	68.7	68.5	67.0	65.1	64.1	62.9	62.5
940	2018-02-09	4:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	59.3	67.5	67.2	66.1	64.8	63.7	60.9	59.5
941	2018-02-09	4:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.2	66.9	66.7	66.3	65.7	64.8	61.5	59.3
942	2018-02-09	4:41:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	59.6	68.8	68.6	67.1	66.0	63.5	61.7	59.9
943	2018-02-09	4:42:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.7	68.9	68.5	67.5	66.7	66.1	64.0	62.8
944	2018-02-09	4:43:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	58.0	67.7	67.5	66.8	65.3	63.3	61.2	58.2
945	2018-02-09	4:44:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	58.0	68.2	67.8	67.1	65.3	63.9	58.8	58.2
946	2018-02-09	4:45:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	61.8	69.2	68.6	67.3	66.3	65.0	63.1	61.9
947	2018-02-09	4:46:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	57.5	66.9	66.6	66.0	64.2	62.8	59.1	57.6
948	2018-02-09	4:47:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	63.5	68.8	68.2	66.9	66.5	65.4	64.2	63.6
949	2018-02-09	4:48:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	62.4	68.5	68.2	67.3	66.7	66.0	63.3	62.6
950	2018-02-09	4:49:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.2	68.1	67.7	67.2	66.3	65.6	62.7	61.4
951	2018-02-09	4:50:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	61.0	70.0	69.9	69.1	67.5	66.2	62.3	61.1
952	2018-02-09	4:51:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	61.6	67.5	67.2	66.7	65.3	64.5	62.2	61.8
953	2018-02-09	4:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	60.9	70.3	69.9	67.2	66.0	63.1	61.6	61.1
954	2018-02-09	4:53:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	60.6	68.0	67.6	67.1	66.3	65.1	62.0	60.7
955	2018-02-09	4:54:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	60.0	64.7	64.3	63.9	62.6	62.0	60.7	60.2
956	2018-02-09	4:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	60.6	68.4	68.0	67.5	65.5	64.3	61.3	60.9
957	2018-02-09	4:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	62.3	69.5	69.3	68.4	67.1	64.8	62.8	62.4
958	2018-02-09	4:57:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.7	69.4	68.9	67.8	66.6	65.2	62.3	60.8
959	2018-02-09	4:58:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	62.6	68.8	68.6	68.0	67.1	66.0	64.4	62.8
960	2018-02-09	4:59:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.4	68.6	68.3	67.7	65.7	64.5	63.1	62.5
961	2018-02-09	5:00:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.8	69.2	68.9	66.7	65.1	64.3	61.5	60.8
962	2018-02-09	5:01:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	63.8	68.1	67.9	67.5	66.9	66.2	64.7	63.9
963	2018-02-09	5:02:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	61.4	67.3	66.9	66.3	65.6	64.6	62.3	61.5
964	2018-02-09	5:03:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	62.1	67.0	66.8	65.9	65.4	64.7	63.2	62.2
965	2018-02-09	5:04:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.7	72.2	68.9	68.4	66.8	64.6	63.1	62.8
966	2018-02-09	5:05:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	62.9	74.7	74.0	68.6	67.1	64.8	63.6	63.0
967	2018-02-09	5:06:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	64.4	69.9	69.6	68.9	67.7	66.5	65.3	64.6
968	2018-02-09	5:07:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	60.7	68.9	68.7	68.2	67.2	65.5	61.5	60.8
969	2018-02-09	5:08:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	60.2	69.7	69.6	68.9	68.0	66.4	61.9	60.3
970	2018-02-09	5:09:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	60.5	72.2	71.2	67.9	65.8	64.2	62.0	60.6
971	2018-02-09	5:10:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	60.9	67.3	67.0	65.4	63.9	62.9	61.7	61.1
972	2018-02-09	5:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	62.8	68.9	68.7	67.2	65.8	64.6	63.5	63.0
973	2018-02-09	5:12:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	64.4	71.2	70.8	69.2	67.5	65.8	65.1	64.5
974	2018-02-09	5:13:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	61.6	68.4	68.3	68.0	67.1	64.9	62.5	61.8
975	2018-02-09	5:14:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.5	69.7	69.1	67.5	66.1	64.9	62.6	61.7
976	2018-02-09	5:15:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	62.9	69.3	68.7	68.1	66.1	64.8	63.4	63.0
977	2018-02-09	5:16:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	61.4	72.2	71.7	68.3	67.4	65.8	62.0	61.5
978	2018-02-09	5:17:00	0:01:00.0	0:01:00.0	0:00:00.0	68.0	65.5	72.0	71.5	69.7	68.5	67.6	66.0	65.6
979	2018-02-09	5:18:00	0:01:00.0	0:01:00.0	0:00:00.0	91.0	64.3	103.0	102.3	95.6	86.7	74.1	65.5	64.5
980	2018-02-09	5:19:00	0:01:00.0	0:01:00.0	0:00:00.0	77.2	69.4	85.6	85.1	82.7	77.2	76.0	69.9	69.5
981	2018-02-09	5:20:00	0:01:00.0	0:01:00.0	0:00:00.0	69.6	67.6	73.9	73.2	72.4	69.8	69.0	67.9	67.7
982	2018-02-09	5:21:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	65.8	68.9	68.8	68.5	68.0	67.6	66.7	65.9
983	2018-02-09	5:22:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	65.3	71.5	70.9	69.8	68.0	67.2	66.0	65.4
984	2018-02-09	5:23:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	63.2	70.3	70.1	69.2	67.5	66.6	63.9	63.3
985	2018-02-09	5:24:00	0:01:00.0	0:01:00.0	0:00:00.0	67.5	65.2	70.0	69.6	69.4	68.3	67.3	65.7	65.3
986	2018-02-09	5:25:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	63.9	68.5	68.2	68.0	67.3	66.6	64.8	64.0
987	2018-02-09	5:26:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	64.1	71.0	70.7	70.2	68.3	67.1	64.9	64.3
988	2018-02-09	5:27:00	0:01:00.0	0:01:00.0	0:00:00.0	68.4	65.7	72.6	72.3	70.6	68.7	68.1	66.5	66.0
989	2018-02-09	5:28:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	64.7	71.4	71.1	70.6	69.5	68.6	65.7	64.8
990	2018-02-09	5:29:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.1	71.3	70.9	68.5	66.5	65.3	63.5	62.3
991	2018-02-09	5:30:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	65.7	73.9	72.7	68.7	67.6	67.0	66.2	65.8
992	2018-02-09	5:31:00	0:01:00.0	0:01:00.0	0:00:00.0	67.5	63.6	70.3	70.2	69.7	68.5	67.2	64.5	63.7
993	2018-02-09	5:32:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	64.9	69.3	68.9	68.1	67.6	67.0	65.3	65.0
994	2018-02-09	5:33:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	63.2	67.9	67.5	66.8	66.1	65.5	63.7	63.2
995	2018-02-09	5:34:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.6	71.3	70.6	68.9	66.7	65.6	63.7	62.8
996	2018-02-09	5:35:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	63.1	69.0	68.7	68.1	67.3	66.2	64.3	63.3
997	2018-02-09	5:36:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	65.1	69.7	69.6	69.3	68.6	67.5	65.8	65.1
998	2018-02-09	5:37:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	63.7	72.6	72.2	71.1	69.2	67.4	64.6	63.8
999	2018-02-09	5:38:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	65.4	70.3	70.0	69.3	68.2	67.3	66.0	65.5
1000	2018-02-09	5:39:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	63.2	72.5	71.8	69.7	68.0	65.6	64.1	63.4

1001	2018-02-09	5:40:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	62.2	70.8	70.3	69.2	67.7	66.5	63.2	62.4
1002	2018-02-09	5:41:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	62.3	70.9	70.7	69.2	68.0	66.8	63.0	62.4
1003	2018-02-09	5:42:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	63.2	70.4	70.3	69.4	67.6	65.8	63.9	63.3
1004	2018-02-09	5:43:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	63.9	71.2	70.6	69.5	67.9	67.0	64.8	64.0
1005	2018-02-09	5:44:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	62.6	70.7	70.5	69.5	67.5	66.3	63.9	62.8
1006	2018-02-09	5:45:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.9	71.1	70.2	68.5	67.1	65.7	63.7	63.0
1007	2018-02-09	5:46:00	0:01:00.0	0:01:00.0	0:00:00.0	68.2	62.3	71.9	71.7	70.4	69.4	68.0	64.5	62.4
1008	2018-02-09	5:47:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	63.1	70.6	69.6	69.1	68.6	67.3	64.2	63.2
1009	2018-02-09	5:48:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	62.9	69.3	69.1	68.9	68.3	67.6	63.9	63.0
1010	2018-02-09	5:49:00	0:01:00.0	0:01:00.0	0:00:00.0	67.5	64.9	70.5	70.1	68.9	68.1	67.5	65.9	65.0
1011	2018-02-09	5:50:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	64.4	72.1	71.4	68.5	67.3	66.4	65.2	64.5
1012	2018-02-09	5:51:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	63.0	72.4	71.8	69.7	68.4	67.3	65.1	63.1
1013	2018-02-09	5:52:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	61.5	68.8	68.5	67.4	66.9	65.5	63.8	61.7
1014	2018-02-09	5:53:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	62.4	70.9	70.5	68.9	68.0	66.4	63.7	62.4
1015	2018-02-09	5:54:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	63.1	72.7	72.0	69.4	67.4	66.6	63.8	63.3
1016	2018-02-09	5:55:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	64.4	72.5	72.2	69.5	67.2	66.6	65.3	64.5
1017	2018-02-09	5:56:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	63.7	69.3	68.8	67.5	66.5	65.7	64.3	63.8
1018	2018-02-09	5:57:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.8	69.4	69.2	68.4	66.5	65.7	63.5	62.9
1019	2018-02-09	5:58:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	61.9	69.0	68.4	67.8	67.1	66.1	62.7	62.0
1020	2018-02-09	5:59:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	64.0	69.7	69.2	68.2	67.3	66.3	64.6	64.1
1021	2018-02-09	6:00:00	0:01:00.0	0:01:00.0	0:00:00.0	74.7	64.2	83.6	82.7	79.0	75.5	71.1	66.2	64.9
1022	2018-02-09	6:01:00	0:01:00.0	0:01:00.0	0:00:00.0	88.5	71.6	100.5	99.4	95.6	81.0	77.7	74.7	72.9
1023	2018-02-09	6:02:00	0:01:00.0	0:01:00.0	0:00:00.0	77.1	75.0	79.8	79.6	79.4	77.4	76.8	75.4	75.1
1024	2018-02-09	6:03:00	0:01:00.0	0:01:00.0	0:00:00.0	73.4	66.4	80.1	80.0	77.5	75.0	70.8	67.0	66.5
1025	2018-02-09	6:04:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	64.9	70.5	70.0	68.8	68.1	66.7	65.2	65.0
1026	2018-02-09	6:05:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	63.5	72.9	72.6	68.4	66.4	65.7	64.5	63.6
1027	2018-02-09	6:06:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	63.4	71.1	70.8	70.3	69.6	68.6	64.1	63.5
1028	2018-02-09	6:07:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	64.8	69.2	68.9	68.4	67.9	67.3	66.1	65.3
1029	2018-02-09	6:08:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	63.2	71.3	71.0	69.2	67.5	66.2	64.5	63.3
1030	2018-02-09	6:09:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	63.6	71.7	71.2	69.8	68.0	66.4	64.9	63.8
1031	2018-02-09	6:10:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	63.7	74.3	73.6	70.5	68.5	67.3	65.2	63.9
1032	2018-02-09	6:11:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	62.8	69.6	69.2	68.2	67.2	66.5	64.2	62.9
1033	2018-02-09	6:12:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	66.0	70.4	70.2	69.7	69.0	68.4	66.8	66.0
1034	2018-02-09	6:13:00	0:01:00.0	0:01:00.0	0:00:00.0	70.5	64.1	80.6	80.0	73.8	69.1	67.1	65.2	64.4
1035	2018-02-09	6:14:00	0:01:00.0	0:01:00.0	0:00:00.0	76.9	64.5	88.9	86.5	82.9	74.5	68.9	65.6	64.5
1036	2018-02-09	6:15:00	0:01:00.0	0:01:00.0	0:00:00.0	86.6	69.3	98.7	98.4	92.2	74.3	71.8	70.0	69.3
1037	2018-02-09	6:16:00	0:01:00.0	0:01:00.0	0:00:00.0	73.3	69.4	81.8	80.7	76.8	72.9	70.8	70.1	69.5
1038	2018-02-09	6:17:00	0:01:00.0	0:01:00.0	0:00:00.0	80.5	69.4	89.6	88.0	84.8	80.6	78.5	72.4	69.7
1039	2018-02-09	6:18:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	66.1	69.4	69.1	68.9	68.2	67.5	66.5	66.2
1040	2018-02-09	6:19:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	64.7	68.0	67.7	67.5	67.0	66.3	64.9	64.8
1041	2018-02-09	6:20:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	66.1	68.9	68.7	68.6	67.9	67.3	66.3	66.2
1042	2018-02-09	6:21:00	0:01:00.0	0:01:00.0	0:00:00.0	68.4	65.2	71.3	70.2	69.8	69.1	68.5	66.1	65.3
1043	2018-02-09	6:22:00	0:01:00.0	0:01:00.0	0:00:00.0	78.6	71.3	82.2	82.0	81.5	81.0	77.8	72.7	71.4
1044	2018-02-09	6:23:00	0:01:00.0	0:01:00.0	0:00:00.0	71.0	66.8	75.0	74.7	73.9	71.9	70.3	68.0	66.8
1045	2018-02-09	6:24:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	64.7	71.1	70.8	69.6	67.8	67.0	65.6	64.7
1046	2018-02-09	6:25:00	0:01:00.0	0:01:00.0	0:00:00.0	70.2	65.4	76.4	75.9	74.5	70.1	68.9	66.7	65.6
1047	2018-02-09	6:26:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	64.1	69.4	69.1	68.5	67.8	67.0	65.2	64.3
1048	2018-02-09	6:27:00	0:01:00.0	0:01:00.0	0:00:00.0	68.4	64.8	72.2	71.7	70.3	69.7	67.8	65.6	64.8
1049	2018-02-09	6:28:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	65.0	70.8	70.6	69.9	68.1	67.1	66.2	65.2
1050	2018-02-09	6:29:00	0:01:00.0	0:01:00.0	0:00:00.0	70.4	66.9	77.6	76.2	72.5	70.6	69.6	67.4	66.9
1051	2018-02-09	6:30:00	0:01:00.0	0:01:00.0	0:00:00.0	70.7	67.3	75.2	74.4	73.3	71.5	69.6	68.2	67.3
1052	2018-02-09	6:31:00	0:01:00.0	0:01:00.0	0:00:00.0	68.9	65.4	76.1	74.8	73.2	69.0	68.0	66.2	65.5
1053	2018-02-09	6:32:00	0:01:00.0	0:01:00.0	0:00:00.0	68.7	65.1	71.9	71.4	70.4	69.8	68.6	66.1	65.1
1054	2018-02-09	6:33:00	0:01:00.0	0:01:00.0	0:00:00.0	70.0	64.7	79.1	76.6	74.7	69.1	67.8	66.6	65.2
1055	2018-02-09	6:34:00	0:01:00.0	0:01:00.0	0:00:00.0	67.2	64.6	70.0	69.8	69.0	68.1	66.4	65.5	64.6
1056	2018-02-09	6:35:00	0:01:00.0	0:01:00.0	0:00:00.0	69.0	65.4	72.0	71.3	70.8	70.0	68.8	66.5	65.5
1057	2018-02-09	6:36:00	0:01:00.0	0:01:00.0	0:00:00.0	69.0	66.2	72.5	72.3	71.2	69.7	68.6	66.6	66.2
1058	2018-02-09	6:37:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	65.0	71.7	71.4	70.8	68.9	68.0	66.2	65.1
1059	2018-02-09	6:38:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	65.8	70.1	69.9	69.7	68.9	67.8	66.6	66.0
1060	2018-02-09	6:39:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	64.2	71.6	71.4	70.5	67.7	65.8	64.7	64.3
1061	2018-02-09	6:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	62.2	69.0	68.6	67.0	65.8	64.3	63.0	62.3
1062	2018-02-09	6:41:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	62.6	72.1	71.7	69.2	66.8	65.5	63.0	62.7
1063	2018-02-09	6:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	61.6	69.3	69.0	66.2	64.7	63.4	61.9	61.6
1064	2018-02-09	6:43:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	62.8	71.4	70.9	69.3	67.5	66.1	64.3	63.0
1065	2018-02-09	6:44:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	61.3	68.7	68.5	67.2	66.2	65.3	61.8	61.4
1066	2018-02-09	6:45:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	62.2	71.6	71.2	70.0	66.9	65.2	62.8	62.2
1067	2018-02-09	6:46:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	62.4	70.2	69.9	68.6	66.9	65.9	63.4	62.5
1068	2018-02-09	6:47:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	62.1	73.1	72.1	69.0	65.5	64.5	63.3	62.2
1069	2018-02-09	6:48:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	62.6	68.7	68.5	68.0	66.4	65.0	63.3	62.8
1070	2018-02-09	6:49:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.2	68.2	67.9	66.8	65.8	65.2	63.1	62.2
1071	2018-02-09	6:50:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	62.2	77.2	74.4	70.7	68.3	65.4	63.1	62.4
1072	2018-02-09	6:51:00	0:01:00.0	0:01:00.0	0:00:00.0	68.1	63.9	73.0	72.6	71.0	68.6	67.1	65.0	64.2
1073	2018-02-09	6:52:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	62.3	72.1	71.3	68.6	66.3	65.2	62.9	62.4
1074	2018-02-09	6:53:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	62.1	74.3	71.4	68.7	67.1	65.6	62.8	62.2
1075	2018-02-09	6:54:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	63.4	75.3	75.0	71.8	67.8	65.2	63.7	63.5
1076	2018-02-09	6:55:00	0:01:00.0	0:01:00.0	0:00:00.0	67.9	63.5	76.1	75.4	71.3	66.8	66.3	64.8	63.7
1077	2018-02-09	6:56:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	63.2	69.3	68.9	68.6	66.7	65.7	64.6	63.3

1078	2018-02-09	6:57:00	0:01:00.0	0:01:00.0	0:00:00.0	66.8	63.3	70.8	70.4	69.1	68.0	65.9	64.4	63.4
1079	2018-02-09	6:58:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	62.1	72.4	71.6	68.0	67.3	65.2	63.7	62.3
1080	2018-02-09	6:59:00	0:01:00.0	0:01:00.0	0:00:00.0	71.7	64.4	81.6	80.0	76.2	71.8	67.2	65.0	64.4
1081	2018-02-09	7:00:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	64.9	72.7	72.0	70.2	68.1	66.9	65.5	65.0
1082	2018-02-09	7:01:00	0:01:00.0	0:01:00.0	0:00:00.0	69.7	64.1	77.6	77.1	74.0	69.0	66.6	65.7	64.4
1083	2018-02-09	7:02:00	0:01:00.0	0:01:00.0	0:00:00.0	67.8	64.2	70.4	70.2	69.9	68.7	67.6	65.2	64.3
1084	2018-02-09	7:03:00	0:01:00.0	0:01:00.0	0:00:00.0	71.2	64.3	77.8	76.6	76.0	73.7	67.4	65.0	64.4
1085	2018-02-09	7:04:00	0:01:00.0	0:01:00.0	0:00:00.0	67.5	63.6	71.6	71.1	69.5	68.6	67.1	64.5	63.7
1086	2018-02-09	7:05:00	0:01:00.0	0:01:00.0	0:00:00.0	68.2	66.2	69.8	69.7	69.4	68.9	68.2	66.5	66.2
1087	2018-02-09	7:06:00	0:01:00.0	0:01:00.0	0:00:00.0	72.8	66.6	80.8	78.9	76.5	74.1	69.3	67.1	66.7
1088	2018-02-09	7:07:00	0:01:00.0	0:01:00.0	0:00:00.0	71.4	63.9	80.0	77.0	75.3	72.5	69.8	67.1	64.0
1089	2018-02-09	7:08:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	63.5	70.3	70.1	69.7	68.0	66.2	64.2	63.6
1090	2018-02-09	7:09:00	0:01:00.0	0:01:00.0	0:00:00.0	67.9	65.6	72.4	70.9	69.6	68.2	67.4	66.1	65.7
1091	2018-02-09	7:10:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	61.4	73.4	73.2	69.1	66.5	65.2	62.0	61.5
1092	2018-02-09	7:11:00	0:01:00.0	0:01:00.0	0:00:00.0	67.9	64.5	71.4	71.1	69.8	68.6	67.9	65.2	64.6
1093	2018-02-09	7:12:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	63.2	70.3	70.0	67.9	66.8	65.5	64.0	63.3
1094	2018-02-09	7:13:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	63.0	68.5	68.3	67.6	66.1	64.7	63.8	63.1
1095	2018-02-09	7:14:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.6	69.8	69.1	66.4	65.3	64.2	61.1	60.8
1096	2018-02-09	7:15:00	0:01:00.0	0:01:00.0	0:00:00.0	67.8	59.6	78.9	76.5	67.5	65.7	63.9	61.0	59.7
1097	2018-02-09	7:16:00	0:01:00.0	0:01:00.0	0:00:00.0	67.5	62.3	79.0	78.1	70.7	67.2	65.1	63.1	62.4
1098	2018-02-09	7:17:00	0:01:00.0	0:01:00.0	0:00:00.0	70.5	64.2	76.9	76.1	75.2	70.7	68.0	65.7	64.6
1099	2018-02-09	7:18:00	0:01:00.0	0:01:00.0	0:00:00.0	87.0	65.0	99.0	98.8	90.5	81.7	73.2	66.9	65.1
1100	2018-02-09	7:19:00	0:01:00.0	0:01:00.0	0:00:00.0	73.1	70.8	76.1	75.8	74.8	73.5	72.7	71.4	70.9
1101	2018-02-09	7:20:00	0:01:00.0	0:01:00.0	0:00:00.0	72.0	67.5	74.6	74.4	74.0	72.8	71.8	70.2	68.3
1102	2018-02-09	7:21:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	65.2	72.8	72.6	72.2	70.7	68.9	66.1	65.3
1103	2018-02-09	7:22:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	61.1	70.4	69.8	69.0	67.9	66.8	63.3	61.3
1104	2018-02-09	7:23:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	60.8	71.1	70.3	68.4	66.6	63.7	61.5	60.9
1105	2018-02-09	7:24:00	0:01:00.0	0:01:00.0	0:00:00.0	69.2	63.1	78.1	77.7	75.1	67.3	65.7	63.7	63.2
1106	2018-02-09	7:25:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	62.2	69.5	68.7	66.8	65.9	64.9	62.9	62.3
1107	2018-02-09	7:26:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	60.5	71.2	70.9	68.5	66.9	65.5	63.3	60.6
1108	2018-02-09	7:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	62.8	74.5	74.1	69.2	66.8	64.6	63.2	62.9
1109	2018-02-09	7:28:00	0:01:00.0	0:01:00.0	0:00:00.0	69.5	60.3	79.1	78.5	74.7	68.1	66.5	60.7	60.4
1110	2018-02-09	7:29:00	0:01:00.0	0:01:00.0	0:00:00.0	70.6	61.8	80.8	79.9	76.3	68.0	66.3	62.4	61.9
1111	2018-02-09	7:30:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	61.3	77.6	76.4	68.7	66.4	64.8	62.4	61.4
1112	2018-02-09	7:31:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	60.7	69.8	69.0	68.1	66.7	64.3	61.2	60.7
1113	2018-02-09	7:32:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	60.7	74.6	73.8	70.4	67.5	65.2	63.1	61.5
1114	2018-02-09	7:33:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	61.6	69.0	68.7	68.4	67.3	65.6	62.4	61.7
1115	2018-02-09	7:34:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.2	72.7	72.0	69.6	66.7	64.9	63.3	62.4
1116	2018-02-09	7:35:00	0:01:00.0	0:01:00.0	0:00:00.0	87.8	64.4	100.5	100.0	90.9	79.0	69.4	66.3	64.6
1117	2018-02-09	7:36:00	0:01:00.0	0:01:00.0	0:00:00.0	70.0	67.6	74.0	72.7	72.4	70.7	69.5	68.8	67.7
1118	2018-02-09	7:37:00	0:01:00.0	0:01:00.0	0:00:00.0	70.6	66.5	77.4	77.0	74.8	70.2	69.1	67.7	67.5
1119	2018-02-09	7:38:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	61.9	69.4	69.3	69.1	68.5	66.5	62.5	62.1
1120	2018-02-09	7:39:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	61.5	77.5	76.5	73.2	67.6	64.1	62.0	61.6
1121	2018-02-09	7:40:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.1	69.2	69.0	68.0	66.6	64.9	61.7	61.3
1122	2018-02-09	7:41:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.7	71.2	70.7	69.1	66.0	64.7	62.2	61.7
1123	2018-02-09	7:42:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	60.1	67.9	67.4	66.8	65.6	63.8	61.4	60.2
1124	2018-02-09	7:43:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	61.6	68.1	67.9	67.1	65.8	64.7	62.3	61.8
1125	2018-02-09	7:44:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	62.3	69.9	69.4	68.5	66.7	65.4	63.3	62.4
1126	2018-02-09	7:45:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	60.3	72.9	72.0	69.6	67.3	65.7	61.0	60.4
1127	2018-02-09	7:46:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	61.3	68.9	68.3	65.9	64.8	63.1	61.6	61.4
1128	2018-02-09	7:47:00	0:01:00.0	0:01:00.0	0:00:00.0	67.4	61.1	73.8	73.2	71.7	68.2	65.1	62.5	61.2
1129	2018-02-09	7:48:00	0:01:00.0	0:01:00.0	0:00:00.0	67.0	61.4	73.1	72.7	71.4	67.6	65.2	62.2	61.6
1130	2018-02-09	7:49:00	0:01:00.0	0:01:00.0	0:00:00.0	86.0	63.8	97.8	97.5	90.4	80.8	71.4	65.6	64.0
1131	2018-02-09	7:50:00	0:01:00.0	0:01:00.0	0:00:00.0	70.4	67.7	73.6	73.1	72.3	71.0	70.3	68.4	67.9
1132	2018-02-09	7:51:00	0:01:00.0	0:01:00.0	0:00:00.0	69.2	66.7	71.9	71.6	70.5	69.6	69.0	67.7	66.9
1133	2018-02-09	7:52:00	0:01:00.0	0:01:00.0	0:00:00.0	70.1	62.6	77.8	76.9	73.8	70.1	68.7	63.1	62.7
1134	2018-02-09	7:53:00	0:01:00.0	0:01:00.0	0:00:00.0	71.7	62.3	85.8	83.7	75.2	64.9	64.2	63.2	62.5
1135	2018-02-09	7:54:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	60.5	72.9	72.5	69.6	66.6	63.8	61.4	60.5
1136	2018-02-09	7:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	58.1	72.1	71.1	67.2	65.6	60.8	59.1	58.1
1137	2018-02-09	7:56:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	61.1	67.5	66.9	65.7	64.6	63.7	62.4	61.3
1138	2018-02-09	7:57:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	62.3	69.9	69.3	66.1	64.0	63.4	62.7	62.3
1139	2018-02-09	7:58:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	60.7	73.5	73.3	69.5	65.8	64.6	61.9	60.8
1140	2018-02-09	7:59:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	59.6	68.3	68.0	67.6	66.4	62.4	60.5	59.8
1141	2018-02-09	8:00:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.2	67.4	66.7	65.4	64.6	62.2	60.0	59.3
1142	2018-02-09	8:01:00	0:01:00.0	0:01:00.0	0:00:00.0	84.7	60.1	93.8	93.6	90.3	83.9	78.1	61.4	60.2
1143	2018-02-09	8:02:00	0:01:00.0	0:01:00.0	0:00:00.0	71.3	65.6	77.7	76.7	75.1	73.3	70.4	66.1	65.7
1144	2018-02-09	8:03:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.5	68.6	68.4	68.2	67.0	66.1	63.2	62.5
1145	2018-02-09	8:04:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	62.7	69.0	68.5	67.3	65.4	64.1	63.1	62.8
1146	2018-02-09	8:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	61.9	65.7	65.4	64.7	64.1	63.5	62.5	62.0
1147	2018-02-09	8:06:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	62.4	67.6	66.8	65.9	65.3	64.2	63.2	62.5
1148	2018-02-09	8:07:00	0:01:00.0	0:01:00.0	0:00:00.0	71.5	62.3	76.3	75.9	75.7	73.7	70.4	63.2	62.4
1149	2018-02-09	8:08:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	62.1	72.4	71.3	70.8	69.7	66.8	62.8	62.2
1150	2018-02-09	8:09:00	0:01:00.0	0:01:00.0	0:00:00.0	68.0	61.8	76.1	75.8	72.2	67.5	65.4	63.0	61.9
1151	2018-02-09	8:10:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	58.7	69.8	69.3	67.0	63.6	61.9	59.3	58.9
1152	2018-02-09	8:11:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	60.8	68.6	67.9	65.4	63.4	62.6	61.7	61.1
1153	2018-02-09	8:12:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	61.3	74.7	67.9	67.3	65.5	63.5	62.0	61.4
1154	2018-02-09	8:13:00	0:01:00.0	0:01:00.0	0:00:00.0	74.2	62.6	80.9	78.8	77.5	75.8	73.6	66.6	63.1

1155	2018-02-09	8:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.2	69.6	69.2	66.1	64.4	62.4	59.0	58.4
1156	2018-02-09	8:15:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	58.5	68.3	67.5	66.4	65.1	62.4	59.7	58.7
1157	2018-02-09	8:16:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	58.1	74.9	73.5	70.9	66.9	63.9	59.6	58.2
1158	2018-02-09	8:17:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	59.8	72.8	72.3	69.4	64.9	62.7	60.7	60.0
1159	2018-02-09	8:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.7	67.3	67.0	65.8	64.2	63.2	59.3	58.7
1160	2018-02-09	8:19:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	60.5	65.7	65.6	65.3	64.3	63.5	61.9	60.6
1161	2018-02-09	8:20:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	59.1	68.3	67.9	66.6	65.4	63.1	60.2	59.3
1162	2018-02-09	8:21:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	61.6	74.7	72.7	68.0	65.7	63.4	62.2	61.7
1163	2018-02-09	8:22:00	0:01:00.0	0:01:00.0	0:00:00.0	82.0	61.3	95.4	93.9	84.4	77.3	73.6	64.0	61.4
1164	2018-02-09	8:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	57.2	69.7	68.8	67.1	62.8	61.0	58.4	57.3
1165	2018-02-09	8:24:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	59.2	69.0	68.8	67.5	63.6	62.3	61.2	59.5
1166	2018-02-09	8:25:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	58.5	71.9	71.0	67.3	63.7	62.1	59.8	58.6
1167	2018-02-09	8:26:00	0:01:00.0	0:01:00.0	0:00:00.0	81.3	62.5	94.9	93.4	84.3	77.6	71.3	63.2	62.6
1168	2018-02-09	8:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	63.5	71.6	71.5	69.8	66.9	65.6	64.2	63.6
1169	2018-02-09	8:28:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	64.0	70.5	69.0	67.1	66.1	65.5	64.5	64.1
1170	2018-02-09	8:29:00	0:01:00.0	0:01:00.0	0:00:00.0	69.2	63.2	77.9	77.6	74.4	66.9	64.8	63.8	63.3
1171	2018-02-09	8:30:00	0:01:00.0	0:01:00.0	0:00:00.0	71.2	63.9	77.6	77.5	77.0	71.9	69.0	66.5	64.1
1172	2018-02-09	8:31:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.1	68.2	67.7	65.0	63.1	62.1	59.8	59.1
1173	2018-02-09	8:32:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	57.7	67.6	67.1	66.1	64.4	62.1	59.1	57.9
1174	2018-02-09	8:33:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	57.1	68.8	68.5	67.5	65.5	61.8	57.7	57.2
1175	2018-02-09	8:34:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	57.0	68.5	68.0	66.8	65.4	63.2	59.2	57.2
1176	2018-02-09	8:35:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	58.9	72.2	71.6	66.6	64.8	63.3	61.3	58.9
1177	2018-02-09	8:36:00	0:01:00.0	0:01:00.0	0:00:00.0	66.1	59.3	75.4	75.0	70.7	64.8	62.6	60.0	59.4
1178	2018-02-09	8:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	53.9	71.7	71.0	67.7	63.0	60.8	56.1	54.0
1179	2018-02-09	8:38:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	54.5	70.4	69.4	64.0	62.5	61.0	58.6	55.5
1180	2018-02-09	8:39:00	0:01:00.0	0:01:00.0	0:00:00.0	66.3	59.7	72.5	71.7	70.6	67.4	64.4	60.5	59.7
1181	2018-02-09	8:40:00	0:01:00.0	0:01:00.0	0:00:00.0	85.2	60.2	97.4	96.7	89.2	79.0	70.0	61.5	60.3
1182	2018-02-09	8:41:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	65.3	70.6	70.5	69.1	68.1	67.1	66.2	65.5
1183	2018-02-09	8:42:00	0:01:00.0	0:01:00.0	0:00:00.0	68.0	63.6	70.4	70.2	69.9	68.7	68.0	66.8	63.9
1184	2018-02-09	8:43:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	57.0	69.1	68.8	67.9	66.9	64.3	60.0	57.2
1185	2018-02-09	8:44:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	57.6	74.3	73.8	70.8	65.6	63.7	60.5	58.0
1186	2018-02-09	8:45:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.7	67.3	66.9	65.9	62.8	61.3	59.3	58.8
1187	2018-02-09	8:46:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	59.8	71.7	70.7	65.6	63.4	62.1	60.7	59.9
1188	2018-02-09	8:47:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	58.8	68.2	67.8	66.0	64.5	63.0	60.2	59.0
1189	2018-02-09	8:48:00	0:01:00.0	0:01:00.0	0:00:00.0	91.4	60.9	103.4	102.5	97.8	83.9	68.6	62.3	61.0
1190	2018-02-09	8:49:00	0:01:00.0	0:01:00.0	0:00:00.0	72.0	65.0	82.0	80.6	78.5	71.4	68.1	65.6	65.0
1191	2018-02-09	8:50:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	63.8	74.9	74.7	72.7	68.3	67.2	64.6	64.0
1192	2018-02-09	8:51:00	0:01:00.0	0:01:00.0	0:00:00.0	66.2	62.5	69.3	69.1	68.8	67.6	65.4	63.6	62.5
1193	2018-02-09	8:52:00	0:01:00.0	0:01:00.0	0:00:00.0	71.1	63.5	77.2	76.6	76.1	74.0	64.7	64.0	63.6
1194	2018-02-09	8:53:00	0:01:00.0	0:01:00.0	0:00:00.0	69.7	63.5	76.0	75.5	72.9	71.1	68.6	65.8	64.1
1195	2018-02-09	8:54:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	60.8	70.1	69.4	67.3	65.1	63.5	61.8	60.9
1196	2018-02-09	8:55:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	56.8	71.7	71.3	67.7	63.7	61.2	57.7	56.9
1197	2018-02-09	8:56:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	57.8	68.7	67.9	67.0	64.7	62.6	59.1	57.9
1198	2018-02-09	8:57:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	55.0	67.3	67.1	66.0	63.2	62.2	58.4	55.2
1199	2018-02-09	8:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	59.7	68.7	68.1	65.9	63.8	62.4	60.4	59.7
1200	2018-02-09	8:59:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	56.7	70.8	70.3	67.7	63.8	62.1	58.2	56.8
1201	2018-02-09	9:00:00	0:01:00.0	0:01:00.0	0:00:00.0	65.6	59.5	71.3	70.9	68.6	66.5	64.4	61.6	59.7
1202	2018-02-09	9:01:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	57.3	68.8	68.1	66.8	64.4	62.6	58.5	57.6
1203	2018-02-09	9:02:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	59.0	72.3	72.2	68.2	65.5	63.7	60.1	59.1
1204	2018-02-09	9:03:00	0:01:00.0	0:01:00.0	0:00:00.0	65.3	60.6	70.9	70.7	68.6	65.7	64.4	61.1	60.7
1205	2018-02-09	9:04:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	54.0	69.2	68.3	66.0	62.0	60.2	57.3	54.5
1206	2018-02-09	9:05:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	53.6	68.7	68.5	67.8	65.8	64.2	55.0	53.7
1207	2018-02-09	9:06:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	57.8	70.6	70.1	68.8	65.5	63.0	59.9	58.0
1208	2018-02-09	9:07:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.3	69.5	68.7	64.8	63.7	62.7	60.0	58.3
1209	2018-02-09	9:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	58.9	70.8	69.7	68.3	65.0	63.3	60.7	59.0
1210	2018-02-09	9:09:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	57.1	68.3	68.0	67.5	65.9	62.8	59.2	57.4
1211	2018-02-09	9:10:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	60.7	67.0	66.8	66.2	65.7	64.8	62.4	60.8
1212	2018-02-09	9:11:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	58.9	73.6	72.8	68.3	65.0	62.7	61.2	59.1
1213	2018-02-09	9:12:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	58.2	68.5	66.7	64.3	63.0	62.3	59.0	58.3
1214	2018-02-09	9:13:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	60.3	69.3	68.9	67.1	65.3	62.4	60.8	60.3
1215	2018-02-09	9:14:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	57.1	72.7	71.5	66.4	64.1	62.5	58.9	57.3
1216	2018-02-09	9:15:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	61.7	70.1	69.6	67.4	66.4	64.0	62.3	61.7
1217	2018-02-09	9:16:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	61.2	68.6	67.9	66.8	64.7	63.5	61.7	61.3
1218	2018-02-09	9:17:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	55.1	65.4	65.1	64.6	62.8	61.4	56.5	55.2
1219	2018-02-09	9:18:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	56.9	63.0	62.7	62.2	61.3	60.8	58.7	57.2
1220	2018-02-09	9:19:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	57.8	67.9	67.3	66.6	65.0	62.5	58.4	57.9
1221	2018-02-09	9:20:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	56.4	66.7	66.1	63.9	62.3	60.6	58.3	56.6
1222	2018-02-09	9:21:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	55.3	71.5	71.2	69.5	63.7	61.0	58.2	55.5
1223	2018-02-09	9:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	57.4	67.7	67.4	66.5	64.3	62.0	59.0	57.9
1224	2018-02-09	9:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	57.7	66.0	65.8	65.1	62.9	61.4	58.9	57.8
1225	2018-02-09	9:24:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	58.6	66.3	66.1	65.7	64.6	63.2	59.7	58.8
1226	2018-02-09	9:25:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	59.8	68.9	67.9	64.6	63.4	62.3	60.9	60.1
1227	2018-02-09	9:26:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	57.4	67.6	67.0	66.2	64.5	63.0	58.6	57.5
1228	2018-02-09	9:27:00	0:01:00.0	0:01:00.0	0:00:00.0	64.4	59.5	71.1	70.7	68.0	64.4	63.3	60.5	59.7
1229	2018-02-09	9:28:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	57.8	74.2	73.4	69.7	64.6	62.0	59.1	58.2
1230	2018-02-09	9:29:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	57.7	69.6	69.5	68.0	65.5	62.7	58.7	57.9
1231	2018-02-09	9:30:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	55.4	65.7	65.5	64.3	62.9	60.9	56.3	55.5

1232	2018-02-09	9:31:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	56.5	71.1	70.4	68.5	65.6	62.8	57.8	56.6
1233	2018-02-09	9:32:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	58.3	69.5	69.3	68.7	65.3	61.0	59.0	58.5
1234	2018-02-09	9:33:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	57.4	67.1	66.5	64.2	61.5	59.7	58.0	57.5
1235	2018-02-09	9:34:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	57.4	67.8	65.5	63.4	62.2	61.6	58.0	57.6
1236	2018-02-09	9:35:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	54.6	68.0	67.8	64.9	61.8	60.7	55.9	54.7
1237	2018-02-09	9:36:00	0:01:00.0	0:01:00.0	0:00:00.0	60.7	56.3	63.9	63.5	62.8	62.1	60.7	57.0	56.5
1238	2018-02-09	9:37:00	0:01:00.0	0:01:00.0	0:00:00.0	72.7	60.8	85.5	84.3	76.1	65.7	64.2	61.7	61.0
1239	2018-02-09	9:38:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	61.6	78.1	75.9	71.2	66.6	64.7	62.5	61.7
1240	2018-02-09	9:39:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	57.3	68.3	67.8	65.5	62.6	60.9	58.5	57.4
1241	2018-02-09	9:40:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	59.2	76.1	74.2	67.4	63.7	62.2	60.0	59.3
1242	2018-02-09	9:41:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	58.6	68.1	67.9	67.2	65.1	61.9	59.8	58.8
1243	2018-02-09	9:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	56.5	69.3	69.1	64.8	61.5	59.8	57.5	56.8
1244	2018-02-09	9:43:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	60.2	75.6	75.1	69.5	67.5	64.4	61.6	60.7
1245	2018-02-09	9:44:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	59.3	66.3	65.7	64.9	63.8	62.6	60.1	59.5
1246	2018-02-09	9:45:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	58.2	70.1	69.6	67.1	64.9	63.2	58.8	58.3
1247	2018-02-09	9:46:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	60.2	71.4	69.8	69.0	64.4	61.8	60.5	60.3
1248	2018-02-09	9:47:00	0:01:00.0	0:01:00.0	0:00:00.0	68.4	58.7	78.8	78.1	74.1	65.9	64.2	60.3	59.0
1249	2018-02-09	9:48:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	57.5	70.6	67.3	66.7	64.9	61.9	59.8	57.7
1250	2018-02-09	9:49:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	59.5	73.0	72.4	70.9	66.4	64.2	60.9	59.7
1251	2018-02-09	9:50:00	0:01:00.0	0:01:00.0	0:00:00.0	86.9	62.4	97.1	96.8	95.0	82.9	70.7	64.8	62.6
1252	2018-02-09	9:51:00	0:01:00.0	0:01:00.0	0:00:00.0	72.2	65.4	82.6	81.1	72.3	71.6	70.6	68.3	65.8
1253	2018-02-09	9:52:00	0:01:00.0	0:01:00.0	0:00:00.0	67.8	64.6	77.3	75.2	70.0	67.4	66.3	65.1	64.7
1254	2018-02-09	9:53:00	0:01:00.0	0:01:00.0	0:00:00.0	67.8	65.4	69.9	69.6	69.4	68.3	67.3	66.8	65.6
1255	2018-02-09	9:54:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	59.7	73.2	72.6	71.5	66.6	64.6	60.3	59.8
1256	2018-02-09	9:55:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	56.6	69.3	68.7	64.2	62.6	59.8	57.6	56.7
1257	2018-02-09	9:56:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.2	69.2	68.5	66.3	63.4	62.2	60.2	59.3
1258	2018-02-09	9:57:00	0:01:00.0	0:01:00.0	0:00:00.0	69.0	60.4	77.9	77.1	75.1	68.8	64.9	61.1	60.6
1259	2018-02-09	9:58:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.9	66.6	66.5	65.6	63.2	62.1	58.9	58.2
1260	2018-02-09	9:59:00	0:01:00.0	0:01:00.0	0:00:00.0	83.0	56.9	94.9	94.4	87.6	75.7	64.6	58.3	57.0
1261	2018-02-09	10:00:00	0:01:00.0	0:01:00.0	0:00:00.0	70.0	67.0	75.1	74.9	73.4	70.7	68.8	67.3	67.1
1262	2018-02-09	10:01:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	62.9	70.5	70.2	69.5	68.1	67.6	66.4	63.0
1263	2018-02-09	10:02:00	0:01:00.0	0:01:00.0	0:00:00.0	66.6	60.4	73.1	72.6	70.9	67.1	65.0	61.9	60.7
1264	2018-02-09	10:03:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	58.0	66.9	66.6	65.7	62.9	60.9	59.0	58.0
1265	2018-02-09	10:04:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	60.2	68.4	68.1	66.4	64.6	63.2	61.4	60.6
1266	2018-02-09	10:05:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	59.9	70.1	69.5	68.5	64.5	63.2	61.1	60.1
1267	2018-02-09	10:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	56.3	68.9	68.3	66.4	63.0	61.7	58.8	56.6
1268	2018-02-09	10:07:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	55.6	73.3	73.0	69.4	64.5	61.1	57.4	55.8
1269	2018-02-09	10:08:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	56.1	67.1	66.8	65.4	63.0	61.2	58.2	56.4
1270	2018-02-09	10:09:00	0:01:00.0	0:01:00.0	0:00:00.0	60.6	57.3	63.4	63.1	62.6	61.7	59.9	58.2	57.4
1271	2018-02-09	10:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	59.6	68.3	67.9	65.8	63.3	62.2	60.0	59.7
1272	2018-02-09	10:11:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	60.0	65.5	65.3	64.6	63.2	61.9	60.4	60.1
1273	2018-02-09	10:12:00	0:01:00.0	0:01:00.0	0:00:00.0	70.6	57.1	81.6	78.9	75.7	71.3	63.2	58.9	57.2
1274	2018-02-09	10:13:00	0:01:00.0	0:01:00.0	0:00:00.0	61.4	55.3	66.4	66.0	63.6	61.8	61.0	57.0	55.5
1275	2018-02-09	10:14:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	58.9	67.9	67.4	66.3	64.0	61.9	60.1	59.0
1276	2018-02-09	10:15:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	55.9	67.7	66.9	65.3	61.8	60.9	57.0	56.0
1277	2018-02-09	10:16:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	57.4	70.6	70.2	67.3	64.2	60.9	58.1	57.6
1278	2018-02-09	10:17:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	60.8	68.2	67.8	65.9	64.7	63.1	61.5	61.0
1279	2018-02-09	10:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.4	56.9	72.8	67.0	64.9	63.3	61.7	59.6	57.1
1280	2018-02-09	10:19:00	0:01:00.0	0:01:00.0	0:00:00.0	72.0	58.5	84.0	82.2	73.3	67.7	63.8	59.8	58.9
1281	2018-02-09	10:20:00	0:01:00.0	0:01:00.0	0:00:00.0	83.4	65.9	96.8	95.1	87.8	80.7	71.4	67.0	66.1
1282	2018-02-09	10:21:00	0:01:00.0	0:01:00.0	0:00:00.0	66.5	65.0	68.1	67.7	67.5	66.9	66.4	65.6	65.2
1283	2018-02-09	10:22:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	64.7	74.8	74.6	73.7	67.7	66.2	65.6	65.1
1284	2018-02-09	10:23:00	0:01:00.0	0:01:00.0	0:00:00.0	68.9	63.7	75.1	74.7	73.3	68.4	67.4	65.4	64.2
1285	2018-02-09	10:24:00	0:01:00.0	0:01:00.0	0:00:00.0	64.9	58.2	68.3	67.8	67.0	66.0	64.8	61.0	58.8
1286	2018-02-09	10:25:00	0:01:00.0	0:01:00.0	0:00:00.0	65.9	61.5	69.7	69.1	67.5	66.4	65.4	64.0	62.4
1287	2018-02-09	10:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.2	56.3	69.6	68.3	66.5	65.5	64.4	58.5	56.6
1288	2018-02-09	10:27:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	56.3	66.2	65.5	63.8	61.0	59.0	56.8	56.4
1289	2018-02-09	10:28:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	58.0	70.1	69.3	68.1	62.2	60.8	58.8	58.0
1290	2018-02-09	10:29:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	55.4	68.1	67.6	66.2	63.9	60.1	56.9	55.4
1291	2018-02-09	10:30:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	57.1	74.1	73.5	69.5	64.8	62.2	59.1	57.3
1292	2018-02-09	10:31:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	57.9	69.6	68.9	66.3	62.5	60.8	58.6	57.9
1293	2018-02-09	10:32:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	56.3	65.7	65.4	64.2	62.3	60.4	57.5	56.4
1294	2018-02-09	10:33:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	57.5	71.5	71.0	67.1	62.6	60.5	58.6	57.7
1295	2018-02-09	10:34:00	0:01:00.0	0:01:00.0	0:00:00.0	70.0	57.7	81.3	81.1	74.7	65.9	62.9	59.9	57.8
1296	2018-02-09	10:35:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	59.5	68.0	67.4	64.9	63.0	61.8	60.3	59.6
1297	2018-02-09	10:36:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	57.7	66.3	66.0	63.3	61.3	59.8	58.5	57.8
1298	2018-02-09	10:37:00	0:01:00.0	0:01:00.0	0:00:00.0	64.5	58.3	74.4	73.4	67.4	63.7	61.7	59.1	58.3
1299	2018-02-09	10:38:00	0:01:00.0	0:01:00.0	0:00:00.0	67.6	60.6	75.9	75.3	73.5	65.5	63.3	61.3	60.7
1300	2018-02-09	10:39:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	57.6	72.4	71.7	69.8	64.8	63.5	59.2	57.8
1301	2018-02-09	10:40:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	58.1	65.6	65.4	64.1	63.0	62.0	59.3	58.4
1302	2018-02-09	10:41:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	59.3	68.6	68.2	64.9	63.2	61.8	60.4	59.5
1303	2018-02-09	10:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.9	57.1	65.7	65.6	64.6	63.0	61.6	57.9	57.1
1304	2018-02-09	10:43:00	0:01:00.0	0:01:00.0	0:00:00.0	70.1	57.7	79.0	78.6	76.2	69.4	63.6	58.3	57.8
1305	2018-02-09	10:44:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	55.8	70.9	70.5	66.4	63.1	59.5	57.3	55.9
1306	2018-02-09	10:45:00	0:01:00.0	0:01:00.0	0:00:00.0	68.5	57.4	79.4	78.6	74.0	64.7	62.4	59.9	57.7
1307	2018-02-09	10:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.8	57.6	70.7	70.5	69.5	67.2	63.7	61.4	57.7
1308	2018-02-09	10:47:00	0:01:00.0	0:01:00.0	0:00:00.0	90.4	61.4	101.2	100.8	97.5	81.0	65.0	62.0	61.6

1309	2018-02-09	10:48:00	0:01:00.0	0:01:00.0	0:00:00.0	71.5	65.9	95.2	90.4	79.3	70.2	68.4	66.5	66.0
1310	2018-02-09	10:49:00	0:01:00.0	0:01:00.0	0:00:00.0	69.3	67.0	73.7	71.9	71.3	70.3	68.7	67.3	67.1
1311	2018-02-09	10:50:00	0:01:00.0	0:01:00.0	0:00:00.0	69.6	65.6	75.0	74.7	73.0	70.4	68.1	66.1	65.7
1312	2018-02-09	10:51:00	0:01:00.0	0:01:00.0	0:00:00.0	68.5	60.2	77.4	76.6	73.0	68.4	66.5	60.9	60.3
1313	2018-02-09	10:52:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	57.4	66.9	66.1	65.1	63.4	62.2	59.0	57.5
1314	2018-02-09	10:53:00	0:01:00.0	0:01:00.0	0:00:00.0	61.5	56.8	67.5	66.9	65.2	62.2	60.5	58.0	57.0
1315	2018-02-09	10:54:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	58.5	63.5	63.3	62.7	61.6	60.9	59.2	58.6
1316	2018-02-09	10:55:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	56.9	67.1	66.9	65.4	63.6	61.1	59.4	57.5
1317	2018-02-09	10:56:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	55.8	70.4	69.3	68.0	61.7	58.2	56.5	55.9
1318	2018-02-09	10:57:00	0:01:00.0	0:01:00.0	0:00:00.0	60.8	56.3	66.3	65.9	64.3	61.3	59.3	57.3	56.5
1319	2018-02-09	10:58:00	0:01:00.0	0:01:00.0	0:00:00.0	80.1	56.6	92.5	91.6	85.7	64.7	62.1	57.3	56.7
1320	2018-02-09	10:59:00	0:01:00.0	0:01:00.0	0:00:00.0	78.2	64.9	91.6	90.2	81.6	70.3	68.2	65.8	65.0
1321	2018-02-09	11:00:00	0:01:00.0	0:01:00.0	0:00:00.0	68.0	65.2	72.4	71.8	69.6	68.6	67.7	66.0	65.3
1322	2018-02-09	11:01:00	0:01:00.0	0:01:00.0	0:00:00.0	72.3	66.5	78.2	77.8	76.6	72.7	70.4	67.8	66.6
1323	2018-02-09	11:02:00	0:01:00.0	0:01:00.0	0:00:00.0	65.7	60.3	72.8	72.2	68.0	65.9	65.0	61.7	60.4
1324	2018-02-09	11:03:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	56.3	64.0	63.8	63.1	61.2	60.3	57.1	56.5
1325	2018-02-09	11:04:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	59.0	71.5	70.6	64.7	62.4	61.5	59.6	59.1
1326	2018-02-09	11:05:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	59.1	67.8	67.6	66.9	65.5	62.7	60.5	59.2
1327	2018-02-09	11:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	57.7	67.9	67.4	66.2	64.3	61.5	58.2	57.8
1328	2018-02-09	11:07:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	56.9	68.4	67.9	65.7	62.5	61.6	58.7	57.0
1329	2018-02-09	11:08:00	0:01:00.0	0:01:00.0	0:00:00.0	64.8	59.4	73.5	72.6	67.8	63.6	62.2	60.0	59.5
1330	2018-02-09	11:09:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	54.7	73.4	72.1	68.2	64.9	58.7	56.2	54.8
1331	2018-02-09	11:10:00	0:01:00.0	0:01:00.0	0:00:00.0	87.9	62.1	100.2	100.0	91.5	82.2	72.0	63.9	62.7
1332	2018-02-09	11:11:00	0:01:00.0	0:01:00.0	0:00:00.0	70.7	66.7	73.1	72.9	72.2	71.6	70.9	68.9	66.9
1333	2018-02-09	11:12:00	0:01:00.0	0:01:00.0	0:00:00.0	68.6	65.8	72.1	71.7	70.9	69.6	68.0	66.1	65.9
1334	2018-02-09	11:13:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	56.2	75.7	75.3	73.6	68.5	61.2	58.1	56.3
1335	2018-02-09	11:14:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	58.7	65.7	65.1	64.5	63.3	62.2	59.7	58.9
1336	2018-02-09	11:15:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	56.6	67.4	67.1	65.6	63.7	61.4	57.2	56.8
1337	2018-02-09	11:16:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	57.2	72.2	71.7	68.8	65.5	62.7	58.7	57.3
1338	2018-02-09	11:17:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	57.1	69.6	69.1	67.3	63.6	61.2	58.2	57.3
1339	2018-02-09	11:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	59.5	70.3	69.7	67.7	64.4	62.1	60.4	59.6
1340	2018-02-09	11:19:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	56.6	68.7	68.1	66.3	63.7	61.6	57.3	56.8
1341	2018-02-09	11:20:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	58.4	69.1	68.2	66.3	63.0	61.2	59.0	58.5
1342	2018-02-09	11:21:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	55.6	73.0	71.7	69.0	63.4	60.2	56.9	55.7
1343	2018-02-09	11:22:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	57.9	67.0	66.8	65.4	62.2	59.9	58.3	58.0
1344	2018-02-09	11:23:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	57.8	67.9	67.0	64.4	62.8	61.8	59.8	58.2
1345	2018-02-09	11:24:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	55.9	67.2	66.5	65.1	63.7	60.8	56.9	56.1
1346	2018-02-09	11:25:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	55.9	69.6	68.9	65.7	62.1	59.0	56.8	56.1
1347	2018-02-09	11:26:00	0:01:00.0	0:01:00.0	0:00:00.0	64.0	57.9	73.0	71.6	67.6	63.9	62.2	58.6	58.0
1348	2018-02-09	11:27:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	57.0	66.3	65.3	64.2	62.3	60.7	58.6	57.1
1349	2018-02-09	11:28:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	58.9	67.4	67.2	66.2	63.7	61.8	59.9	59.0
1350	2018-02-09	11:29:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.2	67.9	67.4	66.7	64.8	61.4	59.9	59.4
1351	2018-02-09	11:30:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	59.3	67.0	66.5	65.3	62.3	61.2	59.9	59.4
1352	2018-02-09	11:31:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	58.9	70.5	69.7	65.2	62.0	61.1	59.7	59.0
1353	2018-02-09	11:32:00	0:01:00.0	0:01:00.0	0:00:00.0	66.4	55.7	77.1	76.1	70.3	65.4	62.6	56.7	55.7
1354	2018-02-09	11:33:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	56.9	67.5	66.9	64.8	61.7	60.7	58.6	57.1
1355	2018-02-09	11:34:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.1	69.7	69.0	65.7	62.5	61.3	58.9	57.3
1356	2018-02-09	11:35:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	57.1	65.5	65.1	64.1	62.3	60.4	58.5	57.2
1357	2018-02-09	11:36:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	57.6	68.9	67.4	65.7	63.2	60.5	58.3	57.8
1358	2018-02-09	11:37:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	52.8	67.6	67.3	66.5	64.3	61.8	54.7	53.0
1359	2018-02-09	11:38:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	57.3	69.9	69.6	68.7	64.5	60.9	58.8	57.4
1360	2018-02-09	11:39:00	0:01:00.0	0:01:00.0	0:00:00.0	85.6	61.5	96.9	96.5	91.0	84.0	70.8	63.4	62.1
1361	2018-02-09	11:40:00	0:01:00.0	0:01:00.0	0:00:00.0	67.7	64.0	72.1	71.6	70.7	68.5	66.5	65.3	64.1
1362	2018-02-09	11:41:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	64.3	70.6	70.1	69.6	67.1	66.4	65.0	64.4
1363	2018-02-09	11:42:00	0:01:00.0	0:01:00.0	0:00:00.0	66.7	61.7	69.4	69.3	68.5	67.7	66.5	64.1	61.8
1364	2018-02-09	11:43:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	54.9	67.6	67.4	66.5	64.2	60.8	56.0	55.0
1365	2018-02-09	11:44:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	56.4	65.7	65.2	63.9	60.5	58.8	57.2	56.5
1366	2018-02-09	11:45:00	0:01:00.0	0:01:00.0	0:00:00.0	63.7	58.1	69.0	68.1	67.1	65.3	62.5	59.2	58.2
1367	2018-02-09	11:46:00	0:01:00.0	0:01:00.0	0:00:00.0	65.0	53.2	73.2	72.8	69.6	65.7	61.4	54.9	53.3
1368	2018-02-09	11:47:00	0:01:00.0	0:01:00.0	0:00:00.0	60.4	57.5	65.2	64.8	62.8	60.8	59.5	58.3	57.6
1369	2018-02-09	11:48:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	55.9	68.0	67.8	67.0	64.5	61.4	57.1	56.0
1370	2018-02-09	11:49:00	0:01:00.0	0:01:00.0	0:00:00.0	60.5	55.4	64.6	64.4	63.8	62.0	60.2	56.3	55.6
1371	2018-02-09	11:50:00	0:01:00.0	0:01:00.0	0:00:00.0	62.9	55.6	69.2	68.4	66.7	64.8	60.5	56.9	55.7
1372	2018-02-09	11:51:00	0:01:00.0	0:01:00.0	0:00:00.0	60.2	57.1	64.3	64.0	62.6	60.6	59.6	58.3	57.3
1373	2018-02-09	11:52:00	0:01:00.0	0:01:00.0	0:00:00.0	65.4	55.5	73.1	72.5	70.4	65.4	62.8	56.7	55.6
1374	2018-02-09	11:53:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	56.6	67.8	66.5	66.0	63.9	61.7	58.0	56.8
1375	2018-02-09	11:54:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	56.2	67.2	66.9	64.3	61.6	60.4	56.7	56.3
1376	2018-02-09	11:55:00	0:01:00.0	0:01:00.0	0:00:00.0	64.7	56.2	72.7	71.9	68.0	65.3	62.9	57.5	56.2
1377	2018-02-09	11:56:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	56.9	67.9	67.5	66.7	64.1	61.3	58.2	57.0
1378	2018-02-09	11:57:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	53.7	67.2	66.6	65.2	62.5	59.2	54.9	53.9
1379	2018-02-09	11:58:00	0:01:00.0	0:01:00.0	0:00:00.0	61.0	56.1	64.9	64.7	64.2	61.8	60.3	57.2	56.2
1380	2018-02-09	11:59:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	56.1	71.4	70.4	66.8	61.6	58.5	56.5	56.2
1381	2018-02-09	12:00:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	53.2	69.3	69.1	67.8	64.6	60.8	54.0	53.3
1382	2018-02-09	12:01:00	0:01:00.0	0:01:00.0	0:00:00.0	68.0	53.8	78.2	76.1	74.4	65.9	62.1	56.2	53.9
1383	2018-02-09	12:02:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.5	67.8	67.0	65.3	63.0	60.9	58.3	57.6
1384	2018-02-09	12:03:00	0:01:00.0	0:01:00.0	0:00:00.0	60.9	55.9	66.4	66.1	64.2	62.3	59.1	56.7	56.0
1385	2018-02-09	12:04:00	0:01:00.0	0:01:00.0	0:00:00.0	62.4	56.6	68.4	68.0	67.2	62.7	60.6	57.5	56.7

1386	2018-02-09	12:05:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	54.5	68.1	67.6	66.4	61.6	58.1	55.4	54.7
1387	2018-02-09	12:06:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	58.4	66.9	66.6	66.1	63.6	61.2	59.4	58.7
1388	2018-02-09	12:07:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	57.1	65.7	65.4	64.6	63.6	61.2	57.7	57.2
1389	2018-02-09	12:08:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	59.8	66.9	66.6	65.4	63.8	62.7	61.0	60.0
1390	2018-02-09	12:09:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	57.3	70.9	70.0	66.7	62.7	61.1	57.9	57.4
1391	2018-02-09	12:10:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	58.4	66.6	65.6	64.8	62.8	61.7	59.7	58.5
1392	2018-02-09	12:11:00	0:01:00.0	0:01:00.0	0:00:00.0	62.8	55.5	66.5	66.2	65.4	64.1	62.2	59.1	55.6
1393	2018-02-09	12:12:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	59.5	68.6	68.0	65.9	63.2	61.7	59.9	59.6
1394	2018-02-09	12:13:00	0:01:00.0	0:01:00.0	0:00:00.0	66.0	58.7	76.7	76.0	65.8	63.3	61.1	59.8	58.8
1395	2018-02-09	12:14:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	57.9	74.2	71.1	68.6	65.3	62.7	58.6	58.0
1396	2018-02-09	12:15:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	57.3	67.6	67.1	65.6	63.9	62.4	57.8	57.4
1397	2018-02-09	12:16:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	57.7	68.6	68.3	65.7	61.0	59.9	58.5	58.0
1398	2018-02-09	12:17:00	0:01:00.0	0:01:00.0	0:00:00.0	61.8	56.2	67.1	66.4	64.6	63.5	61.3	57.2	56.3
1399	2018-02-09	12:18:00	0:01:00.0	0:01:00.0	0:00:00.0	63.6	56.8	70.0	69.6	67.2	64.2	62.2	57.9	56.9
1400	2018-02-09	12:19:00	0:01:00.0	0:01:00.0	0:00:00.0	63.9	57.8	69.7	69.0	67.8	65.2	62.7	59.0	57.9
1401	2018-02-09	12:20:00	0:01:00.0	0:01:00.0	0:00:00.0	67.3	59.5	74.0	73.5	72.0	67.2	65.3	61.9	60.3
1402	2018-02-09	12:21:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	56.6	67.7	67.2	64.8	63.0	61.8	58.5	56.6
1403	2018-02-09	12:22:00	0:01:00.0	0:01:00.0	0:00:00.0	63.2	56.9	69.3	68.7	66.2	63.9	62.6	58.1	57.1
1404	2018-02-09	12:23:00	0:01:00.0	0:01:00.0	0:00:00.0	65.1	57.6	75.6	74.8	69.7	64.4	60.1	58.7	57.8
1405	2018-02-09	12:24:00	0:01:00.0	0:01:00.0	0:00:00.0	65.5	57.3	74.3	73.8	70.9	65.1	62.5	57.9	57.5
1406	2018-02-09	12:25:00	0:01:00.0	0:01:00.0	0:00:00.0	58.4	53.6	64.9	64.4	62.4	59.2	56.1	54.2	53.7
1407	2018-02-09	12:26:00	0:01:00.0	0:01:00.0	0:00:00.0	62.6	54.2	70.9	70.2	66.1	62.2	59.4	55.1	54.4
1408	2018-02-09	12:27:00	0:01:00.0	0:01:00.0	0:00:00.0	66.9	56.9	76.2	75.8	73.5	65.2	60.0	57.6	57.0
1409	2018-02-09	12:28:00	0:01:00.0	0:01:00.0	0:00:00.0	64.1	57.2	72.6	72.5	69.7	62.3	60.8	57.7	57.3
1410	2018-02-09	12:29:00	0:01:00.0	0:01:00.0	0:00:00.0	67.1	57.4	76.3	75.2	71.2	67.6	64.1	58.1	57.5
1411	2018-02-09	12:30:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	58.5	75.3	74.4	68.8	64.3	60.7	58.9	58.6
1412	2018-02-09	12:31:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	55.4	70.3	69.4	66.4	62.2	61.2	58.1	55.6
1413	2018-02-09	12:32:00	0:01:00.0	0:01:00.0	0:00:00.0	62.7	57.2	67.4	67.0	65.6	64.0	61.9	58.9	57.3
1414	2018-02-09	12:33:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	58.8	68.6	68.1	65.9	64.0	61.7	60.0	58.9
1415	2018-02-09	12:34:00	0:01:00.0	0:01:00.0	0:00:00.0	63.1	53.0	72.4	71.7	67.2	62.1	60.0	53.8	53.1
1416	2018-02-09	12:35:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	56.3	71.4	70.1	68.3	64.4	61.8	57.5	56.4
1417	2018-02-09	12:36:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	58.6	68.6	67.9	66.7	64.2	61.4	59.4	58.8
1418	2018-02-09	12:37:00	0:01:00.0	0:01:00.0	0:00:00.0	61.6	58.1	67.6	67.3	64.7	61.5	60.5	58.6	58.2
1419	2018-02-09	12:38:00	0:01:00.0	0:01:00.0	0:00:00.0	59.9	56.1	67.3	66.4	62.3	59.5	58.8	57.0	56.3
1420	2018-02-09	12:39:00	0:01:00.0	0:01:00.0	0:00:00.0	65.2	57.9	70.6	69.5	68.5	66.0	64.4	61.7	58.3
1421	2018-02-09	12:40:00	0:01:00.0	0:01:00.0	0:00:00.0	62.2	57.2	67.4	67.0	64.9	63.4	61.3	58.2	57.3
1422	2018-02-09	12:41:00	0:01:00.0	0:01:00.0	0:00:00.0	62.5	57.2	68.6	67.8	66.3	64.0	61.1	57.5	57.3
1423	2018-02-09	12:42:00	0:01:00.0	0:01:00.0	0:00:00.0	61.3	57.1	64.9	64.4	63.3	62.9	61.1	57.5	57.2
1424	2018-02-09	12:43:00	0:01:00.0	0:01:00.0	0:00:00.0	63.5	56.6	72.2	71.3	67.4	63.4	61.1	58.2	56.8
1425	2018-02-09	12:44:00	0:01:00.0	0:01:00.0	0:00:00.0	60.1	56.7	65.0	64.8	62.8	60.7	59.0	57.6	56.8
1426	2018-02-09	12:45:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.9	64.0	64.0	63.6	62.4	61.6	59.5	58.0
1427	2018-02-09	12:46:00	0:01:00.0	0:01:00.0	0:00:00.0	62.0	57.7	68.1	67.2	64.5	62.7	61.0	59.3	58.2
1428	2018-02-09	12:47:00	0:01:00.0	0:01:00.0	0:00:00.0	63.8	57.1	71.3	71.0	67.8	66.1	59.6	58.1	57.2
1429	2018-02-09	12:48:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.1	67.1	66.8	64.9	62.4	60.3	58.6	57.2
1430	2018-02-09	12:49:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	54.7	72.4	71.8	69.9	61.8	59.8	56.1	54.8
1431	2018-02-09	12:50:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	57.8	70.3	69.9	66.2	64.0	62.0	59.0	58.0
1432	2018-02-09	12:51:00	0:01:00.0	0:01:00.0	0:00:00.0	62.3	56.6	68.0	67.7	66.3	62.9	60.9	57.6	56.7
1433	2018-02-09	12:52:00	0:01:00.0	0:01:00.0	0:00:00.0	64.6	57.9	71.6	71.3	68.1	65.8	62.0	58.6	58.0
1434	2018-02-09	12:53:00	0:01:00.0	0:01:00.0	0:00:00.0	61.7	57.9	66.1	65.8	63.8	62.4	61.4	59.0	58.0
1435	2018-02-09	12:54:00	0:01:00.0	0:01:00.0	0:00:00.0	63.0	56.8	67.8	67.6	66.7	64.0	61.3	58.0	56.9
1436	2018-02-09	12:55:00	0:01:00.0	0:01:00.0	0:00:00.0	68.3	55.9	76.5	76.0	74.5	66.8	60.6	56.6	56.0
1437	2018-02-09	12:56:00	0:01:00.0	0:01:00.0	0:00:00.0	61.1	53.9	66.5	65.8	64.1	62.5	59.6	56.6	54.0
1438	2018-02-09	12:57:00	0:01:00.0	0:01:00.0	0:00:00.0	62.1	56.7	67.8	67.4	64.8	62.8	61.7	57.4	56.9
1439	2018-02-09	12:58:00	0:01:00.0	0:01:00.0	0:00:00.0	63.3	56.0	70.3	69.4	66.8	64.8	61.3	57.1	56.1
1440	2018-02-09	12:59:00	0:01:00.0	0:01:00.0	0:00:00.0	61.2	57.1	65.2	64.9	64.1	62.1	60.5	57.7	57.3

NM2

1:00 PM-2:00 PM			**71.55**	
13:00:00	66.6	6.6574	4543473.5067	
13:01:00	65.9	6.5896	3887174.1681	
13:02:00	67.0	6.6982	4990821.0712	
13:03:00	65.9	6.5906	3895489.1584	
13:04:00	66.6	6.6559	4527693.2933	
13:05:00	67.3	6.7341	5421681.4863	
13:06:00	66.7	6.6707	4684432.6575	
13:07:00	65.6	6.5558	3595522.4104	
13:08:00	64.4	6.4400	2754127.2357	
13:09:00	68.7	6.8685	7387576.6509	
13:10:00	65.6	6.5550	3589508.6150	
13:11:00	65.9	6.5898	3888400.5868	
13:12:00	63.9	6.3943	2478888.5416	
13:13:00	64.4	6.4372	2736440.4404	
13:14:00	67.1	6.7094	5121686.5985	
13:15:00	65.6	6.5605	3635322.9652	
13:16:00	65.6	6.5554	3592493.5742	
13:17:00	64.0	6.4046	2538428.8792	
13:18:00	65.4	6.5436	3496149.5373	
13:19:00	64.4	6.4376	2738823.2124	
13:20:00	68.3	6.8298	6757950.4009	
13:21:00	65.1	6.5112	3245211.4528	
13:22:00	64.5	6.4463	2794602.2218	
13:23:00	70.7	7.0677	11686460.6211	
13:24:00	67.2	6.7235	5291076.0037	
13:25:00	66.4	6.6359	4323893.6146	
13:26:00	64.6	6.4565	2861139.2817	
13:27:00	66.0	6.5952	3937440.4630	
13:28:00	64.4	6.4445	2783197.3357	
13:29:00	64.0	6.4007	2515863.0687	
13:30:00	63.8	6.3785	2390385.7987	
13:31:00	63.3	6.3293	2134292.8035	
13:32:00	66.1	6.6094	4068019.2561	
13:33:00	65.5	6.5511	3556747.2140	
13:34:00	65.5	6.5452	3509239.4262	
13:35:00	64.1	6.4067	2550686.0091	
13:36:00	66.7	6.6662	4637073.7163	
13:37:00	64.7	6.4716	2962211.0659	
13:38:00	67.6	6.7584	5733013.9694	
13:39:00	64.8	6.4779	3005598.7401	
13:40:00	64.5	6.4513	2827111.9088	
13:41:00	64.3	6.4296	2689100.2929	
13:42:00	65.9	6.5867	3860948.4223	
13:43:00	65.8	6.5844	3841023.8161	
13:44:00	64.2	6.4199	2629844.0769	
13:45:00	64.9	6.4942	3120110.6795	
13:46:00	64.0	6.4048	2539533.8149	
13:47:00	63.7	6.3650	2317581.4174	
13:48:00	65.2	6.5226	3331018.1571	
13:49:00	63.3	6.3254	2115387.8227	
13:50:00	63.6	6.3595	2288347.6292	
13:51:00	63.8	6.3787	2391514.3987	
13:52:00	64.9	6.4893	3084970.3902	
13:53:00	83.7	8.3730	236071739.4183	
13:54:00	69.0	6.8991	7927203.3695	
13:55:00	68.8	6.8790	7567753.8903	
13:56:00	65.1	6.5072	3215051.9884	
13:57:00	62.9	6.2927	1962135.5211	
13:58:00	86.0	8.6004	398450154.9037	
13:59:00	66.2	6.6212	4180247.5402	
			856659016.5108	14277650.28

NM2

2:00 PM-3:00 PM			**68.52**	
14:00:00	65.7	6.5718	3730954.9061	
14:01:00	66.4	6.6423	4388478.7526	
14:02:00	67.1	6.7122	5154766.5303	
14:03:00	66.2	6.6158	4128411.6983	
14:04:00	64.9	6.4878	3074652.2272	
14:05:00	66.0	6.6005	3985575.1281	
14:06:00	64.8	6.4776	3003066.8503	
14:07:00	66.4	6.6412	4377317.0118	
14:08:00	66.1	6.6081	4056196.6310	
14:09:00	61.6	6.1607	1447718.0861	
14:10:00	65.4	6.5399	3466530.2952	
14:11:00	63.5	6.3524	2251230.6865	
14:12:00	65.9	6.5945	3931325.4695	
14:13:00	64.5	6.4458	2791476.6536	
14:14:00	63.4	6.3392	2183861.0371	
14:15:00	68.1	6.8121	6487180.7696	
14:16:00	65.1	6.5070	3213808.5366	
14:17:00	68.0	6.7997	6305535.8615	
14:18:00	82.7	8.2653	184192948.5060	
14:19:00	65.8	6.5778	3782657.3261	
14:20:00	68.5	6.8492	7065989.6994	
14:21:00	66.2	6.6242	4209417.4783	
14:22:00	66.9	6.6857	4850002.9192	
14:23:00	65.0	6.4955	3129687.6779	
14:24:00	68.1	6.8089	6439542.2951	
14:25:00	64.1	6.4087	2562848.8889	
14:26:00	64.6	6.4639	2909899.5677	
14:27:00	66.8	6.6795	4780375.3688	
14:28:00	65.7	6.5718	3731118.1356	
14:29:00	66.5	6.6471	4437046.7031	
14:30:00	64.5	6.4498	2817156.6700	
14:31:00	65.1	6.5059	3205723.0507	
14:32:00	66.2	6.6199	4167705.2784	
14:33:00	65.6	6.5647	3670599.4906	
14:34:00	65.9	6.5866	3860548.3857	
14:35:00	64.8	6.4776	3003405.6955	
14:36:00	65.4	6.5450	3507373.3681	
14:37:00	62.3	6.2305	1700125.5730	
14:38:00	65.3	6.5257	3354810.5493	
14:39:00	64.9	6.4858	3060229.5187	
14:40:00	64.1	6.4127	2586491.1693	
14:41:00	64.3	6.4320	2704020.6258	
14:42:00	63.7	6.3668	2326853.2818	
14:43:00	66.3	6.6292	4257924.9273	
14:44:00	66.3	6.6297	4262761.1594	
14:45:00	66.1	6.6056	4033137.2356	
14:46:00	65.4	6.5393	3462007.4651	
14:47:00	67.0	6.6968	4974930.2937	
14:48:00	63.6	6.3573	2276438.9091	
14:49:00	64.7	6.4669	2929921.6035	
14:50:00	65.4	6.5425	3487128.8907	
14:51:00	64.1	6.4092	2565429.0014	
14:52:00	64.6	6.4588	2876285.5536	
14:53:00	75.1	7.5115	32473567.3339	
14:54:00	65.4	6.5447	3504709.2919	
14:55:00	64.6	6.4629	2903260.4639	
14:56:00	66.4	6.6350	4315359.6852	
14:57:00	65.3	6.5318	3402232.5871	
14:58:00	63.9	6.3890	2449046.3244	
14:59:00	64.5	6.4516	2828759.3340	
			427037564.4140	7117292.74

NM2

3:00 PM-4:00 PM			**73.41**	
15:00:00	64.6	6.4566	2861798.1593	
15:01:00	64.0	6.4008	2516662.6282	
15:02:00	65.6	6.5554	3592286.7796	
15:03:00	64.2	6.4177	2616549.7702	
15:04:00	65.4	6.5356	3432495.6853	
15:05:00	64.9	6.4937	3116434.4749	
15:06:00	65.7	6.5704	3719024.1627	
15:07:00	64.0	6.3998	2510446.6701	
15:08:00	63.3	6.3326	2150552.2566	
15:09:00	66.0	6.6027	4006101.9747	
15:10:00	66.9	6.6866	4859952.2248	
15:11:00	62.6	6.2646	1838975.7400	
15:12:00	65.4	6.5421	3484375.8900	
15:13:00	66.8	6.6766	4749129.3671	
15:14:00	65.2	6.5212	3320136.9654	
15:15:00	66.0	6.5978	3960955.8349	
15:16:00	66.2	6.6163	4133262.6158	
15:17:00	65.6	6.5629	3654836.8917	
15:18:00	78.8	7.8753	75040894.1087	
15:19:00	88.7	8.8708	742759131.9513	
15:20:00	63.1	6.3096	2039994.5163	
15:21:00	63.6	6.3645	2314754.8355	
15:22:00	62.8	6.2758	1887261.1505	
15:23:00	68.2	6.8164	6552167.6324	
15:24:00	72.6	7.2617	18266906.2551	
15:25:00	71.2	7.1237	13296703.9704	
15:26:00	65.4	6.5428	3489932.2814	
15:27:00	66.5	6.6460	4425863.3417	
15:28:00	64.9	6.4868	3067580.7233	
15:29:00	65.7	6.5732	3742682.6162	
15:30:00	64.5	6.4545	2847849.2741	
15:31:00	65.1	6.5128	3257076.8067	
15:32:00	65.3	6.5306	3393352.6851	
15:33:00	65.0	6.4963	3135176.5347	
15:34:00	65.6	6.5630	3656335.1707	
15:35:00	64.5	6.4450	2786397.0394	
15:36:00	63.5	6.3491	2233906.5422	
15:37:00	65.7	6.5712	3725778.2235	
15:38:00	64.8	6.4820	3034177.6152	
15:39:00	68.1	6.8063	6401798.4945	
15:40:00	68.2	6.8156	6539597.2119	
15:41:00	83.8	8.3795	239591827.4206	
15:42:00	70.8	7.0789	11992921.7484	
15:43:00	72.1	7.2103	16230840.1273	
15:44:00	69.6	6.9587	9092326.0271	
15:45:00	64.6	6.4584	2873690.5512	
15:46:00	67.2	6.7158	5197673.5582	
15:47:00	68.8	6.8812	7606327.1397	
15:48:00	64.9	6.4868	3067361.7668	
15:49:00	64.8	6.4848	3053451.3158	
15:50:00	64.5	6.4477	2803322.0948	
15:51:00	63.3	6.3308	2141800.4230	
15:52:00	64.1	6.4123	2584211.1739	
15:53:00	63.6	6.3585	2282706.1033	
15:54:00	67.6	6.7633	5797863.6805	
15:55:00	69.7	6.9699	9329320.2184	
15:56:00	64.4	6.4371	2736024.6134	
15:57:00	64.9	6.4883	3078101.9498	
15:58:00	63.9	6.3854	2428583.2760	
15:59:00	66.3	6.6261	4227805.5059	
			1314535455.7662	21908924

NM2

4:00 PM-5:00 PM			**70.83**	
16:00:00	62.8	6.2769	1891838.2414	
16:01:00	65.0	6.5043	3194059.4849	
16:02:00	64.3	6.4322	2705334.6811	
16:03:00	64.9	6.4911	3097825.8540	
16:04:00	65.4	6.5401	3468406.5683	
16:05:00	66.0	6.5995	3976637.4668	
16:06:00	63.0	6.3050	2018319.8896	
16:07:00	66.1	6.6140	4111535.0795	
16:08:00	66.0	6.5970	3954012.1546	
16:09:00	64.0	6.3973	2496450.7344	
16:10:00	66.4	6.6356	4321086.8964	
16:11:00	65.5	6.5546	3585815.9940	
16:12:00	65.7	6.5682	3700206.8262	
16:13:00	66.5	6.6515	4481805.4460	
16:14:00	84.7	8.4729	297068087.3070	
16:15:00	66.3	6.6288	4254298.9054	
16:16:00	66.4	6.6403	4367822.6895	
16:17:00	66.3	6.6305	4271141.8979	
16:18:00	66.1	6.6098	4072320.9638	
16:19:00	65.3	6.5335	3415741.5293	
16:20:00	65.1	6.5051	3199882.2696	
16:21:00	65.8	6.5809	3809438.7924	
16:22:00	65.3	6.5279	3371824.7953	
16:23:00	65.1	6.5068	3211870.3036	
16:24:00	64.1	6.4064	2549135.9630	
16:25:00	65.8	6.5803	3804678.8133	
16:26:00	65.2	6.5160	3280703.6364	
16:27:00	63.4	6.3373	2174147.4777	
16:28:00	69.2	6.9207	8330594.5908	
16:29:00	63.3	6.3342	2158862.5866	
16:30:00	63.5	6.3465	2220680.0960	
16:31:00	65.0	6.4982	3149132.9786	
16:32:00	65.3	6.5269	3364294.4567	
16:33:00	64.3	6.4269	2672175.6365	
16:34:00	68.6	6.8590	7228480.2707	
16:35:00	63.5	6.3528	2253263.5947	
16:36:00	64.0	6.4016	2521180.8516	
16:37:00	62.7	6.2733	1876164.8708	
16:38:00	64.1	6.4135	2591140.7239	
16:39:00	64.3	6.4252	2662091.6303	
16:40:00	64.0	6.4029	2528977.7009	
16:41:00	64.2	6.4239	2654202.1706	
16:42:00	64.2	6.4218	2641386.7807	
16:43:00	66.0	6.5971	3954358.1388	
16:44:00	64.6	6.4588	2876133.2311	
16:45:00	65.8	6.5822	3821606.7908	
16:46:00	65.9	6.5922	3909885.1455	
16:47:00	64.5	6.4503	2820213.5833	
16:48:00	72.3	7.2272	16874581.0778	
16:49:00	66.0	6.6031	4009941.1597	
16:50:00	83.2	8.3227	210254354.9478	
16:51:00	70.2	7.0194	10457334.4983	
16:52:00	67.2	6.7212	5262135.1731	
16:53:00	66.3	6.6258	4224389.9427	
16:54:00	64.6	6.4645	2914157.3647	
16:55:00	64.8	6.4849	3054238.8705	
16:56:00	64.3	6.4255	2663888.2362	
16:57:00	64.9	6.4871	3069962.0013	
16:58:00	67.0	6.7032	5048670.1801	
16:59:00	64.7	6.4669	2930481.6077	
			726853391.5502	12114223

NM2

5:00 PM-6:00 PM			**75.16**	
17:00:00	64.8	6.4815	3030442.1646	
17:01:00	62.9	6.2932	1964097.3062	
17:02:00	64.4	6.4433	2774955.3528	
17:03:00	64.9	6.4940	3118911.1287	
17:04:00	63.5	6.3511	2244481.3444	
17:05:00	63.9	6.3857	2430418.1512	
17:06:00	66.8	6.6784	4768952.5355	
17:07:00	66.0	6.5971	3954631.3057	
17:08:00	70.8	7.0772	11946536.1059	
17:09:00	66.3	6.6251	4218033.2609	
17:10:00	64.8	6.4774	3002036.7193	
17:11:00	65.1	6.5083	3222982.8903	
17:12:00	66.0	6.5962	3946535.3752	
17:13:00	66.8	6.6766	4749162.1730	
17:14:00	71.0	7.1041	12708579.2059	
17:15:00	84.4	8.4385	274452379.2069	
17:16:00	62.7	6.2724	1872388.6506	
17:17:00	63.7	6.3677	2331970.2198	
17:18:00	64.7	6.4700	2951005.3714	
17:19:00	62.8	6.2847	1926016.4851	
17:20:00	85.4	8.5353	343036237.2935	
17:21:00	72.8	7.2819	19137358.8269	
17:22:00	74.0	7.3986	25039577.6946	
17:23:00	68.6	6.8631	7296590.9466	
17:24:00	65.9	6.5883	3874993.6932	
17:25:00	62.6	6.2594	1817284.8247	
17:26:00	64.8	6.4817	3031838.0562	
17:27:00	65.4	6.5407	3473297.6301	
17:28:00	62.9	6.2896	1948220.0116	
17:29:00	65.4	6.5395	3463705.8252	
17:30:00	64.6	6.4622	2898344.4676	
17:31:00	65.5	6.5460	3515758.2132	
17:32:00	66.2	6.6196	4165057.4869	
17:33:00	68.7	6.8707	7424479.2873	
17:34:00	82.7	8.2745	188167666.8547	
17:35:00	63.9	6.3863	2433722.1794	
17:36:00	65.6	6.5603	3633389.8614	
17:37:00	64.8	6.4761	2993270.7375	
17:38:00	67.3	6.7341	5420807.6849	
17:39:00	65.7	6.5731	3742294.8332	
17:40:00	65.5	6.5452	3508762.7196	
17:41:00	64.2	6.4205	2633382.8325	
17:42:00	64.9	6.4873	3071213.4426	
17:43:00	63.6	6.3574	2277230.5426	
17:44:00	65.0	6.4975	3143880.2829	
17:45:00	65.4	6.5444	3502635.9433	
17:46:00	65.3	6.5325	3407846.3073	
17:47:00	64.4	6.4366	2732454.8842	
17:48:00	66.4	6.6387	4352051.2400	
17:49:00	66.1	6.6119	4091758.5634	
17:50:00	65.2	6.5192	3305049.7410	
17:51:00	67.0	6.7032	5048798.0566	
17:52:00	66.0	6.5967	3950790.4927	
17:53:00	89.6	8.9583	908431112.9531	
17:54:00	68.5	6.8509	7094291.0199	
17:55:00	65.7	6.5737	3746873.2333	
17:56:00	65.6	6.5619	3646775.2613	
17:57:00	66.5	6.6457	4422980.2489	
17:58:00	65.1	6.5073	3215622.0646	
17:59:00	65.7	6.5687	3704426.6509	
			1967416347.8425	32790272

NM2

6:00 PM-7:00 PM			**67.87**	
18:00:00	64.0	6.4031	2529886.2812	
18:01:00	64.5	6.4546	2848196.8383	
18:02:00	66.4	6.6432	4397238.2795	
18:03:00	63.2	6.3227	2102190.1653	
18:04:00	62.8	6.2822	1915120.0365	
18:05:00	64.5	6.4544	2847259.1678	
18:06:00	64.8	6.4780	3006290.8844	
18:07:00	63.2	6.3163	2071676.7878	
18:08:00	64.5	6.4478	2804103.2451	
18:09:00	64.6	6.4606	2888231.4984	
18:10:00	65.4	6.5447	3504902.9746	
18:11:00	67.4	6.7419	5519236.4487	
18:12:00	65.3	6.5287	3378485.0384	
18:13:00	66.8	6.6820	4808736.7205	
18:14:00	65.4	6.5370	3443784.7617	
18:15:00	66.4	6.6372	4336806.0487	
18:16:00	65.5	6.5480	3532051.2780	
18:17:00	65.4	6.5375	3447339.0587	
18:18:00	65.5	6.5540	3580980.8620	
18:19:00	67.0	6.6990	5000172.6469	
18:20:00	65.6	6.5561	3597957.2594	
18:21:00	65.8	6.5805	3806028.1844	
18:22:00	65.2	6.5163	3283182.3168	
18:23:00	66.6	6.6579	4548979.7128	
18:24:00	64.6	6.4594	2880228.8751	
18:25:00	66.5	6.6492	4458368.8941	
18:26:00	64.7	6.4727	2969333.6503	
18:27:00	70.6	7.0598	11476329.2648	
18:28:00	81.7	8.1707	148155234.4230	
18:29:00	66.3	6.6288	4254112.7876	
18:30:00	67.4	6.7391	5484335.3161	
18:31:00	69.5	6.9540	8995120.7983	
18:32:00	65.4	6.5379	3450857.2944	
18:33:00	63.6	6.3649	2316711.7428	
18:34:00	64.8	6.4773	3001483.7747	
18:35:00	64.6	6.4551	2851385.9151	
18:36:00	63.3	6.3255	2116162.4313	
18:37:00	65.4	6.5392	3460907.5636	
18:38:00	65.8	6.5786	3789893.4476	
18:39:00	65.3	6.5256	3354439.7824	
18:40:00	64.3	6.4288	2683842.3400	
18:41:00	64.6	6.4587	2875371.7397	
18:42:00	64.1	6.4143	2595906.2257	
18:43:00	65.1	6.5140	3265502.3452	
18:44:00	63.8	6.3838	2419802.9397	
18:45:00	66.8	6.6760	4742933.1122	
18:46:00	65.8	6.5795	3797912.8951	
18:47:00	66.2	6.6175	4144298.2266	
18:48:00	64.4	6.4386	2745440.2725	
18:49:00	66.4	6.6436	4401462.4385	
18:50:00	64.8	6.4844	3050801.8425	
18:51:00	65.8	6.5822	3821466.0002	
18:52:00	65.2	6.5217	3324045.8074	
18:53:00	65.4	6.5408	3474009.4862	
18:54:00	66.2	6.6232	4199426.6502	
18:55:00	66.7	6.6680	4655399.9759	
18:56:00	65.4	6.5369	3443023.6035	
18:57:00	65.3	6.5299	3387731.6378	
18:58:00	66.4	6.6404	4368768.1765	
18:59:00	65.6	6.5556	3593916.6438	
			367204804.8168	6120080

NM2

7:00 PM-8:00 PM			**72.26**	
19:00:00	64.2	6.4231	2649055.1509	
19:01:00	65.2	6.5208	3317584.5511	
19:02:00	63.9	6.3944	2479824.8061	
19:03:00	65.4	6.5411	3476314.0205	
19:04:00	65.7	6.5665	3685759.5543	
19:05:00	63.0	6.3015	2002340.8152	
19:06:00	65.4	6.5382	3452748.9352	
19:07:00	65.8	6.5812	3812299.3935	
19:08:00	65.8	6.5789	3792180.4940	
19:09:00	64.0	6.4004	2514218.3977	
19:10:00	64.1	6.4052	2542043.6286	
19:11:00	65.8	6.5773	3778548.4911	
19:12:00	66.2	6.6181	4150773.1618	
19:13:00	65.2	6.5157	3278506.1298	
19:14:00	65.2	6.5248	3347957.9911	
19:15:00	63.9	6.3928	2470489.4294	
19:16:00	86.6	8.6634	460701896.4480	
19:17:00	71.9	7.1916	15545976.2541	
19:18:00	75.5	7.5471	35243578.6134	
19:19:00	85.0	8.4980	314794401.5060	
19:20:00	65.3	6.5348	3425776.2958	
19:21:00	65.8	6.5832	3830037.2691	
19:22:00	63.9	6.3855	2429265.5982	
19:23:00	67.3	6.7263	5324808.5792	
19:24:00	63.7	6.3689	2338110.3265	
19:25:00	63.4	6.3387	2181373.3348	
19:26:00	64.8	6.4792	3014414.7070	
19:27:00	64.6	6.4645	2914311.7010	
19:28:00	65.4	6.5448	3505693.9569	
19:29:00	64.2	6.4221	2642932.0650	
19:30:00	65.5	6.5505	3551951.2785	
19:31:00	65.0	6.5025	3180240.7638	
19:32:00	66.0	6.6045	4022684.7584	
19:33:00	65.9	6.5865	3858797.6023	
19:34:00	65.5	6.5529	3571914.0497	
19:35:00	67.5	6.7525	5655695.2499	
19:36:00	64.5	6.4470	2798710.6472	
19:37:00	64.2	6.4235	2651777.0032	
19:38:00	65.3	6.5322	3405508.7462	
19:39:00	64.2	6.4161	2606621.6615	
19:40:00	65.7	6.5736	3746122.7164	
19:41:00	63.9	6.3903	2456201.5438	
19:42:00	64.4	6.4406	2757725.2781	
19:43:00	64.3	6.4318	2702850.3464	
19:44:00	64.4	6.4427	2771130.6381	
19:45:00	66.1	6.6112	4085403.9080	
19:46:00	64.5	6.4463	2794370.5783	
19:47:00	65.2	6.5200	3311334.0886	
19:48:00	63.6	6.3554	2266725.8636	
19:49:00	65.5	6.5522	3565759.1064	
19:50:00	65.0	6.4959	3132593.1938	
19:51:00	66.0	6.6025	4004257.5213	
19:52:00	64.6	6.4614	2893496.7574	
19:53:00	65.5	6.5495	3543708.5792	
19:54:00	64.3	6.4333	2711927.0315	
19:55:00	66.3	6.6285	4250597.6717	
19:56:00	63.2	6.3193	2086027.3587	
19:57:00	66.2	6.6246	4213102.2560	
19:58:00	65.9	6.5921	3909507.0443	
19:59:00	67.1	6.7125	5158768.0329	
			1010308732.8810	16838479

NM2

8:00 PM-9:00 PM			**74.63**	
20:00:00	64.2	6.4234	2651093.2259	
20:01:00	64.3	6.4302	2692786.9877	
20:02:00	65.2	6.5241	3342873.9429	
20:03:00	63.1	6.3144	2062761.4192	
20:04:00	63.8	6.3765	2379698.8460	
20:05:00	65.8	6.5841	3837611.4391	
20:06:00	78.1	7.8078	64235779.7003	
20:07:00	83.5	8.3545	226180937.5785	
20:08:00	65.4	6.5449	3506727.3455	
20:09:00	65.2	6.5176	3293017.2067	
20:10:00	65.1	6.5081	3221780.8813	
20:11:00	64.7	6.4661	2924563.1264	
20:12:00	65.5	6.5467	3521575.4693	
20:13:00	65.2	6.5199	3310480.2403	
20:14:00	64.9	6.4890	3083457.7356	
20:15:00	63.6	6.3596	2288869.3310	
20:16:00	65.3	6.5306	3393040.1601	
20:17:00	65.9	6.5909	3898836.2919	
20:18:00	63.7	6.3749	2370603.9298	
20:19:00	64.7	6.4741	2979120.0199	
20:20:00	65.0	6.5039	3190861.8383	
20:21:00	64.7	6.4663	2926112.3693	
20:22:00	66.2	6.6226	4193551.6849	
20:23:00	65.5	6.5535	3576514.5814	
20:24:00	62.8	6.2802	1906219.9041	
20:25:00	65.1	6.5056	3203015.2028	
20:26:00	65.2	6.5154	3276415.7126	
20:27:00	91.0	9.0977	1252270067.6671	
20:28:00	72.4	7.2405	17397305.9074	
20:29:00	66.1	6.6098	4071992.7867	
20:30:00	63.7	6.3727	2358918.8455	
20:31:00	65.2	6.5200	3311074.8614	
20:32:00	63.9	6.3919	2465329.6562	
20:33:00	64.2	6.4172	2613587.2330	
20:34:00	67.7	6.7726	5923944.7582	
20:35:00	65.5	6.5478	3529978.0103	
20:36:00	65.3	6.5337	3417425.0616	
20:37:00	64.8	6.4825	3037099.3580	
20:38:00	64.9	6.4882	3077761.7642	
20:39:00	66.9	6.6862	4854628.4869	
20:40:00	66.1	6.6129	4100813.3248	
20:41:00	66.2	6.6169	4138662.3860	
20:42:00	68.5	6.8481	7047790.7285	
20:43:00	69.2	6.9209	8335218.7123	
20:44:00	66.7	6.6737	4717348.9184	
20:45:00	65.9	6.5938	3924578.3163	
20:46:00	64.2	6.4242	2655901.7188	
20:47:00	64.2	6.4210	2636264.6125	
20:48:00	65.5	6.5498	3546777.9514	
20:49:00	65.2	6.5237	3339350.4598	
20:50:00	62.9	6.2926	1961579.8877	
20:51:00	64.2	6.4247	2658985.6896	
20:52:00	63.3	6.3256	2116493.7971	
20:53:00	63.2	6.3174	2076835.0279	
20:54:00	62.7	6.2660	1844807.2640	
20:55:00	64.6	6.4617	2895589.5459	
20:56:00	64.0	6.3978	2498946.7393	
20:57:00	65.3	6.5334	3415395.4853	
20:58:00	63.7	6.3710	2349632.8208	
20:59:00	63.0	6.2952	1973194.9713	
			1744011588.9255	29066860

NM2

9:00 PM-10:00 PM			**71.19**	
21:00:00	63.9	6.3889	2448285.1591	
21:01:00	64.7	6.4713	2960370.0377	
21:02:00	62.9	6.2922	1959719.8878	
21:03:00	65.8	6.5754	3761993.1463	
21:04:00	64.3	6.4349	2722118.3301	
21:05:00	63.2	6.3169	2074373.7115	
21:06:00	64.6	6.4609	2890233.9623	
21:07:00	65.6	6.5637	3661828.4961	
21:08:00	64.7	6.4706	2955023.9152	
21:09:00	64.8	6.4822	3034995.1402	
21:10:00	66.3	6.6282	4247809.1884	
21:11:00	66.9	6.6879	4874027.7782	
21:12:00	65.7	6.5659	3680603.2053	
21:13:00	65.0	6.5015	3173036.0039	
21:14:00	65.0	6.4962	3134425.8475	
21:15:00	65.6	6.5622	3648858.3145	
21:16:00	65.3	6.5258	3355722.1921	
21:17:00	66.8	6.6775	4758521.1068	
21:18:00	64.4	6.4433	2774936.1841	
21:19:00	65.0	6.4965	3136916.7991	
21:20:00	65.1	6.5111	3243918.9893	
21:21:00	67.8	6.7817	6049911.1977	
21:22:00	63.9	6.3929	2471103.8651	
21:23:00	65.3	6.5343	3422102.3933	
21:24:00	64.8	6.4771	2999597.6176	
21:25:00	64.3	6.4327	2708382.5064	
21:26:00	65.1	6.5085	3224571.4168	
21:27:00	66.9	6.6881	4876845.5312	
21:28:00	65.5	6.5476	3528507.1353	
21:29:00	64.4	6.4391	2748356.0819	
21:30:00	62.8	6.2758	1887291.5698	
21:31:00	62.9	6.2930	1963242.7394	
21:32:00	63.7	6.3719	2354626.3512	
21:33:00	62.7	6.2749	1883011.6198	
21:34:00	63.3	6.3300	2137922.7071	
21:35:00	60.8	6.0753	1189444.0002	
21:36:00	64.6	6.4646	2914526.4433	
21:37:00	64.7	6.4657	2922005.3045	
21:38:00	62.8	6.2805	1907651.3315	
21:39:00	64.4	6.4432	2774584.7824	
21:40:00	64.4	6.4358	2727438.7096	
21:41:00	64.6	6.4562	2858900.2326	
21:42:00	62.8	6.2759	1887708.7983	
21:43:00	64.6	6.4572	2865484.0803	
21:44:00	62.3	6.2337	1712584.4643	
21:45:00	63.6	6.3600	2291036.4564	
21:46:00	63.8	6.3783	2389620.8559	
21:47:00	87.6	8.7632	579671568.7796	
21:48:00	69.5	6.9472	8854560.3030	
21:49:00	68.7	6.8739	7480661.4421	
21:50:00	73.4	7.3403	21894750.4705	
21:51:00	70.5	7.0525	11284543.6297	
21:52:00	64.1	6.4087	2562665.9589	
21:53:00	63.2	6.3220	2099051.0453	
21:54:00	64.3	6.4310	2697969.2779	
21:55:00	65.5	6.5512	3558188.8956	
21:56:00	65.1	6.5098	3234588.2158	
21:57:00	65.0	6.4978	3146110.7016	
21:58:00	63.8	6.3768	2381387.1180	
21:59:00	61.1	6.1138	1299475.2133	
			789359696.6390	13155995

NM2

10:00 PM-11:00 PM			**67.80**	
22:00:00	62.5	6.2452	1758814.3487	
22:01:00	64.5	6.4506	2822441.8303	
22:02:00	63.6	6.3599	2290203.1095	
22:03:00	64.6	6.4628	2902418.2756	
22:04:00	63.3	6.3314	2144726.9054	
22:05:00	63.8	6.3784	2390154.6391	
22:06:00	63.9	6.3883	2444882.5453	
22:07:00	64.4	6.4378	2740337.1604	
22:08:00	63.4	6.3365	2170271.1637	
22:09:00	63.2	6.3201	2089791.7002	
22:10:00	64.7	6.4667	2928653.5559	
22:11:00	83.7	8.3691	233933274.5343	
22:12:00	68.8	6.8794	7575041.2127	
22:13:00	70.2	7.0156	10366257.6766	
22:14:00	63.9	6.3942	2478466.1965	
22:15:00	62.5	6.2451	1758263.6594	
22:16:00	63.1	6.3148	2064381.6974	
22:17:00	63.9	6.3860	2431991.2048	
22:18:00	63.0	6.3005	1997717.1594	
22:19:00	63.5	6.3494	2235789.9518	
22:20:00	62.7	6.2697	1860981.2607	
22:21:00	63.9	6.3891	2449694.9111	
22:22:00	63.2	6.3224	2100873.9692	
22:23:00	62.5	6.2541	1795093.1927	
22:24:00	64.3	6.4321	2704718.0543	
22:25:00	63.8	6.3826	2413137.1188	
22:26:00	61.7	6.1718	1485408.8257	
22:27:00	64.8	6.4823	3035694.0541	
22:28:00	61.5	6.1455	1397922.1941	
22:29:00	63.1	6.3146	2063288.7015	
22:30:00	64.8	6.4823	3036204.3629	
22:31:00	63.0	6.3036	2011865.7627	
22:32:00	63.9	6.3864	2434574.1140	
22:33:00	62.2	6.2186	1654283.7359	
22:34:00	60.2	6.0157	1036902.6872	
22:35:00	63.0	6.3043	2015254.9659	
22:36:00	61.2	6.1183	1313003.8514	
22:37:00	62.0	6.2022	1592762.4189	
22:38:00	59.7	5.9727	939000.8816	
22:39:00	61.3	6.1253	1334409.1154	
22:40:00	59.5	5.9480	887068.1780	
22:41:00	62.1	6.2123	1630298.0159	
22:42:00	64.0	6.3999	2511180.9031	
22:43:00	61.3	6.1341	1361786.4232	
22:44:00	62.0	6.1998	1584163.4902	
22:45:00	60.1	6.0135	1031649.0914	
22:46:00	60.3	6.0337	1080672.2510	
22:47:00	61.8	6.1771	1503495.0410	
22:48:00	61.4	6.1393	1378154.7935	
22:49:00	62.6	6.2590	1815595.0917	
22:50:00	61.3	6.1319	1355020.9191	
22:51:00	63.0	6.3019	2004047.4493	
22:52:00	66.3	6.6347	4312667.7383	
22:53:00	61.5	6.1495	1411048.6904	
22:54:00	62.7	6.2721	1870962.1426	
22:55:00	60.4	6.0392	1094382.1479	
22:56:00	62.4	6.2403	1738853.5247	
22:57:00	55.4	5.5431	349247.2539	
22:58:00	60.8	6.0779	1196423.6796	
22:59:00	60.1	6.0052	1012019.7779	
			361327689.3079	6022128

NM2

11:00 PM-12:00 AM			**61.62**	
23:00:00	62.2	6.2187	1654687.5529	
23:01:00	61.5	6.1479	1405862.9962	
23:02:00	61.6	6.1561	1432478.1293	
23:03:00	62.7	6.2669	1848821.5727	
23:04:00	61.2	6.1231	1327583.9705	
23:05:00	63.3	6.3302	2138951.8093	
23:06:00	62.2	6.2186	1654173.2749	
23:07:00	61.5	6.1451	1396622.3895	
23:08:00	60.7	6.0721	1180725.6556	
23:09:00	63.1	6.3148	2064529.0585	
23:10:00	62.0	6.2028	1595287.6386	
23:11:00	63.0	6.2978	1985162.2133	
23:12:00	62.4	6.2400	1737912.8725	
23:13:00	61.8	6.1804	1514935.0023	
23:14:00	64.0	6.4040	2535385.4869	
23:15:00	61.2	6.1212	1321940.7795	
23:16:00	62.5	6.2541	1795126.2598	
23:17:00	63.5	6.3480	2228317.1357	
23:18:00	61.9	6.1877	1540699.7071	
23:19:00	60.9	6.0880	1224480.8572	
23:20:00	60.7	6.0718	1179850.5518	
23:21:00	60.6	6.0622	1154043.0237	
23:22:00	60.5	6.0456	1110682.6812	
23:23:00	60.2	6.0241	1057038.9729	
23:24:00	60.7	6.0670	1166933.2108	
23:25:00	62.8	6.2809	1909536.6576	
23:26:00	62.8	6.2765	1890261.9835	
23:27:00	60.2	6.0248	1058834.2965	
23:28:00	59.7	5.9687	930559.1847	
23:29:00	60.2	6.0188	1044195.9393	
23:30:00	62.5	6.2540	1794692.3020	
23:31:00	61.9	6.1936	1561852.4386	
23:32:00	62.5	6.2507	1781127.4629	
23:33:00	63.5	6.3520	2248945.8570	
23:34:00	62.6	6.2607	1822657.2189	
23:35:00	62.1	6.2071	1610912.6800	
23:36:00	56.9	5.6947	495160.5082	
23:37:00	60.9	6.0948	1244061.9292	
23:38:00	61.6	6.1575	1437186.0729	
23:39:00	62.0	6.2022	1592964.1426	
23:40:00	60.9	6.0882	1225307.2410	
23:41:00	61.5	6.1518	1418355.1829	
23:42:00	61.7	6.1708	1481797.9854	
23:43:00	60.0	5.9961	990982.5337	
23:44:00	61.9	6.1886	1543970.5064	
23:45:00	62.9	6.2899	1949391.1945	
23:46:00	60.9	6.0875	1223255.0011	
23:47:00	62.2	6.2246	1677385.9462	
23:48:00	60.3	6.0329	1078815.0588	
23:49:00	59.1	5.9061	805617.7011	
23:50:00	60.0	6.0023	1005316.9385	
23:51:00	60.2	6.0161	1037858.1499	
23:52:00	62.2	6.2150	1640703.1050	
23:53:00	58.1	5.8126	649490.7945	
23:54:00	60.6	6.0640	1158764.0153	
23:55:00	59.2	5.9241	839674.5690	
23:56:00	61.3	6.1296	1347783.0801	
23:57:00	61.8	6.1795	1511767.4839	
23:58:00	62.5	6.2546	1797123.8176	
23:59:00	60.3	6.0286	1067992.0011	
			87126533.7826	1452109

NM2

12:00 AM-1:00 AM			**72.49**	
0:00:00	63.1	6.3109	2046119.5268	
0:01:00	61.2	6.1154	1304343.5652	
0:02:00	63.8	6.3761	2377196.0503	
0:03:00	61.9	6.1914	1553953.4321	
0:04:00	62.1	6.2070	1610797.6969	
0:05:00	58.8	5.8807	759801.2435	
0:06:00	62.6	6.2560	1802988.6799	
0:07:00	61.8	6.1790	1509927.1700	
0:08:00	62.3	6.2293	1695664.7812	
0:09:00	61.4	6.1363	1368749.5834	
0:10:00	59.4	5.9380	866892.0097	
0:11:00	57.9	5.7853	610010.0639	
0:12:00	62.1	6.2068	1610007.8739	
0:13:00	58.9	5.8900	776261.4158	
0:14:00	59.3	5.9308	852697.5202	
0:15:00	57.2	5.7158	519811.6396	
0:16:00	61.6	6.1618	1451322.7399	
0:17:00	58.9	5.8926	780942.3950	
0:18:00	60.7	6.0682	1170000.3725	
0:19:00	58.8	5.8804	759290.5592	
0:20:00	61.4	6.1449	1395944.0116	
0:21:00	60.1	6.0123	1028660.3496	
0:22:00	76.9	7.6929	49310794.5023	
0:23:00	85.8	8.5802	380345252.7397	
0:24:00	69.4	6.9424	8757436.5617	
0:25:00	69.4	6.9432	8774613.5816	
0:26:00	83.0	8.3023	200600956.7400	
0:27:00	73.7	7.3705	23467347.2659	
0:28:00	66.3	6.6274	4240245.4812	
0:29:00	67.4	6.7397	5491588.6658	
0:30:00	72.3	7.2256	16812256.2176	
0:31:00	63.7	6.3694	2340906.1359	
0:32:00	59.4	5.9369	864862.3671	
0:33:00	62.6	6.2620	1828016.0310	
0:34:00	62.2	6.2169	1647813.2854	
0:35:00	60.6	6.0579	1142483.6668	
0:36:00	62.4	6.2354	1719412.1845	
0:37:00	61.3	6.1300	1349056.0689	
0:38:00	64.4	6.4449	2785454.0593	
0:39:00	63.6	6.3588	2284672.7407	
0:40:00	62.7	6.2707	1865026.4698	
0:41:00	60.4	6.0355	1085135.5710	
0:42:00	61.7	6.1679	1472109.1090	
0:43:00	64.1	6.4134	2590752.9420	
0:44:00	62.8	6.2778	1895880.6760	
0:45:00	59.6	5.9565	904773.7666	
0:46:00	62.7	6.2657	1843826.2772	
0:47:00	62.0	6.2011	1588839.3967	
0:48:00	59.7	5.9715	936509.0962	
0:49:00	60.7	6.0676	1168452.3329	
0:50:00	61.0	6.1048	1272907.9532	
0:51:00	62.7	6.2685	1855765.0871	
0:52:00	63.4	6.3427	2201293.7473	
0:53:00	62.2	6.2205	1661575.1944	
0:54:00	63.1	6.3118	2050364.1513	
0:55:00	63.3	6.3337	2156467.9106	
0:56:00	62.3	6.2272	1687228.8779	
0:57:00	82.9	8.2932	196425560.0128	
0:58:00	79.8	7.9753	94462622.8429	
0:59:00	64.8	6.4846	3052417.9585	
			1063792060.3488	17729868

NM2

1:00 AM-2:00 AM			**63.59**	
1:00:00	64.2	6.4173	2614201.1418	
1:01:00	64.9	6.4851	3055962.3546	
1:02:00	73.1	7.3064	20248087.0845	
1:03:00	64.4	6.4371	2735791.5259	
1:04:00	60.6	6.0601	1148547.6036	
1:05:00	62.0	6.2039	1599204.4883	
1:06:00	63.0	6.3033	2010689.4537	
1:07:00	63.4	6.3405	2190337.3052	
1:08:00	61.9	6.1945	1565085.2554	
1:09:00	58.9	5.8880	772630.7701	
1:10:00	60.7	6.0708	1177052.9497	
1:11:00	61.8	6.1784	1508016.1757	
1:12:00	61.2	6.1198	1317573.9508	
1:13:00	70.7	7.0694	11733403.3411	
1:14:00	63.2	6.3176	2077691.1984	
1:15:00	61.0	6.0980	1253175.8010	
1:16:00	61.1	6.1125	1295725.4827	
1:17:00	62.6	6.2575	1809397.5586	
1:18:00	60.7	6.0735	1184314.3731	
1:19:00	62.1	6.2130	1633160.9985	
1:20:00	59.0	5.9009	795919.2342	
1:21:00	59.2	5.9205	832698.9173	
1:22:00	63.3	6.3260	2118473.3255	
1:23:00	62.1	6.2133	1634131.4937	
1:24:00	61.7	6.1735	1491210.6614	
1:25:00	62.5	6.2508	1781357.1447	
1:26:00	63.5	6.3465	2220593.1715	
1:27:00	62.5	6.2489	1773923.9613	
1:28:00	63.5	6.3548	2263528.6717	
1:29:00	64.8	6.4768	2997726.4509	
1:30:00	62.2	6.2181	1652524.8540	
1:31:00	61.1	6.1107	1290294.9574	
1:32:00	62.5	6.2453	1759255.8344	
1:33:00	62.5	6.2525	1788421.9850	
1:34:00	59.8	5.9806	956323.8789	
1:35:00	65.4	6.5402	3469309.1378	
1:36:00	61.2	6.1188	1314573.8837	
1:37:00	62.1	6.2104	1623427.8797	
1:38:00	62.7	6.2746	1881832.6530	
1:39:00	64.1	6.4057	2545229.8036	
1:40:00	64.3	6.4267	2671400.4820	
1:41:00	61.5	6.1527	1421199.3494	
1:42:00	63.4	6.3445	2210675.5093	
1:43:00	63.2	6.3222	2099747.1478	
1:44:00	61.2	6.1228	1326823.0267	
1:45:00	63.1	6.3102	2042701.9336	
1:46:00	61.0	6.1038	1269977.4219	
1:47:00	63.9	6.3932	2472708.9456	
1:48:00	64.7	6.4713	2959777.0612	
1:49:00	63.9	6.3860	2432008.0045	
1:50:00	63.2	6.3168	2073910.4504	
1:51:00	61.3	6.1323	1356219.5485	
1:52:00	61.2	6.1176	1310937.5397	
1:53:00	63.3	6.3330	2152940.3634	
1:54:00	63.2	6.3245	2111232.1951	
1:55:00	61.5	6.1491	1409655.5320	
1:56:00	63.0	6.2973	1982814.1066	
1:57:00	61.8	6.1781	1506808.2869	
1:58:00	62.1	6.2081	1614607.6283	
1:59:00	62.2	6.2220	1667124.3698	
			137214075.6150	2286901

NM2

2:00 AM-3:00 AM			**71.82**	
2:00:00	62.6	6.2568	1806387.8356	
2:01:00	58.8	5.8763	752171.7185	
2:02:00	58.5	5.8487	705790.8113	
2:03:00	66.3	6.6338	4303482.0912	
2:04:00	84.6	8.4586	287449792.8442	
2:05:00	70.0	6.9984	9962400.5714	
2:06:00	70.2	7.0200	10471213.1477	
2:07:00	62.9	6.2857	1930540.8692	
2:08:00	63.6	6.3600	2290667.2147	
2:09:00	63.8	6.3842	2422395.2153	
2:10:00	63.0	6.2972	1982366.7284	
2:11:00	61.7	6.1740	1492701.6057	
2:12:00	61.1	6.1090	1285316.2551	
2:13:00	63.3	6.3267	2121563.3287	
2:14:00	63.1	6.3140	2060753.2811	
2:15:00	62.7	6.2690	1857945.6263	
2:16:00	59.7	5.9741	942008.8870	
2:17:00	60.5	6.0536	1131472.4920	
2:18:00	60.9	6.0886	1226413.7190	
2:19:00	62.9	6.2929	1962854.0121	
2:20:00	59.7	5.9682	929379.3102	
2:21:00	66.0	6.6011	3991204.6784	
2:22:00	87.0	8.7021	503591046.4427	
2:23:00	69.5	6.9537	8987895.2032	
2:24:00	68.3	6.8263	6703845.5497	
2:25:00	59.9	5.9871	970834.0502	
2:26:00	60.5	6.0468	1113902.0418	
2:27:00	60.2	6.0158	1037098.4854	
2:28:00	61.3	6.1288	1345333.6343	
2:29:00	59.1	5.9060	805361.7513	
2:30:00	59.4	5.9362	863320.3935	
2:31:00	58.3	5.8342	682708.0126	
2:32:00	59.8	5.9850	965993.0459	
2:33:00	62.2	6.2200	1659651.8715	
2:34:00	64.1	6.4149	2599279.6101	
2:35:00	61.2	6.1222	1324872.2387	
2:36:00	59.3	5.9289	848979.1020	
2:37:00	62.5	6.2476	1768613.7618	
2:38:00	59.3	5.9296	850274.1972	
2:39:00	60.4	6.0407	1098292.4547	
2:40:00	63.5	6.3495	2236351.1648	
2:41:00	62.0	6.1970	1573856.0215	
2:42:00	62.4	6.2410	1741742.7040	
2:43:00	65.2	6.5168	3286760.0533	
2:44:00	62.0	6.1952	1567646.0049	
2:45:00	64.4	6.4415	2763713.3730	
2:46:00	63.2	6.3244	2110580.8824	
2:47:00	61.3	6.1338	1360767.7249	
2:48:00	61.5	6.1485	1407550.5473	
2:49:00	63.8	6.3778	2386700.9172	
2:50:00	62.1	6.2134	1634647.0686	
2:51:00	59.2	5.9188	829545.0955	
2:52:00	63.0	6.2963	1978522.5297	
2:53:00	60.5	6.0534	1130732.8254	
2:54:00	60.6	6.0586	1144497.8996	
2:55:00	61.4	6.1438	1392534.6167	
2:56:00	61.0	6.1037	1269778.5898	
2:57:00	59.4	5.9363	863509.2617	
2:58:00	59.4	5.9411	873252.8265	
2:59:00	61.1	6.1081	1282614.0708	
			913131428.2673	15218857

NM2

3:00 AM-4:00 AM			**65.02**	
3:00:00	60.9	6.0905	1231819.2879	
3:01:00	62.4	6.2438	1753194.0981	
3:02:00	63.8	6.3826	2413231.5803	
3:03:00	63.3	6.3267	2121705.0008	
3:04:00	62.1	6.2065	1608707.1794	
3:05:00	58.8	5.8808	759972.7145	
3:06:00	62.4	6.2395	1735953.1491	
3:07:00	62.0	6.2031	1596220.9261	
3:08:00	64.3	6.4286	2682612.8465	
3:09:00	64.5	6.4483	2807094.2849	
3:10:00	62.6	6.2622	1828900.1688	
3:11:00	63.1	6.3102	2042537.3179	
3:12:00	63.7	6.3708	2348686.2214	
3:13:00	64.7	6.4724	2967713.6894	
3:14:00	66.1	6.6122	4094538.8862	
3:15:00	63.8	6.3787	2391453.8262	
3:16:00	62.3	6.2259	1682294.4029	
3:17:00	60.9	6.0931	1238962.0388	
3:18:00	63.6	6.3640	2311862.4974	
3:19:00	64.0	6.3985	2503173.7739	
3:20:00	62.3	6.2313	1703315.1138	
3:21:00	65.2	6.5223	3329093.5552	
3:22:00	63.5	6.3524	2251261.7886	
3:23:00	62.4	6.2392	1734490.7975	
3:24:00	59.2	5.9238	839150.7750	
3:25:00	58.7	5.8676	737275.8356	
3:26:00	60.0	6.0022	1005055.3970	
3:27:00	61.0	6.1034	1268781.9744	
3:28:00	63.0	6.3041	2014174.0669	
3:29:00	64.3	6.4350	2722657.4237	
3:30:00	64.2	6.4184	2620891.2445	
3:31:00	65.1	6.5096	3233098.9758	
3:32:00	77.6	7.7584	57334364.0900	
3:33:00	62.1	6.2105	1623536.2877	
3:34:00	61.9	6.1946	1565431.2529	
3:35:00	63.2	6.3248	2112715.4098	
3:36:00	63.0	6.3036	2011870.3951	
3:37:00	61.6	6.1594	1443504.0277	
3:38:00	60.5	6.0519	1127041.7388	
3:39:00	62.9	6.2944	1969617.9794	
3:40:00	62.6	6.2596	1817816.3279	
3:41:00	64.7	6.4711	2958870.7866	
3:42:00	70.2	7.0163	10381664.7426	
3:43:00	64.3	6.4348	2721422.6811	
3:44:00	63.6	6.3623	2303185.9363	
3:45:00	64.5	6.4452	2787487.9586	
3:46:00	64.8	6.4849	3054428.7578	
3:47:00	64.0	6.3988	2504897.7347	
3:48:00	64.1	6.4104	2572876.8540	
3:49:00	61.3	6.1260	1336734.0168	
3:50:00	63.6	6.3641	2312448.1302	
3:51:00	63.8	6.3776	2385343.8943	
3:52:00	63.8	6.3834	2417552.9783	
3:53:00	63.1	6.3141	2061123.4290	
3:54:00	64.4	6.4385	2744605.9468	
3:55:00	62.7	6.2730	1875201.7516	
3:56:00	65.6	6.5613	3641732.1483	
3:57:00	63.6	6.3627	2305313.5344	
3:58:00	63.3	6.3295	2135561.0930	
3:59:00	61.8	6.1821	1520831.1526	
			190607061.8748	3176784

NM2

4:00 AM-5:00 AM			**64.69**	
4:00:00	64.7	6.4657	2921897.6558	
4:01:00	65.2	6.5151	3274402.0233	
4:02:00	61.6	6.1623	1453028.0559	
4:03:00	65.5	6.5476	3528742.7592	
4:04:00	62.4	6.2362	1722840.2125	
4:05:00	64.0	6.4001	2512644.2278	
4:06:00	61.7	6.1691	1475998.7850	
4:07:00	64.5	6.4460	2792447.3919	
4:08:00	64.7	6.4653	2919436.2751	
4:09:00	63.9	6.3940	2477524.7403	
4:10:00	65.1	6.5076	3217910.7900	
4:11:00	65.3	6.5258	3355907.6413	
4:12:00	65.9	6.5924	3911848.2580	
4:13:00	63.7	6.3704	2346264.6643	
4:14:00	65.7	6.5673	3692249.1569	
4:15:00	64.3	6.4348	2721416.4148	
4:16:00	63.8	6.3850	2426582.1579	
4:17:00	62.9	6.2898	1948937.8947	
4:18:00	64.9	6.4876	3073526.7692	
4:19:00	63.7	6.3682	2334796.3193	
4:20:00	63.4	6.3402	2188643.3654	
4:21:00	63.4	6.3379	2177103.1191	
4:22:00	64.8	6.4808	3025784.5431	
4:23:00	66.8	6.6839	4828986.5970	
4:24:00	62.3	6.2323	1707257.3850	
4:25:00	64.5	6.4523	2833061.4852	
4:26:00	66.1	6.6072	4047203.1088	
4:27:00	63.7	6.3742	2367162.1063	
4:28:00	63.3	6.3286	2131061.5827	
4:29:00	64.5	6.4518	2830401.2020	
4:30:00	65.1	6.5125	3254850.1583	
4:31:00	64.7	6.4664	2926530.1318	
4:32:00	64.9	6.4863	3064178.0696	
4:33:00	64.6	6.4616	2894622.9428	
4:34:00	65.3	6.5270	3364867.7520	
4:35:00	66.4	6.6447	4412655.2662	
4:36:00	62.5	6.2486	1772715.3284	
4:37:00	64.3	6.4265	2669623.3977	
4:38:00	64.7	6.4724	2967392.5363	
4:39:00	64.1	6.4117	2580471.1027	
4:40:00	64.4	6.4406	2757960.2343	
4:41:00	64.7	6.4679	2937162.6708	
4:42:00	66.0	6.6015	3995213.5689	
4:43:00	63.8	6.3770	2382286.5566	
4:44:00	64.2	6.4188	2623082.8018	
4:45:00	65.3	6.5348	3425997.1709	
4:46:00	63.2	6.3186	2082499.9517	
4:47:00	65.8	6.5782	3785890.0761	
4:48:00	65.9	6.5932	3919205.1759	
4:49:00	65.5	6.5508	3554372.9900	
4:50:00	66.5	6.6463	4429370.4094	
4:51:00	64.6	6.4609	2889774.8031	
4:52:00	64.6	6.4643	2912775.4128	
4:53:00	65.1	6.5115	3246945.5071	
4:54:00	62.2	6.2245	1676941.8377	
4:55:00	64.9	6.4870	3069014.9217	
4:56:00	65.7	6.5740	3749928.6114	
4:57:00	65.4	6.5435	3495392.9021	
4:58:00	66.3	6.6306	4271761.5269	
4:59:00	65.2	6.5173	3290940.2700	
			176649490.7727	2944158

NM2

5:00 AM-6:00 AM			**74.23**	
5:00:00	64.5	6.4518	2830257.8264	
5:01:00	66.2	6.6163	4133376.8236	
5:02:00	64.7	6.4672	2932398.5764	
5:03:00	64.7	6.4689	2943858.9657	
5:04:00	66.0	6.6018	3997615.3128	
5:05:00	66.4	6.6419	4383954.1158	
5:06:00	67.0	6.7020	5035446.6613	
5:07:00	65.6	6.5644	3667676.3090	
5:08:00	66.5	6.6502	4468821.4197	
5:09:00	65.4	6.5351	3428317.2192	
5:10:00	63.4	6.3437	2206429.2186	
5:11:00	65.3	6.5342	3421314.5158	
5:12:00	66.8	6.6752	4733201.5711	
5:13:00	65.6	6.5580	3614506.4161	
5:14:00	65.5	6.5488	3538042.1295	
5:15:00	65.5	6.5493	3542558.2496	
5:16:00	66.3	6.6297	4263094.8950	
5:17:00	68.0	6.7959	6250474.6766	
5:18:00	91.0	9.0999	1258650057.5373	
5:19:00	77.2	7.7170	52123431.5750	
5:20:00	69.6	6.9614	9150250.8454	
5:21:00	67.6	6.7550	5688948.4702	
5:22:00	67.7	6.7696	5883381.3571	
5:23:00	66.8	6.6845	4836642.6366	
5:24:00	67.5	6.7506	5631771.1668	
5:25:00	66.6	6.6598	4568924.6942	
5:26:00	67.7	6.7656	5828542.9353	
5:27:00	68.4	6.8380	6885904.5758	
5:28:00	68.6	6.8626	7288178.4880	
5:29:00	66.1	6.6094	4067841.2877	
5:30:00	67.6	6.7617	5777460.7005	
5:31:00	67.5	6.7470	5584650.5106	
5:32:00	67.0	6.6995	5006543.5698	
5:33:00	65.6	6.5587	3619828.5413	
5:34:00	66.2	6.6188	4157191.2068	
5:35:00	66.4	6.6411	4376097.6051	
5:36:00	67.6	6.7642	5810252.4167	
5:37:00	68.1	6.8120	6486165.1136	
5:38:00	67.6	6.7593	5745078.9338	
5:39:00	67.1	6.7053	5073749.2485	
5:40:00	66.7	6.6673	4647880.9973	
5:41:00	66.8	6.6833	4822774.9892	
5:42:00	66.7	6.6749	4730205.4050	
5:43:00	67.3	6.7304	5375167.4727	
5:44:00	66.9	6.6918	4917654.3503	
5:45:00	66.2	6.6200	4168569.0525	
5:46:00	68.2	6.8233	6657865.2327	
5:47:00	67.1	6.7139	5174590.6566	
5:48:00	67.4	6.7386	5477810.4477	
5:49:00	67.5	6.7525	5656098.9686	
5:50:00	67.0	6.6975	4983552.0667	
5:51:00	67.6	6.7615	5774361.9107	
5:52:00	65.8	6.5819	3818818.3434	
5:53:00	66.8	6.6799	4784912.4956	
5:54:00	67.0	6.7038	5055859.5396	
5:55:00	67.1	6.7120	5152179.6747	
5:56:00	65.9	6.5944	3929832.1383	
5:57:00	66.1	6.6078	4053489.0112	
5:58:00	66.1	6.6067	4042955.8615	
5:59:00	66.5	6.6530	4497477.5069	
			1589354294.4399	26489238

NM2

6:00 AM-7:00 AM			**74.88**	
6:00:00	74.7	7.4727	29693268.1315	
6:01:00	88.5	8.8514	710192366.5359	
6:02:00	77.1	7.7099	51277990.7882	
6:03:00	73.4	7.3361	21680335.5718	
6:04:00	67.1	6.7112	5142389.8751	
6:05:00	66.6	6.6634	4606594.6619	
6:06:00	68.3	6.8265	6706485.6553	
6:07:00	67.4	6.7382	5472213.0821	
6:08:00	66.9	6.6930	4932090.0803	
6:09:00	67.2	6.7233	5287933.6837	
6:10:00	68.1	6.8050	6382825.9200	
6:11:00	66.5	6.6541	4509122.1469	
6:12:00	68.3	6.8344	6829438.5236	
6:13:00	70.5	7.0533	11305505.8747	
6:14:00	76.9	7.6855	48468993.3526	
6:15:00	86.6	8.6635	460837699.5405	
6:16:00	73.3	7.3306	21410114.9988	
6:17:00	80.5	8.0536	113126929.5963	
6:18:00	67.6	6.7641	5809356.1196	
6:19:00	66.3	6.6337	4302719.1555	
6:20:00	67.4	6.7429	5531921.3894	
6:21:00	68.4	6.8442	6985813.7073	
6:22:00	78.6	7.8618	72750335.4192	
6:23:00	71.0	7.0989	12557610.2572	
6:24:00	67.4	6.7430	5533462.8682	
6:25:00	70.2	7.0174	10408736.1551	
6:26:00	67.1	6.7075	5099234.6825	
6:27:00	68.4	6.8352	6841762.5894	
6:28:00	67.7	6.7712	5904239.9632	
6:29:00	70.4	7.0403	10971171.4003	
6:30:00	70.7	7.0718	11798777.1922	
6:31:00	68.9	6.8950	7852175.5410	
6:32:00	68.7	6.8742	7484986.1315	
6:33:00	70.0	6.9951	9888376.6406	
6:34:00	67.2	6.7154	5192350.4877	
6:35:00	69.0	6.9015	7970085.8603	
6:36:00	69.0	6.9002	7947709.7809	
6:37:00	68.3	6.8340	6823512.6340	
6:38:00	68.1	6.8054	6388236.7081	
6:39:00	67.0	6.7043	5061252.4499	
6:40:00	64.9	6.4916	3102015.7604	
6:41:00	66.4	6.6433	4398544.6005	
6:42:00	64.2	6.4170	2612293.6817	
6:43:00	66.8	6.6806	4793414.6625	
6:44:00	65.2	6.5175	3292008.8950	
6:45:00	66.4	6.6445	4410217.4165	
6:46:00	66.1	6.6135	4106520.5455	
6:47:00	65.8	6.5820	3819680.1698	
6:48:00	65.6	6.5597	3628532.3553	
6:49:00	65.2	6.5197	3308887.4872	
6:50:00	67.6	6.7561	5703375.9505	
6:51:00	68.1	6.8137	6511814.1934	
6:52:00	66.0	6.6007	3987906.7999	
6:53:00	66.8	6.6838	4828319.4939	
6:54:00	67.4	6.7416	5516187.2485	
6:55:00	67.9	6.7873	6128285.6456	
6:56:00	66.3	6.6259	4225625.4546	
6:57:00	66.8	6.6835	4825085.3511	
6:58:00	66.3	6.6257	4223767.4595	
6:59:00	71.7	7.1671	14692510.1700	
			1845081118.4934	30751352

NM2

7:00 AM-8:00 AM			**74.98**	
7:00:00	67.7	6.7679	5860315.5320	
7:01:00	69.7	6.9696	9324574.0027	
7:02:00	67.8	6.7760	5969857.9855	
7:03:00	71.2	7.1190	13150764.4813	
7:04:00	67.5	6.7485	5604256.4458	
7:05:00	68.2	6.8174	6567982.6972	
7:06:00	72.8	7.2807	19087321.9981	
7:07:00	71.4	7.1437	13923101.8470	
7:08:00	66.9	6.6910	4908717.0606	
7:09:00	67.9	6.7916	6188537.1162	
7:10:00	66.0	6.6040	4018324.4509	
7:11:00	67.9	6.7940	6222816.5776	
7:12:00	66.0	6.6022	4001649.0706	
7:13:00	65.5	6.5469	3522581.0950	
7:14:00	64.5	6.4490	2812095.0763	
7:15:00	67.8	6.7761	5971397.7479	
7:16:00	67.5	6.7511	5637713.4752	
7:17:00	70.5	7.0468	11137532.9015	
7:18:00	87.0	8.7023	503846214.5394	
7:19:00	73.1	7.3052	20194727.6237	
7:20:00	72.0	7.1950	15668484.7773	
7:21:00	69.5	6.9480	8872479.4065	
7:22:00	66.9	6.6936	4938226.4353	
7:23:00	65.2	6.5206	3315820.4066	
7:24:00	69.2	6.9235	8384516.0421	
7:25:00	65.2	6.5192	3305103.0125	
7:26:00	66.5	6.6454	4419610.5337	
7:27:00	66.7	6.6677	4652656.6041	
7:28:00	69.5	6.9546	9007141.8016	
7:29:00	70.6	7.0600	11482725.9512	
7:30:00	67.0	6.7040	5058444.6236	
7:31:00	65.1	6.5134	3261316.8928	
7:32:00	67.0	6.6999	5010522.3074	
7:33:00	65.9	6.5903	3892754.3618	
7:34:00	66.2	6.6243	4209921.5206	
7:35:00	87.8	8.7836	607607323.8077	
7:36:00	70.0	7.0044	10102433.4919	
7:37:00	70.6	7.0593	11462253.2594	
7:38:00	66.7	6.6682	4657951.9052	
7:39:00	68.3	6.8269	6713376.4382	
7:40:00	65.5	6.5520	3564700.1138	
7:41:00	65.5	6.5492	3541669.2436	
7:42:00	64.4	6.4362	2730473.7141	
7:43:00	65.0	6.5014	3172341.9922	
7:44:00	65.9	6.5938	3924253.0095	
7:45:00	66.4	6.6440	4405508.0586	
7:46:00	63.9	6.3905	2457746.0116	
7:47:00	67.4	6.7356	5440013.7825	
7:48:00	67.0	6.7033	5050065.3720	
7:49:00	86.0	8.5993	397444965.4307	
7:50:00	70.4	7.0419	11012223.0666	
7:51:00	69.2	6.9174	8267324.7967	
7:52:00	70.1	7.0106	10246581.5300	
7:53:00	71.7	7.1720	14859287.9932	
7:54:00	65.8	6.5834	3831722.0661	
7:55:00	64.1	6.4053	2542670.0059	
7:56:00	64.0	6.3998	2510550.7215	
7:57:00	64.1	6.4136	2591791.1346	
7:58:00	66.0	6.6043	4021054.8757	
7:59:00	64.2	6.4196	2627810.2360	
			1888216298.4592	31470272

NM2

8:00 AM-9:00 AM			**76.32**	
8:00:00	63.1	6.3054	2020337.8491	
8:01:00	84.7	8.4738	297728219.3466	
8:02:00	71.3	7.1345	13629816.2203	
8:03:00	66.2	6.6206	4174226.3956	
8:04:00	64.8	6.4760	2992271.5266	
8:05:00	63.7	6.3657	2321229.0656	
8:06:00	64.5	6.4521	2832272.2679	
8:07:00	71.5	7.1549	14285156.4136	
8:08:00	67.7	6.7695	5882297.6981	
8:09:00	68.0	6.7967	6262431.6661	
8:10:00	63.0	6.2993	1992062.6831	
8:11:00	63.3	6.3328	2151884.7113	
8:12:00	65.4	6.5402	3468781.9448	
8:13:00	74.2	7.4152	26011775.6747	
8:14:00	63.3	6.3348	2161951.7638	
8:15:00	63.5	6.3541	2259820.7912	
8:16:00	66.5	6.6491	4457557.9717	
8:17:00	65.1	6.5082	3222611.8520	
8:18:00	63.3	6.3283	2129702.7908	
8:19:00	63.6	6.3627	2305186.1415	
8:20:00	64.0	6.3964	2491294.1029	
8:21:00	65.5	6.5534	3576399.2901	
8:22:00	82.0	8.1988	158052001.5284	
8:23:00	62.8	6.2794	1902939.5832	
8:24:00	63.7	6.3686	2336452.7353	
8:25:00	64.0	6.3984	2502758.8168	
8:26:00	81.3	8.1263	133763923.8691	
8:27:00	66.6	6.6614	4585788.2796	
8:28:00	65.8	6.5813	3813107.0682	
8:29:00	69.2	6.9181	8281061.3097	
8:30:00	71.2	7.1224	13255710.1741	
8:31:00	62.7	6.2677	1852396.7058	
8:32:00	63.1	6.3094	2038764.2051	
8:33:00	63.6	6.3627	2305403.7752	
8:34:00	64.0	6.3966	2492384.2605	
8:35:00	64.7	6.4659	2923304.1291	
8:36:00	66.1	6.6096	4069939.9363	
8:37:00	62.8	6.2753	1885085.2705	
8:38:00	62.2	6.2195	1657826.2043	
8:39:00	66.3	6.6258	4224886.0498	
8:40:00	85.2	8.5162	328248688.8290	
8:41:00	67.6	6.7595	5747513.4996	
8:42:00	68.0	6.8024	6345253.8312	
8:43:00	64.9	6.4896	3087109.2568	
8:44:00	66.2	6.6233	4200635.5163	
8:45:00	62.4	6.2352	1718782.8039	
8:46:00	63.6	6.3573	2276868.7686	
8:47:00	63.4	6.3383	2179380.1952	
8:48:00	91.4	9.1434	1391236618.0658	
8:49:00	72.0	7.1993	15822204.7399	
8:50:00	68.6	6.8605	7252504.3840	
8:51:00	66.2	6.6194	4162488.0528	
8:52:00	71.1	7.1107	12904613.4487	
8:53:00	69.7	6.9717	9369598.9060	
8:54:00	64.5	6.4464	2795059.1306	
8:55:00	63.6	6.3578	2279129.4871	
8:56:00	63.7	6.3698	2343025.4180	
8:57:00	62.7	6.2739	1878931.7277	
8:58:00	63.3	6.3305	2140365.7855	
8:59:00	63.7	6.3713	2351153.5873	
			2568640947.5025	42810682

NM2

9:00 AM-10:00 AM			**71.65**	
9:00:00	65.6	6.5639	3663160.9426	
9:01:00	63.2	6.3218	2097867.2345	
9:02:00	65.2	6.5179	3295694.9005	
9:03:00	65.3	6.5264	3360245.4368	
9:04:00	61.8	6.1823	1521598.2496	
9:05:00	64.4	6.4372	2736787.0111	
9:06:00	64.5	6.4489	2811136.9266	
9:07:00	63.3	6.3273	2124873.1070	
9:08:00	64.6	6.4579	2869842.0847	
9:09:00	64.0	6.3982	2501727.4855	
9:10:00	64.7	6.4708	2956323.8020	
9:11:00	65.1	6.5097	3234052.0104	
9:12:00	62.2	6.2174	1649692.5001	
9:13:00	64.0	6.3958	2487482.3049	
9:14:00	64.0	6.3961	2489304.3613	
9:15:00	65.1	6.5120	3250985.2570	
9:16:00	64.1	6.4140	2594292.8577	
9:17:00	61.7	6.1709	1482088.0309	
9:18:00	60.7	6.0745	1187003.5013	
9:19:00	63.6	6.3590	2285740.9030	
9:20:00	61.3	6.1272	1340179.5911	
9:21:00	63.9	6.3901	2455500.3479	
9:22:00	63.0	6.3045	2015867.5781	
9:23:00	62.2	6.2191	1656010.1716	
9:24:00	63.3	6.3306	2140942.4829	
9:25:00	63.0	6.2971	1982028.9792	
9:26:00	63.3	6.3323	2149458.1806	
9:27:00	64.4	6.4436	2777026.3462	
9:28:00	65.0	6.4955	3129738.1229	
9:29:00	64.1	6.4131	2588731.4506	
9:30:00	61.6	6.1556	1430885.8863	
9:31:00	64.6	6.4575	2867701.8731	
9:32:00	63.9	6.3905	2457598.8776	
9:33:00	61.1	6.1146	1301871.1411	
9:34:00	61.8	6.1834	1525376.3196	
9:35:00	61.2	6.1231	1327700.1368	
9:36:00	60.7	6.0738	1185241.9109	
9:37:00	72.7	7.2737	18781834.0955	
9:38:00	66.5	6.6482	4447992.0259	
9:39:00	62.0	6.2047	1602201.0057	
9:40:00	64.8	6.4803	3022010.7160	
9:41:00	63.5	6.3475	2226091.4418	
9:42:00	61.6	6.1552	1429657.4772	
9:43:00	66.9	6.6893	4889798.9168	
9:44:00	62.9	6.2858	1930860.9527	
9:45:00	64.0	6.4048	2539551.3574	
9:46:00	64.7	6.4671	2931399.4363	
9:47:00	68.4	6.8363	6859998.1723	
9:48:00	63.7	6.3736	2363991.9863	
9:49:00	65.8	6.5814	3814450.6454	
9:50:00	86.9	8.6902	490038272.2687	
9:51:00	72.2	7.2164	16460385.4199	
9:52:00	67.8	6.7785	6004543.5633	
9:53:00	67.8	6.7765	5976748.7584	
9:54:00	66.7	6.6718	4696442.3972	
9:55:00	61.8	6.1763	1500696.9504	
9:56:00	63.1	6.3123	2052584.2872	
9:57:00	69.0	6.9039	8014122.9325	
9:58:00	62.6	6.2605	1821675.4267	
9:59:00	83.0	8.2993	199223240.5405	
			877560309.0781	14626005

NM2

10:00 AM-11:00 AM			**74.52**	
10:00:00	70.0	6.9960	9908273.8195	
10:01:00	67.7	6.7673	5851780.1309	
10:02:00	66.6	6.6645	4618458.0157	
10:03:00	62.1	6.2055	1605129.2171	
10:04:00	63.9	6.3853	2428538.5403	
10:05:00	64.6	6.4555	2854033.0633	
10:06:00	62.7	6.2683	1854979.0112	
10:07:00	64.5	6.4502	2819544.8031	
10:08:00	62.1	6.2135	1634906.7993	
10:09:00	60.6	6.0621	1153604.6554	
10:10:00	62.9	6.2943	1969196.2497	
10:11:00	62.5	6.2514	1783963.6461	
10:12:00	70.6	7.0588	11450962.6996	
10:13:00	61.4	6.1353	1365557.5256	
10:14:00	63.1	6.3066	2025885.9849	
10:15:00	61.9	6.1894	1546849.2818	
10:16:00	63.2	6.3211	2094382.4981	
10:17:00	63.8	6.3827	2413709.5014	
10:18:00	63.4	6.3395	2185400.3083	
10:19:00	72.0	7.2016	15907722.2659	
10:20:00	83.4	8.3410	219300690.9450	
10:21:00	66.5	6.6534	4502451.0507	
10:22:00	68.6	6.8600	7245026.8617	
10:23:00	68.9	6.8929	7814226.5836	
10:24:00	64.9	6.4872	3070534.6315	
10:25:00	65.9	6.5892	3883211.0964	
10:26:00	64.2	6.4163	2607720.2531	
10:27:00	60.1	6.0133	1031031.6566	
10:28:00	63.2	6.3246	2111431.5174	
10:29:00	62.1	6.2066	1609099.8709	
10:30:00	65.2	6.5151	3273836.6030	
10:31:00	62.5	6.2515	1784444.3150	
10:32:00	61.2	6.1174	1310309.8326	
10:33:00	63.1	6.3117	2049660.8224	
10:34:00	70.0	7.0031	10070939.8014	
10:35:00	62.5	6.2487	1772801.0489	
10:36:00	60.9	6.0896	1229073.9104	
10:37:00	64.5	6.4490	2811823.1358	
10:38:00	67.6	6.7597	5750187.4174	
10:39:00	64.8	6.4800	3019916.9521	
10:40:00	62.2	6.2187	1654481.8225	
10:41:00	62.8	6.2811	1910337.0558	
10:42:00	61.9	6.1884	1543142.3848	
10:43:00	70.1	7.0074	10171968.3453	
10:44:00	62.7	6.2741	1879840.4915	
10:45:00	68.5	6.8479	7045454.2640	
10:46:00	65.8	6.5776	3781307.5340	
10:47:00	90.4	9.0373	1089710159.7607	
10:48:00	71.5	7.1471	14032627.6003	
10:49:00	69.3	6.9319	8548777.2284	
10:50:00	69.6	6.9569	9056074.7796	
10:51:00	68.5	6.8517	7106422.1049	
10:52:00	62.7	6.2669	1848647.0411	
10:53:00	61.5	6.1465	1401206.0377	
10:54:00	61.0	6.1043	1271405.2488	
10:55:00	62.5	6.2462	1762710.5345	
10:56:00	62.3	6.2312	1702813.1682	
10:57:00	60.8	6.0826	1209402.8842	
10:58:00	80.1	8.0126	102951576.1760	
10:59:00	78.2	7.8161	65478089.6190	
			1697787740.4043	28296462

NM2

11:00 AM-12:00 PM			**72.80**	
11:00:00	68.0	6.8008	6320842.9526	
11:01:00	72.3	7.2321	17065970.8701	
11:02:00	65.7	6.5728	3739667.5854	
11:03:00	60.4	6.0438	1106091.3602	
11:04:00	62.8	6.2848	1926819.3542	
11:05:00	63.9	6.3884	2445805.9658	
11:06:00	62.7	6.2717	1869252.6284	
11:07:00	62.5	6.2477	1768837.7571	
11:08:00	64.8	6.4842	3049158.4982	
11:09:00	63.3	6.3256	2116596.1411	
11:10:00	87.9	8.7880	613791683.9065	
11:11:00	70.7	7.0690	11722358.5244	
11:12:00	68.6	6.8567	7189240.2979	
11:13:00	67.3	6.7287	5353650.3037	
11:14:00	62.4	6.2443	1754975.2658	
11:15:00	62.4	6.2361	1722284.9240	
11:16:00	64.7	6.4671	2931743.6961	
11:17:00	63.2	6.3250	2113289.5232	
11:18:00	63.8	6.3768	2381387.1180	
11:19:00	62.7	6.2711	1866620.3662	
11:20:00	62.7	6.2700	1862292.9535	
11:21:00	63.7	6.3674	2330488.6921	
11:22:00	61.6	6.1609	1448528.3518	
11:23:00	62.3	6.2284	1691951.8515	
11:24:00	62.0	6.2046	1601902.2080	
11:25:00	61.7	6.1660	1465682.8291	
11:26:00	64.0	6.4047	2539276.5382	
11:27:00	61.6	6.1643	1459980.3143	
11:28:00	63.0	6.2994	1992448.0194	
11:29:00	63.1	6.3114	2048259.6046	
11:30:00	62.1	6.2073	1611899.6463	
11:31:00	62.5	6.2532	1791455.3981	
11:32:00	66.4	6.6371	4336176.9848	
11:33:00	61.6	6.1648	1461621.7601	
11:34:00	62.6	6.2631	1832711.0569	
11:35:00	61.3	6.1268	1339029.0529	
11:36:00	62.3	6.2270	1686541.3751	
11:37:00	62.7	6.2728	1873993.1540	
11:38:00	63.7	6.3738	2364950.2000	
11:39:00	85.6	8.5644	366740607.4555	
11:40:00	67.7	6.7729	5927287.5958	
11:41:00	66.9	6.6916	4915650.5315	
11:42:00	66.7	6.6653	4627293.0013	
11:43:00	62.5	6.2509	1781956.0975	
11:44:00	60.1	6.0056	1013031.6169	
11:45:00	63.7	6.3747	2369790.7502	
11:46:00	65.0	6.4953	3128470.0380	
11:47:00	60.4	6.0394	1095014.8276	
11:48:00	63.1	6.3061	2023578.2368	
11:49:00	60.5	6.0539	1132168.3241	
11:50:00	62.9	6.2918	1957969.8500	
11:51:00	60.2	6.0164	1038537.0627	
11:52:00	65.4	6.5399	3466538.2772	
11:53:00	62.7	6.2710	1866272.2565	
11:54:00	60.9	6.0931	1239027.6553	
11:55:00	64.7	6.4658	2922678.1985	
11:56:00	62.8	6.2828	1917754.4537	
11:57:00	61.0	6.1007	1260895.2248	
11:58:00	61.0	6.1048	1273025.1978	
11:59:00	62.3	6.2331	1710310.6498	
			1142383324.3313	19039722

NM2

12:00 PM-1:00 PM			**63.52**	
12:00:00	63.2	6.3168	2073781.5198	
12:01:00	68.0	6.7982	6284084.2653	
12:02:00	61.7	6.1736	1491293.0710	
12:03:00	60.9	6.0873	1222753.7404	
12:04:00	62.4	6.2376	1728271.6262	
12:05:00	61.3	6.1348	1363973.7114	
12:06:00	62.6	6.2578	1810693.7394	
12:07:00	62.0	6.1984	1579184.9630	
12:08:00	63.1	6.3053	2019584.3656	
12:09:00	62.8	6.2827	1917339.4141	
12:10:00	62.0	6.1964	1571668.6847	
12:11:00	62.8	6.2821	1914723.2022	
12:12:00	62.7	6.2734	1876821.6302	
12:13:00	66.0	6.6044	4021619.7035	
12:14:00	64.1	6.4090	2564525.3714	
12:15:00	62.6	6.2561	1803341.5949	
12:16:00	61.8	6.1847	1529882.2293	
12:17:00	61.8	6.1798	1512784.2698	
12:18:00	63.6	6.3576	2278127.3605	
12:19:00	63.9	6.3913	2461920.3603	
12:20:00	67.3	6.7335	5414121.5289	
12:21:00	62.3	6.2303	1699323.2522	
12:22:00	63.2	6.3198	2088478.4579	
12:23:00	65.1	6.5091	3229401.1828	
12:24:00	65.5	6.5496	3544908.2568	
12:25:00	58.4	5.8358	685109.5163	
12:26:00	62.6	6.2608	1823244.8688	
12:27:00	66.9	6.6852	4843998.5001	
12:28:00	64.1	6.4067	2550750.6148	
12:29:00	67.1	6.7112	5142792.4778	
12:30:00	64.6	6.4648	2915821.9436	
12:31:00	62.5	6.2493	1775493.1455	
12:32:00	62.7	6.2720	1870841.5211	
12:33:00	63.1	6.3070	2027481.9662	
12:34:00	63.1	6.3069	2026987.1710	
12:35:00	63.3	6.3342	2158584.2305	
12:36:00	63.0	6.2951	1972981.4408	
12:37:00	61.6	6.1585	1440608.5899	
12:38:00	59.9	5.9888	974601.3307	
12:39:00	65.2	6.5198	3310099.1292	
12:40:00	62.2	6.2158	1643713.0380	
12:41:00	62.5	6.2530	1790399.7148	
12:42:00	61.3	6.1280	1342860.8113	
12:43:00	63.5	6.3485	2231140.9127	
12:44:00	60.1	6.0133	1031076.7644	
12:45:00	61.7	6.1704	1480491.7785	
12:46:00	62.0	6.1969	1573602.3664	
12:47:00	63.8	6.3783	2389664.8747	
12:48:00	61.7	6.1724	1487191.8610	
12:49:00	63.3	6.3292	2134076.5812	
12:50:00	63.3	6.3329	2152395.1263	
12:51:00	62.3	6.2303	1699573.6922	
12:52:00	64.6	6.4622	2898457.9224	
12:53:00	61.7	6.1689	1475366.7784	
12:54:00	63.0	6.2980	1986026.3213	
12:55:00	68.3	6.8324	6798968.0449	
12:56:00	61.1	6.1055	1274843.8699	
12:57:00	62.1	6.2125	1631142.8622	
12:58:00	63.3	6.3330	2152652.8575	
12:59:00	61.2	6.1241	1330886.4394	
			135026536.5654	2250442.276

NM2
CNEL

Hr Start	Hr End	Hourly Leq
7:00 AM	8:00 AM	74.98
8:00 AM	9:00 AM	76.32
9:00 AM	10:00 AM	71.65
10:00 AM	11:00 AM	74.52
11:00 AM	12:00 PM	72.80
12:00 PM	1:00 PM	63.52
1:00 PM	2:00 PM	71.55
2:00 PM	3:00 PM	68.52
3:00 PM	4:00 PM	73.41
4:00 PM	5:00 PM	70.83
5:00 PM	6:00 PM	75.16
6:00 PM	7:00 PM	67.87
7:00 PM	8:00 PM	72.26
8:00 PM	9:00 PM	74.63
9:00 PM	10:00 PM	71.19
10:00 PM	11:00 PM	67.80
11:00 PM	12:00 AM	61.62
12:00 AM	1:00 AM	72.49
1:00 AM	2:00 AM	63.59
2:00 AM	3:00 AM	71.82
3:00 AM	4:00 AM	65.02
4:00 AM	5:00 AM	64.69
5:00 AM	6:00 AM	74.23
6:00 AM	7:00 AM	74.88

The Daytime Average is:

LD = 72.88

The Evening Average is:

LE = 72.94

The Nighttime Average is:

LN = 70.71

CNEL = 77.9 dBA

APPENDIX D

RCNM Noise Modeling Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/6/2018
Case Description: Banning Warehouse - (to property line)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Industrial	Industrial	75	75	75

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		10	0
Grader	No	40	85		100	0
Dozer	No	40		81.7	150	0
Dump Truck	No	40		76.5	50	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq	Day Lmax
Grader		99	95	N/A
Grader		79	75	N/A
Dozer		72.1	68.1	N/A
Dump Truck		76.5	72.5	N/A
	Total	99	95.1	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/6/2018
Case Description: Banning Warehouse - (to nearest sensitive receptor)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		2810	0
Grader	No	40	85		2900	0
Dozer	No	40		81.7	2950	0
Dump Truck	No	40		76.5	2850	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq	Day Lmax
Grader		50	46	N/A
Grader		49.7	45.8	N/A
Dozer		46.3	42.3	N/A
Dump Truck		41.3	37.4	N/A
	Total	50	50	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/6/2017
Case Description: Banning Warehouse - Offsite

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residential	Residential	65	65	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	25	0
Tractor	No	40	84		35	0
Backhoe	No	40		77.6	50	0

Results
Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		87.7	83.7
Tractor		87.1	83.1
Backhoe		77.6	73.6
	Total	**87.7**	**86.7**

*Calculated Lmax is the Loudest value.

APPENDIX E

Project Generated Traffic FHWA Worksheets

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Lincoln Street**
Segment: **West of Hargrave Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	2800.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	162.17	3.36	5.60	120.40	0.56	0.93	29.87	4.67	7.78	% A	92
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	5
ADJUSTMENTS											
Flow	15.77	-1.06	1.16	14.48	-8.84	-6.63	8.43	0.36	2.58		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	66.64
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.05
LEQ	58.06	50.18	57.24	56.77	42.40	49.46	50.72	51.61	58.67	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.05		EVENING LEQ	57.64		NIGHT LEQ	60.00		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.64**								

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Lincoln Street**
Segment: **West of Hargrave Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	2899.98
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	168.30	3.43	5.63	124.95	0.57	0.94	31.00	4.77	7.82	% A	92.19
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.96
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	4.85
ADJUSTMENTS											
Flow	15.93	-0.97	1.18	14.64	-8.75	-6.60	8.59	0.46	2.61		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	66.70
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.15
LEQ	58.22	50.27	57.27	56.93	42.49	49.49	50.88	51.70	58.69	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.15		EVENING LEQ	57.78		NIGHT LEQ	60.05		Use hour?	no
										GRADE dB	0.00
		CNEL	**66.70**								

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Lincoln Street**
Segment: **Hargrave Street to John Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	1400.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	81.08	1.68	2.80	60.20	0.28	0.47	14.93	2.33	3.89	% A	92
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	5
ADJUSTMENTS											
Flow	12.76	-4.07	-1.85	11.47	-11.85	-9.64	5.42	-2.65	-0.43		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	63.63
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	58.04
LEQ	55.05	47.17	54.23	53.76	39.39	46.45	47.71	48.60	55.66	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	58.04		EVENING LEQ	54.63		NIGHT LEQ	56.99		Use hour?	no
										GRADE dB	0.00
		CNEL	**63.63**								

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Lincoln Street**
Segment: **Hargrave Street to John Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	3599.56
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	215.98	3.30	3.45	160.35	0.55	0.58	39.78	4.58	4.79	% A	95.31
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.29
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	2.40
ADJUSTMENTS											
Flow	17.02	-1.14	-0.95	15.72	-8.92	-8.73	9.67	0.28	0.48		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	65.73
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.08
LEQ	59.31	50.10	55.14	58.01	42.32	47.36	51.96	51.53	56.57	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.08		EVENING LEQ	58.48		NIGHT LEQ	58.77		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.73**								

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Hargrave Street**
Segment: **North of Ramsey Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	6800.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	417.04	5.10	1.98	308.20	0.91	0.91	77.20	6.80	2.64	% A	97.4
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	21.12	2.00	-2.10	19.81	-5.51	-5.50	13.80	3.25	-0.85		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	63.89
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.84
LEQ	58.57	50.04	51.59	57.25	42.53	48.19	51.24	51.29	52.84	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.84		EVENING LEQ	57.89		NIGHT LEQ	56.63		Use hour?	no
										GRADE dB	0.00
		CNEL	**63.89**								

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Hargrave Street**
Segment: **North of Ramsey Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	6899.98
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	423.17	5.17	2.01	312.73	0.92	0.92	78.33	6.90	2.68	% A	97.40
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	21.19	2.06	-2.04	19.87	-5.45	-5.44	13.86	3.31	-0.79		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	63.95
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.90
LEQ	58.63	50.11	51.65	57.32	42.60	48.26	51.30	51.36	52.90	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.90		EVENING LEQ	57.95		NIGHT LEQ	56.69		Use hour?	no
										GRADE dB	0.00
		CNEL	**63.95**								

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **6750 Banning Distribution Facility**

Road: **Hargrave Street**

Segment: **Ramsey Street to Interstate 10 WB Ramps**

	DAYTIME			EVENING			NIGHTTIME			ADT	10200.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	625.56	7.65	2.98	462.30	1.36	1.36	115.80	10.20	3.97	% A	97.4
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	22.89	3.76	-0.34	21.57	-3.75	-3.74	15.56	5.01	0.91		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	65.65
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.60
LEQ	60.33	51.80	53.35	59.01	44.29	49.95	53.00	53.05	54.60	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.60		EVENING LEQ	59.65		NIGHT LEQ	58.39		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.65**								

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Hargrave Street**
Segment: **Ramsey Street to Interstate 10 WB Ramps**

	DAYTIME			EVENING			NIGHTTIME			ADT	10299.98
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	631.69	7.72	3.00	466.83	1.37	1.37	116.93	10.30	4.01	% A	97.40
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	22.93	3.80	-0.30	21.61	-3.71	-3.70	15.60	5.05	0.95		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	65.69
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.64
LEQ	60.37	51.85	53.39	59.06	44.34	50.00	53.04	53.10	54.64	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.64		EVENING LEQ	59.69		NIGHT LEQ	58.43		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.69**								

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **6750 Banning Distribution Facility**

Road: **Hargrave Street**

Segment: **Interstate 10 WB Ramps to Interstate 10 EB Ramps**

	DAYTIME			EVENING			NIGHTTIME			ADT	8100.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	496.77	6.07	2.36	367.12	1.08	1.08	91.96	8.10	3.15	% A	97.4
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	21.88	2.76	-1.34	20.57	-4.75	-4.74	14.56	4.01	-0.09		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.65
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.60
LEQ	59.33	50.80	52.35	58.01	43.29	48.95	52.00	52.05	53.60	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.60		EVENING LEQ	58.65		NIGHT LEQ	57.39		Use hour?	no
										GRADE dB	0.00
		CNEL	**64.65**								

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Hargrave Street**
Segment: **Interstate 10 WB Ramps to Interstate 10 EB Ramps**

	DAYTIME			EVENING			NIGHTTIME			ADT	9199.78
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	564.23	6.90	2.68	416.98	1.22	1.23	104.44	9.20	3.58	% A	97.40
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	22.44	3.31	-0.79	21.12	-4.20	-4.19	15.11	4.56	0.46		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	65.20
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.15
LEQ	59.88	51.36	52.90	58.57	43.85	49.50	52.55	52.60	54.15	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	61.15		EVENING LEQ	59.20		NIGHT LEQ	57.94		Use hour?	no
										GRADE dB	0.00
		CNEL	**65.20**								

FHWA Sound32 Spreadsheet

Existing Traffic Noise

Project: **6750 Banning Distribution Facility**

Road: **Hargrave Street**

Segment: **Interstate 10 EB Ramps to Lincoln Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	5700.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	349.58	4.27	1.66	258.34	0.76	0.76	64.71	5.70	2.22	% A	97.4
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	20.36	1.23	-2.87	19.04	-6.28	-6.27	13.03	2.48	-1.62		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	63.13
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.07
LEQ	57.80	49.28	50.82	56.49	41.77	47.43	50.47	50.53	52.07	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	59.07		EVENING LEQ	57.12		NIGHT LEQ	55.86		Use hour?	no
										GRADE dB	0.00
		CNEL	**63.13**								

FHWA Sound32 Spreadsheet

Existing Plus Project Traffic Noise

Project: **6750 Banning Distribution Facility**
Road: **Hargrave Street**
Segment: **Interstate 10 EB Ramps to Lincoln Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	7799.58
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	30.00
										DISTANCE	50.00
INPUT PARAMETERS											
Vehicles per hour	478.37	5.85	2.28	353.52	1.04	1.04	88.55	7.80	3.03	% A	97.41
Speed in MPH	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	62.51	73.11	78.76	62.51	73.11	78.76	62.51	73.11	78.76	% HT	0.74
ADJUSTMENTS											
Flow	21.72	2.59	-1.51	20.41	-4.91	-4.90	14.39	3.84	-0.26		
Distance	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.49
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.44
LEQ	59.16	50.64	52.18	57.85	43.13	48.79	51.84	51.89	53.43	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	60.44		EVENING LEQ	58.49		NIGHT LEQ	57.22		Use hour?	no
										GRADE dB	0.00
		CNEL	**64.49**								

for Determining and Mitigating
Traffic Noise Impacts to Residential Structures

Riverside County
Department of Public Health

TO: Whom it may concern

DATE: November 23, 2009

FROM: Steven Hinde, REHS, CIH, Senior Industrial Hygienist

RE: Requirements for determining and mitigating traffic noise impacts to residential structures

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NOISE STANDARDS:

1. The "Noise Element" section of the Riverside County General Plan states "to avoid future noise hazard, the maximum capacity design standard for highways and major roads shall be used for determining the maximum future noise level" or, in the case of freeways and airports, the estimated conditions 20 years in the future may be used.
2. The interior noise levels in residential dwellings shall not exceed 45 Ldn/CNEL.
3. The exterior noise level shall not exceed 65 Ldn/CNEL.
4. Required Noise Prediction Model - Traffic Noise: FHWA RD 77-108 Highway Traffic Prediction Model, Sound 32 or the equivalent.

REQUIRED TRAFFIC NOISE MODELING PARAMETERS:

1. **Roadway Classification:** All roadways must be classified into one of the following categories as defined in the County's General Plan: "Secondary", "Major", "Arterial", "Urban Arterial", "Expressway", "Freeway", and "Specific Plan Road". For future reference the Riverside County Integrated Project (RCIP)/ General Plan can be accessed using http://www.rctlma.org/genplan/default.aspx. The areas will be listed under AREA PLANS VOLUME 1 or 2. Click on area to be looked at. Under the section title “List of Figures” found near the bottom of the page, click on "Circulation" for the most current roadway classifications.
2. **Roadway Traffic Volume:** All roadways must be modeled using Average Daily Trip (ADT) level "C" design capacities (also known as future build-out daily traffic volumes) as quoted County of Riverside General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/ Level of Service for Riverside County Roadways" revised March 2001. Or the page can be found on the Internet at http://www.rctlma.org/genplan/general_plan_2008/general_plan/Chapter_4_Circulation_Element_2008.pdf, or in the case of freeways, contact CALTRANS for future ADT.
3. **Required vehicle mix (MANDATORY)**
   i) Freeways: Vehicle mix information must be obtained from CALTRANS.

ii) Roadways designated as "major", "arterial" highways or "expressways":

VEHICLE	OVERALL %	DAY % (7AM-7PM)	EVENING % (7PM-10PM)	NIGHT % (10PM-7AM)
Auto	92	69.5	12.9	9.6
Medium Truck	3	1.44	0.06	1.5
Heavy Truck	5	2.4	0.1	2.5

iii) Roadways designated as "secondary", "collectors" or smaller.

VEHICLE	OVERALL %	DAY % (7AM-7PM)	EVENING % (7PM-10PM)	NIGHT % (10PM-7AM)
Auto	97.4	73.6	13.6	10.22
Medium Truck	1.84	0.9	0.04	0.9
Heavy Truck	0.74	0.35	0.04	0.35

4. **Traffic Speed**: For County roads assume an average traffic speed of 40 MPH. For freeways, contact CALTRANS and use what speed they recommend.
5. **Terrain conditions for modeling noise propagation**: Assume "hard site" conditions in determining noise propagation (no more than 3 dB of attenuation per doubling of distance between source and receiver).
6. **Noise attenuation attributed to standard residential architecture**: It is assumed that standard residential design (with windows closed) will provide no more than 20 dB (A) of attenuation. Additional mitigation must be demonstrated via modeling.
7. **Receiver placement for modeling exterior noise levels (unmitigated)**: Noise levels must be estimated at the exterior face of the nearest residence at an elevation of five feet above the finished pad.
8. **Receiver placement for noise barrier design**:
   i) *Set back*: Barrier calculations shall be based on a hypothetical outdoor receiver located ten (10) feet behind the intervening noise barrier.
   ii) *Receiver height*: Initial calculations shall be based on a receiver height of five (5) feet above the ground. If these calculations result in a barrier less than or equal to six (6) feet in height, no further barrier calculations are necessary and this shall be selected as the required wall height. However, if the resulting barrier height is calculated to be greater than six feet, it shall be re-calculated using a receiver height of three (3) feet. The resulting re-calculated wall height shall be then selected as the required wall height.
9. **Receiver placement for architectural-based (indoor) noise mitigation - first floor**: First floor interior noise level predictions are to be calculated assuming a hypothetical receiver is located in the center of the room nearest the noise source and elevated 5 feet above the pad (finished floor).
10. **Receiver placement for architectural-based noise mitigation-second floor**: Second floor interior noise level predictions are to be calculated assuming a hypothetical receiver is located in the center of the room nearest the noise source and elevated 14 feet above the pad (or 5 feet above the second story finished floor).

NOISE REPORT FORMAT AND REQUIRED SUBMITTALS: The noise Consultants findings and recommendations must be submitted for review, and receive approval from, the Office of Industrial Hygiene. The resulting report must incorporate the requirements above and, at a minimum, contain the following information: a) a clear description of the proposed project; b) the identity and characterization of all acoustically significant roadways; c) a discussion of analytical methodology and parameters used for noise modeling; d) information obtained from applying requirements 6-10 (above); e) a discussion of mitigation (if necessary) including a clear diagram illustrating noise barrier placement; f) a printed copy of computer input/output (if available).

In addition to the report, Industrial Hygiene must be provided with the following depending on the design stage of the project. The first item that must be provided is a scaled map (blue-line) of the project. This map must clearly illustrate lot boundaries and the relative location of all acoustically significant roadways. Topographical elevations for lots and roadway centerlines must be included. Second, if architectural-based mitigation is necessary, and if the project has progressed to the point where plans for the homes have been drawn, copies must be provided (floor plans and exterior elevation drawings). Additionally, an updated blue-line showing exact pad location and finished floor elevation must be included.

Office of Industrial Hygiene - (951) 358-5096

APPENDIX F

CREATE Data

Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: Banning Warehouse

RESULTS		
Noise Source	**Leq - 1-hr (dB)**	
All Sources	72	
Source 1	66	
Source 2	71	
Source 3	0	
Source 4	0	
Source 5	0	
Source 6	0	
Source 7	0	
Source 8	0	

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS				
Parameter	**Source 1**		**Source 2**	
Source Num.	Freight Locomotive	9	Commuter Rail Cars	3
Distance (source to receiver)	distance (ft)	50	distance (ft)	50
Noisiest Hour of	speed (mph)	40	speed (mph)	40
Activity During	trains/hour	1.5	trains/hour	1.5
Sensitive Hours	locos/train	2	cars/train	300
		40		40
		1.5		1.5
		2		300
Wheel Flats?		30.00%	% of cars w/ wheel flats	30.00%
Jointed Track?	Y/N	n	Y/N	n
Embedded Track?	Y/N	n	Y/N	n
Aerial Structure?	Y/N	n	Y/N	n

APPENDIX G

SoundPLAN Input and Output

Station km	ADT Veh/24	Traffic values: Vehicles type	Vehicle name	day Veh/h	evenin Veh/h	night Veh/h	Speed km/h	Control device	Constr Speed km/h	Affect. veh. %	Road surface	Gradien Min / M %
2		Traffic direction: In entry direction										
0+000	11800	Total	-	7001	4838	2163	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	6293	4720	1180	113					
		Medium trucks	-	47	8	66	113					
		Heavy trucks	-	661	110	918	113					
		Buses	-	-	-	-	-					
		Motorcycles	-	-	-	-	-					
		Auxiliary Vehicl	-	-	-	-	-					
2+664	-							-	-	-	-	-

Contribution Levels of the Receivers

1	Fl	75.3	57.7	63.6	74.1
2		63.0	57.7	63.6	69.9
Rail		75.0	-25.0	-25.0	72.0

Kunzman Associates Inc. 1111 Town & Country Rd, Ste 34 Orange, CA 92868 USA

Noise Emissions of Industry Sources

Source name	Reference	Level			Corrections		
		Day dB(A)	Evening dB(A)	Night dB(A)	Kwall dB(A)	CI dB(A)	CT dB(A)
Rail	Meter	100.0	-	-	-	-	-

Receiver List

No.	Receiver name	Building side	Floor	Limit				Level				Conflict			
				Day	Evening	Night	Lden	Day	Evening	Night	Lden	Day	Evening	Night	Lden
				dB(A)				dB(A)				dB(A)			
1	1		Fl	-	-	-	-	75.3	57.7	63.6	74.1	-	-	-	-

Noise Emissions of Industry Sources

Source name	Reference	Level		Corrections		
		Day	Night	Kwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
4	Meter	80.0	-	-	-	-
2	Meter	80.0	-	-	-	-
3	Meter	80.0	-	-	-	-
4	Meter	80.0	-	-	-	-
5	Meter	80.0	-	-	-	-
6	Meter	80.0	-	-	-	-
7	Meter	80.0	-	-	-	-
8	Meter	80.0	-	-	-	-
9	Meter	80.0	-	-	-	-
10	Meter	80.0	-	-	-	-
11	Meter	80.0	-	-	-	-
12	Meter	80.0	-	-	-	-
13	Meter	80.0	-	-	-	-
14	Meter	80.0	-	-	-	-
15	Meter	80.0	-	-	-	-
1	Meter	70.0	-	-	-	-
2	Meter	70.0	-	-	-	-
3	Meter	70.0	-	-	-	-

Kunzman Associates Inc. 1111 Town & Country Rd, Ste 34 Orange, CA 92868 USA

Noise Emissions of Parking Lot Traffic

Name	Parking lot type	Low noise trolleys	Size	Movements per hour		Road surface	Separated method	Level
				Day	Night			dB(A)
1	Visitors and staff	-	62 car places	321.00	0.000	Asphaltic lanes	no	85.2
2	Visitors and staff	-	62 car places	321.00	0.000	Asphaltic lanes	no	85.2
3	Visitors and staff	-	73 car places	378.00	0.000	Asphaltic lanes	no	86.1
4	Visitors and staff	-	25 car places	129.00	0.000	Asphaltic lanes	no	80.0
5	Rest stop (trucks)	-	118 car places	164.00	0.000	Asphaltic lanes	no	102.8
6	Rest stop (trucks)	-	131 car places	183.00	0.000	Asphaltic lanes	no	103.4
7	Rest stop (trucks)	-	24 car places	33.000	0.000	Asphaltic lanes	no	93.7
8	Rest stop (trucks)	-	52 car places	72.000	0.000	Asphaltic lanes	no	98.2
9	Rest stop (trucks)	-	52 car places	72.000	0.000	Asphaltic lanes	no	98.2

APPENDIX H

Federal Rail Administration Inventory Worksheets

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
10 / 29 / 2017	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	760695J

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
Union Pacific Railroad Company [UP]	CALIFORNIA	RIVERSIDE

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☒ In ☐ Near BANNING	HARGRAVE STREET (Street/Road Name) | * (Block Number)	Is

7. Do Other Railroads Operate a Separate Track at Crossing? ☐ Yes ☒ No	8. Do Other Railroads Operate Over Your Track at Crossing? ☒ Yes ☐ No
If Yes, Specify RR	If Yes, Specify RR ATK

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None LOS ANGELES	☐ None Yuma	☒ None	(prefix) | 0568.720 | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
		☒ N/A	☐ N/A UP

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☒ Freight ☒ Intercity Passenger ☐ Commuter ☐ Transit ☐ Shared Use Transit ☐ Tourist/Other	☒ Less Than One Per Day ☐ Number Per Day_____

23. Type of Land Use

☐ Open Space ☐ Farm ☐ Residential ☒ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes ☒ No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 33.9235141	(WGS84 std: -nnn.nnnnnnn) -116.8679751	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use * CPUC 001B-568.80
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) *	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-848-8715	402-544-3721	415-703-3722

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
17	17	2	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2016	3.A. Maximum Timetable Speed (mph) 60 3.B. Typical Speed Range Over Crossing (mph) From 20 to 40

4. Type and Count of Tracks

Main 2 Siding 0 Yard 0 Transit 0 Industry 0

5. Train Detection (Main Track only)

☐ Constant Warning Time ☐ Motion Detection ☐AFO ☐ PTC ☐ DC ☒ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
10/29/2017		760695J

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1) (count)*	2.C. YIELD Signs *(R1-2) (count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
0	0	0	☒ W10-1 2 ☐ W10-3 ☐ W10-11 ☐ W10-2 ☐ W10-4 ☐ W10-12

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count_____)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☒ None	☐ Yes ☒ No	☒ Yes ☐ No

2.J. Other MUTCD Signs ☒ Yes ☐ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type _____ Count _____ Specify Type _____ Count _____ Specify Type _____ Count _____	☐ Yes ☐ No	0

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 2	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian 0	☒ 2 Quad ☐ Full *(Barrier)* Resistance ☐ 3 Quad ☐ 4 Quad ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☒ LED ☒ Back Lights Included ☐ Side Lights Included	4

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☒ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☒ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☒ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☒ No	☒ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☒ No Storage Distance * _____ Stop Line Distance * _____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ One-way Traffic ☒ Two-way Traffic Number of Lanes 2 ☐ Divided Traffic	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * _____ Length * 30

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* 68	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☒ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☒ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☐ (7) Local	☐ Yes ☒ No	25 MPH ☐ Posted ☒ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2016 AADT 5580	05 %	☐ Yes ☒ No Average Number per Day _____	☐ Yes ☐ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

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Appendix N

ALBERT A. WEBB ASSOCIATES



REVISED TRAFFIC IMPACT ANALYSIS

BANNING DISTRIBUTION CENTER (DESIGN REVIEW NO.16-7002)

Prepared for

BANNING, CA
Established 1913
Proud History
Prosperous Tomorrow

April 2018

www.webbassociates.com

ALBERT A. WEBB ASSOCIATES

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Palm Desert Office
41-990 Cook St., Bldg. I - #801B
Palm Desert, CA 92211
951.686.1070

Murrieta Office
41391 Kalmia Street #320
Murrieta, CA 92562
951.686.1070

April 30, 2018

Mr. William Patton
Banning Industrial, LP
17842 Mitchell North, Suite 100
Irvine, CA 92614-6004

RE: Revised Traffic Impact Analysis Report, Banning Distribution Center (Design Reivew No. 16-7002), City of Banning, CA.

Dear Mr. Patton,

We are pleased to submit herewith our Revised Traffic Impact Analysis Report for the proposed Banning Distribution Center (Design Review No. 16-7002) which we have prepared at your request.

If you have any questions regarding this report, please call the undersigned for clarification.

Sincerely yours,

ALBERT A. WEBB ASSOCIATES

Nancy Velgara

Nancy Velgara, EIT
Assistant Engineer

Dilesh R. Sheth

Dilesh R. Sheth, P.E., T.E.
Vice President



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EXECUTIVE SUMMARY

Purpose of Report and Study Objectives

The purpose of this study is to evaluate the effects on traffic circulation produced from the proposed development of Design Review No. 16-7002 (Banning Distribution Center) in the City of Banning.

The objectives of this study include the following:

- Document existing (2017) traffic conditions in the vicinity of the proposed development;
- Determine the traffic generated from the proposed development;
- Evaluate existing plus project (2017) traffic conditions;
- Evaluate existing plus ambient growth plus project (2019) traffic conditions;
- Evaluate existing plus ambient growth plus other cumulative projects plus project (2019) traffic conditions;
- Evaluate year 2040 plus project traffic conditions;
- Determine if the level of service (LOS) required by the City of Banning and/or California Department of Transportation (Caltrans) will be maintained within the study area, and if not, determine the mitigation measures that will be necessary in order to maintain the required LOS;
- Determine if peak hour traffic signal warrants are met for any of the unsignalized study area intersections;
- Evaluate the adequacy of on-site circulation for the proposed development;
- Determine if safety and/or operational improvements are necessary due to the proposed development.

Site Location and Study Area

The proposed project is located in the City of Banning. Banning Distribution Center is located at the east end of John Street.

Development Description

Project Size

Banning Distribution Center site encompasses approximately 63.75 acres. Banning Distribution Center is currently proposed for development of 1,000 thousand square feet (TSF) gross floor area high-cube warehouse.

Project Trip Generation

The proposed project is anticipated to generate approximately 2,652 daily trip-ends, including 156 trip-ends during the AM peak hour and 181 trip-ends during the PM peak hour in passenger car equivalent (PCE).

Project Site Circulation

Banning Distribution Center will have access to Lincoln Street south of the project via John Street.

Project Zoning and Land Use

The existing and proposed zoning and land use designations are as follows:

- Existing Zoning: Airport Industrial

- Proposed Zoning: Airport Industrial
- Existing Land Use: Vacant
- Proposed Land Use: Distribution Center

Principal Findings

Prior to the preparation of this report, the City of Banning and the California Department of Transportation (Caltrans) was solicited for input and approval of key assumptions used in the analysis of this traffic impact analysis. The approved scoping agreement or correspondence with these entities is included in Appendix A.

Acceptable Level of Service

The acceptable Level of Service (LOS) for the City of Banning is based on the City of Banning General Plan, Policy 6:

> *The City shall maintain peak hour Level of Service D or better on all local roadways and intersections.*

The acceptable LOS for Caltrans facilities is based on the Caltrans' *Guide for the Preparation of Traffic Impact Studies* Section II:

> *Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing measures of effectiveness (MOE) should be maintained.*

Per discussion with Mark Roberts, Caltrans District 8 Office Chief, Intergovernmental Review, Community and Regional Planning, the region-wide goal for acceptable LOS on all freeways, roadway segments, and intersections is LOS D.

Levels of Service – Existing (2017) Conditions

The existing (2017) levels of service for the study area intersections vary from LOS A to F. The following study area intersections operate at an unacceptable LOS:

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

The existing levels of service for the study area freeway ramps vary from LOS B to C.

Levels of Service – Existing Plus Project (2017) Conditions

For existing plus project (2017) traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to F. The following study area intersections would operate at an unacceptable LOS:

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

With the recommended improvements presented in Table 6-1 and Figure 6-A, levels of service at the impacted study area intersections could be improved to meet the required level of service.

The existing levels of service for the study area freeway ramps vary from LOS B to C.

Levels of Service – Existing Plus Ambient Growth Plus Project (2019) Conditions

For existing plus ambient growth plus project (2019) traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to F. The following study area intersections would operate at an unacceptable LOS:

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

With the recommended improvements presented in Table 6-3 and Figure 6-B, levels of service at the impacted study area intersections could be improved to meet the required level of service.

The existing levels of service for the study area freeway ramps vary from LOS B to C.

Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

For existing plus ambient growth plus other cumulative projects plus project (2019) traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to F. The following study area intersections would operate at an unacceptable LOS:

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

With the recommended improvements presented in Table 6-5 and Figure 6-C, levels of service at the impacted study area intersections could be improved to meet the required level of service.

The existing levels of service for the study area freeway ramps vary from LOS B to C.

Levels of Service – Year 2040 Plus Project Conditions

Year 2040 plus project traffic conditions without off-site improvements, the study area intersections are expected to operate at levels of service that vary from LOS B to F. The following study area intersections would operate at an unacceptable LOS:

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

With the recommended improvements presented in Table 6-7 and Figure 6-D, levels of service at the impacted study area intersections could be improved to meet the required level of service.

The existing levels of service for the study area freeway ramps vary from LOS B to C.

▪ Queuing Analysis

Per Caltrans request, a queuing analysis was performed at the intersections Hargrave Street /I-10 westbound ramps and Hargrave Street/I-10 eastbound ramps under existing plus project conditions, existing plus ambient growth plus project conditions, existing plus ambient growth plus cumulative projects plus project conditions, year 2040 plus project conditions.

As presented in Table 6-9 under existing plus project conditions, the internal back-to-back left-turn lane configuration consisting of one 135 foot northbound left-turn lane at Hargrave Street /I -10 westbound ramps and one 65 foot southbound left-turn lane at Hargrave Street/I-10 eastbound ramps provides adequate storage length for both intersections (95th percentile queuing results are provided in Appendix E).

Hargrave Street /I -10 westbound ramps would be an all-way stop controlled intersection with the following geometrics:

Northbound: One left turn lane. One through lane.
Southbound: One shared left-through lane.
Eastbound: Not applicable.
Westbound: One shared left-through-and-right turn lane.

Hargrave Street /I -10 eastbound ramps would be an all-way stop controlled intersection with the following geometrics:

Northbound: One shared left- through lane.
Southbound: One left turn lane. One through lane.
Eastbound: One shared left-through-and-right turn lane.
Westbound: Not applicable.

As presented in Table 6-10, under existing plus ambient growth plus project, no additional storage length improvements would be required to provide adequate storage length to accommodate queuing at the intersections of Hargrave Street and I-10 westbound ramps and Hargrave Street and I-10 eastbound ramps (95th percentile queuing results are provided in Appendix E).

As presented in Table 6-11, under existing plus ambient growth plus cumulative conditions plus project, no additional storage length improvements would be required to provide adequate storage length to accommodate queuing at the intersections of Hargrave Street and I-10 westbound ramps and Hargrave Street and I-10 eastbound ramps (95th percentile queuing results are provided in Appendix E).

As presented in Table 6-12, under year 2040 plus project, no additional storage length improvements would be required to provide adequate storage length, however a signal at the intersection of Hargrave Street /I-10 westbound ramps and a signal at Hargrave Street /I-10 eastbound ramps would be required to accommodate queuing (95th percentile queuing results are provided in Appendix E).

Hargrave Street /I -10 westbound ramps would be improved from an all-way stop controlled intersection to a signalized intersection with the following geometrics:

Northbound: One left turn lane. One through lane.
Southbound: One shared left-through lane.
Eastbound: Not applicable.
Westbound: One shared left-through-and-right turn lane.

Hargrave Street /I -10 eastbound ramps would be improved from an all-way stop controlled intersection to a signalized intersection with the following geometrics:

Northbound: One shared left- through lane.
Southbound: One left turn lane. One through lane.

Eastbound: One shared left-through-and-right turn lane.
Westbound: Not applicable.

A summary of the queuing analysis results for year 2040 plus project conditions is provided in Table 6-12 (see Appendix E for 95th percentile queuing results).

▪ Traffic Signal Warrants

The California MUTCD states that the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal. Peak hour traffic signal warrant analysis should only be considered as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal. Intersections that exceed the peak hour warrant are more likely to meet one or more of the other volume based signal warrants. The Manual on Uniform Traffic Control Devices (MUTCD) also advises that a traffic control signal should not be installed unless:

- One or more of the traffic signal warrants is satisfied;
- An engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection; and
- It will not seriously disrupt progressive traffic flow.

For existing (2017) traffic conditions, the peak hour traffic control signal warrant is satisfied for the following study area unsignalized intersection(s) (see Appendix D for technical calculations):

3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

For existing plus project (2017) traffic conditions, no additional study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

For existing plus ambient growth plus project (2019) traffic conditions, no additional study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

For existing plus ambient growth plus other cumulative projects plus project (2019) traffic conditions, the peak hour traffic control signal warrant is expected to be satisfied for the following additional study area unsignalized intersection(s) (see Appendix D for technical calculations):

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Year 2040 plus project traffic conditions, no additional study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

The following study area unsignalized intersection(s) does not satisfy the peak hour traffic signal warrant in any study scenario (see Appendix D for technical calculations):

4. Hargrave Street (NS) / Lincoln Street (EW)
5. John Street (NS) / Lincoln Street (EW)

Circulation Recommendations

This traffic impact analysis demonstrates that the direct traffic impacts generated by Banning Distribution Center can be mitigated to meet the required level of service if the following recommended improvements are adopted.

Roadway Improvements

- Construct full width improvements on John Street at its ultimate cross-section as a collector from Lincoln Street to the east end at project boundary.

Intersection Improvements

- Construct the intersection of Lincoln Street and John Street with the following geometrics:
  Northbound: Not Applicable.
  Southbound: One left turn lane. One right turn lane. Stop controlled.
  Eastbound: One left turn lane. One through lane.
  Westbound: One shared through and right turn lane.

Safety and Operational Improvements

- Sight distance at Banning Distribution Center entrance roadway will be reviewed with respect to standard City of Banning sight distance standards at the time of preparation of final grading, landscape, site development, and street improvement plans.
- Participate in the phased construction of off-site traffic signals through payment of project's fair share of traffic signal mitigation fees.
- Signing/striping should be implemented in conjunction with detailed construction plans for Banning Distribution Center site.

Regional Funding Mechanisms

Banning Distribution Center will participate in the cost of off-site improvements through the payment of "fair share" mitigation fees, including the following:

- City of Banning Development Impact Fee (DIF), current at time of construction.

These fees will be collected and utilized as needed by City of Banning to construct the improvements necessary to assist in maintaining the required level of service.

Project Mitigation Summary

Table 1-1 summarizes the proposed mitigation measure and associated funding mechanism for Banning Distribution Center as a result of the traffic study.

Table 1-1 – Project Mitigation Summary

No.	Intersection	Jurisdiction	Target LOS	LOS w/o Mitigation		Mitigation Measure	LOS with Mitigation		Funding Mechanism
				AM	PM		AM	PM	
Existing Deficiency									
2	Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	F	F	Install stop signs to change the intersection to be all-way stop controlled.	C	B	Developer
3	Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	F	F	Install stop signs to change the intersection to be all-way stop controlled.	C	B	Developer
Year 2040 Conditions									
3	Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	F	F	Install traffic signal. Re-stripe the to provide one 100 foot southbound left-turn lane.	C	C	Developer DIF Fees

INTRODUCTION

Purpose of Report and Study Objectives

The purpose of this study is to evaluate the effects on traffic circulation produced from the proposed development of Banning Distribution Center (Design Review No.16-7002).

The objectives of this study include the following:

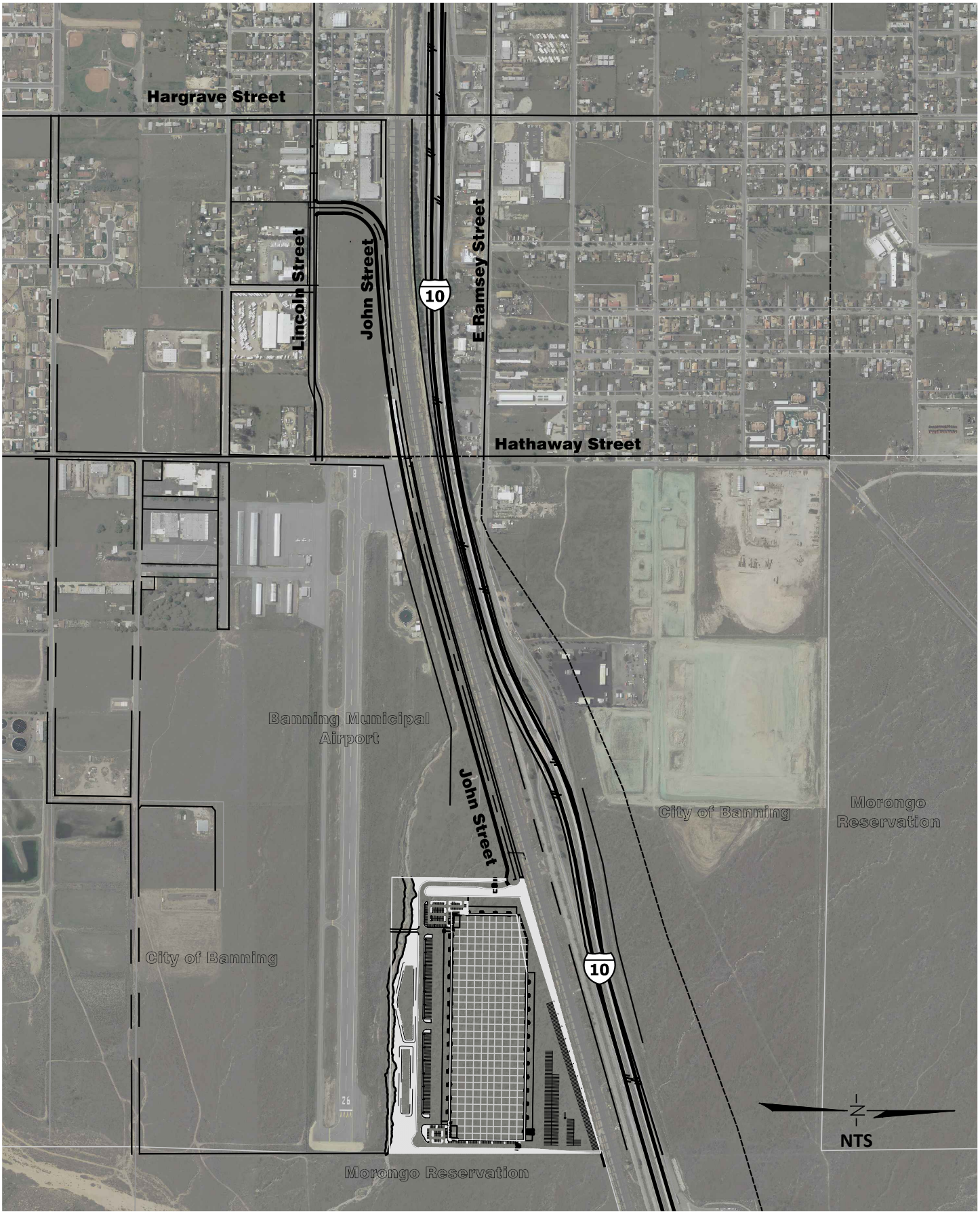
- Document existing (2017) traffic conditions in the vicinity of the proposed development;
- Determine the traffic generated from the proposed development;
- Evaluate existing plus project (2017) traffic conditions;
- Evaluate existing plus ambient growth plus project (2019) traffic conditions;
- Evaluate existing plus ambient growth plus other cumulative projects plus project (2019) traffic conditions;
- Evaluate year 2040 plus project traffic conditions;
- Determine if the level of service (LOS) required by the City of Banning and/or California Department of Transportation (Caltrans) will be maintained within the study area, and if not, determine the mitigation measures that will be necessary in order to maintain the required LOS;
- Determine if peak hour traffic signal warrants are met for any of the unsignalized study area intersections;
- Evaluate the adequacy of on-site circulation for the proposed development;
- Determine if safety and/or operational improvements are necessary due to the proposed development;

Site Location and Study Area

The proposed project is located in the City of Banning. Banning Distribution Center is located at the east end of John Street.

The project site location is presented on Figure 2-A.

Figure 2-A Project Site Location Map



G:\2015\15-0233\Traffic\Figures\20150233-Banning-TIA.dwg | 1/27/2016 | 14:22

Development Project Description

Project Size and Description

Banning Distribution Center site encompasses approximately 63.75 acres. Banning Distribution Center is currently proposed for development of 1,000 thousand square feet (TSF) gross floor area high-cube warehouse.

Existing Land Use and Zoning

Existing land use and zoning designations are as follows:

- Existing Zoning: Airport Industrial
- Existing Land Use: Vacant

Proposed Land Use and Zoning

Proposed land use and zoning designations are as follows:

- Proposed Zoning: Airport Industrial
- Proposed Land Use: Distribution Center

Site Plan of Proposed Project

The current proposed project layout is shown on Figure 2-B.

Site Access

As indicated on Figure 2-B, Banning Distribution Center will have access to Lincoln Street south of the project via John Street.

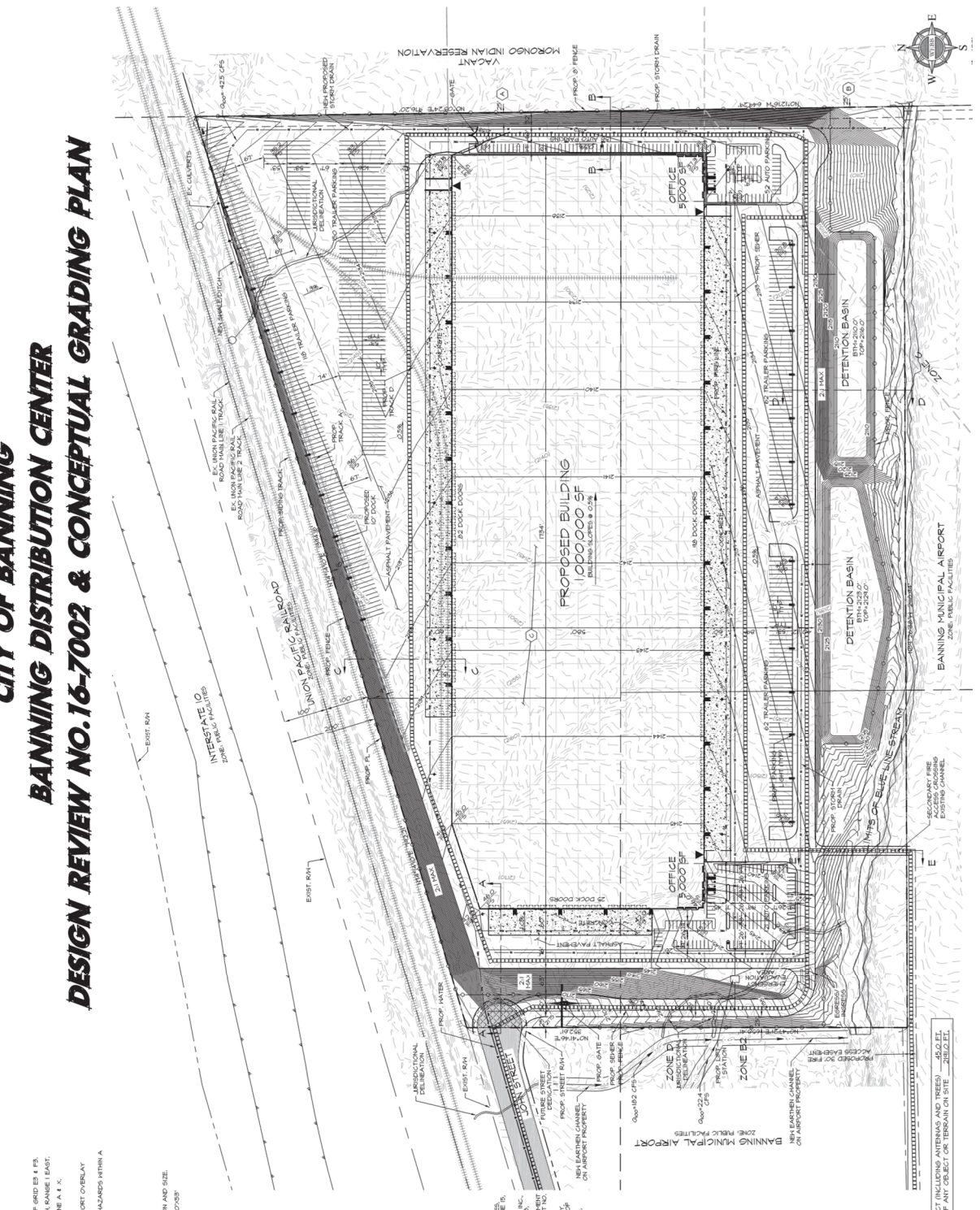
Proposed Project Opening Year and Proposed Project Phasing

For analysis purposes, it is assumed that Banning Distribution Center will be developed in a single phase and full development is anticipated by 2019.

Sphere of Influence

Banning Distribution Center is within one mile of the border of the County of Riverside and the Morongo Reservation.

Figure 2-B – Project Site Plan


CITY OF BANNING
BANNING DISTRIBUTION CENTER
DESIGN REVIEW NO. 16-7002 & CONCEPTUAL GRADING PLAN
NOTES:
LEGEND
PROPOSED CONCRETE PAVEMENT
PROPOSED LANDSCAPE AREA
FIRE ACCESS
PROPOSED SCREEN WALL
PROPOSED CHAIN LINK FENCE
EXISTING CHAIN LINK FENCE
GRADEBREAK/RIDGELINE
EXISTING CONTOURS
PROPOSED CONTOURS
PROPOSED WATER LINE
PROPOSED FIRE LINE
PROPOSED STORM DRAIN
PROPOSED SEWER
RIVERINE/RIPARIAN
FL FLOW LINE
GB GRADE BREAK
GRD GROUND
IN INVERT
LS LANDSCAPE AREA
LP LOW POINT
HP HIGH POINT
MAX MAXIMUM
RG ROUGH GRADE
TOP TOP OF CURB
TYP TYPICAL
ESGRESS # INGRESS
PROP EXTERIOR LIGHT
EASEMENT NOTES:
SITE TABULATION:
BUILDING
PROPOSED PARCEL (84.05 AC)
PROPOSED DEDICATION
PROPOSED PARCEL NET AREA
BUILDING AREA
OFFICE
WAREHOUSE
TOTAL COVERAGE
LANDSCAPING REQUIRED- MIN. 5% OF ALL PARKING AREA (241,261 SF)
LANDSCAPING PROVIDED
LANDSCAPE COVERAGE
WAREHOUSE PARKING (RED'D) 1/500 SF
WAREHOUSE PARKING (RED'D) 1/2,000 SF @ 10,000 SF
WAREHOUSE PARKING (RED'D) ABOVE 20,000 @ 1/2,000 SF
TOTAL REQUIRED PARKING
TRAILER PARKING
PARKING PROVIDED:
STANDARD (9'x19')
TRAILER PARKING (10'x53')
HANDICAPPED PARKING (9'x19')
TOTAL AUTO PARKING PROVIDED
TOTAL TRAILER PARKING PROVIDED
HEIGHT DATA
PROPOSED BUILDING
INTERSTATE 10
ZONE: PUBLIC FACILITIES
EX. UNION PACIFIC RAIL ROAD MAIN LINE TRACK
EX. UNION PACIFIC RAILROAD
PROP. SIDING TRACK
PROP. STORM DRAIN
PROP. SEWER
PROP. WATER
PROP. FENCE
ASPHALT PAVEMENT
DETENTION BASIN
BANNING MUNICIPAL AIRPORT
ZONE: PUBLIC FACILITIES
MORONGO INDIAN RESERVATION
VACANT
ZONE B
ZONE D
NEW EARTHEN CHANNEL ON AIRPORT PROPERTY
SECONDARY FIRE ACCESS ROAD ALONG EXISTING CHANNEL
PROPOSED 30' FIRE ACCESS EASEMENT
EX. CULVERTS
NEW SIGNALIZATION
NEW PROPOSED STORM DRAIN
PROP. STREET RAH
FUTURE STREET DEDICATION
PROP. GATE
PROP. LIFT STATION
EXPRESS
INGRESS
TRAILER PARKING
AUTO PARKING
OFFICE 5,000 SF
PROPOSED BUILDING 1,000,000 SF
BUILDING SLOPES @ 0.5%
52 DOCK DOORS
48 DOCK-DOORS
25 DOCK DOORS
EX. UNION PACIFIC RAIL ROAD MAIN LINE 2

AREA CONDITIONS

Existing Roadway Descriptions

Hargrave Street is an undivided 2-lanes north-south arterial in the project area. It is classified as a secondary highway in the City of Banning General Plan Circulation Element and provides connectivity to the I-10 freeway. Street parking is not allowed for most of the study segment. There is some existing sidewalk on both sides of the street, but designated bike lanes do not exist within the study area.

Lincoln Street is an undivided 2-lanes east-west arterial in the project area. It is classified as a major highway in the City of Banning General Plan Circulation Element. It serves as a major thoroughfare across the City of Banning south of the I-10 freeway. Street parking is allowed on Lincoln Street within the study area. Sidewalk and designated bike lanes do not exist on Lincoln Street within the study area.

John Street is an undivided 2-lanes east-west road in the project area. It is classified as a collector highway in the City of Banning General Plan Circulation Element. It serves as the main access road for the Banning Distribution Center. The existing John Street east of Hargrave Street will be realigned to meet Lincoln Street east of Hargrave Street with this project.

Study Intersections

The study area includes the following intersections:

1. Hargrave Street (NS) / East Ramsey Street (EW)
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)
4. Hargrave Street (NS) / Lincoln Street (EW)
5. John Street (NS) / Lincoln Street (EW)

Study Freeway Ramps

The study area includes the following freeway ramps:

1. I-10 Eastbound: Hargrave Street Off-Ramp
2. I-10 Eastbound: Hargrave Street On-Ramp
3. I-10 Westbound: Hargrave Street Off-Ramp
4. I-10 Westbound: Hargrave Street On-Ramp

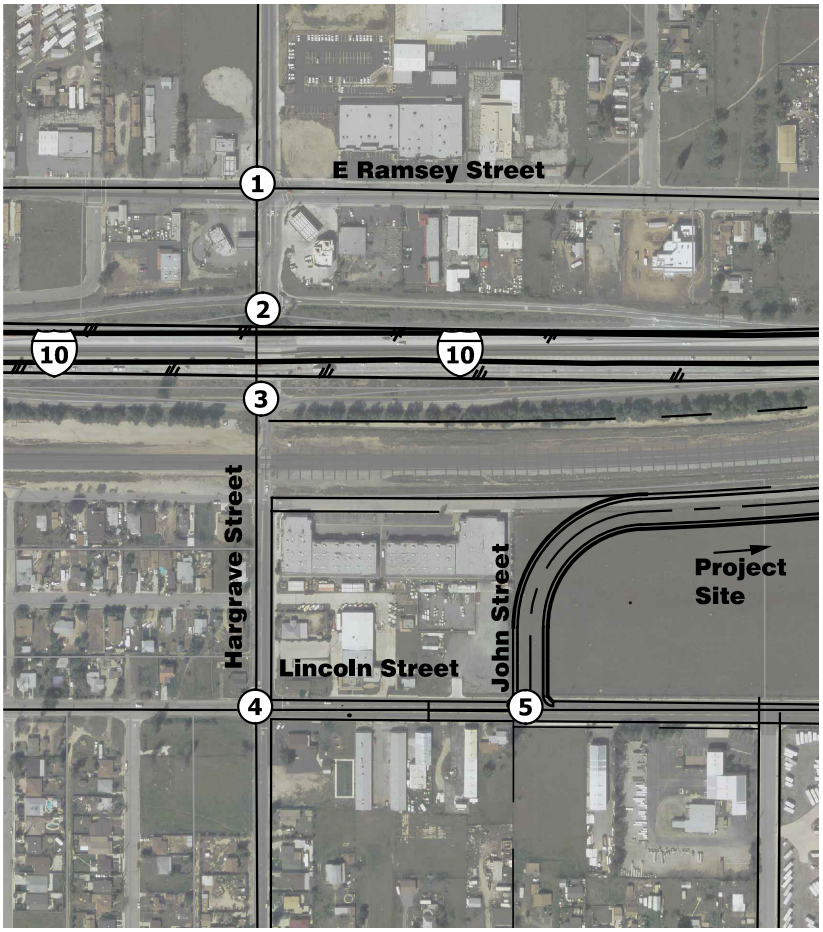
Existing Traffic Controls and Intersection Geometrics

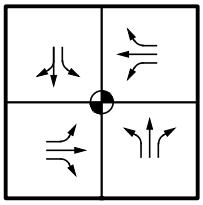
The existing roadway system is shown on Figure 3-A. It identifies the existing intersection traffic controls (i.e. signals and signage) and intersection geometrics within the study area.

Existing Traffic Volumes

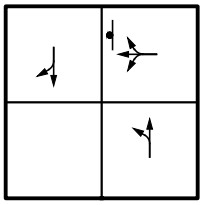
The existing AM peak period and PM peak period intersection turning movement counts were conducted by Counts Unlimited, Inc on January 31, 2017. The existing AM peak hour and PM peak hour freeway ramp volumes were taken from Caltrans PEMS website. The traffic count worksheets are provided in Appendix C. The AM and PM peak hour intersection turning movement volumes are presented on Figure 3-B and Figure 3-C, respectively.

Figure 3-A - Existing Roadway System

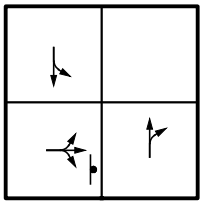




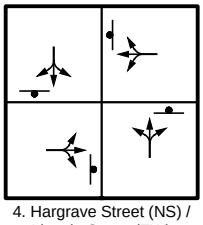
1. Hargrave Street (NS) / E Ramsey Street (EW)



2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)

Does Not Exist

5. John Street (NS) / Lincoln Street (EW)

LEGEND

- Existing Traffic Signal
- Existing Stop Sign
- Existing Lane Geometrics

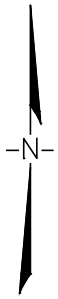


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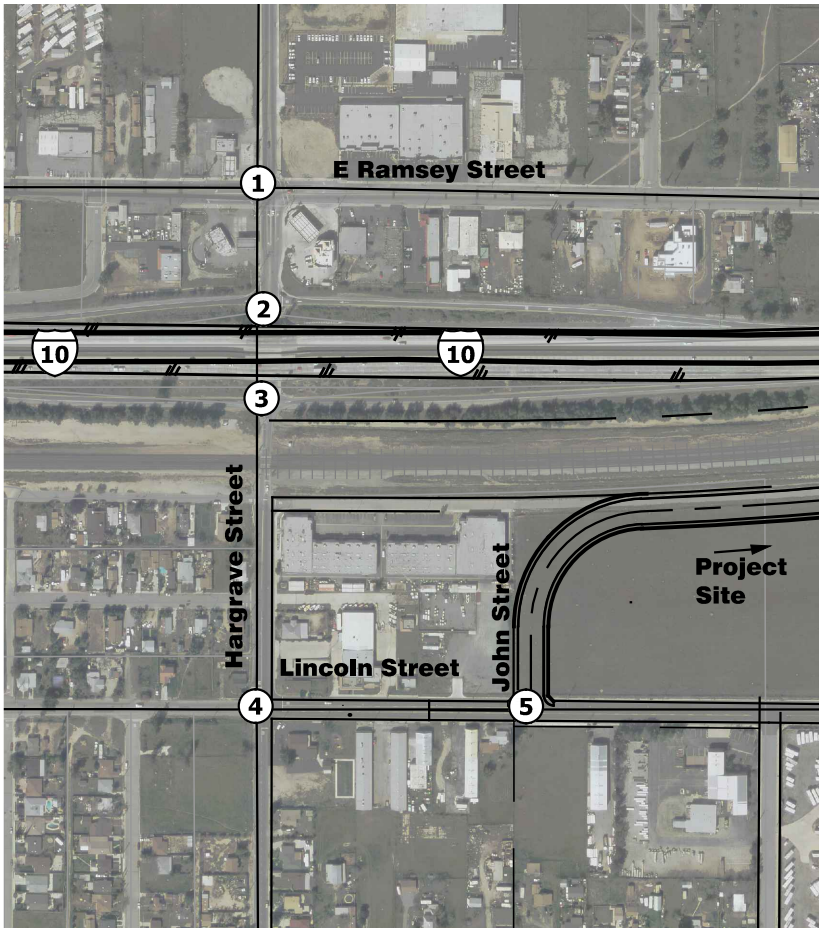
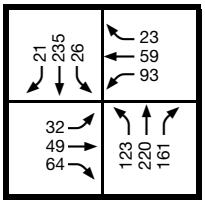
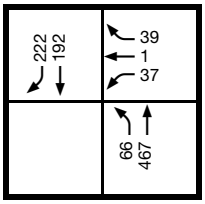
Figure 3-B – Existing (2017) AM Peak Hour Intersection Volumes

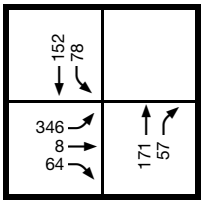




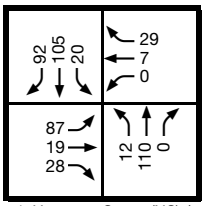
1. Hargrave Street (NS) / E Ramsey Street (EW)



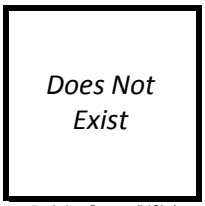
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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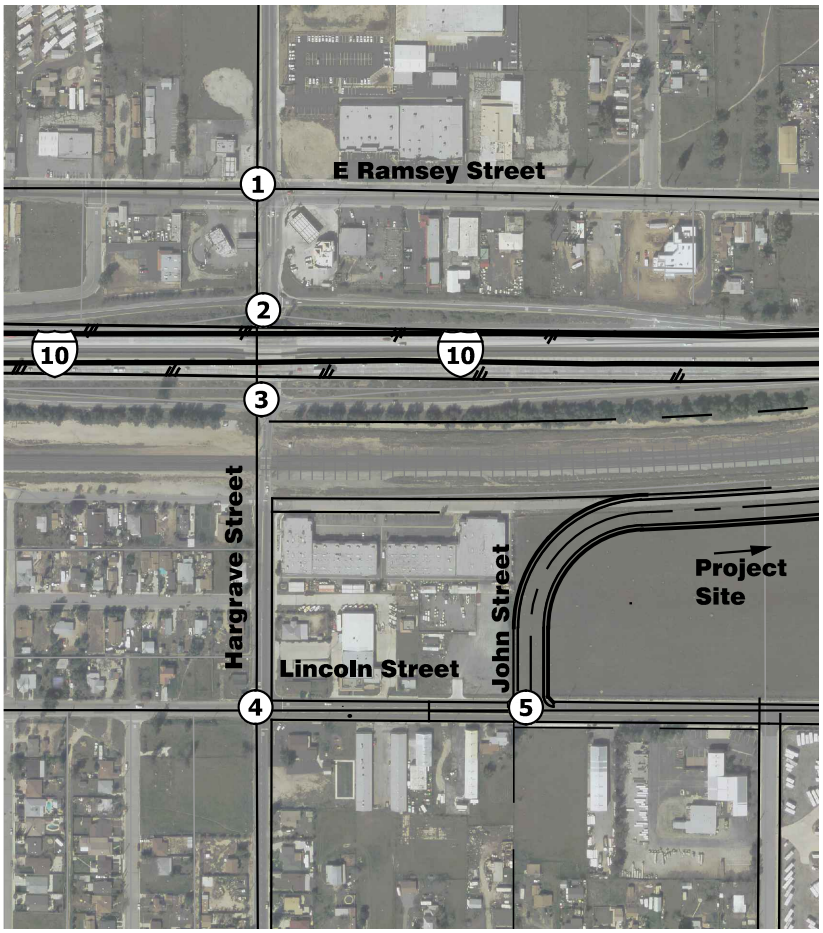
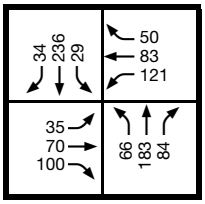
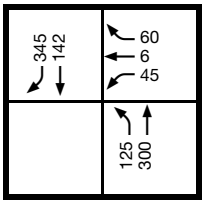
Figure 3-C – Existing (2017) PM Peak Hour Intersection Volumes

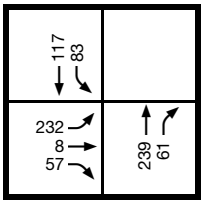




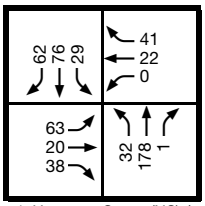
1. Hargrave Street (NS) / E Ramsey Street (EW)



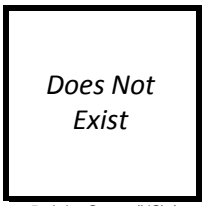
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



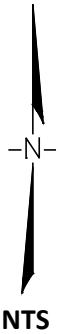
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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Level of Service Methodology

The City of Banning Public Works requires that the Transportation Research Board Highway Capacity Manual 2000 (HCM2000) or the most recent release of the HCM be used to analyze Level of Service (LOS). This study has been prepared using HCM2010.

Quality of service describes how well a transportation facility or service operates from the traveler's perspective. Level of service (LOS) is a quantitative stratification of a performance measure or measures that represent quality of service. LOS is measured on a familiar A to F scale where LOS A represents the best conditions from a traveler's perspective and LOS F the worst. A simple LOS letter system is used to hide much of the complexity of transportation facility performance in order to simplify decision making on whether facility performance is generally acceptable and whether a future change in performance is likely to be perceived as significant by the general public. One reason for the widespread adoption of the LOS concept by agencies is the concept's ability to communicate roadway performance to nontechnical decision makers.

The HCM2010 evaluates the LOS of intersections based on the control delay per vehicle. Control delay is defined as the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. The methodology used to evaluate the intersection level of service differs on whether the intersection is signalized or unsignalized. Levels of service at signalized and unsignalized intersections have been evaluated using PTV Vistro 5.00, which is based on HCM2010 methodologies.

Signalized Intersections

Signalized intersections have been evaluated using the Operational Method as described in Chapter 18 of the HCM2010. According to this methodology, the level of service for signalized intersections is based on the weighted average control delay, in seconds per vehicle, of all vehicles passing through the intersection. Table 3-1 shows the criteria used to determine the level of service for signalized intersections.

Table 3-1 – Level of Service for Signalized Intersections

Level of Service	Control Delay (sec/vehicle)	Description
A	≤ 10	Minimal delay and primarily free-flow operation. Most vehicles do not stop because they arrive during the green indication or only stop for a brief amount of time as the signal changes.
B	> 10 – 20	Short delay and reasonably unimpeded operation. Many vehicles do not stop because they arrive during the green indication or only stop for a short amount of time as the signal changes. More vehicles stop than with LOS A.
C	> 20 – 35	Moderate delay and stable operation. Individual cycle failures (i.e. when queued vehicles do not clear the signal during the next green indication) may begin to appear. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	> 35 – 55	Less stable operation in which small increases in vehicles may cause substantial increases in delay. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 – 80	Significant delay and unstable operation. Most vehicles stop and individual cycle failures are frequent.
F	> 80	Considerable delay and extensive queuing. Almost all vehicles stop and most cycles fail to clear the queue.

Unsignalized Intersections

Unsignalized intersections have been evaluated using Chapter 19-20 of the HCM2010. According to this methodology, the level of service for all-way stop intersections is based on the weighted average control delay, in seconds per vehicle, of all vehicles passing through the intersection. For two-way stop controlled intersections, the level of service is based on the highest control delay of all controlled movements for the intersection. Table 3-2 shows the criteria used to determine the level of service for unsignalized intersections.

Table 3-2 – Level of Service for Unsignalized Intersections

Level of Service	Control Delay (sec/vehicle)	Description
A	≤ 10	Minimal delay. Usually no conflicting traffic.
B	> 10 – 15	Short delay. Occasionally some conflicting traffic.
C	> 15 – 25	Noticeable delay, but not inconveniencing. Usually some conflicting traffic.
D	> 25 – 35	Noticeable delay and irritating. A significant amount of conflicting traffic. Increased likelihood of risk taking.
E	> 35 – 50	Significant delay approaching tolerance level. Lots of conflicting traffic, but with some gaps of suitable size. Risk taking behavior likely.
F	> 50	Considerable delay exceeding tolerance level. Lots of conflicting traffic, with not enough gaps of suitable size. High likelihood of risk taking.

Freeway Segments

The HCM2010 evaluates the LOS of freeway segments based on the density of vehicles within the segment. Density is defined as the number of vehicles occupying a given length of a lane or roadway at a particular instant and measured in passenger cars per mile per lane (pc/mi/ln). The methodology used to evaluate freeway segments differs based on the type of segment: merge and diverge segments (on-ramps and off-ramps), weaving segments (a merge segment closely followed by a diverge segment and the two are connected by a continuous auxiliary lane), and basic segments (all segments that are not merge, diverge, or weaving segments).

Basic freeway segments have been evaluated using Chapter 11 of the HCM2010. Freeway weaving segments have been evaluated using Chapter 12 of the HCM2010. Freeway merge and diverge segments have been evaluated using Chapter 13 of the HCM2010. Caltrans has only requested the analysis of the study area freeway ramps. Table 3-3 shows the criteria used to determine the LOS for freeway weaving segments and freeway merge and diverge segments.

Table 3-3 – Level of Service for Freeway Weaving, Merge, and Diverge Segments

Level of Service	Density (pc/mi/ln)	Description
A	≤ 10	Unrestricted operations exist and the number of vehicles is low enough to permit smooth merging or diverging with very little turbulence in the traffic stream.
B	> 10 – 20	Merging and diverging maneuvers become noticeable to through drivers, and minimal turbulence occurs.
C	> 20 – 28	Speed begins to decline as turbulence levels become much more noticeable. Both ramp and freeway vehicles begin to adjust their speeds to accomplish smooth transitions.
D	> 28 – 35	Turbulence levels become intrusive, and virtually all vehicles slow to accommodate merging or diverging maneuvers. Some ramp queues may form at heavily used on-ramps, but freeway operation remains stable.
E	> 35	Operating conditions approaching or at capacity. Small changes in demand or disruptions within the traffic stream can cause both ramp and freeway queues to form.
F	Demand exceeds capacity	Operating conditions within queues that form on both the ramp and the freeway mainline when capacity is exceeded by demand.

▪ Acceptable Level of Service

The acceptable Level of Service (LOS) for the City of Banning is based on the City of Banning General Plan, Policy 6:

> *The City shall maintain peak hour Level of Service D or better on all local roadways and intersections.*

The acceptable LOS for Caltrans facilities is based on the Caltrans' *Guide for the Preparation of Traffic Impact Studies* Section II:

> *Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing measures of effectiveness (MOE) should be maintained.*

Per discussion with Mark Roberts, Caltrans District 8 Office Chief, Intergovernmental Review, Community and Regional Planning, the region-wide goal for acceptable LOS on all freeways, roadway segments, and intersections is LOS D.

▪ Levels of Service – Existing (2017) Conditions

The intersection levels of service for existing (2017) conditions shown on Table 3-4 and freeway ramps levels of service shown on Table 3-5 are based on the existing roadway system shown on Figure 3-A and the existing AM and PM peak hour intersection volumes shown on Figure 3-B and Figure 3-C, respectively. The level of service calculation worksheets are provided in Appendix E.

Table 3-4 – Intersection Levels of Service – Existing (2017) Conditions

Intersection	Jurisdiction	LOS Standard	Peak Hour	Traffic Control	Delay (sec)	LOS
1. Hargrave Street (NS) E Ramsey Street (EW)	City of Banning	D	AM PM	Signal	23.2 28.5	C C
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	32.7 ***35.1***	D ***E***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***43.2***	***F*** ***E***
4. Hargrave Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	AWSC	9.9 9.1	A A
5. John Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	*Does Not Exist*		

OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Table 3-5 – Freeway Ramps Levels of Service – Existing (2017) Conditions

Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes		AM Peak Hour Volume				PM Peak Hour Volume			
		Main	Ramp	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS
I-10 Eastbound											
1. Hargrave Street Off-Ramp	Diverge	4	1	3646	418	19.5	B	3078	297	16.6	B
2. Hargrave Street On-Ramp	Merge	4	1	3228	143	13.0	B	2781	152	11.6	B
I-10 Westbound											
3. Hargrave Street Off-Ramp	Diverge	4	1	2590	77	13.1	B	4378	111	20.5	C
4. Hargrave Street On-Ramp	Merge	4	1	2513	289	10.3	B	4267	476	18.6	B

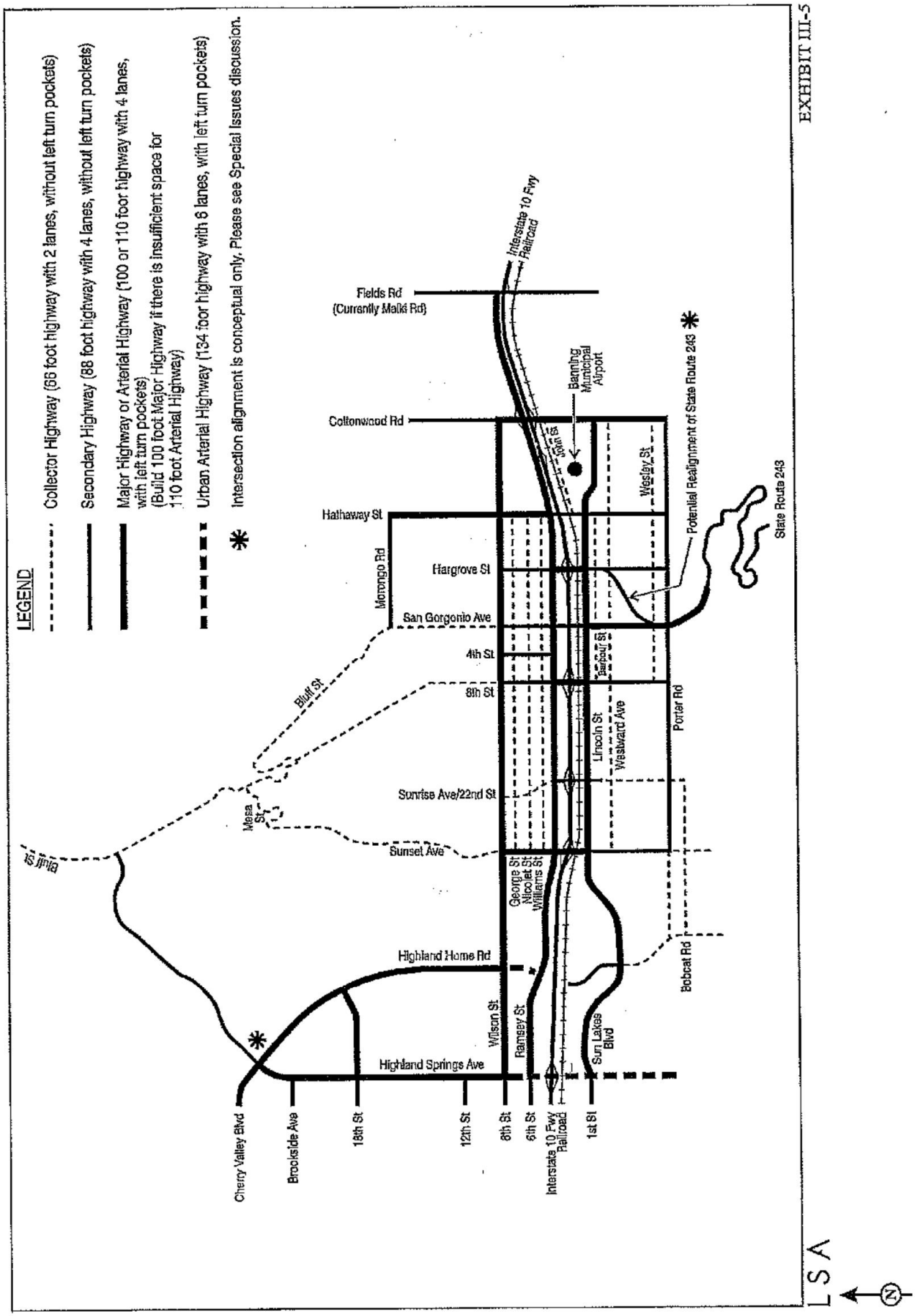
▪ General Plan Circulation

The current City of Banning General Plan circulation element is shown on Figure 3-D.

▪ Transit Service

The project area is served by the City of Beaumont Transit System route 2 (Beaumont, Casino Morongo and Outlet Malls). The nearest bus stop is located at the intersection of East Ramsey Street and Hargrave Street.

Figure 3-D – City of Banning General Plan Circulation Element



Method of Projection

The method of traffic projection is based on the following criteria:

- Existing traffic conditions (2017);
- Ambient growth projections;
- Project generated traffic; and
- Cumulative project generated traffic.

This report uses a project buildout year of 2019 for analysis purposes.

Ambient Growth

In order to evaluate traffic conditions for the study year, area wide growth on existing roadways must be projected. The majority of the anticipated growth within the study area is accounted for with other cumulative project traffic. Per discussion with the City of Banning and Caltrans staff, this study will utilize a 1 percent per year growth rate based on the projections of the SCAG model.

Project Generated Traffic

Project Trip Generation

Trip Generation Rates

Trip generation represents the amount of traffic traveling to and from the proposed project. The traffic generation figures used in this study are based on the development of 1000 TSF gross floor area high-cube warehouse. Table 4-1 shows the peak hour and daily trip generation rates for the proposed project.

The trip generation rates for high-cube warehousing are based on the weighted average trip generation rates provided in the *Trip Generation Manual (9th Edition)* by the Institute of Transportation Engineers (ITE), 2012. The inbound and outbound peak hour trip generation rates are calculated by multiplying the total peak hour generation rate by the directional distribution provided in the *Trip Generation Manual*. The truck split is based on the *Truck Trip Generation Study* performed by the City of Fontana.

Table 4-1 – Trip Generation Rates

Land Use	Unit	AM Peak Hour			PM Peak Hour			Daily
		Total	In	Out	Total	In	Out	
High-Cube Warehouse Land Use Category: 152	TSF							
Passenger Cars		*0.080*	*0.055*	*0.025*	*0.080*	*0.025*	*0.055*	*1.040*
Trucks (2 Axle)		*0.005*	*0.004*	*0.004*	*0.007*	*0.002*	*0.002*	*0.108*
Trucks (3 Axle)		*0.007*	*0.005*	*0.005*	*0.009*	*0.003*	*0.003*	*0.145*
Trucks (4+ Axle)		*0.018*	*0.013*	*0.013*	*0.024*	*0.007*	*0.007*	*0.386*
LAND USE TOTAL		0.110	0.076	0.034	0.120	0.037	0.083	1.680

TSF = 1,000 Square Feet Gross Floor Area.
Average trip generation rates from *Trip Generation Manual, ITE, 9th Edition* (2012).
2 axle / 3 axle / 4+axle truck split from *Truck Trip Generation Study* by the City of Fontana, 2003.

Project Trip Generation

Table 4-2 presents the daily and peak hour trip generation for the proposed project. Table 4-3 presents the trip generation for the proposed project in Passenger Car Equivalent for trucks (PCE). As shown, the proposed project is anticipated to generate approximately 2,652 daily trip-ends in PCE, including 156 trip-ends during the AM peak hour and 181 trip-ends during the PM peak hour, in PCE.

Table 4-2 – Project Trip Generation

Land Use	Qty	Unit	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
High-Cube Warehouse	1000	TSF							
Passenger Cars			*80*	*55*	*25*	*80*	*25*	*55*	*1,040*
Trucks (2 Axle)			*5*	*3*	*2*	*7*	*2*	*5*	*109*
Trucks (3 Axle)			*7*	*5*	*2*	*9*	*3*	*6*	*145*
Trucks (4+ Axle)			*18*	*13*	*5*	*24*	*7*	*17*	*386*
LAND USE TOTAL			110	76	34	120	37	83	1,680

TSF = 1,000 Square Feet Gross Floor Area.

Table 4-3 – Project Trip Generation (in PCE)

Land Use	Qty	Unit	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
High-Cube Warehouse	1000	TSF							
Passenger Cars (PCE = 1.0)			*80*	*55*	*25*	*80*	*25*	*55*	*1,040*
Trucks (2 Axle, PCE = 1.5)			*8*	*5*	*3*	*11*	*3*	*8*	*164*
Trucks (3 Axle, PCE = 2.0)			*14*	*10*	*4*	*18*	*6*	*12*	*290*
Trucks (4+ Axle, PCE = 3.0)			*54*	*39*	*15*	*72*	*21*	*51*	*1,158*
LAND USE TOTAL (IN PCE)			156	109	47	181	55	126	2,652

TSF = 1,000 Square Feet Gross Floor Area.
PCE = Passenger Car Equivalent for Trucks

Project Trip Distribution

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is influenced by the geographical location of the site, type of land use in the study area, such as shopping centers and recreational sites, and proximity to the regional freeway system.

The trip directional orientation of traffic for the proposed project was determined based on the existing roadway system, existing traffic patterns, and existing and future land uses. The directional distribution for the proposed project traffic for trucks and passenger cars assumed in this study is shown on Figure 4-A and Figure 4-B, respectively.

Project Modal Split

The traffic reducing potential of public transit has not been considered in this study. Therefore, the traffic projections provided in this report are considered conservative since public transit could reduce traffic volumes in the project area.

Project Trip Assignment

Trip assignment is the result of assigning the previously discussed trip generation numbers to the circulation system using the previously discussed trip distribution.

The project related AM peak hour and PM peak hour intersection turning movement volumes are shown on Figure 4-C and Figure 4-D, respectively.

Figure 4-A – Directional Distribution of Project Traffic (Trucks)

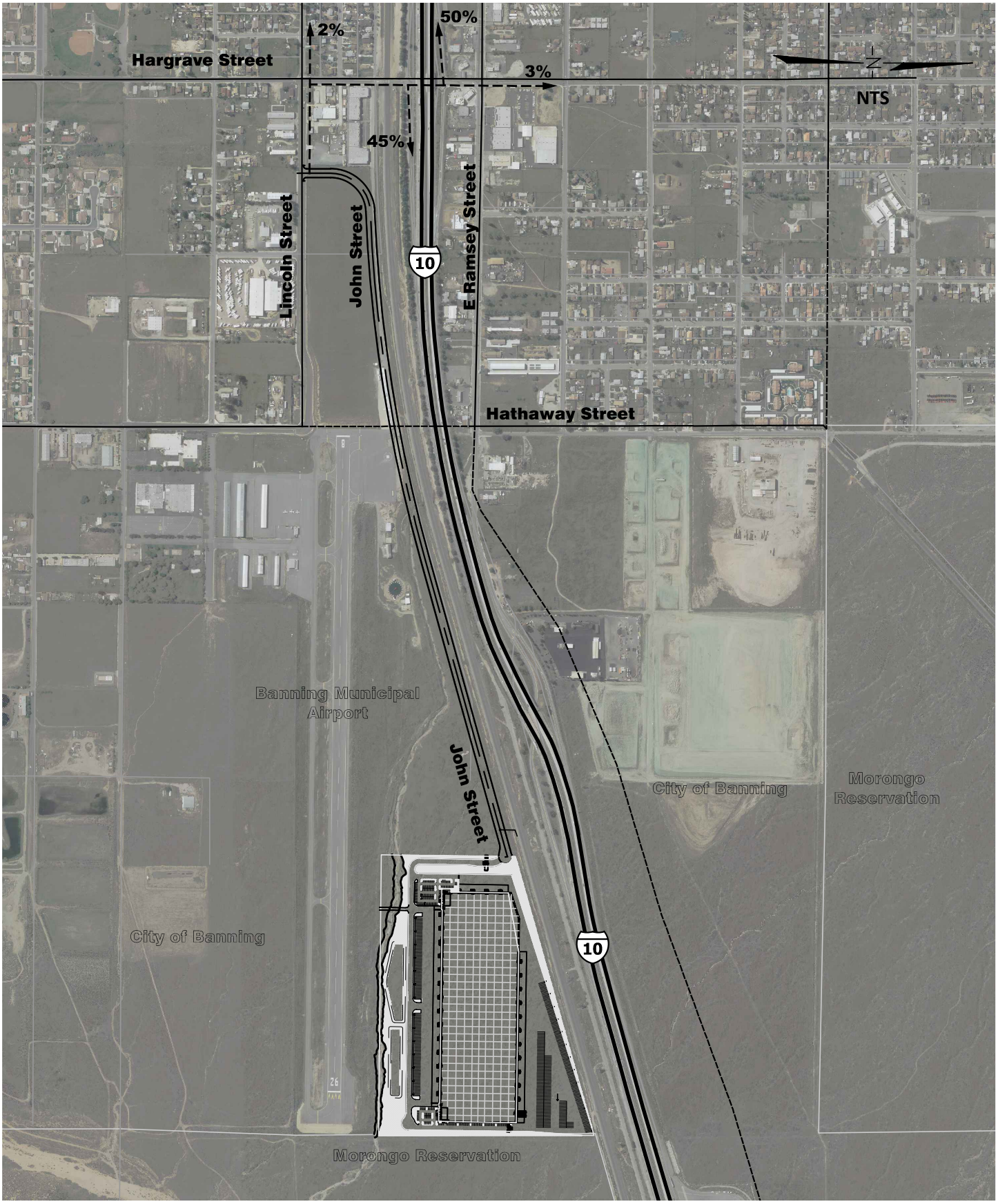


Figure 4B – Directional Distribution of Project Traffic (Passenger Cars)

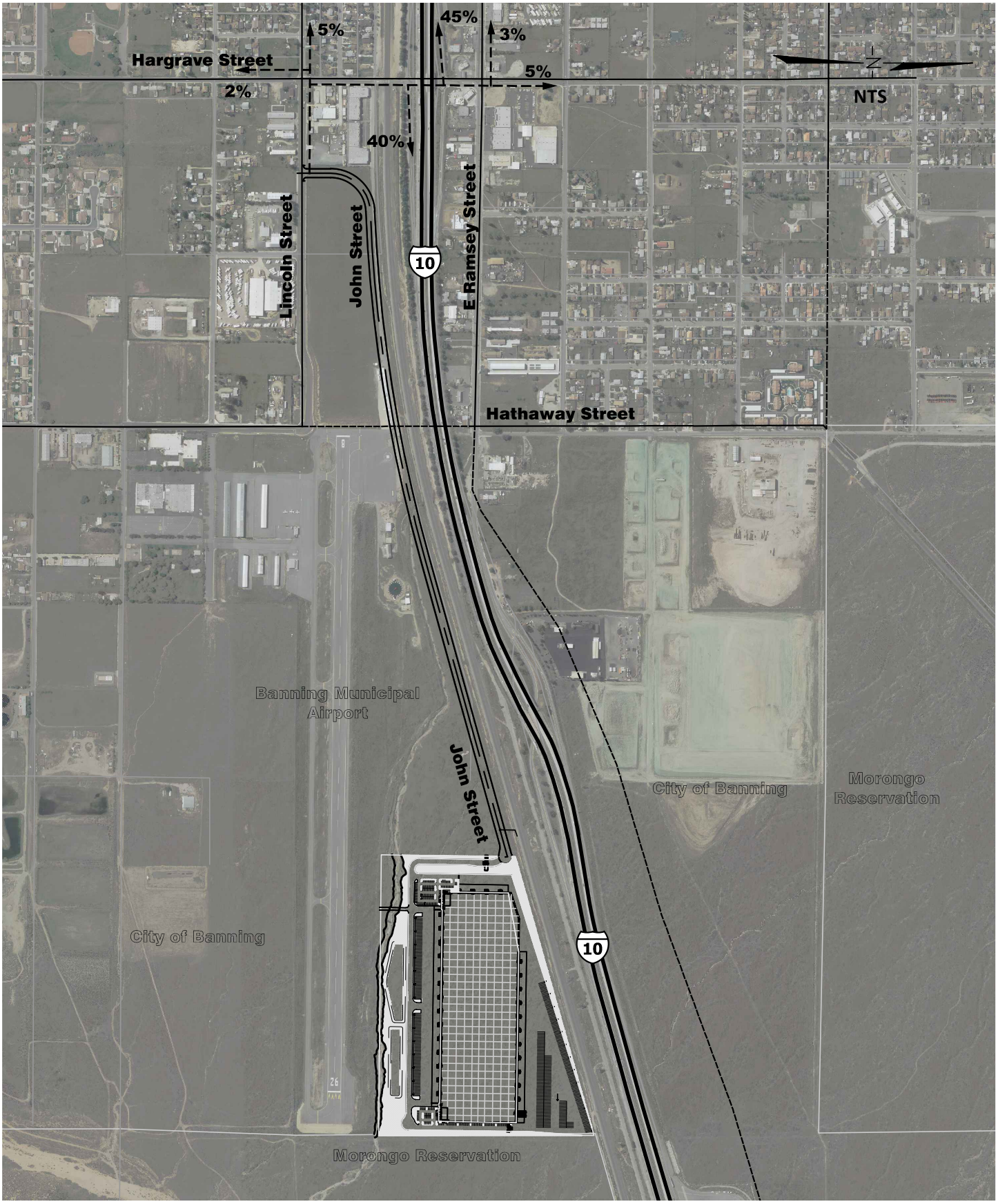
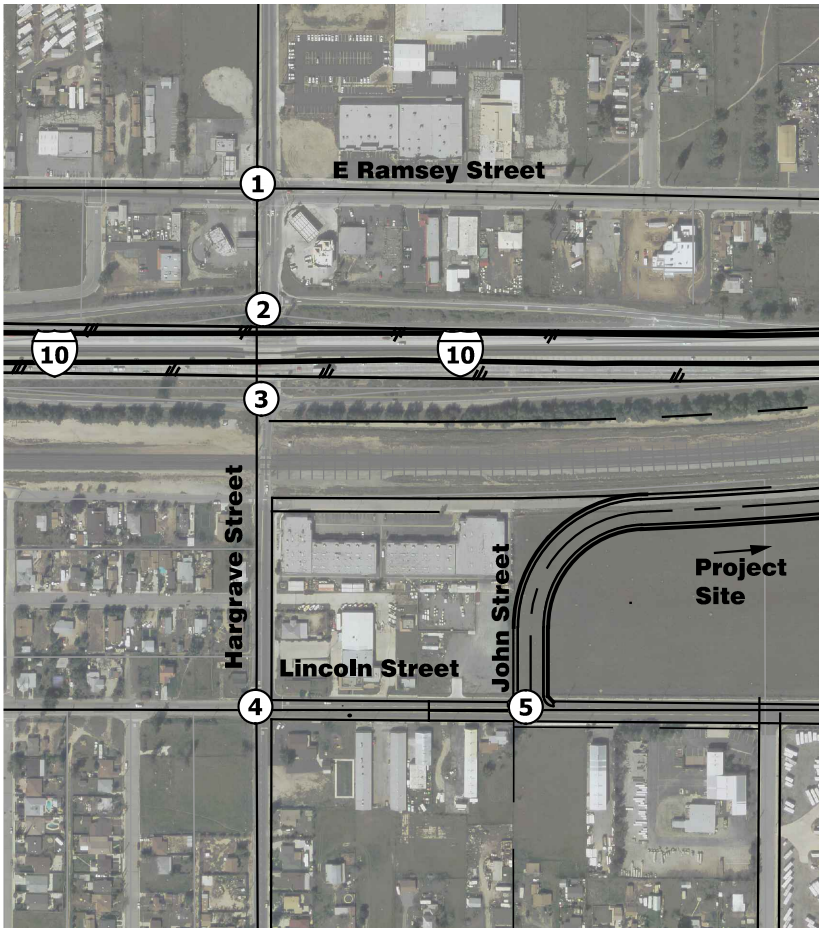
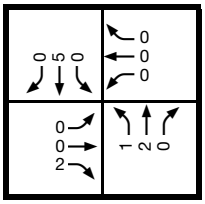
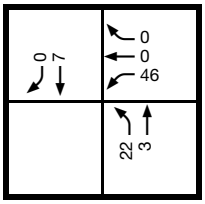


Figure 4-C – Project Only AM Peak Hour Intersection Volumes

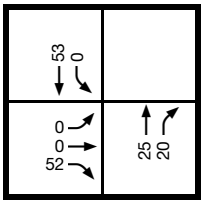




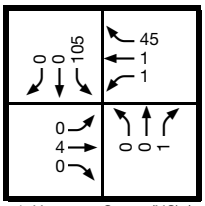
1. Hargrave Street (NS) / E Ramsey Street (EW)



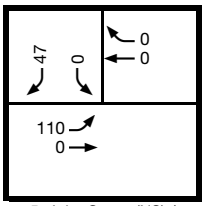
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

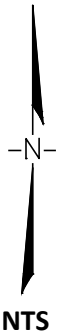


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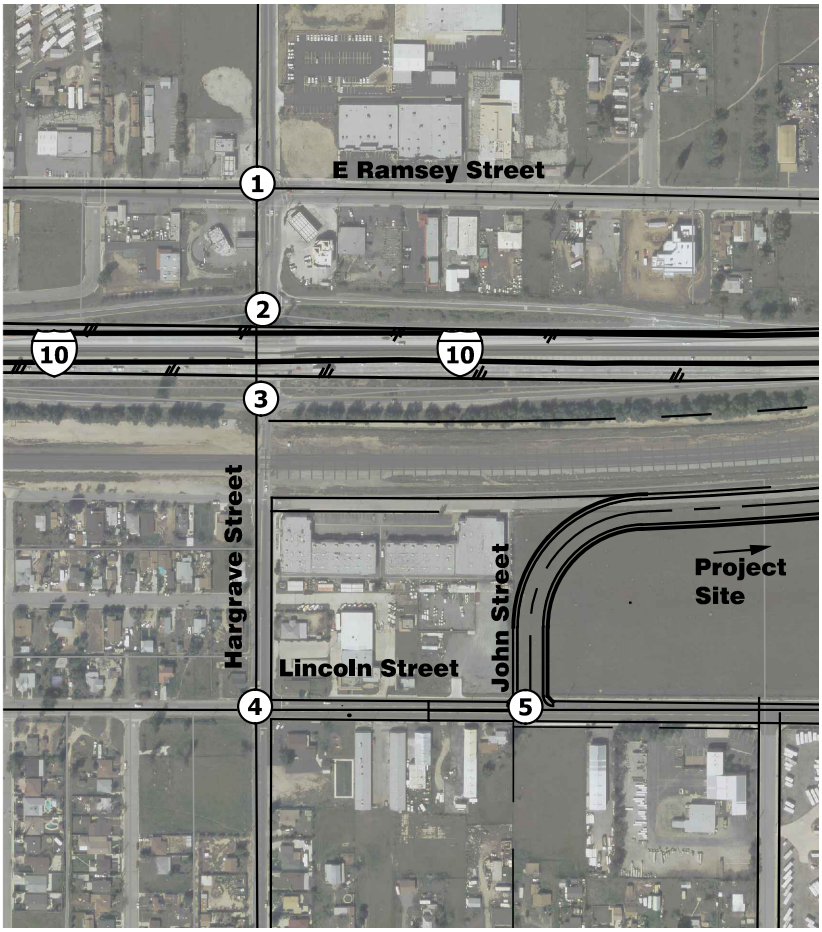
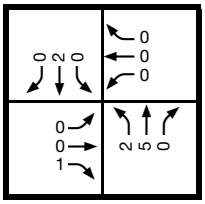
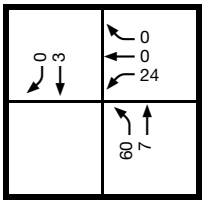
Figure 4-D – Project Only PM Peak Hour Intersection Volumes

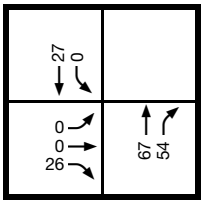




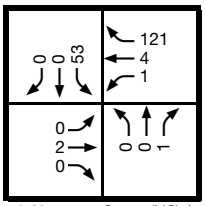
1. Hargrave Street (NS) / E Ramsey Street (EW)



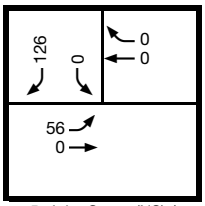
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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▪ Cumulative Project Generated Traffic

Cumulative project traffic from within the study area is expected to have an impact on levels of service. The cumulative projects within the study area are listed in Table 4-4 for 2019 and Table 4-5 for year 2040. These projects were included as per discussion with the City of Banning staff. The Morongo Reservation and Riverside County Transportation Department was consulted but did not provide any relevant cumulative projects. The location of these projects are shown on Figure 4-E. The AM and PM peak hour intersection turning movement volumes for cumulative projects are shown on Figure 4-F and Figure 4-G, respectively.

Table 4-4 – Cumulative Projects within the Study Area in 2019

Project	Land Use	Qty	Unit	AM Peak Hour	PM Peak Hour	Daily
1. La Quinta Hotel	Hotel	81	Rooms	43	49	662
	Internal Trips (9-35%)			*(2)*	*(17)*	*(19)*
	Fast-Food Restaurant with Drive-Through Window	2.8	TSF	127	91	1,389
	Internal Trips (3-17%)			*(9)*	*(15)*	*(24)*
	Pass-by Trips (PM:43%)			*0*	*(32)*	*(32)*
	High-Turnover (Sit-Down) Restaurant	1.2	TSF	13	12	153
	Internal Trips (3-17%)			*0*	*(2)*	*(2)*
	Pass-by Trips (AM:49% PM:50%)			*(6)*	*(4)*	*(10)*
	PROJECT TOTAL			*166*	*82*	*2,117*
2. Pardee Butterfield Specific Plan (20%)[1]	Shopping Center	78	TSF	134	507	5,778
	Internal Trips (7-18%)			*(3)*	*(93)*	*(122)*
	Pass-by Trips (PM:34%)			*0*	*(140)*	*(140)*
	Single-Family Detached Housing	998	DU	749	998	9,501
	Internal Trips (1-9%)			*(3)*	*(95)*	*(97)*
	PROJECT TOTAL			*877*	*1,177*	*14,920*
3. Rancho San Gorgonio Specific Plan (By 2019)[2]	Single-Family Detached Housing	599	DU	449	599	5,702
	Elementary School	800	Stu	360	120	1,032
4. Tent Tract Map 33540	Single-Family Detached Housing	172	DU	129	172	1,637
	Cemetery	7	Acres	1	6	33
5. Tent Tract Map 36710	Single-Family Detached Housing	48	DU	36	48	457
6. Tent Tract Map 36939	Single-Family Detached Housing	98	DU	74	98	933
7. Tent Parcel Map 33326	Shopping Center	512	TSF	422	1,789	19,632
	Pass-by Trips (PM:34%)				*(592)*	*(670)*
	PROJECT TOTAL			*422*	*1,197*	*18,962*
8. Tent Tract Map 33013	Single-Family Detached Housing	6	DU	5	6	57
9. 300 S. Highland Springs Ave, Pad A	Shopping Center	7.964	TSF	33	110	1,311
	Pass-by Trips (PM:34%)			*0*	*(36)*	*(36)*
	PROJECT TOTAL			*33*	*74*	*1,275*
10. Airport Industrial Work Lofts[3]	Residential Condominium/Townhouse	22	DU	10	12	128
	General Office Building	14.28	TSF	23	22	158
	Warehousing	13.53	TSF	4	4	48
	Specialty Retail Center	13.53	TSF	18	37	600
	Internal Reduction10%			*(6)*	*(8)*	*(93)*
	PROJECT TOTAL			*49*	*67*	*841*
TOTAL[4]				2,601	3,646	47,966

TSF = 1,000 Square Feet Gross Floor Area, DU = Dwelling Units, Stu = Students.

[1] Single-family detached housing assumption was reduced based on discussions with the City of Banning. The City does not anticipate all 1,077 residential project units that were assumed in the original scoping agreement dated February 1st, 2017 to be constructed by 2019. The 998 residential units assumed in this revised scoping agreement remains highly conservative.

[2] Revised development trip assumption for Rancho San Gorgonio Specific Plan has been revised to match the Rancho San Gorgonio Specific Plan Traffic Study, prepared by Kunzman Associates, Inc. on April 2016.

[3] The Airport Industrial Work Lofts project was not included in the approved scoping agreement dated February 1st, 2017. The Lofts project has now been included in this revised scoping agreement as part of the cumulative project list. The Lofts project is projected to generate very low traffic volume which would be compensated with the adjustments made to the internal trip capture explained in the next page regarding methodology. It is also considered accounted for in the analysis per the high number of residential units originally assumed in the Pardee Butterfield Specific Plan and the Rancho San Gorgonio Specific Plan.

[4] The cumulative project list assumes over 1,900 residential dwelling units completed in 2 years, which is very conservative. The City does not anticipate rapid growth in the next two years; therefore, all revision to the internal capture and residential dwelling units were made in agreement with the City.

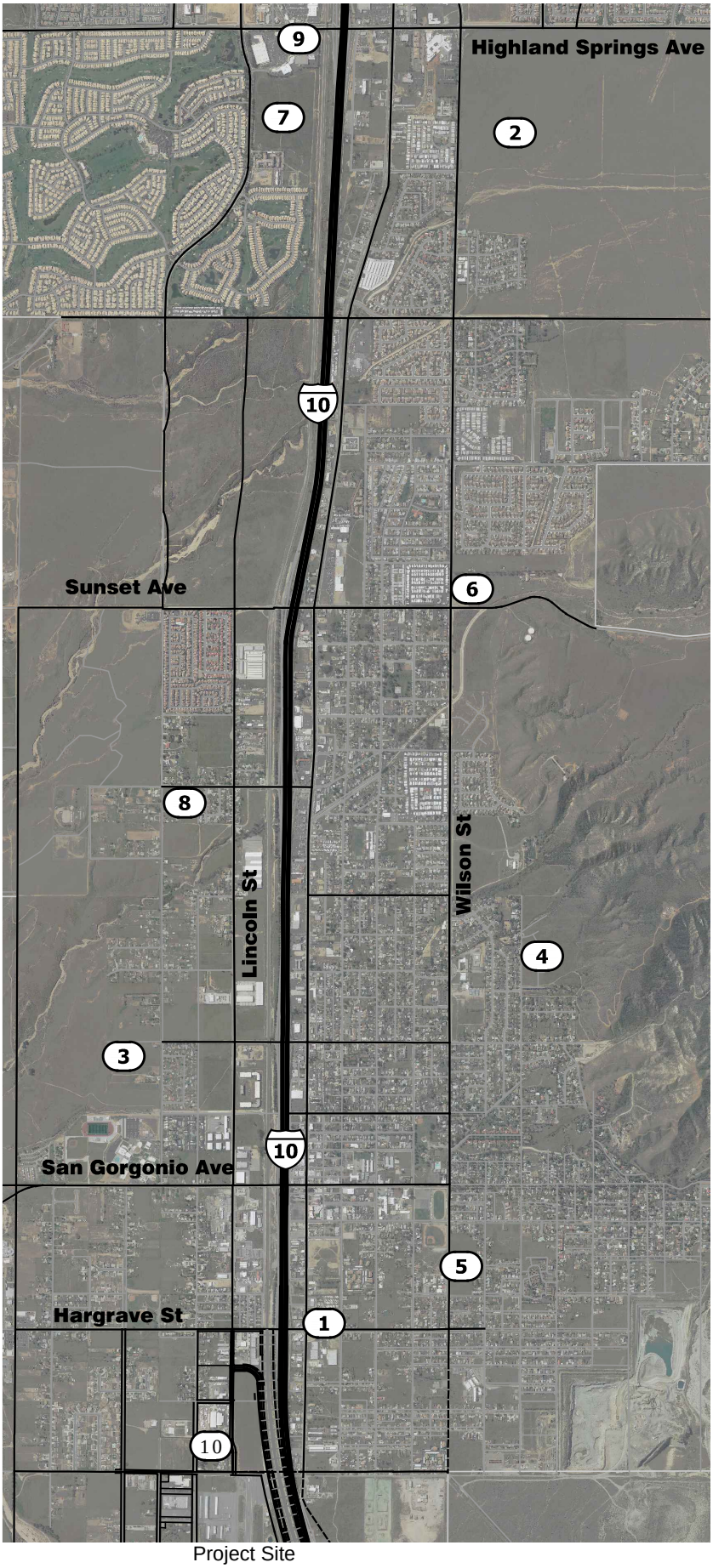
Table 4-5 – Cumulative Projects within the Study Area in Year 2040

Project	Land Use	Qty	Unit	AM Peak Hour	PM Peak Hour	Daily
1. La Quinta Hotel	Hotel	71	Rooms	38	43	580
	Internal Trips (9-35%)			*(2)*	*(15)*	*(17)*
	Fast-Food Restaurant with Drive-Through Window	2.8	TSF	127	91	1,389
	Internal Trips (3-17%)			*(4)*	*(15)*	*(19)*
	Pass-by Trips (PM:43%)			*0*	*(32)*	*(32)*
	High-Turnover (Sit-Down) Restaurant	1.2	TSF	13	12	153
	Internal Trips (3-17%)			*0*	*(2)*	*(2)*
	Pass-by Trips (AM:49% PM:50%)			*(6)*	*(4)*	*(10)*
	PROJECT TOTAL			*166*	*78*	*2,042*
2. Pardee Butterfield Specific Plan	Shopping Center	392	TSF	359	1,496	16,360
	Internal Trips (14-18%)			*(49)*	*(274)*	*(323)*
	Pass-by Trips (PM:34%)			*0*	*(414)*	*(414)*
	Single-Family Detached Housing	5327	DU	3,995	5,327	50,713
	Internal Trips (1-5%)			*(49)*	*(274)*	*(323)*
	PROJECT TOTAL			*4,256*	*5,861*	*66,013*
3. Rancho San Gorgonio Specific Plan	Single-Family Detached Housing	1449	DU	1,087	1,449	13,794
	Elementary School	800	Stu	360	120	1,032
	Apartments	931	DU	475	577	6,191
	Shopping Center	101.6	TSF	98	377	4,338
	Pass-by Trips (PM:34%)			*0*	*(127)*	*(127)*
	PROJECT TOTAL			*2,020*	*2,396*	*25,228*
4. Tent Tract Map 33540	Single-Family Detached Housing	172	DU	129	172	1,637
	Cemetery	7	Acres	1	6	33
5. Tent Tract Map 36710	Single-Family Detached Housing	48	DU	36	48	457
6. Tent Tract Map 36939	Single-Family Detached Housing	98	DU	74	98	933
7. Tent Parcel Map 33326	Shopping Center	510	TSF	421	1,785	19,582
	Pass-by Trips (PM:34%)			*0*	*(606)*	*(606)*
	PROJECT TOTAL			*421*	*1,179*	*18,976*
8. Tent Tract Map 33013	Single-Family Detached Housing	6	DU	5	6	57
9. 300 S. Highland Springs Ave, Pad A	Shopping Center	7.964	TSF	33	110	1,311
	Pass-by Trips (PM:34%)			*0*	*(36)*	*(36)*
	PROJECT TOTAL			*33*	*74*	*1,275*
10. Airport Industrial Work Lofts	Residential Condominium/Townhouse	22	DU	10	12	128
	General Office Building	14.28	TSF	23	22	158
	Warehousing	13.53	TSF	4	4	48
	Specialty Retail Center	13.53	TSF	18	37	600
	Internal Reduction10%			*(6)*	*(8)*	*(93)*
	PROJECT TOTAL			*49*	*67*	*841*
TOTAL				7,190	9,985	117,492

TSF = 1,000 Square Feet Gross Floor Area.

Note that the I-10 Freeway Bypass project was not included in the assumptions for this analysis for neither opening year 2019 nor build out year 2040. Although this is a major project to be located in close proximity to the project and will alter the traffic patterns for the study area, it was not assumed for the following reasons: 1) the project is currently not fully funded; 2) the project would improve the freeway ramps, which are the critical intersections for the Banning Distribution Center traffic impact analysis.

Cumulative Projects within the Study Area



Project Site

LEGEND

1. La Quinta Hotel
2. Pardee Butterfield Specific Plan
3. Rancho San Gorgonio Specific Plan
4. Tentative Tract Map 33540
5. Tentative Tract Map 36710
6. Tentative Tract Map 36939
7. Tentative Parcel Map 33326
8. Tentative Tract Map 33013
9. 300 S Highland Springs Ave, Pad A
10. Airport Industrial Work Lofts

N

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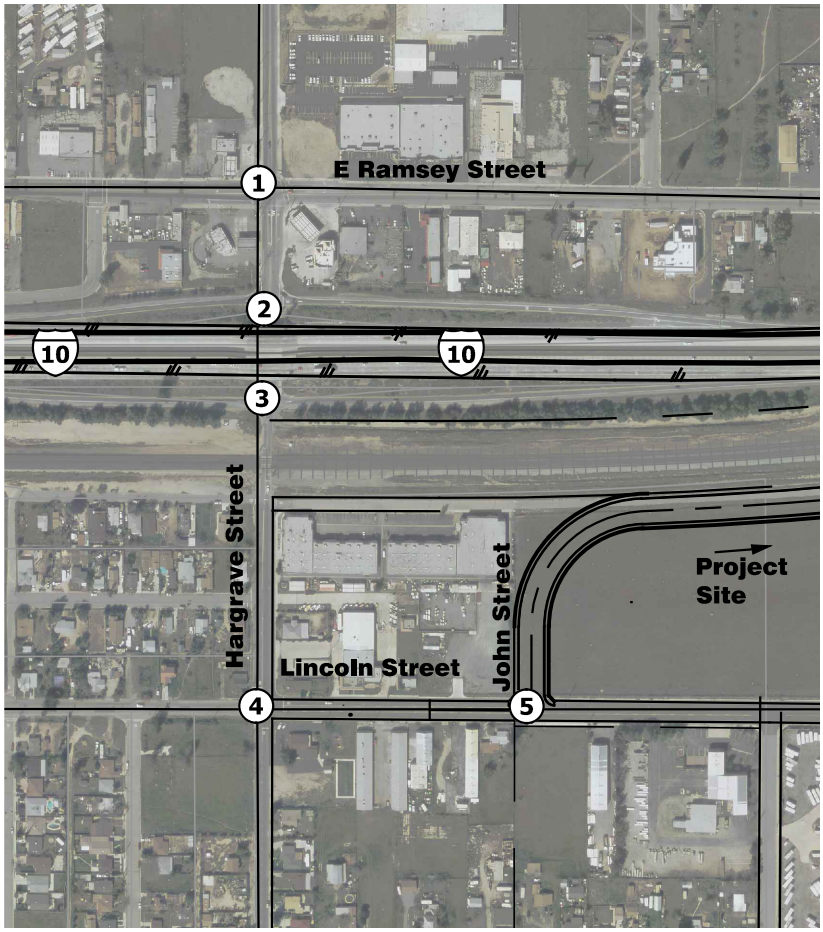
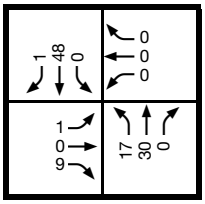
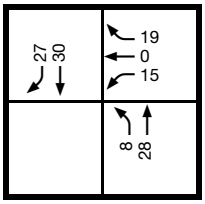
Figure 4-F – Cumulative Projects (2019) Only AM Peak Hour Intersection Volumes

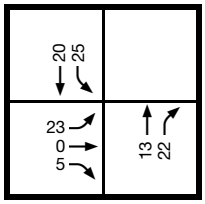




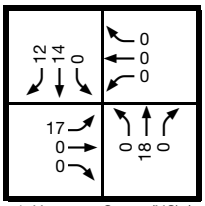
1. Hargrave Street (NS) / E Ramsey Street (EW)



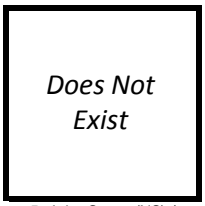
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

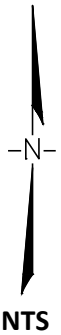


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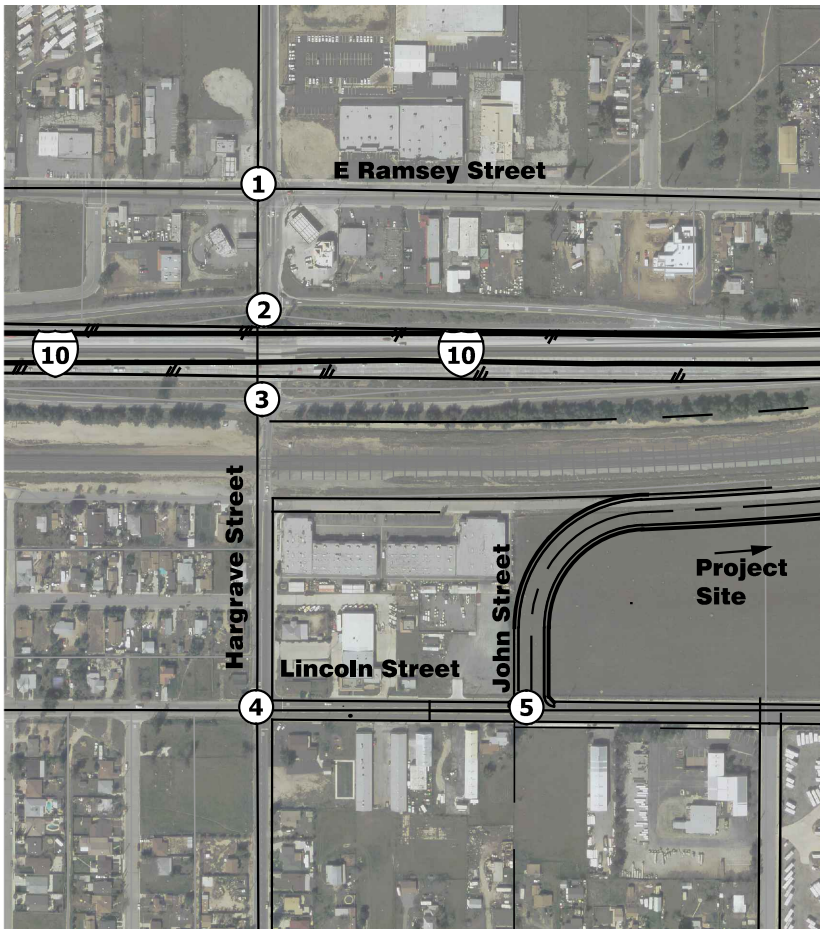
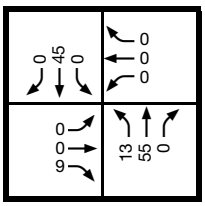
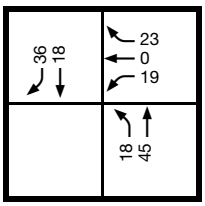
Figure 4-G – Cumulative Projects (2019) Only PM Peak Hour Intersection Volumes

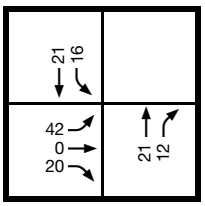




1. Hargrave Street (NS) / E Ramsey Street (EW)



2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



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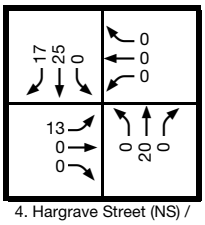

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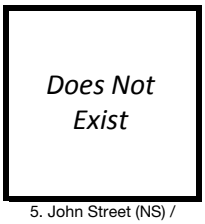

5. John Street (NS) / Lincoln Street (EW)



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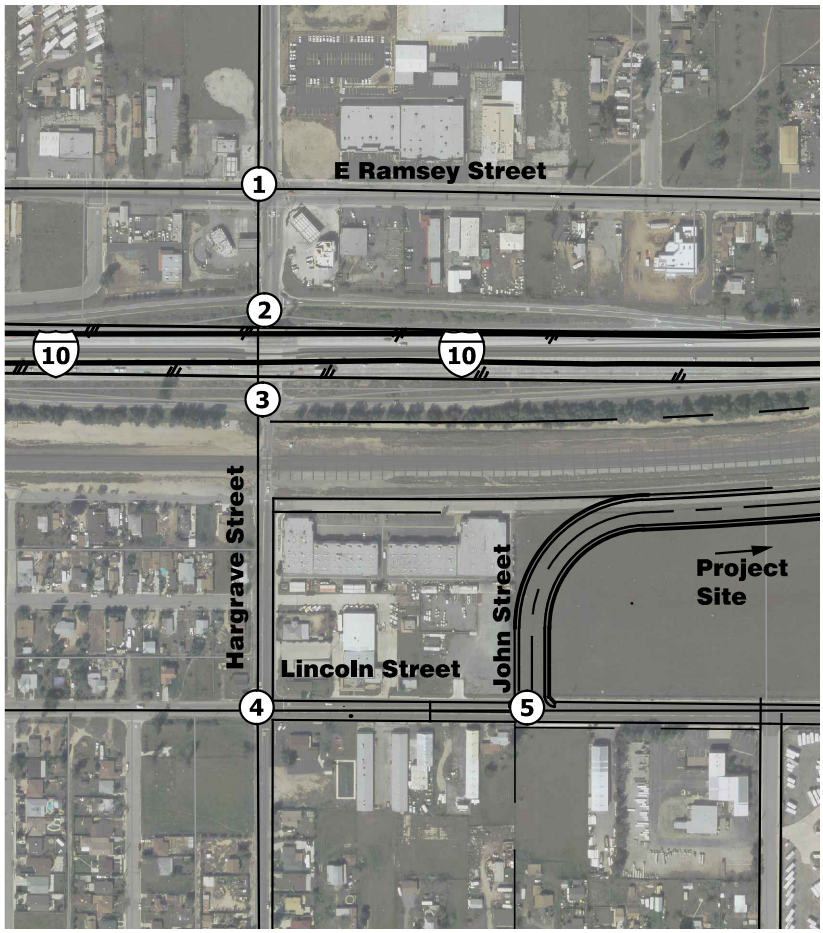
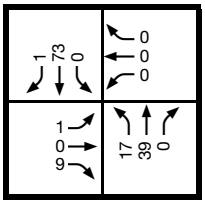
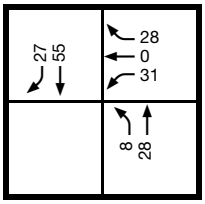
Figure 4-H – Cumulative Projects (2040) Only AM Peak Hour Intersection Volumes

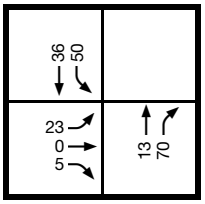




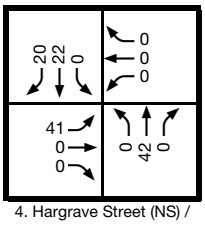
1. Hargrave Street (NS) / E Ramsey Street (EW)



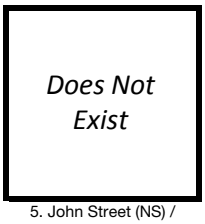
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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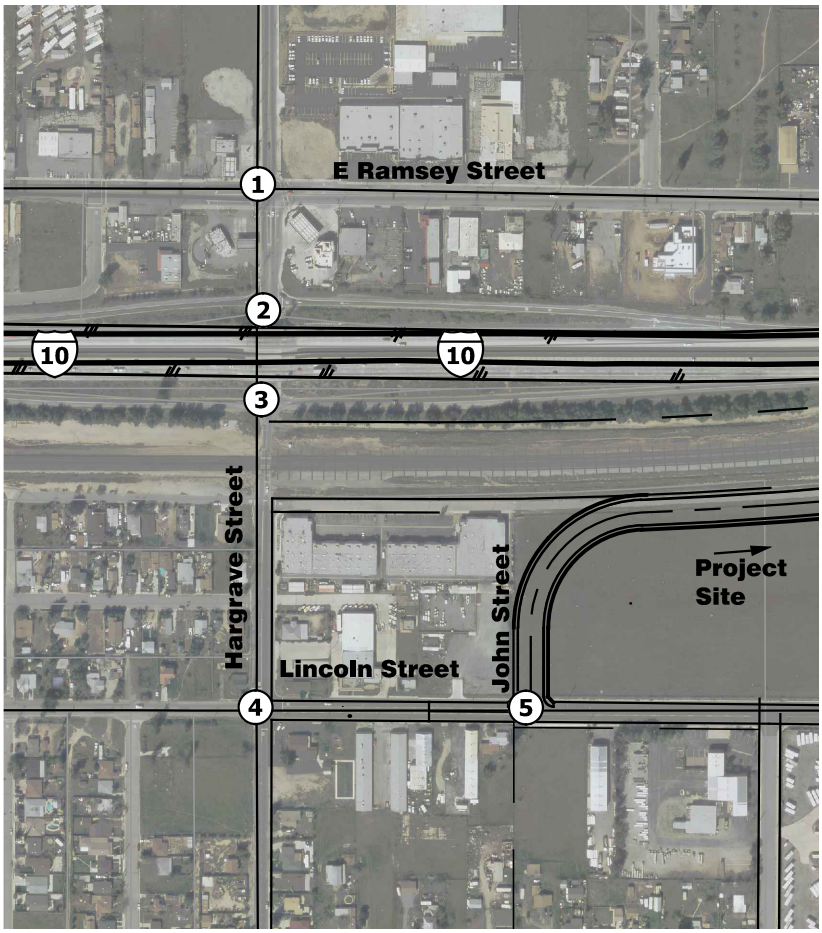
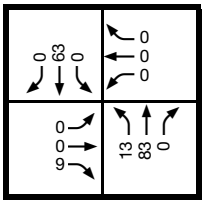
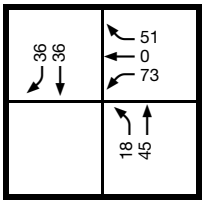
Figure 4-I – Cumulative Projects (2040) Only PM Peak Hour Intersection Volumes

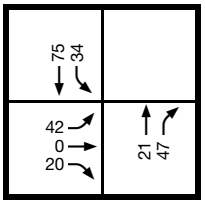




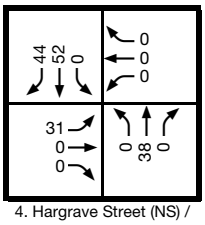
1. Hargrave Street (NS) / E Ramsey Street (EW)



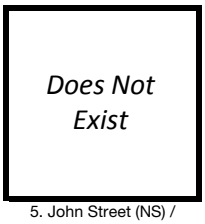
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



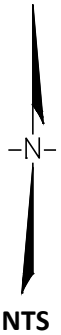
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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Capacity and Level of Service and Improvement Analysis

Levels of Service – Existing Plus Project (2017) Conditions

The existing plus project (2017) scenario includes existing traffic and project traffic. Table 5-1 provides the projected delay and levels of service at the study intersections under existing plus project conditions without off-site improvements. These levels of service vary from LOS A to F. The existing plus project AM and PM peak hour intersection turning movement volumes are shown on Figure 5-A and Figure 5-B, respectively. The levels of service are based on the existing geometrics for the study intersections. The level of service calculation worksheets are provided in Appendix E. The following study intersections are expected to operate at an unacceptable level of service:

2. Hargrave Street (NS) / I-10 Westbound Ramps Street (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps Street (EW)

Table 5-1 – Intersection Levels of Service – Existing Plus Project (2017) Conditions

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Project			With Project		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
1. Hargrave Street (NS) E Ramsey Street (EW)	City of Banning	D	AM PM	Signal	23.2 28.5	C C	Signal	24.1 28.5	C C
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	32.7 ***35.1***	D ***E***	OWSC	***61.7*** ***67.4***	***F*** ***F***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***43.2***	***F*** ***E***	OWSC	***OFL*** ***91.5***	***F*** ***F***
4. Hargrave Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	AWSC	9.9 9.1	A A	AWSC	13.2 10.4	B B
5. John Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	*Does Not Exist*			OWSC	10.9 10.6	B B

OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Table 5-2 provides the projected density, volumes and levels of service at the study freeway ramps under existing plus project conditions without off-site improvements. These levels vary from LOS B to C.

Table 5-2 – Freeway Levels of Service – Existing Plus Project (2017) Conditions

Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes		Without Project				With Project							
				AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour			
		Main	Ramp	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS
I-10 Eastbound															
1. Hargrave Street Off-Ramp	Diverge	4	1	19.5	B	16.6	B	3698	470	20.0-	B	3104	323	16.8	B
2. Hargrave Street On-Ramp	Merge	4	1	13.0	B	11.6	B	3228	163	13.2	B	2781	206	12.0	B
I-10 Westbound															
3. Hargrave Street Off-Ramp	Diverge	4	1	13.1	B	20.5	C	2636	123	13.5	B	4402	135	20.7	C
4. Hargrave Street On-Ramp	Merge	4	1	10.3	B	18.6	B	2513	311	11.5	B	4267	536	19.1	B

- = Density is below LOS threshold. Number shown has been rounded up to the nearest tenth.

Levels of Service – Existing Plus Project (2017) with Improvements

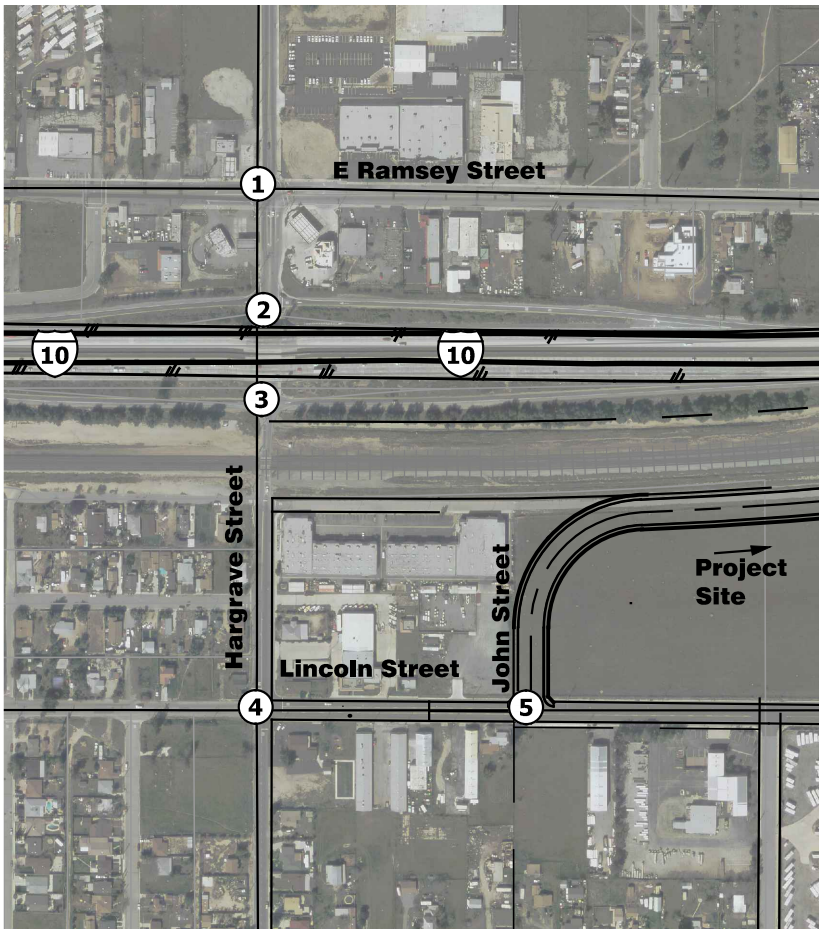
Table 5-3 provides the projected delay and levels of service at the study intersections under existing plus project (2017) conditions with off-site improvements. With the recommended off-site improvements, the study area intersections would operate at an acceptable LOS D or better. The level of service calculation worksheets are provided in Appendix E.

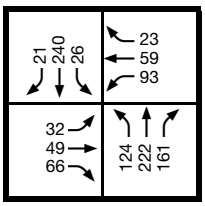
Table 5-3 – Intersection Levels of Service – Existing Plus Project (2017) with Improvements

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Improvements			With Improvements		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***61.7*** ***67.4***	***F*** ***F***	AWSC	18.1 14.9	C B
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***91.5***	***F*** ***F***	AWSC	23.2 12.2	C B

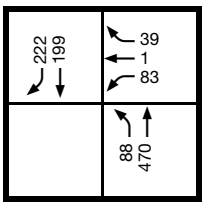
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Figure 5-A – Existing Plus Project (2017) AM Peak Hour Intersection Volumes

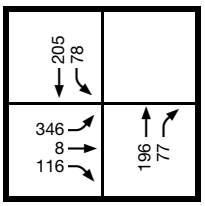




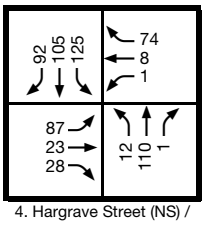
1. Hargrave Street (NS) / E Ramsey Street (EW)



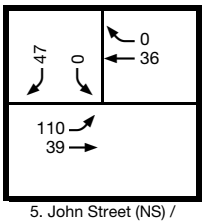
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

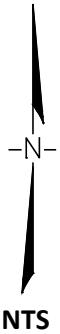


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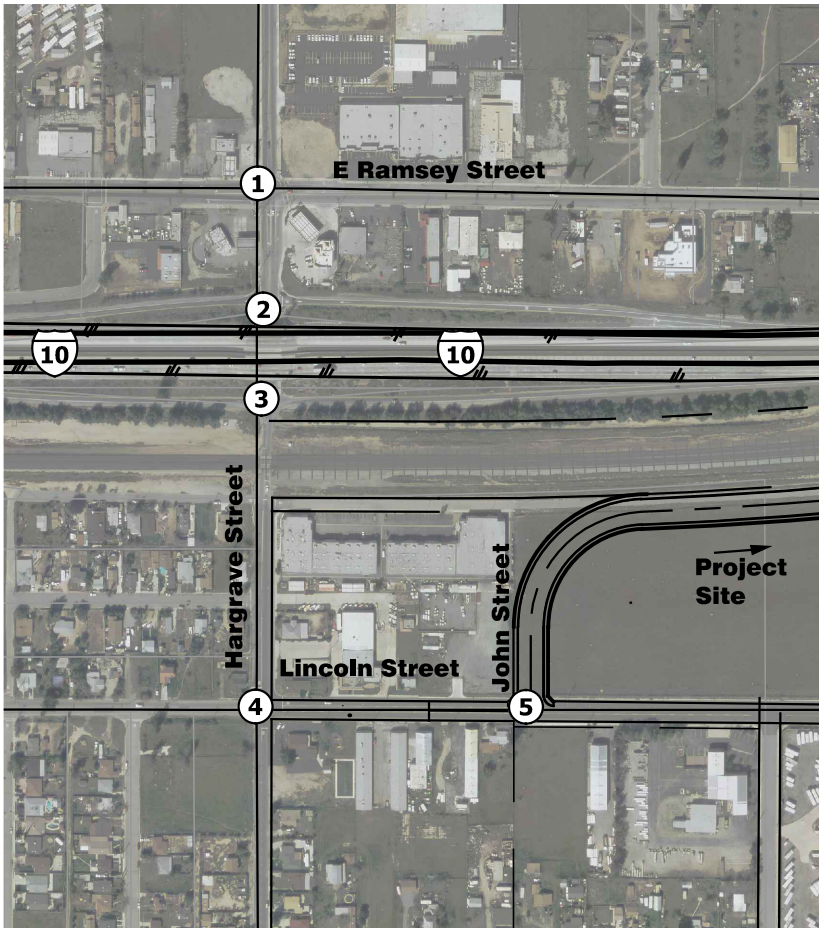
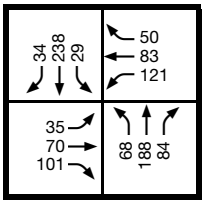
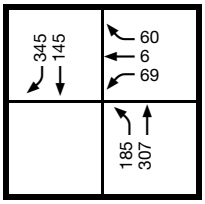
Figure 5-B – Existing Plus Project (2017) PM Peak Hour Intersection Volumes

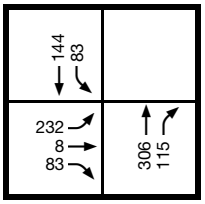




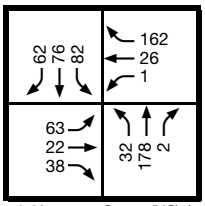
1. Hargrave Street (NS) / E Ramsey Street (EW)



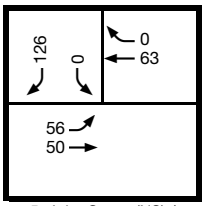
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



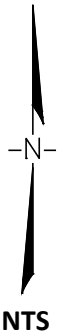
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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Levels of Service – Existing Plus Ambient Growth Plus Project (2019) Conditions

The existing plus ambient growth plus project (2019) scenario includes existing traffic, an ambient growth of one percent per year for two years to 2019 (two percent total ambient growth) and project traffic. Table 5-4 provides the projected delay and levels of service at the study intersections under existing plus ambient growth plus project conditions without off-site improvements. These levels of service vary from LOS B to F. The existing plus ambient growth plus project AM and PM peak hour intersection turning movement volumes are shown on Figure 5-C and Figure 5-D, respectively. The levels of service are based on the existing geometrics for the study intersections. The level of service calculation worksheets are provided in Appendix E. The following study intersections are expected to operate at an unacceptable level of service:

2. Hargrave Street (NS) / I-10 Westbound Ramps Street (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps Street (EW)

Table 5-4 – Intersection Levels of Service – Existing Plus Ambient Growth Plus Project (2019) Conditions

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Project			With Project		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
1. Hargrave Street (NS) E Ramsey Street (EW)	City of Banning	D	AM PM	Signal	24.4 28.6	C C	Signal	24.2 28.6	C C
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	34.2 ***37.2***	D ***E***	OWSC	***68.1*** ***74.3***	***F*** ***F***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***48.2***	***F*** ***E***	OWSC	***OFL*** ***107.7***	***F*** ***F***
4. Hargrave Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	AWSC	10.0 9.2	A A	AWSC	13.5 10.6	B B
5. John Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	*Does Not Exist*			OWSC	11.0 10.6	B B

OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Table 5-5 provides the projected density, volumes and levels of service at the study freeway ramps under existing plus ambient growth plus project conditions without off-site improvements. These levels vary from LOS B to C.

Table 5-5 – Freeway Levels of Service – Existing Plus Ambient Growth Plus Project (2019) Conditions

Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes		Without Project				With Project							
				AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour			
		Main	Ramp	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS
I-10 Eastbound															
1. Hargrave Street Off-Ramp	Diverge	4	1	19.8	B	16.8	B	3771	478	20.3	C	3166	329	17.1	B
2. Hargrave Street On-Ramp	Merge	4	1	13.3	B	11.8	B	3293	166	13.4	B	2837	209	12.2	B
I-10 Westbound															
3. Hargrave Street Off-Ramp	Diverge	4	1	13.3	B	20.8	C	2688	125	13.7	B	4490	137	21.1	C
4. Hargrave Street On-Ramp	Merge	4	1	11.5	B	19.0	B	2563	317	11.7	B	4352	546	19.4	B

Levels of Service – Existing Plus Ambient Growth Plus Project (2019) with Improvements

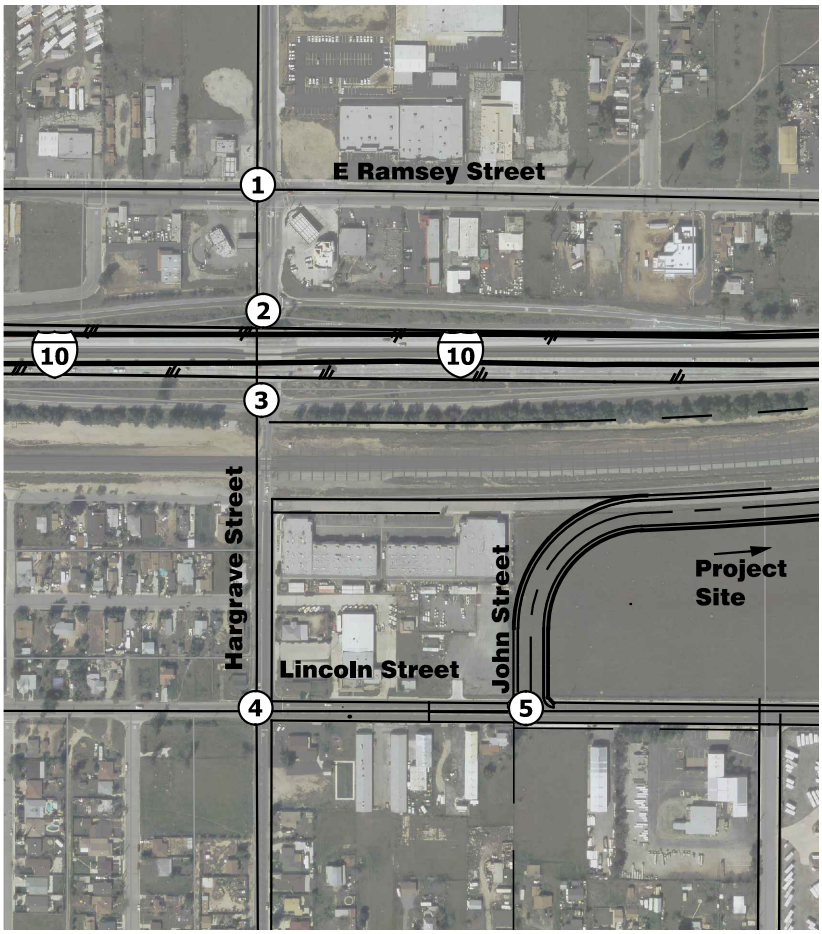
Table 5-6 provides the projected delay and levels of service at the study intersections under existing plus ambient growth plus project (2019) conditions with off-site improvements. With the recommended off-site improvements, the study area intersections would operate at an acceptable LOS D or better. The level of service calculation worksheets are provided in Appendix E.

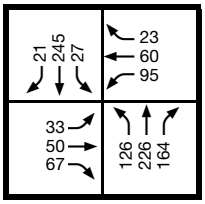
Table 5-6 – Intersection Levels of Service – Existing Plus Ambient Growth Plus Project (2019) with Improvements

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Improvements			With Improvements		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***68.1*** ***74.3***	***F*** ***F***	AWSC	19.0 15.5	C C
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***107.7***	***F*** ***F***	AWSC	24.9 12.4	C B

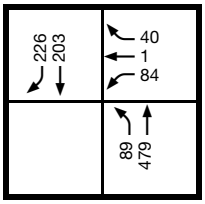
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Figure 5-C – Existing Plus Ambient Growth Plus Project (2019) AM Peak Hour Intersection Volumes

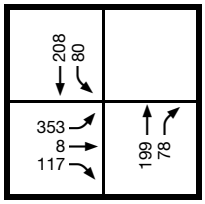




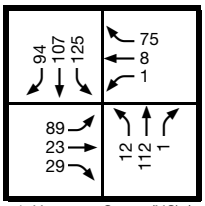
1. Hargrave Street (NS) / E Ramsey Street (EW)



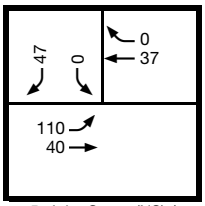
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

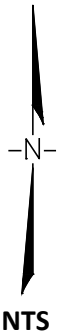


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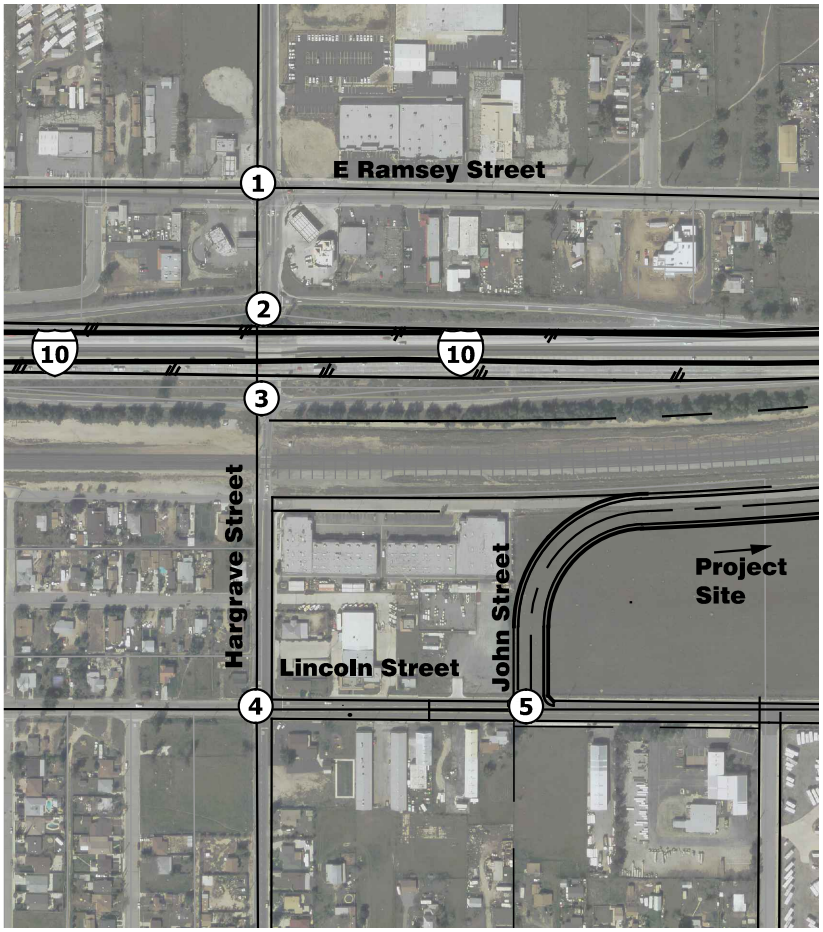
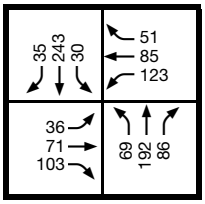
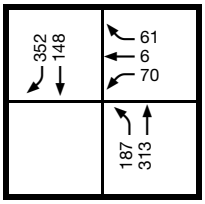
Figure 5-D – Existing Plus Ambient Growth Plus Project (2019) PM Peak Hour Intersection Volumes

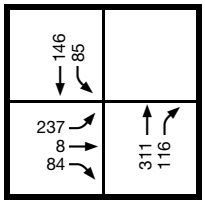




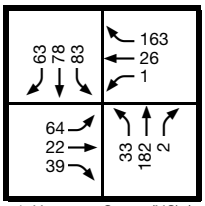
1. Hargrave Street (NS) / E Ramsey Street (EW)



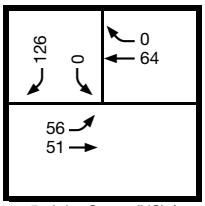
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



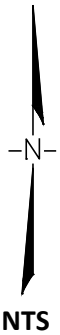
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

The existing plus ambient growth plus other cumulative projects plus project (2019) scenario includes existing traffic, an ambient growth of one percent per year for two years to 2019 (two percent total ambient growth), other projects in the project area provided by the City of Banning and project traffic. Table 5-7 provides the projected delay and levels of service at the study intersections under existing plus ambient growth plus other cumulative projects plus project (2019) conditions without off-site improvements. These levels of service vary from LOS B to F. The existing plus ambient growth plus other cumulative projects plus project (2019) AM and PM peak hour intersection turning movement volumes are shown on Figure 5-E and Figure 5-F, respectively. The levels of service are based on the existing geometrics for the study intersections. The level of service calculation worksheets are provided in Appendix E. The following study intersections are expected to operate at an unacceptable level of service:

2. Hargrave Street (NS) / I-10 Westbound Ramps Street (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps Street (EW)

Table 5-7 – Intersection Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Project			With Project		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
1. Hargrave Street (NS) E Ramsey Street (EW)	City of Banning	D	AM PM	Signal	23.8 28.1	C C	Signal	23.8 28.1	C C
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***50.5*** ***64.6***	***F*** ***F***	OWSC	***145.2*** ***OFL***	***F*** ***F***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***132.4***	***F*** ***F***	OWSC	***OFL*** ***OFL***	***F*** ***F***
4. Hargrave Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	AWSC	10.8 9.8	B A	AWSC	15.6 11.5	C B
5. John Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	*Does Not Exist*			OWSC	11.0 10.6	B B

OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Table 5-8 provides the projected density, volumes and levels of service at the study freeway ramps under existing plus ambient growth plus cumulative plus project (2019) conditions without off-site improvements. These levels vary from LOS B to C.

Table 5-8 – Freeway Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes		Without Project				With Project							
				AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour			
		Main	Ramp	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS
I-10 Eastbound															
1. Hargrave Street Off-Ramp	Diverge	4	1	20.1	C	17.4	B	3799	506	20.6	C	3228	391	17.7	B
2. Hargrave Street On-Ramp	Merge	4	1	13.6	B	12.0	B	3293	213	13.8	B	2837	237	12.4	B
I-10 Westbound															
3. Hargrave Street Off-Ramp	Diverge	4	1	13.6	B	21.2	C	2722	159	14.1	B	4532	179	21.4	C
4. Hargrave Street On-Ramp	Merge	4	1	11.2	C	19.0	C	2563	352	11.2	C	4352	600	19.0	C

Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) with Improvements

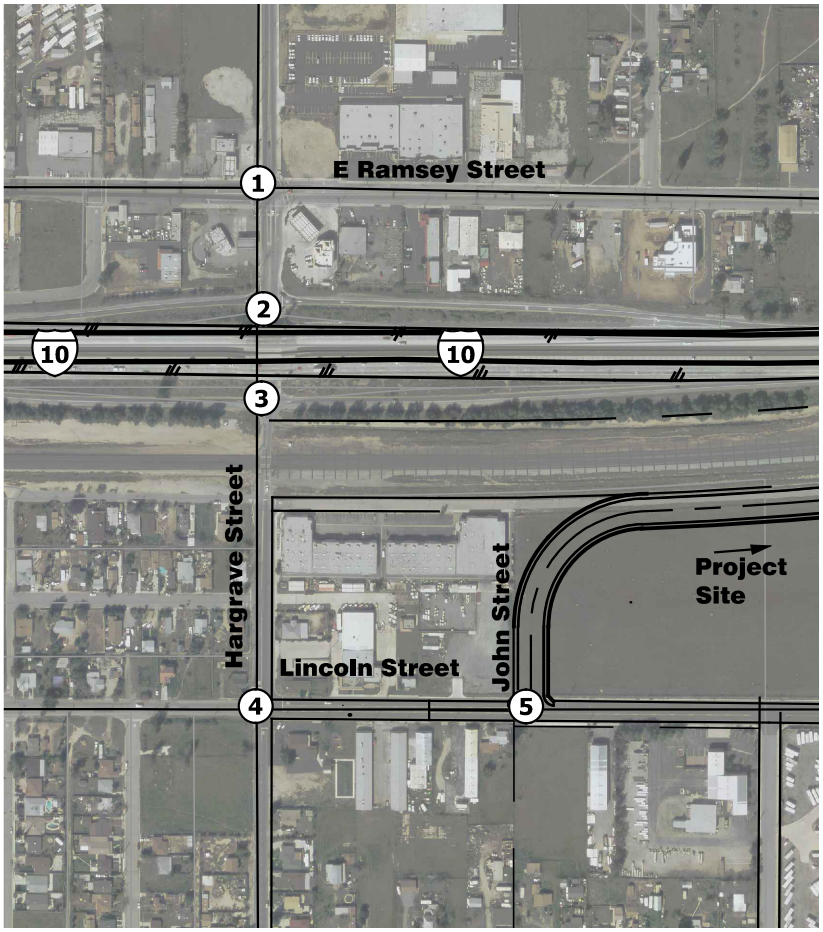
Table 5-9 provides the projected delay and levels of service at the study intersections under existing plus ambient growth plus other cumulative projects plus project (2019) conditions with off-site improvements. With the recommended off-site improvements, the study area intersections would operate at an acceptable LOS D or better. The level of service calculation worksheets are provided in Appendix E.

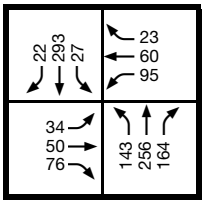
Table 5-9 – Intersection Levels of Service – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) with Improvements

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Improvements			With Improvements		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***145.2*** ***OFL***	***F*** ***F***	AWSC	23.7 19.9	C C
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***OFL***	***F*** ***F***	AWSC	34.6 14.7	D B

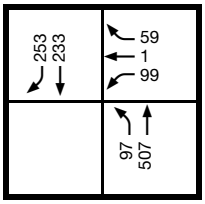
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Figure 5-E – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) AM Peak Hour Intersection Volumes

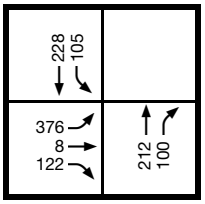




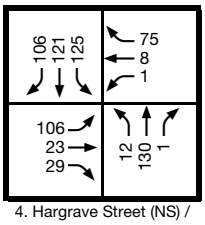
1. Hargrave Street (NS) / E Ramsey Street (EW)



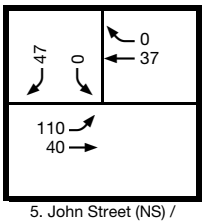
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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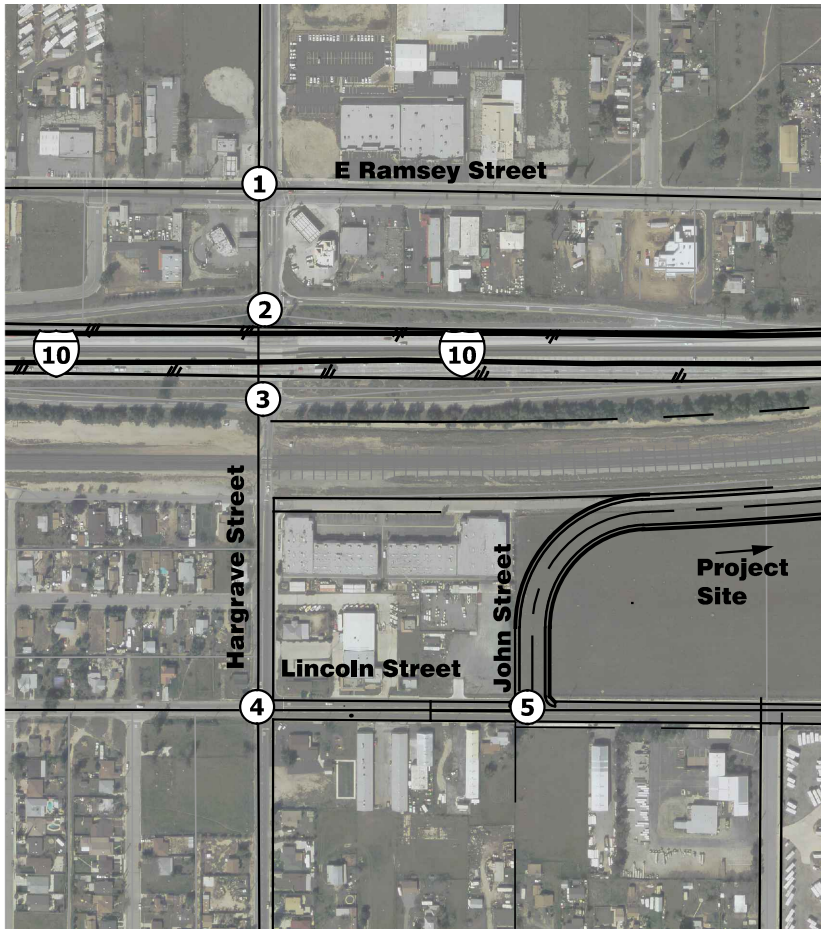
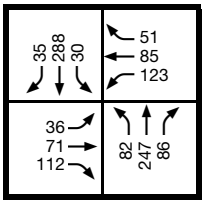
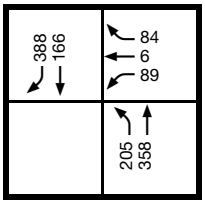
Figure 5-F – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) PM Peak Hour Intersection Volumes

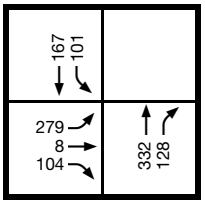




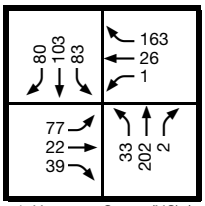
1. Hargrave Street (NS) / E Ramsey Street (EW)



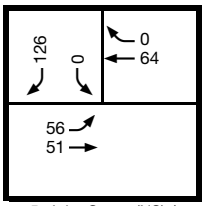
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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Levels of Service – Year 2040 Plus Project Conditions

Year 2040 plus project scenario includes existing traffic, an ambient growth of one percent per year for 23 years to 2040 (23 percent total ambient growth), other projects in the project area provided by the City of Banning and project traffic. Table 5-10 provides the projected delay and levels of service at the study intersections under 2040 plus project conditions without off-site improvements, including the I-10 Freeway Bypass project. These levels of service vary from LOS B to F. Year 2040 plus project AM and PM peak hour intersection turning movement volumes are shown on Figure 5-E and Figure 5-F, respectively. The levels of service are based on the existing geometrics for the study intersections. The level of service calculation worksheets are provided in Appendix E. The following study intersections are expected to operate at an unacceptable level of service:

2. Hargrave Street (NS) / I-10 Westbound Ramps Street (EW)
3. Hargrave Street (NS) / I-10 Eastbound Ramps Street (EW)

Table 5-10 – Intersection Levels of Service – Year 2040 Plus Project Conditions

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Project			With Project		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
1. Hargrave Street (NS) E Ramsey Street (EW)	City of Banning	D	AM PM	Signal	24.8 29.0	C C	Signal	24.9 29.1	C C
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***108.6*** ***OFL***	***F*** ***F***	OWSC	***OFL*** ***OFL***	***F*** ***F***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***OFL***	***F*** ***F***	OWSC	***OFL*** ***OFL***	***F*** ***F***
4. Hargrave Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	AWSC	10.8 11.8	B B	AWSC	13.8 15.1	B C
5. John Street (NS) Lincoln Street (EW)	City of Banning	D	AM PM	*Does Not Exist*			OWSC	11.1 10.8	B B

OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Table 5-11 provides the projected density, volumes and levels of service at the study freeway ramps under year 2040 plus project conditions without off-site improvements. These levels vary from LOS B to C.

Table 5-11 – Freeway Levels of Service – Year 2040 Plus Project Conditions

Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes		Without Project				With Project							
				AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour			
		Main	Ramp	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS	Mainline Vol.	Ramp Vol.	Density (pc/mi/ln)	LOS
I-10 Eastbound															
1. Hargrave Street Off-Ramp	Diverge	4	1	23.6	C	20.3	C	4565	594	24.1	C	3874	453	20.6	C
2. Hargrave Street On-Ramp	Merge	4	1	16.7	B	14.6	B	3970	316	16.9	B	3421	322	15.1	B
I-10 Westbound															
3. Hargrave Street Off-Ramp	Diverge	4	1	16.1	B	25.8	C	3291	200	16.6	B	5533	285	26.0	C
4. Hargrave Street On-Ramp	Merge	4	1	11.2	C	19.0	C	3091	412	13.5	C	5248	699	23.0	C

Note that the I-10 Freeway Bypass project was not included in the assumptions for this analysis for neither opening year 2019 nor year 2040. Although this is a major project to be located in close proximity to the project and will alter the traffic patterns for the study area, it was not assumed for the following reasons: 1)

the project is currently not fully funded; 2) the project would improve the freeway ramps, which are the critical intersections for the Banning Distribution Center traffic impact analysis.

Levels of Service – Year 2040 Plus Project Conditions with Improvements

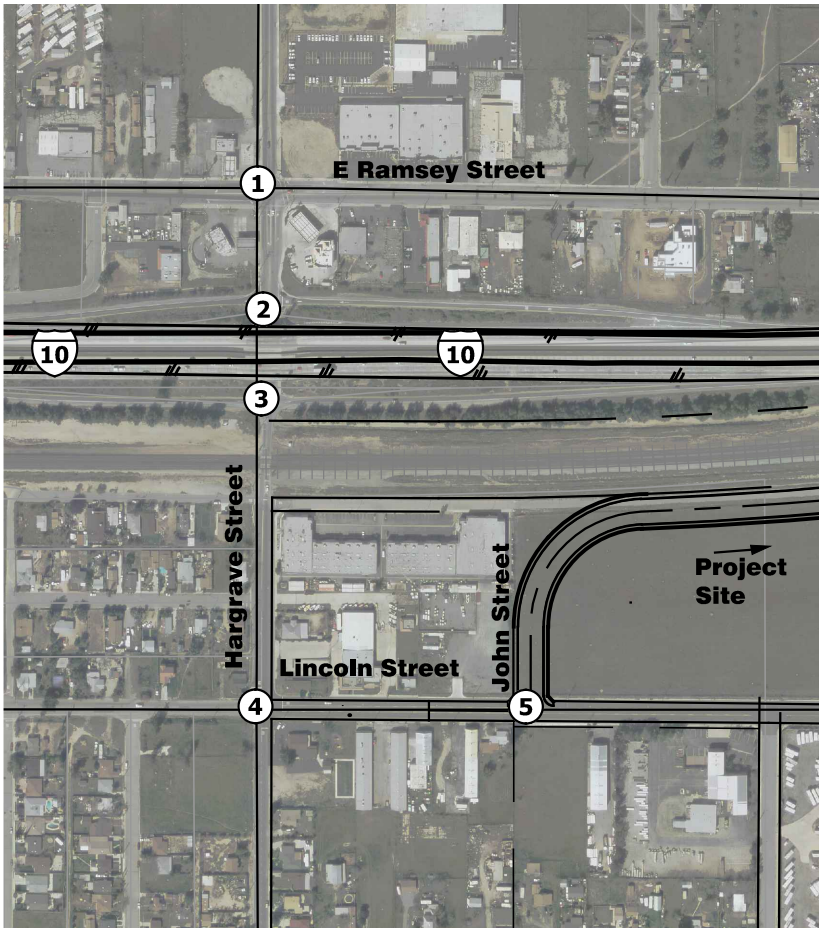
Table 5-9 provides the projected delay and levels of service at the study intersections under year 2040 plus project conditions with off-site improvements. With the recommended off-site improvements, the study area intersections would operate at an acceptable LOS D or better. The level of service calculation worksheets are provided in Appendix E.

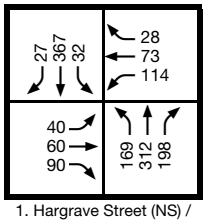
Table 5-12 – Intersection Levels of Service – Year 2040 Plus Project Conditions with Improvements

Intersection	Jurisdiction	LOS Standard	Peak Hour	Without Improvements			With Improvements		
				Traffic Control	Delay (sec)	LOS	Traffic Control	Delay (sec)	LOS
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***OFL***	***F*** ***F***	AWSC	34.8 30.0	D D
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	AM PM	OWSC	***OFL*** ***OFL***	***F*** ***F***	Signal	28.8 24.4	C C

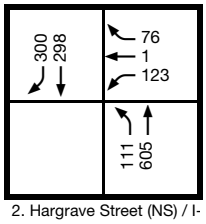
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled
OFL = Overflow conditions; Delay > 200 sec
XXX = Exceeds LOS Standard

Figure 5-G – Year 2040 Plus Project AM Peak Hour Intersection Volumes

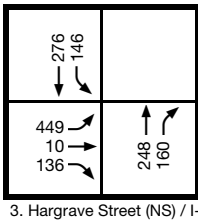




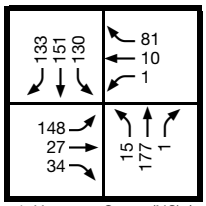
1. Hargrave Street (NS) / E Ramsey Street (EW)



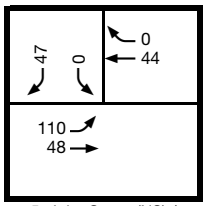
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

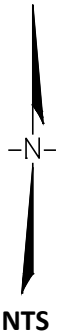


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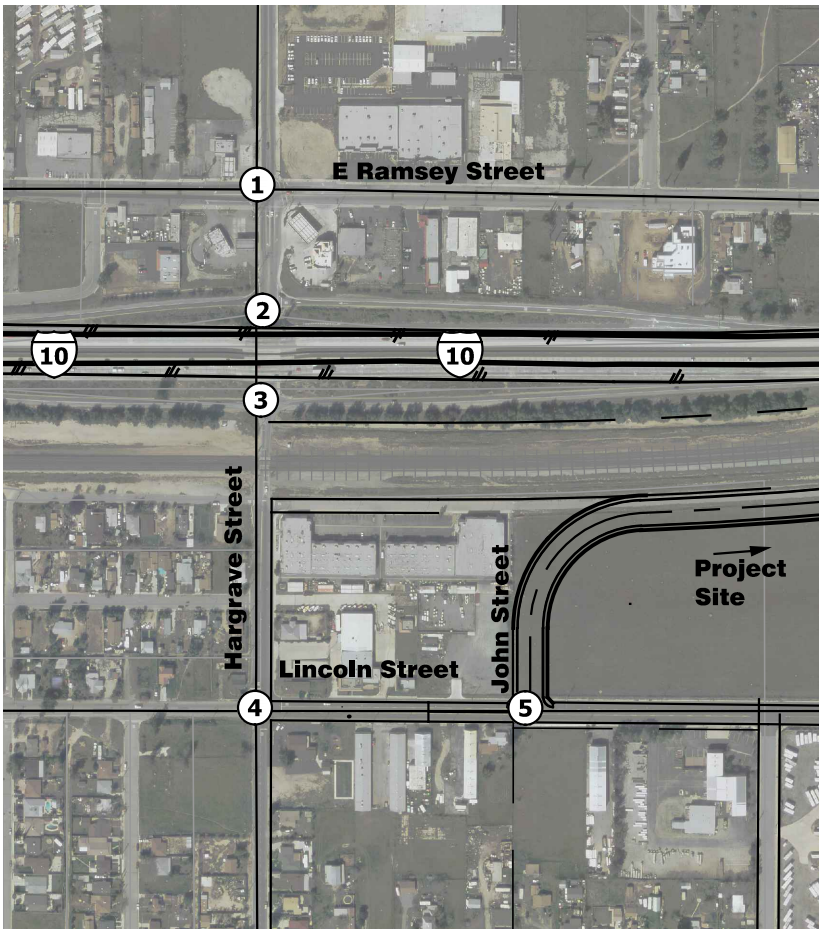
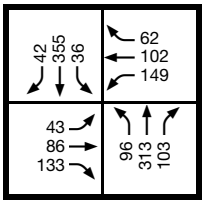
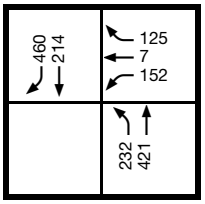
Figure 5-H – Year 2040 Plus Project PM Peak Hour Intersection Volumes

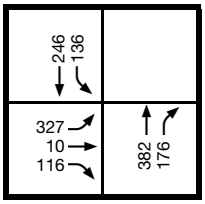




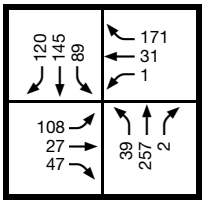
1. Hargrave Street (NS) / E Ramsey Street (EW)



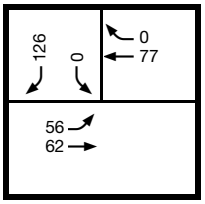
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



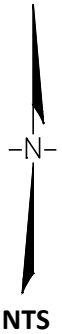
3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)



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Traffic Impacts and Level of Service Analysis

Proposed Mitigation Measures – Existing Plus Project (2017) Conditions

Table 6-1 and Figure 6-A present the proposed mitigation measures in order to achieve a satisfactory level of service at the study intersections in existing plus project (2017) conditions. Table 6-2 presents the geometrics that achieve a satisfactory level of service at the freeway ramps in existing plus project (2017) conditions.

Table 6-1 – Summary of Intersection Improvements for Existing Plus Project (2017) Conditions

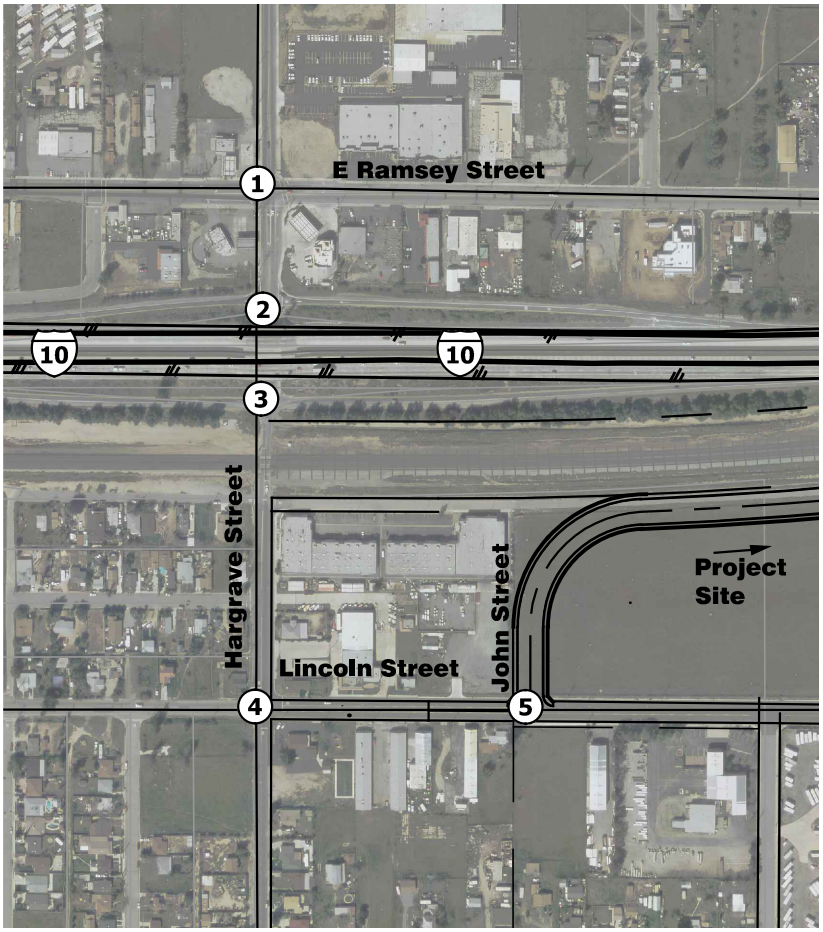
Intersection	Scenario	Northbound			Southbound			Eastbound			Westbound			Traffic Control
		L	T	R	L	T	R	L	T	R	L	T	R	
1. Hargrave Street (NS) E Ramsey Street (EW)	Existing	1	1	1	1	1	S	1	1	1	1	1	1	Signal
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Existing Improvements	S S	1 1	NA NA	NA NA	1 1	S S	NA NA	NA NA	NA NA	S S	1 1	S S	OWSC ***AWSC***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Existing Improvements	NA NA	1 1	S S	S S	1 1	NA NA	S S	1 1	S S	NA NA	NA NA	NA NA	OWSC ***AWSC***
4. Hargrave Street (NS) Lincoln Street (EW)	Existing	S	1	S	S	1	S	S	1	S	S	1	S	AWSC
5. John Street (NS) Lincoln Street (EW)	Existing Improvements	NA NA	NA NA	NA NA	NA NA	NA ***LR***	NA NA	NA ***1***	1 1	NA NA	NA NA	1 1	NA ***S***	NA ***OWSC***

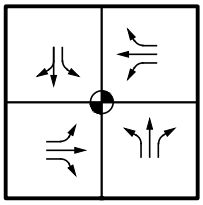
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled.
NA = Not Applicable
S = Lane is shared with through movement
LR = Lane shared by left-turn and right-turn movements

Table 6-2 – Summary of Freeway Ramp Geometrics for Existing Plus Project (2017) Conditions

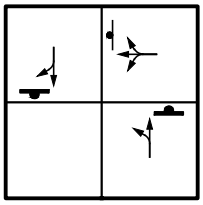
Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes	
		Main	Ramp
I-10 Eastbound			
1. Hargrave Street Off-Ramp	Diverge	4	1
2. Hargrave Street On-Ramp	Merge	4	1
I-10 Westbound			
3. Hargrave Street Off-Ramp	Diverge	4	1
4. Hargrave Street On-Ramp	Merge	4	1

Figure 6-A - Summary of Intersection Improvements for Existing Plus Project (2017) Conditions

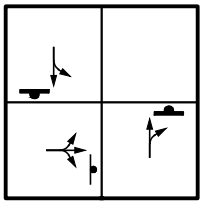




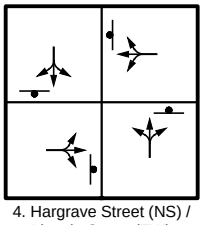
1. Hargrave Street (NS) / E Ramsey Street (EW)



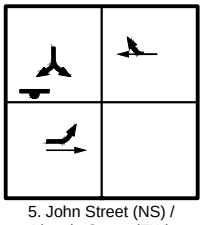
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



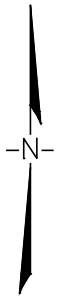
4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

LEGEND

- Existing Traffic Signal
- Existing Stop Sign
- Proposed Stop Sign
- Existing Lane Geometrics
- Proposed Lane Geometrics



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Proposed Mitigation Measures – Existing Plus Ambient Growth Plus Project (2019) Conditions

Table 6-3 and Figure 6-B present the proposed mitigation measures in order to achieve a satisfactory level of service at the study intersections in existing plus ambient growth plus project (2019) conditions. Table 6-4 presents the geometrics that achieve a satisfactory level of service at the freeway ramps in existing plus project (2017) conditions.

Table 6-3 – Summary of Intersection Improvements for Existing Plus Ambient Growth Plus Project (2019) Conditions

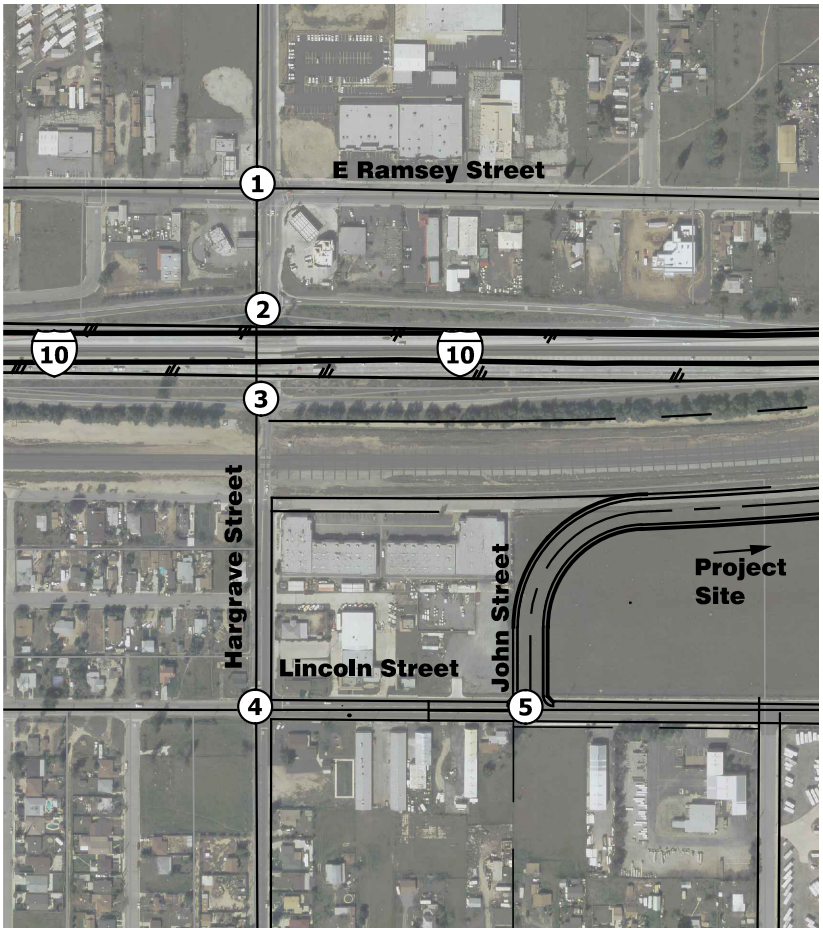
Intersection	Scenario	Northbound			Southbound			Eastbound			Westbound			Traffic Control
		L	T	R	L	T	R	L	T	R	L	T	R	
1. Hargrave Street (NS) E Ramsey Street (EW)	Existing	1	1	1	1	1	S	1	1	1	1	1	1	Signal
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Existing Improvements	S S	1 1	NA NA	NA NA	1 1	S S	NA NA	NA NA	NA NA	S S	1 1	S S	OWSC ***AWSC***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Existing Improvements	NA NA	1 1	S S	S S	1 1	NA NA	S S	1 1	S S	NA NA	NA NA	NA NA	OWSC ***AWSC***
4. Hargrave Street (NS) Lincoln Street (EW)	Existing	S	1	S	S	1	S	S	1	S	S	1	S	AWSC
5. John Street (NS) Lincoln Street (EW)	Existing Improvements	NA NA	NA NA	NA NA	NA NA	NA ***LR***	NA NA	NA ***1***	1 1	NA NA	NA NA	1 1	NA ***S***	NA ***OWSC***

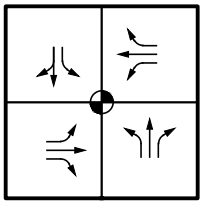
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled.
NA = Not Applicable
S = Lane is shared with through movement
LR = Lane shared by left-turn and right-turn movements

Table 6-4 – Summary of Freeway Ramp Geometrics for Existing Plus Ambient Growth Plus Project (2019) Conditions

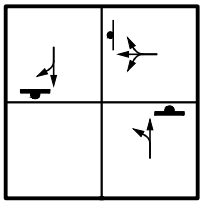
Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes	
		Main	Ramp
I-10 Eastbound			
1. Hargrave Street Off-Ramp	Diverge	4	1
2. Hargrave Street On-Ramp	Merge	4	1
I-10 Westbound			
3. Hargrave Street Off-Ramp	Diverge	4	1
4. Hargrave Street On-Ramp	Merge	4	1

Figure 6-B - Summary of Intersection Improvements for Existing Plus Ambient Growth Plus Project (2019) Conditions

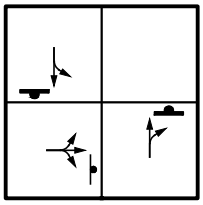




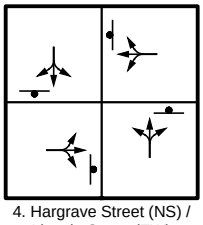
1. Hargrave Street (NS) / E Ramsey Street (EW)



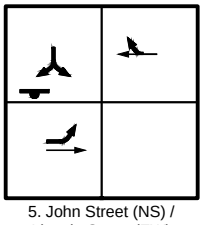
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



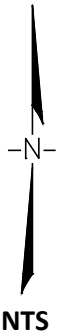
4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

LEGEND

- Existing Traffic Signal
- Existing Stop Sign
- Proposed Stop Sign
- Existing Lane Geometrics
- Proposed Lane Geometrics



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Proposed Mitigation Measures – Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

Table 6-5 and Figure 6-C present the proposed mitigation measures in order to achieve a satisfactory level of service at the study intersections in existing plus ambient growth plus other cumulative projects plus project (2019) conditions. Table 6-6 presents the geometrics that achieve a satisfactory level of service at the freeway ramps in existing plus project (2017) conditions.

Table 6-5 – Summary of Intersection Improvements for Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

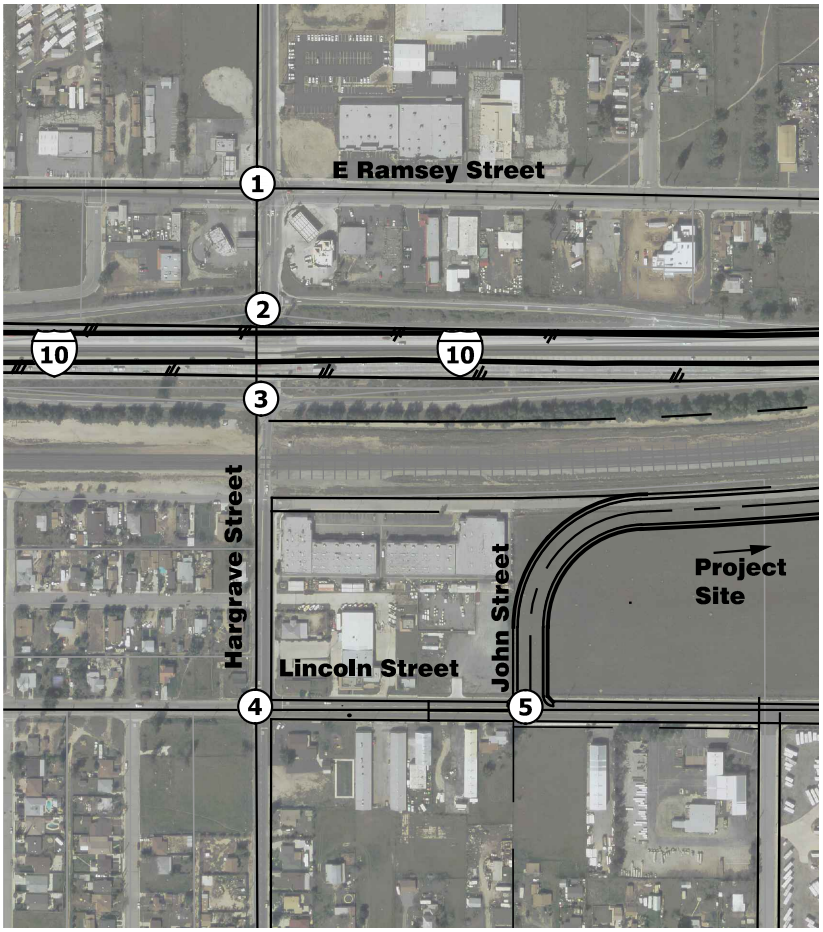
Intersection	Scenario	Northbound			Southbound			Eastbound			Westbound			Traffic Control
		L	T	R	L	T	R	L	T	R	L	T	R	
1. Hargrave Street (NS) E Ramsey Street (EW)	Existing	1	1	1	1	1	S	1	1	1	1	1	1	Signal
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Existing Improvements	S S	1 1	NA NA	NA NA	1 1	S S	NA NA	NA NA	NA NA	S S	1 1	S S	OWSC ***AWSC***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Existing Improvements	NA NA	1 1	S S	S S	1 1	NA NA	S S	1 1	S S	NA NA	NA NA	NA NA	OWSC ***AWSC***
4. Hargrave Street (NS) Lincoln Street (EW)	Existing	S	1	S	S	1	S	S	1	S	S	1	S	AWSC
5. John Street (NS) Lincoln Street (EW)	Existing Improvements	NA NA	NA NA	NA NA	NA NA	NA ***LR***	NA NA	NA ***1***	1 1	NA NA	NA NA	1 1	NA ***S***	NA ***OWSC***

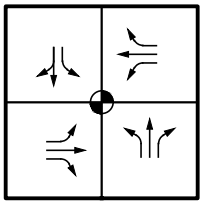
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled.
NA = Not Applicable
S = Lane is shared with through movement
LR = Lane shared by left-turn and right-turn movements

Table 6-6 – Summary of Freeway Ramp Geometrics for Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

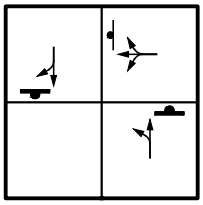
Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes	
		Main	Ramp
I-10 Eastbound			
1. Hargrave Street Off-Ramp	Diverge	4	1
2. Hargrave Street On-Ramp	Merge	4	1
I-10 Westbound			
3. Hargrave Street Off-Ramp	Diverge	4	1
4. Hargrave Street On-Ramp	Merge	4	1

Figure 6-C - Summary of Intersection Improvements for Existing Plus Ambient Growth Plus Cumulative Plus Project (2019) Conditions

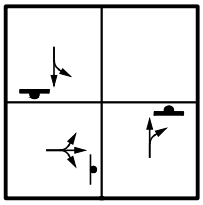




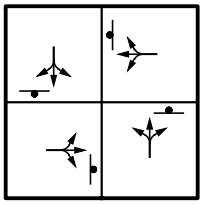
1. Hargrave Street (NS) / E Ramsey Street (EW)



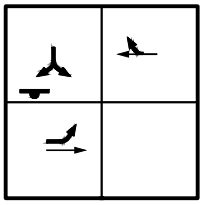
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



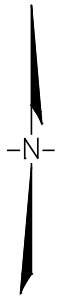
4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

LEGEND

- Existing Traffic Signal
- Existing Stop Sign
- Proposed Stop Sign
- Existing Lane Geometrics
- Proposed Lane Geometrics



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Proposed Mitigation Measures – Year 2040 Plus Project Conditions

Table 6-7 and Figure 6-D present the proposed mitigation measures in order to achieve a satisfactory level of service at the study intersections in year 2040 plus project conditions. Table 6-8 presents the geometrics that achieve a satisfactory level of service at the freeway ramps in existing plus project (2017) conditions.

Table 6-7 – Summary of Intersection Improvements for Year 2040 Plus Project Conditions

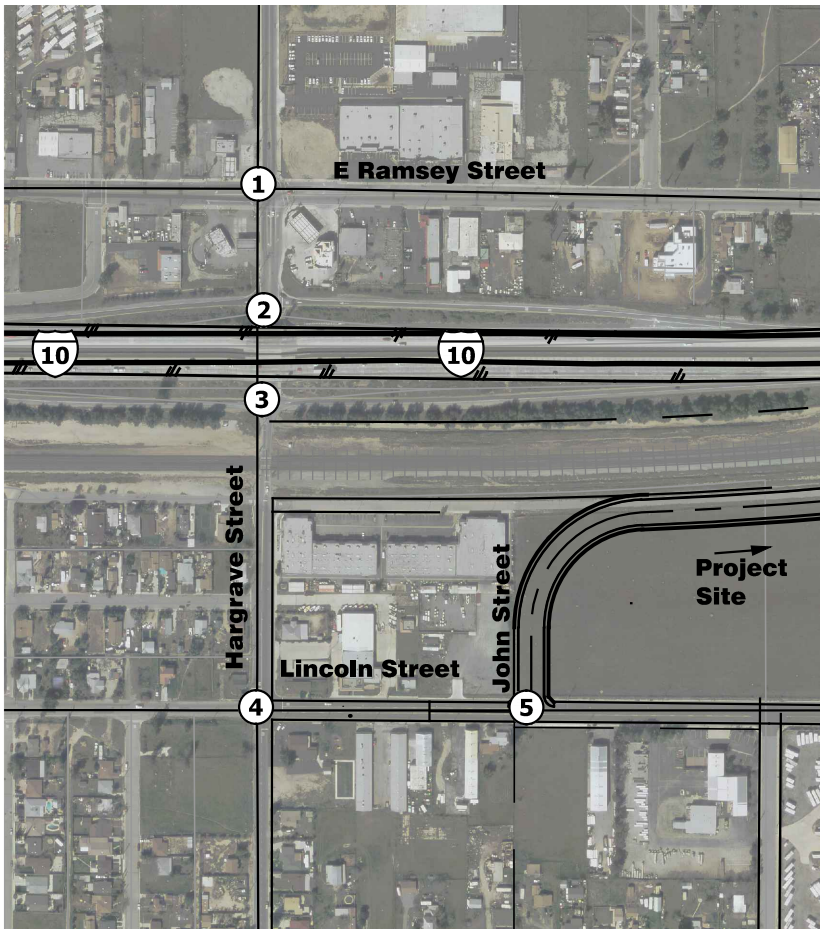
Intersection	Scenario	Northbound			Southbound			Eastbound			Westbound			Traffic Control
		L	T	R	L	T	R	L	T	R	L	T	R	
1. Hargrave Street (NS) E Ramsey Street (EW)	Existing	1	1	1	1	1	S	1	1	1	1	1	1	Signal
2. Hargrave Street (NS) I-10 Westbound Ramps (EW)	Existing Improvements	S S	1 1	NA NA	NA NA	1 1	S S	NA NA	NA NA	NA NA	S S	1 1	S S	OWSC ***AWSC***
3. Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Existing Improvements	NA NA	1 1	S S	S ***1***	1 1	NA NA	S S	1 1	S S	NA NA	NA NA	NA NA	OWSC ***Signal***
4. Hargrave Street (NS) Lincoln Street (EW)	Existing	S	1	S	S	1	S	S	1	S	S	1	S	AWSC
5. John Street (NS) Lincoln Street (EW)	Existing Improvements	NA NA	NA NA	NA NA	NA NA	NA ***LR***	NA NA	NA ***1***	1 1	NA NA	NA NA	1 1	NA ***S***	NA ***OWSC***

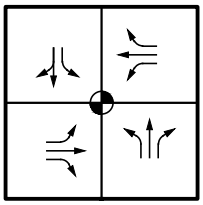
OWSC = One Way Stop Controlled; AWSC = All Way Stop Controlled.
NA = Not Applicable
S = Lane is shared with through movement
LR = Lane shared by left-turn and right-turn movements

Table 6-8 – Summary of Freeway Ramp Geometrics for Year 2040 Plus Project Conditions

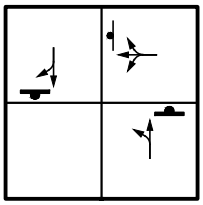
Freeway/Direction of Travel From/To or Junction	Segment Type	Lanes	
		Main	Ramp
I-10 Eastbound			
1. Hargrave Street Off-Ramp	Diverge	4	1
2. Hargrave Street On-Ramp	Merge	4	1
I-10 Westbound			
3. Hargrave Street Off-Ramp	Diverge	4	1
4. Hargrave Street On-Ramp	Merge	4	1

Figure 6-D – Summary of Intersection Improvements for Year 2040 Plus Project Conditions

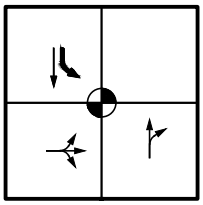




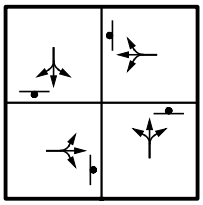
1. Hargrave Street (NS) / E Ramsey Street (EW)



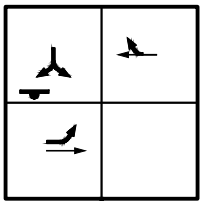
2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)



3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)



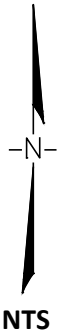
4. Hargrave Street (NS) / Lincoln Street (EW)



5. John Street (NS) / Lincoln Street (EW)

LEGEND

- Existing Traffic Signal
- Proposed Traffic Signal
- Existing Stop Sign
- Proposed Stop Sign
- Existing Lane Geometrics
- Proposed Lane Geometrics



NTS

Traffic Signal Warrants

The California MUTCD states that the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal. Peak hour traffic signal warrant analysis should only be considered as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal. Intersections that exceed the peak hour warrant are more likely to meet one or more of the other volume based signal warrants. The Manual on Uniform Traffic Control Devices (MUTCD) also advises that a traffic control signal should not be installed unless:

- One or more of the traffic signal warrants is satisfied;
- An engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection; and
- It will not seriously disrupt progressive traffic flow.

For existing (2017) traffic conditions, the peak hour traffic control signal warrant is satisfied for the following study area unsignalized intersection(s) (see Appendix D for technical calculations):

3. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

For existing plus project (2017) traffic conditions, no additional study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

For existing plus ambient growth plus project (2019) traffic conditions, no additional study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

For existing plus ambient growth plus other cumulative projects plus project (2019) traffic conditions, the peak hour traffic control signal warrant is expected to be satisfied for the following additional study area unsignalized intersection(s) (see Appendix D for technical calculations):

2. Hargrave Street (NS) / I-10 Westbound Ramps (EW)

For year 2040 plus project traffic conditions, no additional study area unsignalized intersections are expected to meet the peak hour traffic control signal warrant (see Appendix D for technical calculations).

The following study area unsignalized intersection(s) does not satisfy the peak hour traffic signal warrant in any study scenario (see Appendix D for technical calculations):

4. Hargrave Street (NS) / Lincoln Street (EW)
5. John Street (NS) / Lincoln Street (EW)

Queuing Analysis

Per Caltrans request, a queuing analysis was performed at the intersections Hargrave Street /I-10 westbound ramps and Hargrave Street/I-10 eastbound ramps under existing plus project conditions, existing plus ambient growth plus project conditions, existing plus ambient growth plus cumulative projects plus project conditions, year 2040 plus project conditions.

Existing Plus Project Conditions

The current two-way stop controlled intersection would be improved to provide an all-way stop control and the following geometrics:

2. Improve the intersection to install an all-way stop control at the intersection of Hargrave Street (NS) and Interstate -10 WB Ramps with the following geometrics:
   Northbound: One shared left-turn and through lane.
   Southbound: One shared through and right-turn lane.
   Eastbound: Not applicable.
   Westbound: One shared left-turn, through and right-turn lane.

A signal is not warranted at this intersection as shown in the provided signal warrant worksheets in Appendix D. An all-way stop control has been recommended at the intersections of Hargrave Street and I-10 westbound ramps in accordance with Section 2B.07 Multi-Way Stop Applications of the California Manual on Uniform Traffic Control Devices 2014 (CA MUTCD 2014). The recommendation is based on option: A. The need to control left-turn conflicts". Over 200 northbound left turns occur at the intersection which conflict with the west-bound left turn movements. With the recommended improvement the westbound traffic approaching the intersection as vehicles exit the freeway ramp would be able to proceed safely through the intersection.

Current two-way stop controlled intersection would be improved to provide an all-way stop control and the following geometrics:

3. Improve the intersection to install an all-way stop control at the intersection of Hargrave Street (NS) and Interstate -10 EB Ramps with the following geometrics:
   Northbound: One shared through and right-turn lane.
   Southbound: One shared left-turn and through lane.
   Eastbound: One shared left, through and right-turn lane.
   Westbound: Not applicable.

A signal is warranted at this intersection as shown in the provided signal warrant worksheets in Appendix D. An all-way stop control has been recommended in accordance with Section 2B.07 Multi-Way Stop Applications of the California Manual on Uniform Traffic Control Devices 2014 (CA MUTCD 2014). The recommendation is based on "guidance: A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

A summary of the queuing analysis results for existing plus project conditions and the recommended improvements is provided in Table 6-9 (95th percentile queuing results are provided in Appendix E).

Table 6-9 – Queuing Summary - Existing Plus Project (2017) Conditions

Intersection		Existing Traffic Control	Proposed Traffic Control	Movement	Storage Length		95th Percentile Queue Length (feet)					
							Existing Without Project		Existing Plus Project		Existing Plus Project With Improvements	
					Existing	Proposed	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.
2	Hargrave Street / I-10 WB Ramps	TWSC	AWSC	WBL	1150 ft.	1150 ft.	35 ft.	46 ft.	111 ft.	114 ft.	25 ft.	26 ft.
3	Hargrave Street / I-10 EB Ramps	TWSC	AWSC	EBL	1150 ft.	1150 ft.	655 ft.	185 ft.	948 ft.	309 ft.	292 ft.	86 ft.

hr.: hour and ft.: feet.

TWSC: Two-Way Stop Control and AWSC: All-Way Stop Control.

NBL: Northbound Left; SBL: Southbound Left; EBL: Eastbound Left and WBL: Westbound Left.

[1] The 95th-percentile queue is the queue length that has only a 5-percent probability of exceeding available storage during the analysis time period

Existing Plus Ambient Growth Plus Project (2019) Conditions

For existing plus ambient growth plus project (2019) conditions, no additional improvements for queuing are required. A summary of the queuing analysis results is provided in Table 6-10 (95th percentile queuing results are provided in Appendix E).

Table 6-10 – Queuing Summary -Existing Plus Ambient Growth Plus Project (2019) Conditions

Intersection		Existing Traffic Control	Proposed Traffic Control	Movement	Storage Length		95th Percentile Queue Length (feet)					
							EAC		EACP		EACP+Imp.	
					Existing	Proposed	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.
2	Hargrave Street / I-10 WB Ramps	TWSC	AWSC	WBL	1150 ft.	1150 ft.	80 ft.	119 ft.	225 ft.	204 ft.	37 ft.	41 ft.
3	Hargrave Street / I-10 EB Ramps	TWSC	AWSC	EBL	1150 ft.	1150 ft.	992 ft.	412 ft.	1284 ft.	613 ft.	65 ft.	139 ft.

hr.: hour and ft.: feet.

TWSC: Two-Way Stop Control and AWSC: All-Way Stop Control.

NBL: Northbound Left; SBL: Southbound Left; EBL: Eastbound Left and WBL: Westbound Left.

[1] The 95th-percentile queue is the queue length that has only a 5-percent probability of exceeding available storage during the analysis time period

EAC: Existing Plus Ambient Growth Plus Cumulative Projects Without Project Conditions.

EACP: Existing Plus Ambient Growth Plus Cumulative Projects Plus Project Conditions.

EACP+Imp.: Existing plus Ambient Growth Plus Cumulative Projects Plus Project Conditions With Improvements.

Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (2019) Conditions

For existing plus ambient growth plus other cumulative projects plus project (2019) traffic conditions, no additional improvements for queuing are required. A summary of the queuing analysis results is provided in Table 6-11 (95th percentile queuing results are provided in Appendix E).

Table 6-11 – Queuing Summary -Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (2019) Conditions

Intersection		Existing Traffic Control	Proposed Traffic Control	Movement	Storage Length		95th Percentile Queue Length (feet)					
							EAC		EACP		EACP+Imp.	
					Existing	Proposed	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.
2	Hargrave Street / I-10 WB Ramps	TWSC	AWSC	WBL	1150 ft.	1150 ft.	80 ft.	119 ft.	225 ft.	204 ft.	37 ft.	41 ft.
3	Hargrave Street / I-10 EB Ramps	TWSC	AWSC	EBL	1150 ft.	1150 ft.	992 ft.	412 ft.	1284 ft.	613 ft.	65 ft.	139 ft.

hr.: hour and ft.: feet.

TWSC: Two-Way Stop Control and AWSC: All-Way Stop Control.

NBL: Northbound Left; SBL: Southbound Left; EBL: Eastbound Left and WBL: Westbound Left.

[1] The 95th-percentile queue is the queue length that has only a 5-percent probability of exceeding available storage during the analysis time period

EAC: Existing Plus Ambient Growth Plus Cumulative Projects Without Project Conditions.

EACP: Existing Plus Ambient Growth Plus Cumulative Projects Plus Project Conditions.

EACP+Imp.: Existing plus Ambient Growth Plus Cumulative Projects Plus Project Conditions With Improvements.

Year 2040 Plus Project Conditions

For Year 2040 plus project conditions the no additional improvements would be required from the proposed all-way stop controlled intersection with the following geometrics:

Northbound: One shared left-turn and through lane.
Southbound: One shared through and right-turn lane.
Eastbound: Not applicable.
Westbound: One shared left-turn, through and right-turn lane.

For Year 2040 plus project conditions the all-way stop controlled intersection would be improved to a signalized intersection at Hargrave Street and I-10 eastbound ramps. A signal is warranted at this intersection as shown in the provided signal warrant worksheets in Appendix D. The Intersection will include the following geometrics:

Northbound: One shared through and right-turn lane.
Southbound: One left-turn lane with 100 feet of storage length. One through lane.
Eastbound: One shared left, through and right-turn lane.
Westbound: Not applicable.

A summary of the queuing analysis results for year 2040 plus project conditions is provided in Table 6-12 (95th percentile queuing results are provided in Appendix E).

Table 6-12 – Queuing Summary – Year 2040 Plus Project Conditions

Intersection		Existing Traffic Control	Proposed Traffic Control	Movement	Storage Length		95th Percentile Queue Length (feet)					
							Yr. 2040		Yr.2040P		Yr.2040+Imp.	
					Existing	Proposed	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.	a.m. peak hr.	p.m. peak hr.
2	Hargrave Street / I-10 WB Ramps	TWSC	AWSC	WBL	1150 ft.	1150 ft.	173 ft.	472 ft.	365 ft.	684 ft.	50 ft.	90 ft.
3	Hargrave Street / I-10 EB Ramps	TWSC	Signal	SBL	--	100 ft.	--	--	--	--	103 ft.	98 ft
				EBL	1150 ft.	1150 ft.	1133 ft.	792 ft.	1375 ft.	984 ft.	341 ft.	268 ft

hr.: hour and ft.: feet.

TWSC: Two-Way Stop Control and AWSC: All-Way Stop Control.

NBL: Northbound Left; SBL: Southbound Left; EBL: Eastbound Left and WBL: Westbound Left.

[1] The 95th-percentile queue is the queue length that has only a 5-percent probability of exceeding available storage during the analysis time period

Yr.2040 : Year 2040 Without Project Conditions.

Yr.2040P : Year 2040 Plus Project Conditions.

Yr.2040P +Imp : Year 2040 Plus Project Conditions With Proposed Improvements.

Circulation Recommendations

This traffic impact analysis demonstrates that the direct traffic impacts generated by Banning Distribution Center can be mitigated to meet the required level of service if the following recommended improvements are adopted.

Roadway Improvements

- Construct full width improvements on John Street at its ultimate cross-section as a collector from Lincoln Street to the east end at project boundary.

Intersection Improvements

- Construct the intersection of Lincoln Street and John Street with the following geometrics:
  Northbound: Not Applicable.
  Southbound: One left turn lane. One right turn lane. Stop controlled.
  Eastbound: One left turn lane. One through lane.
  Westbound: One shared through and right turn lane.

Safety and Operational Improvements

- Sight distance at Banning Distribution Center entrance roadway will be reviewed with respect to standard City of Banning sight distance standards at the time of preparation of final grading, landscape, site development, and street improvement plans.
- Participate in the phased construction of off-site traffic signals through payment of project's fair share of traffic signal mitigation fees.
- Signing/striping should be implemented in conjunction with detailed construction plans for Banning Distribution Center site.

Regional Funding Mechanisms

Banning Distribution Center will participate in the cost of off-site improvements through the payment of "fair share" mitigation fees, including the following:

- City of Banning Development Impact Fee (DIF), current at time of construction.

These fees will be collected and utilized as needed by City of Banning to construct the improvements necessary to assist in maintaining the required level of service.

Table 6-13 summarizes the proposed mitigation measure and associated funding mechanism for Banning Distribution Center as a result of the traffic study.

Table 6-13 – Project Mitigation Summary

No.	Intersection	Jurisdiction	Target LOS	LOS w/o Mitigation		Mitigation Measure	LOS with Mitigation		Funding Mechanism
				AM	PM		AM	PM	
Existing Deficiency									
2	Hargrave Street (NS) I-10 Westbound Ramps (EW)	Caltrans	D	F	F	Install stop signs to change the intersection to be all-way stop controlled.	C	B	Developer
3	Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	F	F	Install stop signs to change the intersection to be all-way stop controlled.	C	B	Developer
Year 2040 Conditions									
3	Hargrave Street (NS) I-10 Eastbound Ramps (EW)	Caltrans	D	F	F	Install traffic signal. Re-stripe the to provide one 100 foot southbound left-turn lane.	C	C	Developer DIF Fees

APPENDIX A

Scoping Agreement

April 2018

ALBERT A. WEBB ASSOCIATES

Corporate Headquarters
3788 McCray Street
Riverside, CA 92506
951.686.1070

Palm Desert Office
41-990 Cook St., Bldg. I - #801B
Palm Desert, CA 92211
951.686.1070

Murrieta Office
41391 Kalmia Street #320
Murrieta, CA 92562
951.686.1070

April 30, 2018 2015-0233

Arturo Vela, P.E.
City Engineer
99 E. Ramsey Street
Banning, CA 92220

RE: Revised Scoping Agreement for the proposed Banning Distribution Center, in the City of Banning.

Background

WEBB Associates is the Traffic Consultant for Pacific Newport Properties (PNP) on their Banning Distribution warehouse project (Design Review 16-7002) located in the City of Banning. The City of Banning approved a Scoping Agreement for a traffic study on this project back on February 1, 2017 which included nine cumulative projects identified by the City to be included in the traffic study analysis. The City approved the traffic study in October 2017, and in December 2017 WEBB submitted to the City the final traffic study which documented all of the reviews and approval from Caltrans.

On March 26, 2018 PNP became aware of pending project in the City of Banning in close proximity to the Banning Distribution warehouse project which was not one of the nine projects listed by the City and included in the February 2017 Scoping Agreement from the City. The Airport Industrial Work Lofts (aka The Banning Lofts) is located south of the Banning Municipal Airport, between Lincoln and Barbour Streets, just west of South Hathaway Street and is within one mile of the Banning Distribution project. Subsequently, the City determined that the Banning Lofts project should have been previously listed and now must be included as a cumulative project to be analyzed in the Banning Distribution traffic study.

Methodology

With the inclusion of the Banning Lofts project, the internal trip count assumptions for the other nine cumulative projects was revisited. It was determined in conversations with the City Engineer that the original scoping agreement (approved February 1st, 2017) made overly conservative assumptions for some of the cumulative projects. (i.e. 1,900 residential dwelling units to be built in a two year period is highly conservative). Therefore adjustments were made to change the internal trips. As a result, this revised TIA scoping agreement dated April 24, 2018 and the original TIA scoping agreement dated February 1, 2017 retain the same total number of daily trips for the cumulative projects.

The revised internal trip assumptions were made based on: ITE manual percentages, professional judgment, and discussions with the City of Banning. The previous TIA scope used a conservative analysis to account for internal trips and projected number of residential dwelling units. Internal trips for cumulative project sites use a range of percentages based on the type of use; these can range

between 3 – 35% of all the traffic. This means that between 3 – 35% of the total trips assigned to that project could occur internally on the project site. The original TIA scope used a conservative number of internal trips. The revised TIA scope uses a conservative number of internal trips within the agreed upon range of 3-35%. The remaining number of trips were then assigned to the Banning Lofts project. The trips for the Banning Lofts project was taken from the traffic impact study prepared for that project by Kunzman Associates in August 2013.

All other assumptions in this revised TIA remain the same.

Definition:
Internal Capture Trips - *internal trips are made within mixed-use developments and are on internal roadways only and do not use adjacent main roadways.*

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Banning requirements for traffic impact analysis of the following project.

Case No. Design Review No.16-7002
Related Cases –
SP No.
EIR No.
GPA No.
CZ No.
Project Name: Banning Distribution Center
Project Address: At the end of the John Street cul-de-sac, south of I-10 freeway, north of the Banning Municipal Airport
Project Description: 1,000,000 square feet distribution center

	Consultant	Developer
Name	Albert A. Webb Associates	Banning Industrial, LP
Address	3788 McCray Street	17842 Mitchell N, Suite 100
	Riverside, CA 92506	Irvine, CA 92614
Telephone:	(951) 686-1070 Fax: (951) 788-1256	(949) 474-2000

A. Trip Generation Source: ITE 9th Edition

Current Land Use: Vacant — Proposed Land Use: Distribution Center
Current Zoning: Airport Industrial/Public Facilities – Airport — Proposed Zoning: Airport Industrial

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	0	0	0	109	47	156
PM Trips	0	0	0	55	126	181

Internal Trip Allowance ☐ Yes ☒ No (N/A Trip Discount)
Pass-By Trip Allowance ☐ Yes ☒ No (N/A Trip Discount)
See attached figure for trip generation.

B. Trip Geographic Distribution: N S E W
See attached figures for detailed assignment

C. Background Traffic

Project Build-out Year 2019 Annual Ambient Growth Rate: 2%
Phase Year(s) N/A

Other area projects to be analyzed: See attached.

Model/Forecast methodology: N/A

D. Study Intersections:

1. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
2. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)
3. Hargrave Street (NS) / Lincoln Street (NS)
4. John Street (NS) / Lincoln Street (EW)
5. Hargrave Street (NS) / East Ramsey Street (NS)

E. Other Jurisdictional Impacts:

Is this project within a city's sphere of influence or one mile radius of city boundaries? ☒ Yes ☐ No

If so, name of City Jurisdiction: Morongo Reservation, County of Riverside

F. Site Plan (see attached figure)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines) (To be filled out by City of Banning)

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts: January 31, 2017 – no additional counts need to be collected.

I. Analysis Scenarios

1. Existing
2. Existing + Project
3. Existing + Ambient (2019) + Project
4. Existing + Ambient (2019) + Cumulative Projects + Project
5. Year 2040 + Project

Recommended by:

Consultant Engineer	4/24/18 Date
Scoping Agreement Submitted on	Date
Revised on	Date

Approved Scoping Agreement:

City of Banning	Date

Table 1: Trip Generation Rates

Land Use	Unit	AM Peak Hour			PM Peak Hour			Daily
		Total	In	Out	Total	In	Out	
High-Cube Warehouse Land Use Category: 152	TSF							
Passenger Cars		*0.080*	*0.055*	*0.025*	*0.080*	*0.025*	*0.055*	*1.040*
Trucks (2 Axle)		*0.005*	*0.004*	*0.004*	*0.007*	*0.002*	*0.002*	*0.108*
Trucks (3 Axle)		*0.007*	*0.005*	*0.005*	*0.009*	*0.003*	*0.003*	*0.145*
Trucks (4+ Axle)		*0.018*	*0.013*	*0.013*	*0.024*	*0.007*	*0.007*	*0.386*
LAND USE TOTAL		0.110	0.076	0.034	0.120	0.037	0.083	1.680

TSF = 1,000 Square Feet Gross Floor Area.
Average trip generation rates from *Trip Generation Manual, ITE, 9th Edition* (2012).
2 axle / 3 axle / 4+ axle truck split from *Truck Trip Generation Study* by the City of Fontana, 2003.

Table 2: Proposed Project Trip Generation

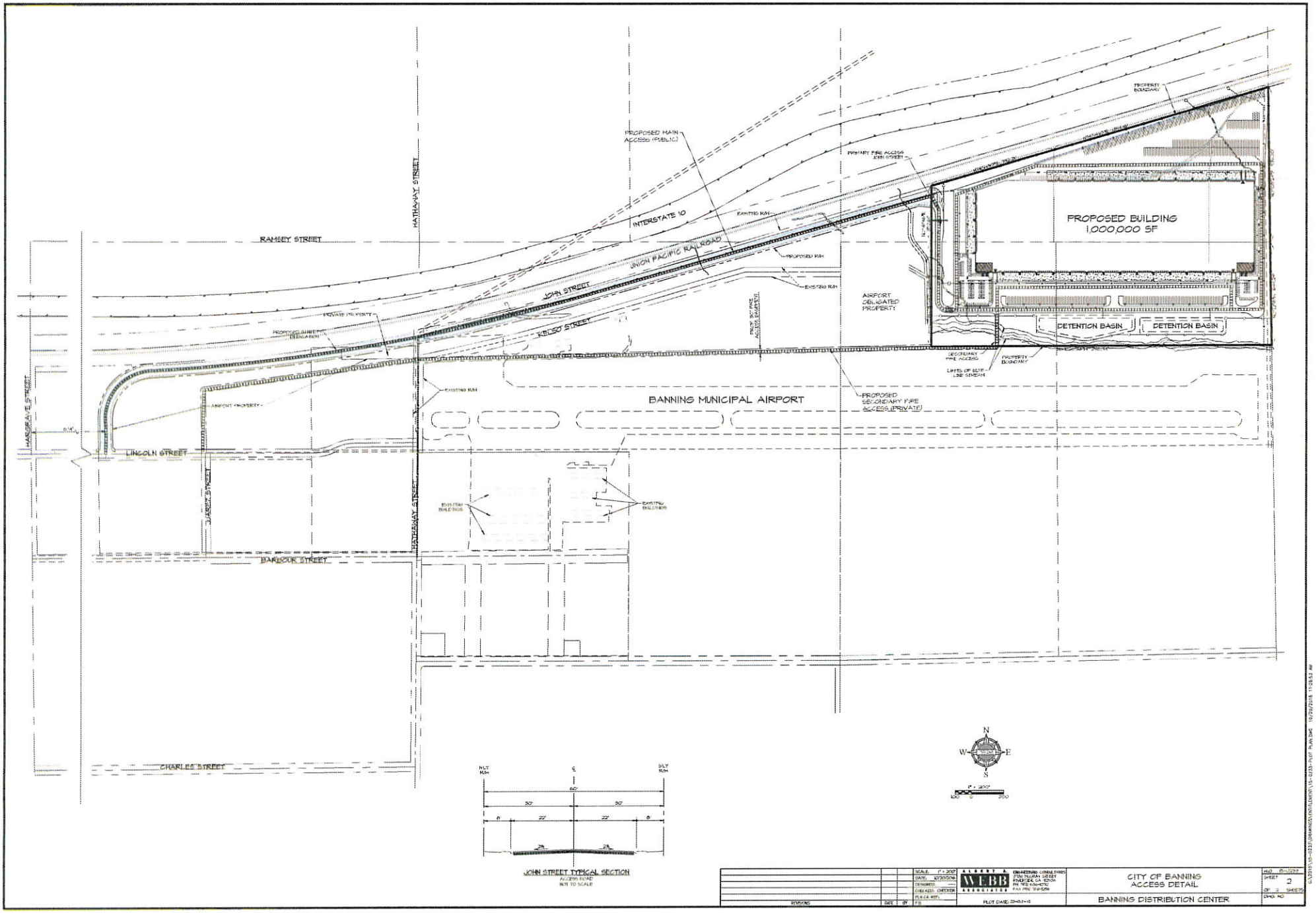
Land Use	Qty	Unit	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
High-Cube Warehouse	1000	TSF							
Passenger Cars			*80*	*55*	*25*	*80*	*25*	*55*	*1,040*
Trucks (2 Axle)			*5*	*3*	*2*	*7*	*2*	*5*	*109*
Trucks (3 Axle)			*7*	*5*	*2*	*9*	*3*	*6*	*145*
Trucks (4+ Axle)			*18*	*13*	*5*	*24*	*7*	*17*	*386*
LAND USE TOTAL			110	76	34	120	37	83	1,680

TSF = 1,000 Square Feet Gross Floor Area.

Table 2: Proposed Project Trip Generation (in PCE)

Land Use	Qty	Unit	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
High-Cube Warehouse	1000	TSF							
Passenger Cars (PCE = 1.0)			*80*	*55*	*25*	*80*	*25*	*55*	*1,040*
Trucks (2 Axle, PCE = 1.5)			*8*	*5*	*3*	*11*	*3*	*8*	*164*
Trucks (3 Axle, PCE = 2.0)			*14*	*10*	*4*	*18*	*6*	*12*	*290*
Trucks (4+ Axle, PCE = 3.0)			*54*	*39*	*15*	*72*	*21*	*51*	*1,158*
LAND USE TOTAL (IN PCE)			156	109	47	181	55	126	2,652

TSF = 1,000 Square Feet Gross Floor Area.
PCE = Passenger Car Equivalent for Trucks



PROPOSED MAIN ACCESS (PUBLIC)
PRIMARY FIRE ACCESS JOHN STREET
PROPERTY BOUNDARY
INTERSTATE 10
EXISTING R/W
PROPOSED BUILDING
1,000,000 SF
RAMSEY STREET
HATHAWAY STREET
UNION PACIFIC RAILROAD
PROPOSED R/W
EXISTING R/W
JOHN STREET
AIRPORT OBLIGATED PROPERTY
PRIVATE PROPERTY
PROPOSED STREET DEDICATION
KELSO STREET
DETENTION BASIN
DETENTION BASIN
SECONDARY FIRE ACCESS
PROPERTY BOUNDARY
LIMITS OF ELSE LINE STREAM
EXISTING R/W
BANNING MUNICIPAL AIRPORT
PROPOSED SECONDARY FIRE ACCESS (PRIVATE)
AIRPORT PROPERTY
HARGRAVE STREET
LINCOLN STREET
JUAREZ STREET
HATHAWAY STREET
EXISTING BUILDINGS
EXISTING BUILDINGS
BARBOUR STREET
CHARLES STREET
N
W
E
S
1" = 200'
100 0 200
N.L.T. R/W
S.L.T. R/W
60'
30'
30'
8'
22'
22'
8'
2%
2%
JOHN STREET TYPICAL SECTION
ACCESS ROAD
NOT TO SCALE
SCALE 1" = 200'
DATE 12/30/2016
DESIGNED ---
CHECKED CHECKER
PLN CK REF.
P.S.
REVISIONS
DATE
BY
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
2700 MURRAY STREET
RIVERSIDE, CA 92504
PH 951-686-1070
FAX 951-686-1250
PLOT DATE: 2016-11-15
CITY OF BANNING
ACCESS DETAIL
BANNING DISTRIBUTION CENTER
HLO 15-0233
SHEET 2
OF 2 SHEETS
DWG. NO.

Figure 1 – Directional Distribution for Project Traffic (Trucks)

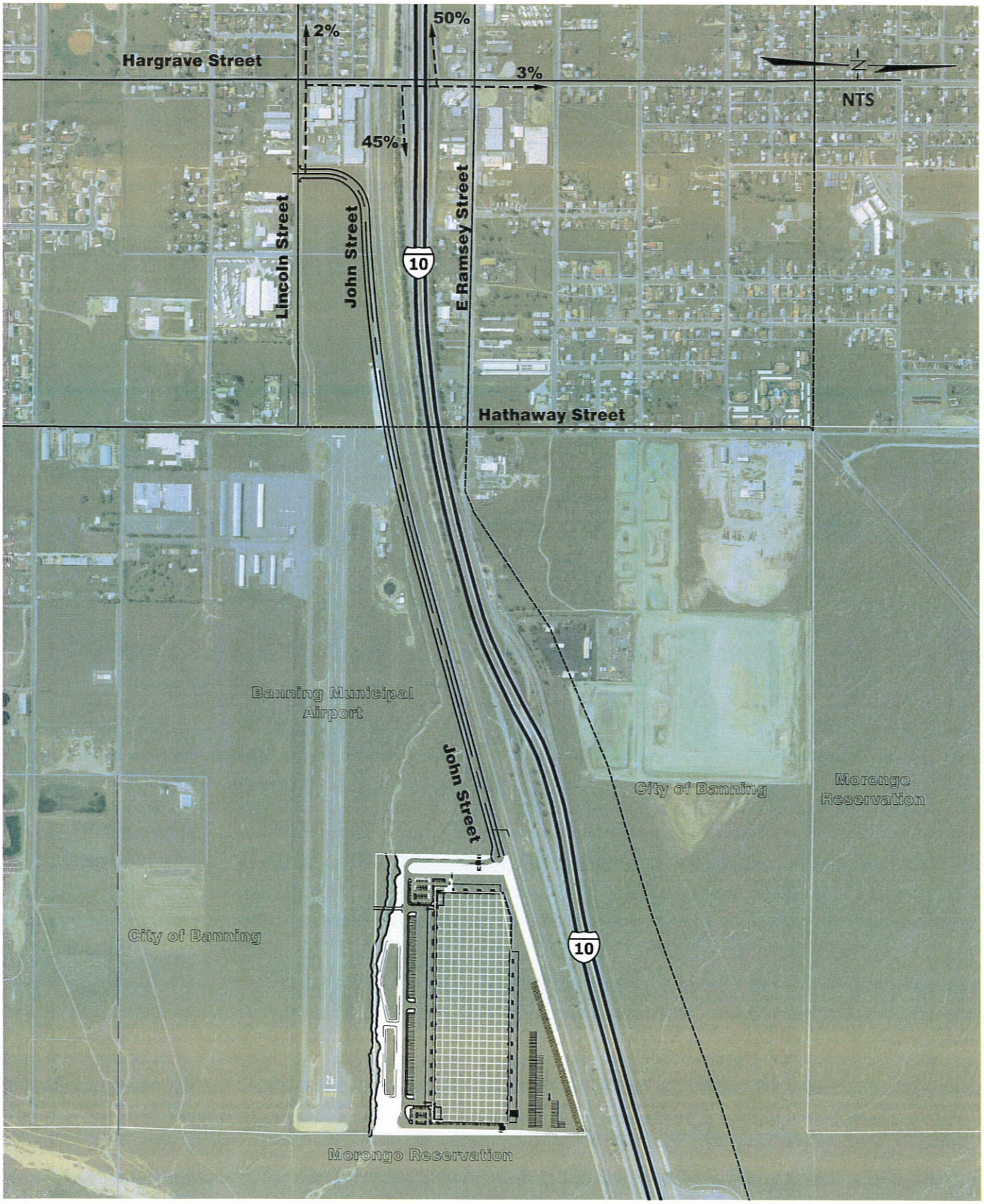


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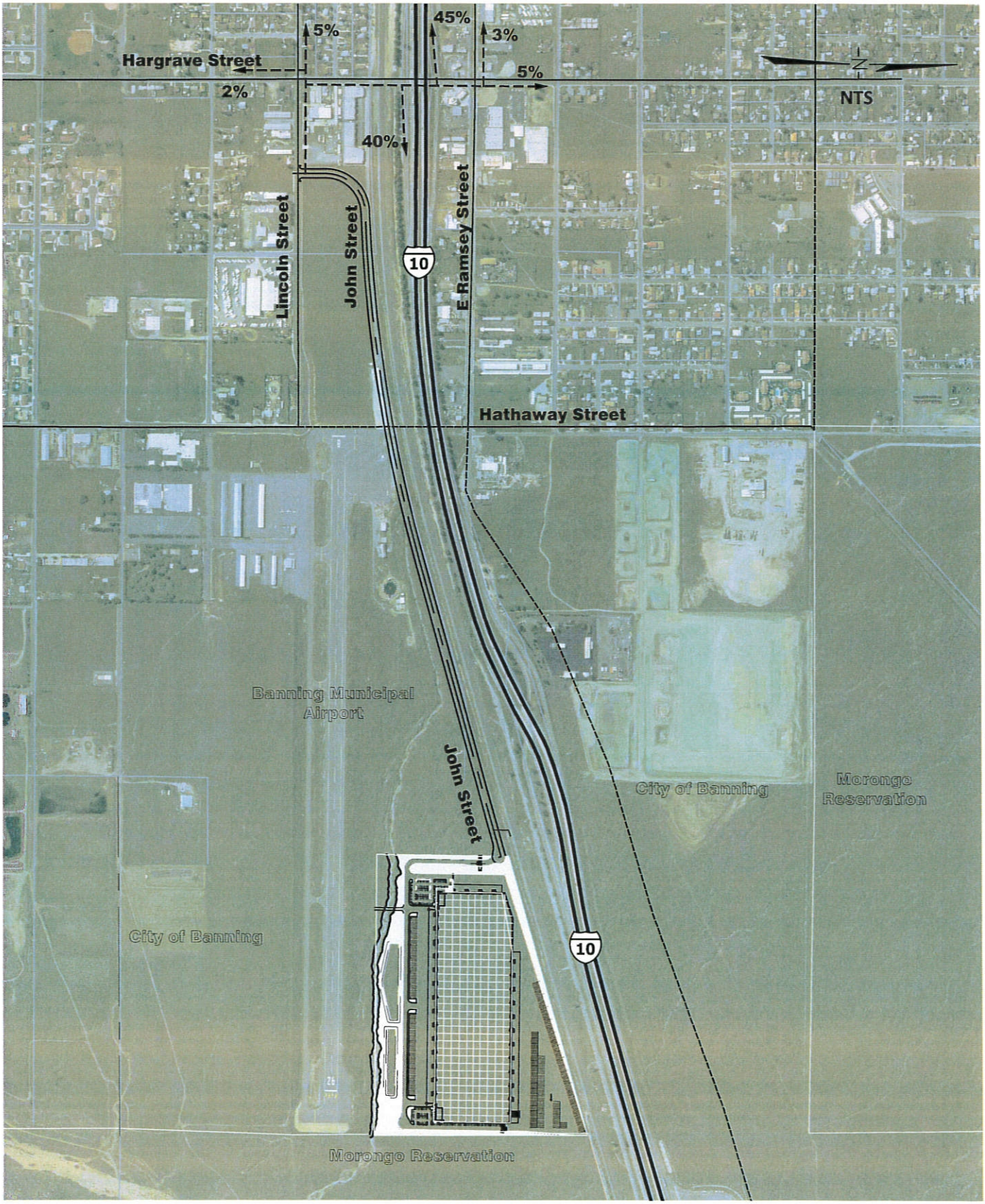
Figure 2 – Directional Distribution for Project Traffic (Passenger Cars)



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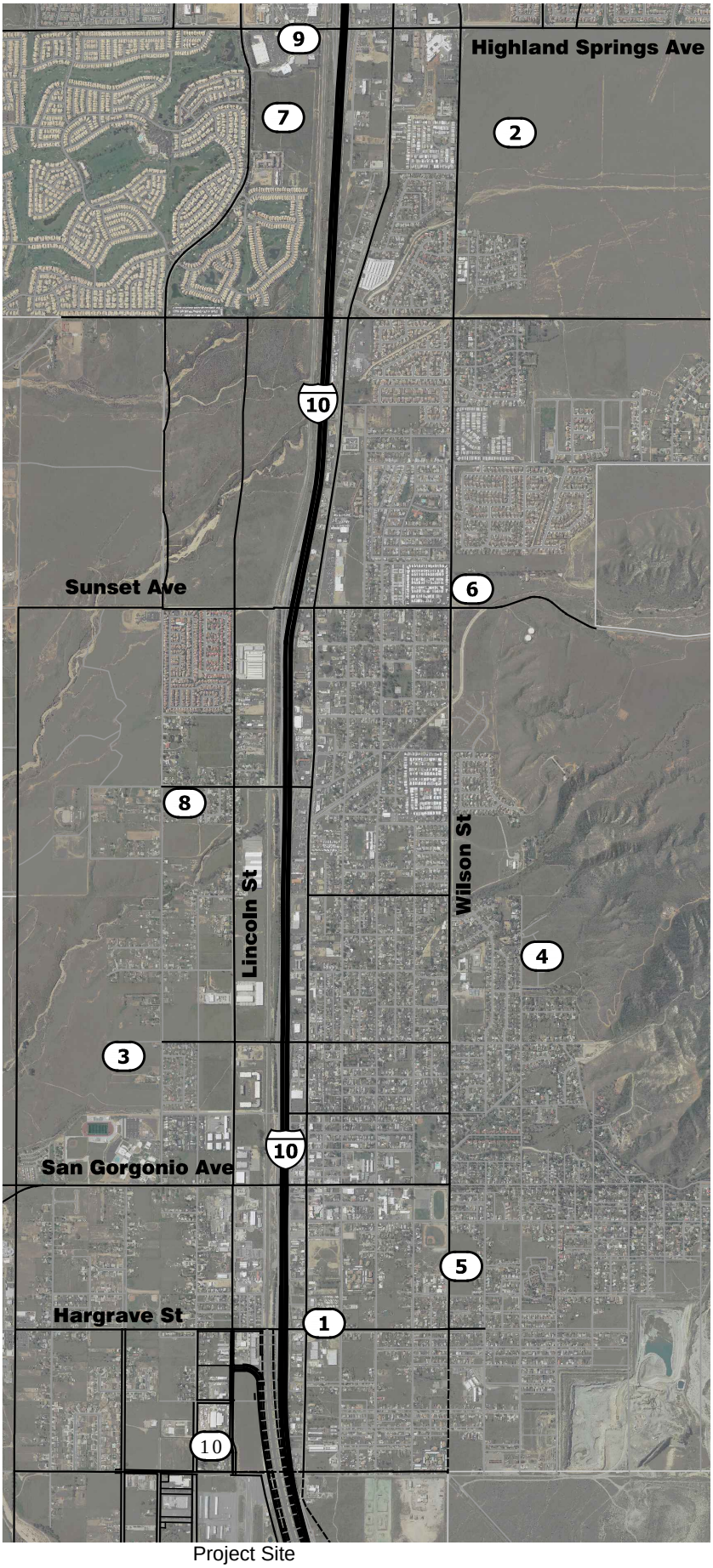
Cumulative Projects within the Study Area



Project Site

LEGEND

1. La Quinta Hotel
2. Pardee Butterfield Specific Plan
3. Rancho San Gorgonio Specific Plan
4. Tentative Tract Map 33540
5. Tentative Tract Map 36710
6. Tentative Tract Map 36939
7. Tentative Parcel Map 33326
8. Tentative Tract Map 33013
9. 300 S Highland Springs Ave, Pad A
10. Airport Industrial Work Lofts

N

NTS

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Cumulative Projects within the Study Area in 2019

Project	Land Use	Qty	Unit	AM Peak Hour	PM Peak Hour	Daily
1. La Quinta Hotel	Hotel	81	Rooms	43	49	662
	Internal Trips (9-35%)			*(2)*	*(17)*	*(19)*
	Fast-Food Restaurant with Drive-Through Window	2.8	TSF	127	91	1,389
	Internal Trips (3-17%)			*(9)*	*(15)*	*(24)*
	Pass-by Trips (PM:43%)			*0*	*(32)*	*(32)*
	High-Turnover (Sit-Down) Restaurant	1.2	TSF	13	12	153
	Internal Trips (3-17%)			*0*	*(2)*	*(2)*
	Pass-by Trips (AM:49% PM:50%)			*(6)*	*(4)*	*(10)*
	PROJECT TOTAL			*166*	*82*	*2,117*
2. Pardee Butterfield Specific Plan (20%)[1]	Shopping Center	78	TSF	134	507	5,778
	Internal Trips (7-18%)			*(3)*	*(93)*	*(122)*
	Pass-by Trips (PM:34%)			*0*	*(140)*	*(140)*
	Single-Family Detached Housing	998	DU	749	998	9,501
	Internal Trips (1-9%)			*(3)*	*(95)*	*(97)*
	PROJECT TOTAL			*877*	*1,177*	*14,920*
3. Rancho San Gorgonio Specific Plan (By 2019)[2]	Single-Family Detached Housing	599	DU	449	599	5,702
	Elementary School	800	Stu	360	120	1,032
4. Tent Tract Map 33540	Single-Family Detached Housing	172	DU	129	172	1,637
	Cemetery	7	Acres	1	6	33
5. Tent Tract Map 36710	Single-Family Detached Housing	48	DU	36	48	457
6. Tent Tract Map 36939	Single-Family Detached Housing	98	DU	74	98	933
7. Tent Parcel Map 33326	Shopping Center	512	TSF	422	1,789	19,632
	Pass-by Trips (PM:34%)				*(592)*	*(670)*
	PROJECT TOTAL			*422*	*1,197*	*18,962*
8. Tent Tract Map 33013	Single-Family Detached Housing	6	DU	5	6	57
9. 300 S. Highland Springs Ave, Pad A	Shopping Center	7.964	TSF	33	110	1,311
	Pass-by Trips (PM:34%)			*0*	*(36)*	*(36)*
	PROJECT TOTAL			*33*	*74*	*1,275*
10. Airport Industrial Work Lofts[3]	Residential Condominium/Townhouse	22	DU	10	12	128
	General Office Building	14.28	TSF	23	22	158
	Warehousing	13.53	TSF	4	4	48
	Specialty Retail Center	13.53	TSF	18	37	600
	Internal Reduction10%			*(6)*	*(8)*	*(93)*
	PROJECT TOTAL			*49*	*67*	*841*
TOTAL[4]				2,601	3,646	47,966

TSF = 1,000 Square Feet Gross Floor Area, DU = Dwelling Units, Stu = Students.

[1] Single-family detached housing assumption was reduced based on discussions with the City of Banning. The City does not anticipate all 1,077 residential project units that were assumed in the original scoping agreement dated February 1st, 2017 to be constructed by 2019. The 998 residential units assumed in this revised scoping agreement remains highly conservative.

[2] Revised development trip assumption for Rancho San Gorgonio Specific Plan has been revised to match the Rancho San Gorgonio Specific Plan Traffic Study, prepared by Kunzman Associates, Inc. on April 2016.

[3] The Airport Industrial Work Lofts project was not included in the approved scoping agreement dated February 1st, 2017. The Lofts project has now been included in this revised scoping agreement as part of the cumulative project list. The Lofts project is projected to generate very low traffic volume which would be compensated with the adjustments made to the internal trip capture explained in the next page regarding methodology. It is also considered accounted for in the analysis per the high number of residential units originally assumed in the Pardee Butterfield Specific Plan and the Rancho San Gorgonio Specific Plan.

[4] The cumulative project list assumes over 1,900 residential dwelling units completed in 2 years, which is very conservative. The City does not anticipate rapid growth in the next two years; therefore, all revision to the internal capture and residential dwelling units were made in agreement with the City.

Scoping Agreement

February 2017

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Banning requirements for traffic impact analysis of the following project.

Case No. Design Review No.16-7002
Related Cases –
SP No.
EIR No.
GPA No.
CZ No.
Project Name: Banning Distribution Center
Project Address: At the end of the John Street cul-de-sac, south of I-10 freeway, north of airport
Project Description: 1,000,000 square feet distribution center

	Consultant	Developer
Name	Albert A. Webb Associates	Banning Industrial, LP
Address	3788 McCray Street	17842 Mitchell N, Suite 100
	Riverside, CA 92506	Irvine, CA 92614
Telephone:	(951) 686-1070 Fax: (951) 788-1256	(949)862-2116

A. Trip Generation Source: ITE 9th Edition

Current Land Use	Vacant	Proposed Land Use	Distribution Center
Current Zoning	Airport Industrial	Proposed Zoning	Airport Industrial

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	0	0	0	109	47	156
PM Trips	0	0	0	55	126	181

Internal Trip Allowance ☐ Yes ☒ No (N/A Trip Discount)
Pass-By Trip Allowance ☐ Yes ☒ No (N/A Trip Discount)
See attached figure for trip generation.

B. Trip Geographic Distribution: N S E W
See attached figures for detailed assignment

C. Background Traffic

Project Build-out Year 2019 Annual Ambient Growth Rate: 2%
Phase Year(s) N/A

Other area projects to be analyzed: Ciy will provide approved projects in the impact area.

Model/Forecast methodology: N/A

D. Study Intersections:

1. Hargrave Street (NS) / I-10 Westbound Ramps (EW)
2. Hargrave Street (NS) / I-10 Eastbound Ramps (EW)
3. Hargrave Street (NS) / Lincoln Street (NS)
4. John Street (NS) / Lincoln Street (EW)
5. Hargrave Street (NS) / East Ramsey Street (NS)

E. Other Jurisdictional Impacts:

Is this project within a city's sphere of influence or one mile radius of city boundaries? ☒ Yes ☐ No

If so, name of City Jurisdiction: Morongo Reservation, County of Riverside

F. Site Plan (see attached figure)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guidelines) (To be filled out by City of Banning)

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts:

I. Analysis Scenarios

1. Existing
2. Existing + Project
3. Existing + Ambient (2019) + Project
4. Existing + Ambient (2019) + Cumulative Projects + Project

Recommended by:

Consultant Engineer	Date
Scoping Agreement Submitted on	Date
Revised on	Date

Approved Scoping Agreement:

City of Banning	2/1/17 Date

Table 1: Trip Generation Rates

Land Use	Unit	AM Peak Hour			PM Peak Hour			Daily
		Total	In	Out	Total	In	Out	
High-Cube Warehouse Land Use Category: 152	TSF							
Passenger Cars		*0.080*	*0.055*	*0.025*	*0.080*	*0.025*	*0.055*	*1.040*
Trucks (2 Axle)		*0.005*	*0.004*	*0.004*	*0.007*	*0.002*	*0.002*	*0.108*
Trucks (3 Axle)		*0.007*	*0.005*	*0.005*	*0.009*	*0.003*	*0.003*	*0.145*
Trucks (4+ Axle)		*0.018*	*0.013*	*0.013*	*0.024*	*0.007*	*0.007*	*0.386*
LAND USE TOTAL		0.110	0.076	0.034	0.120	0.037	0.083	1.680

TSF = 1,000 Square Feet Gross Floor Area.
Average trip generation rates from *Trip Generation Manual, ITE, 9th Edition* (2012).
2 axle / 3 axle / 4+ axle truck split from *Truck Trip Generation Study* by the City of Fontana, 2003.

Table 2: Proposed Project Trip Generation

Land Use	Qty	Unit	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
High-Cube Warehouse	1000	TSF							
Passenger Cars			*80*	*55*	*25*	*80*	*25*	*55*	*1,040*
Trucks (2 Axle)			*5*	*3*	*2*	*7*	*2*	*5*	*109*
Trucks (3 Axle)			*7*	*5*	*2*	*9*	*3*	*6*	*145*
Trucks (4+ Axle)			*18*	*13*	*5*	*24*	*7*	*17*	*386*
LAND USE TOTAL			110	76	34	120	37	83	1,680

TSF = 1,000 Square Feet Gross Floor Area.

Table 2: Proposed Project Trip Generation (in PCE)

Land Use	Qty	Unit	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
High-Cube Warehouse	1000	TSF							
Passenger Cars (PCE = 1.0)			*80*	*55*	*25*	*80*	*25*	*55*	*1,040*
Trucks (2 Axle, PCE = 1.5)			*8*	*5*	*3*	*11*	*3*	*8*	*164*
Trucks (3 Axle, PCE = 2.0)			*14*	*10*	*4*	*18*	*6*	*12*	*290*
Trucks (4+ Axle, PCE = 3.0)			*54*	*39*	*15*	*72*	*21*	*51*	*1,158*
LAND USE TOTAL (IN PCE)			156	109	47	181	55	126	2,652

TSF = 1,000 Square Feet Gross Floor Area.
PCE = Passenger Car Equivalent for Trucks

CITY OF BANNING
BANNING DISTRIBUTION CENTER
DESIGN REVIEW NO.16-7002 & CONCEPTUAL GRADING PLAN

NOTES:

1. THOMAS BROS. RIVERSIDE COUNTY (2007 ED.) PAGE 722, PORTION OF GRID E-3 & F-3.
2. THIS PROJECT SITE IS LOCATED WITHIN SECTION 9, TOWNSHIP 3 SOUTH, RANGE 1 EAST.
3. FEMA COMMUNITY PANEL NO. 06065C0755G AND # 06065C0765G ZONE A & X.
4. THIS PROJECT IS NOT LOCATED WITHIN A SPECIFIC PLAN.
5. THIS PROJECT SITE IS LOCATED WITHIN THE BANNING MUNICIPAL AIRPORT OVERLAY ZONE (SZ. C & D).
6. THIS AREA IS NOT SUBJECT TO LIQUEFACTION OR OTHER GEOLOGIC HAZARDS WITHIN A SPECIAL STUDIES ZONE.
7. THIS PROJECT SITE IS NOT LOCATED WITHIN A FLOOD PLAIN.
8. THERE ARE NO EXISTING BUILDING ON THIS SITE.
9. ADEQUATE SEPTIC SEWAGE IS NOT INTENDED FOR THIS SITE.
10. EXISTING AND PROPOSED EASEMENTS ARE SHOWN ON THIS SITE.
11. ALL EXISTING UTILITIES ON THIS PLAN ARE APPROXIMATE IN LOCATION AND SIZE.
12. AUTO PARKING STALLS ARE 9'x18' STANDARD PARKING STALLS ARE 10'x55'.
13. REFER TO ARCHITECTURAL ELEVATIONS FOR FENCE DETAILS.

LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPE AREA
- FIRE ACCESS
- PROPOSED SCREEN WALL
- PROPOSED CHAIN LINK FENCE
- EXISTING CHAIN LINK FENCE
- ABANDONED/REMOVE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED WATER LINE
- PROPOSED FIRE LINE
- PROPOSED STORM DRAIN
- PROPOSED SEWER
- RIVERSIDE/MORENA
- FL FLOW LINE
- GB GRADE BREAK
- (ASPH) ASPHALT
- V.G. VALLEY GUTTER
- LA LANDSCAPE AREA
- LP LOW POINT
- MAX MAXIMUM
- PL PROPERTY LINE
- R/W RETURN WALL
- R/W RIGHT OF WAY
- TYP TYPICAL
- EXPRESS 4 (EXPRESS)
- PROP. EXTERIOR LIGHT

EASEMENT NOTES:

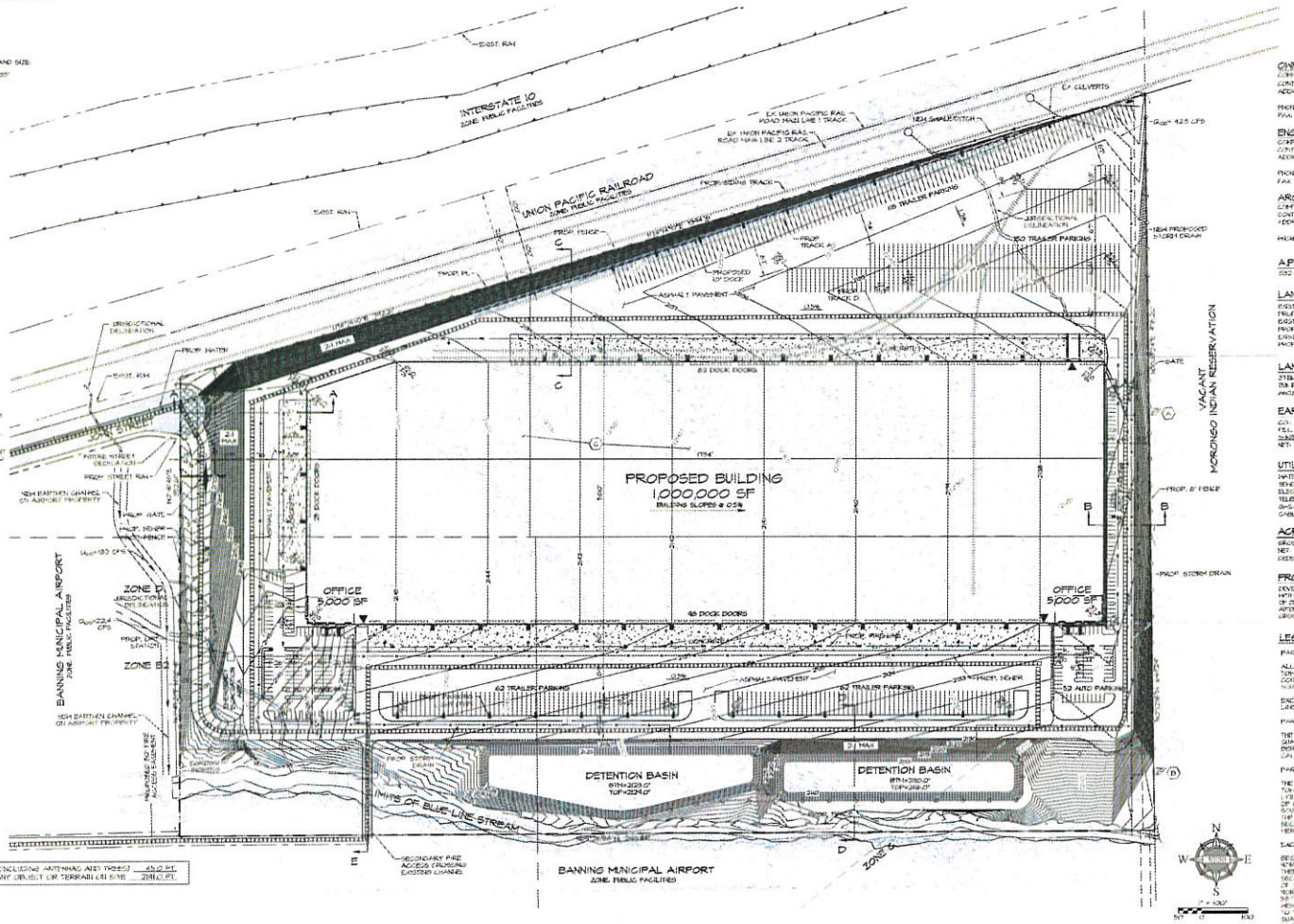
(A) DEDICATED AN EASEMENT IN FAVOR OF SOUTHERN PACIFIC (SPR) LESEE, FOR PIPELINE, LINES AND INCIDENTAL PURPOSES, RECORDED ON 3-10-15 AS INSTRUMENT NO. 129444 OF OFFICIAL RECORDS.

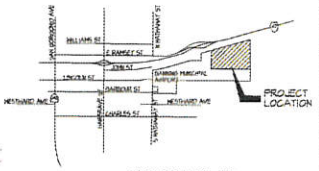
(B) DEDICATED AN EASEMENT IN FAVOR OF VERIZON COMMUNICATIONS, INC PER D.S.NO. 2167, INCIDENTAL PURPOSES, RECORDED 8-17-16 AS INSTRUMENT NO. 2016-0345445 AND 2016-0345446 AND RE-RECORDED 9-1-16 AS INSTRUMENT NO. 2016-0349448, BOTH OF OFFICIAL RECORDS.

(C) DEDICATED AN EASEMENT IN FAVOR OF SOUTHERN PACIFIC COMPANY, FOR CONSTRUCTION, MAINTENANCE AND OPERATION OF PIPE LINES OR APPURTENANCES THEREOF, RECORDED OCTOBER 28, 1910 IN BOOK 388, PAGE 484 OF OFFICIAL RECORDS.

SITE TABULATION:	BUILDING
PROPOSED PARCEL GROSS AREA	2,100,000 SF (48.240 AC)
PROPOSED DEDICATION	6,506 SF (0.15 AC)
PROPOSED PARCEL NET AREA	2,093,494 SF (48.075 AC)
BUILDING AREA	1,000,000 SF
OFFICE	(5,000) SF
WAREHOUSE	995,000 SF
TOTAL BUILDING AREA	1,000,000 SF
LOT COVERAGE	48%
LANDSCAPE REQUIRED (15% OF ALL PARKING AREA (241,281 SF))	37,069 SF
LANDSCAPE PROVIDED	690,858 SF
LANDSCAPE COVERAGE	33%
OFFICE PARKING (BASED ON 1/250 SF)	20 STALLS
WAREHOUSE PARKING (BASED ON 5,000 SF & 1/1,000 SF)	32 STALLS
WAREHOUSE PARKING (BASED ON 995,000 SF & 1/1,500 SF)	485 STALLS
TOTAL REQUIRED PARKING	540 STALLS
TRAILER PARKING (1 PER 4,000 SF/DOOR) (329 DOOR PROVIDED)	82 STALLS
PARKING PROVIDED:	
STANDARD (9'x18')	26 STALLS
TRUCK PARKING (10'x55')	342 STALLS
HANDICAPPED PARKING (9'x18')	6 STALLS
TOTAL AUTO PARKING PROVIDED	374 STALLS
TOTAL TRAILER PARKING PROVIDED	547 STALLS

HEIGHT DATA: HEIGHT ABOVE GROUND OR TALLEST OBJECT (INCLUDING ANTENNAS AND TREES) 45.0 FT.
HIGHEST ELEVATION (ABOVE SEA LEVEL) OF ANY OBJECT OR TERRAIN ON SITE 2810.0 FT.





VICINITY MAP

OWNER/APPLICANT:

COMPANY:	HARVEST INDUSTRIAL, LP
CONTACT:	WILLIAM B. PATTON
ADDRESS:	17542 MITCHELL N, SUITE 100 IRVINE, CA 92614
PHONE:	(949) 474-3000
FAX:	(949) 474-7664

ENGINEER:

COMPANY:	ALBERT A. WEBB ASSOCIATES
CONTACT:	ROBERT RUBOTT
ADDRESS:	3788 MCCRAY ST. RIVERSIDE, CA 92506
PHONE:	(951) 686-1070
FAX:	(951) 788-1256

ARCHITECT:

COMPANY:	HPA, INC
CONTACT:	ROCHELLE PARE
ADDRESS:	18818 TEHACHAPI AVENUE, SUITE 200 IRVINE, CA 92612
PHONE:	(949) 862-2141

A.P.N.:
532-250-008, 532-250-009, & 532-250-002

LAND USE / ZONING:

EXISTING USE:	VACANT
PROPOSED USE:	DISTRIBUTION CENTER
EXISTING ZONING:	AIRPORT INDUSTRIAL
PROPOSED ZONING:	AIRPORT INDUSTRIAL
EXISTING GEN. PLAN LAND USE:	AIRPORT INDUSTRIAL
PROPOSED GEN. PLAN LAND USE:	AIRPORT INDUSTRIAL

LANDSCAPE AREA:
21% PROPOSED
15% REQUIRED
AROUND 10' PROPOSED COVERAGE

EARTHWORK ESTIMATE:

CUT:	480,000 CY
FILL:	440,000 CY
SHRINKAGE:	41,000 CY
NET:	0 CY BALANCED

UTILITY COMPANIES:

WATER:	CITY OF BANNING
SEWER:	CITY OF BANNING
ELECTRIC:	CITY OF BANNING
TELEPHONE:	VERIZON
GAS:	SOUTHERN CALIFORNIA GAS COMPANY
CABLE:	TIME WARNER CABLE

ACREAGE

GROSS:	48.92 AC
NET:	48.75 AC
DEDICATED:	0.15 AC

PROJECT DESCRIPTION:

DEVELOPMENT OF A RAIL SERVICED WAREHOUSE/DISTRIBUTION BUILDING WITH APPROXIMATELY 1,000,000 SQUARE FEET OF WAREHOUSE SPACE, 10,000 SQUARE FEET OF OFFICE SPACE, 329 TRUCK AND TRAILER PARKING SPACES, 673 AUTOMOBILE PARKING SPACES AND 329 LOADING DOORS ON A 48.92 GROSS ACRE SITE.

LEGAL DESCRIPTION:

PARCEL 1 (APN: 532-150-006):

ALL OF THAT PORTION OF THE NORTHEASTERLY QUARTER OF SECTION 9, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, LYING SOUTH OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY.

EXCEPT THE WESTERLY 1320.00 FEET, AS MEASURED ON THE SOUTHERLY LINE OF SAID NORTHEASTERLY QUARTER.

PARCEL 2 (APN: 532-150-002):

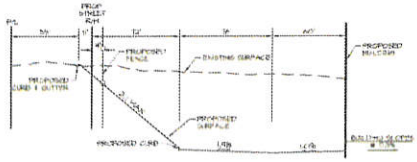
THE EAST HALF OF THE NORTH HALF OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

PARCEL 3 (APN: 532-150-009):

THE WESTERLY 1320.00 FEET OF THE NORTHEAST QUARTER OF SECTION 9, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO BASE AND MERIDIAN, LYING SOUTHERLY OF THE SOUTHERN PACIFIC RAILROAD COMPANY'S RIGHT OF WAY, SAID WESTERLY 1320.00 FEET BEING MEASURED ALONG THE SOUTHERLY LINE OF SAID NORTHEAST QUARTER. ALSO, THE WEST HALF OF THE NORTH HALF OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO BASE AND MERIDIAN.

EXCEPTING THEREFROM THAT PORTION THEREOF DESCRIBED AS FOLLOWS:

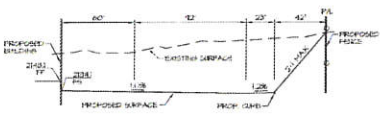
BEGINNING AT THE SOUTHWEST CORNER OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 9; THENCE NORTHERLY ALONG THE WEST LINE OF THE EAST HALF OF SAID SECTION 9, A DISTANCE OF 944.91 FEET, MORE OR LESS, TO THE SOUTH LINE OF THE RIGHT OF WAY OF THE SOUTHERN PACIFIC RAILROAD; THENCE NORTHEASTERLY ALONG SAID SOUTH RIGHT OF WAY LINE, A DISTANCE OF 187.41 FEET; THENCE SOUTHERLY AND PARALLEL WITH THE AFOREMENTIONED WEST LINE OF THE EAST HALF OF SECTION 9, A DISTANCE OF 1014.4 FEET TO THE SOUTH LINE OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 9; THENCE WESTERLY ALONG THE SOUTH LINE OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 9, A DISTANCE OF 169.31 FEET TO THE POINT OF BEGINNING.



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SECTION C-C
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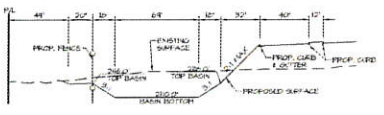

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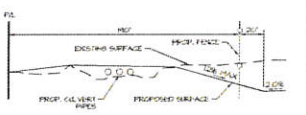

SECTION E-E
NOT TO SCALE

			SCALE: 1" = 100'	ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS 3788 MCCRAY STREET RIVERSIDE, CA 92506 PH (951) 686-1070 FAX (951) 788-1256	CITY OF BANNING DESIGN REVIEW & CONCEPTUAL GRADING
			DATE: 07/2016		
			DESIGNED: ---		
			CHECKED: CHECKER		BANNING DISTRICT CENTER
			PLS/PE REF:		
REVISIONS	DATE	BY	PLOT DATE: 21-Nov-16		

JOB NO. 5-0235
SHEET 1
OF 2 SHEETS
DWG NO.

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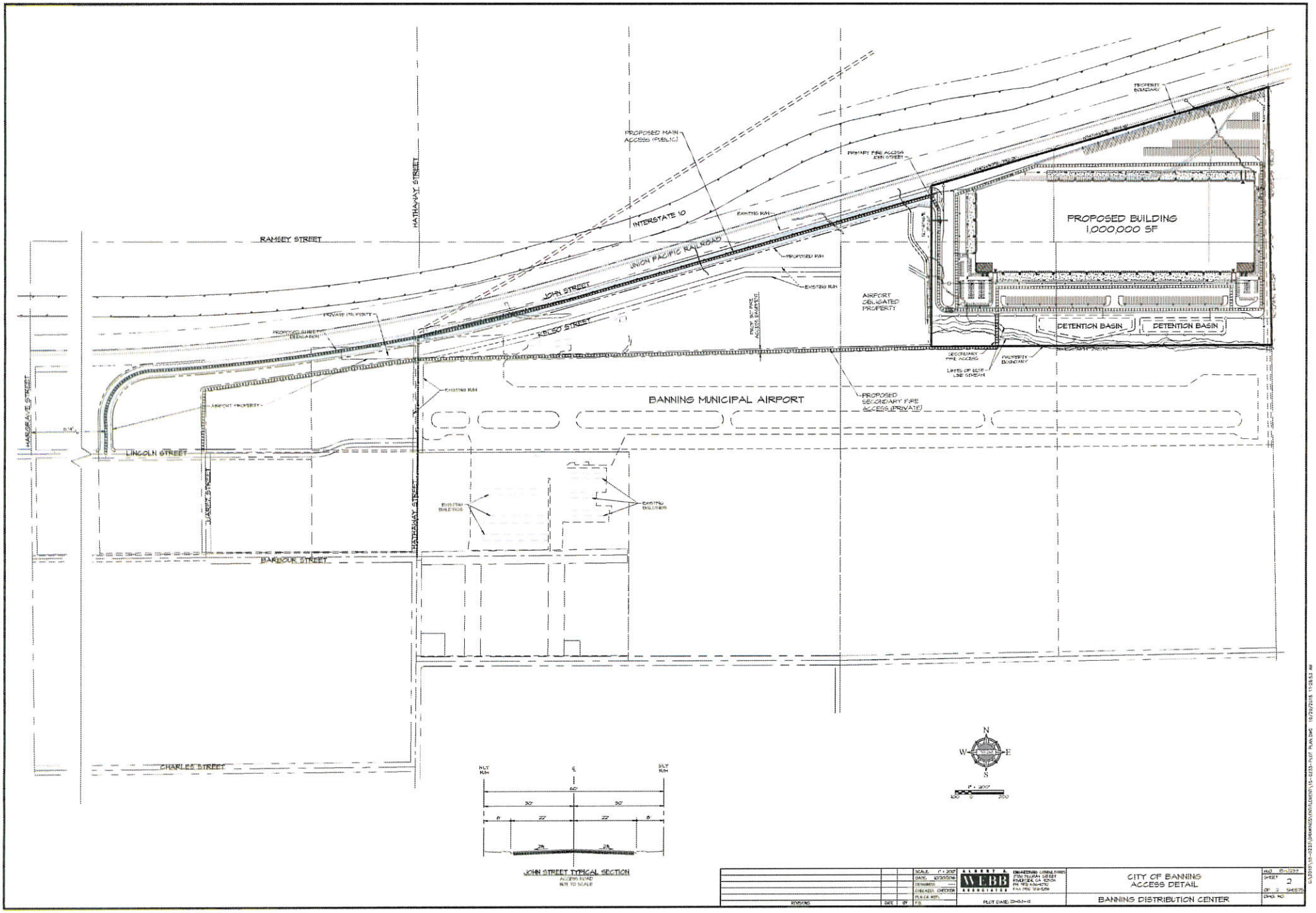


PROPOSED MAIN ACCESS (PUBLIC)
PRIMARY FIRE ACCESS JOHN STREET
PROPERTY BOUNDARY
INTERSTATE 10
EXISTING R/W
PROPOSED BUILDING
1,000,000 SF
RAMSEY STREET
HATHAWAY STREET
UNION PACIFIC RAILROAD
PROPOSED R/W
EXISTING R/W
JOHN STREET
AIRPORT OBLIGATED PROPERTY
PRIVATE PROPERTY
PROPOSED STREET DEDICATION
KELSO STREET
DETENTION BASIN
DETENTION BASIN
SECONDARY FIRE ACCESS
PROPERTY BOUNDARY
LIMITS OF ELSE LINE STREAM
EXISTING R/W
BANNING MUNICIPAL AIRPORT
PROPOSED SECONDARY FIRE ACCESS (PRIVATE)
AIRPORT PROPERTY
HARGRAVE STREET
LINCOLN STREET
JUAREZ STREET
HATHAWAY STREET
EXISTING BUILDINGS
EXISTING BUILDINGS
BARBOUR STREET
CHARLES STREET
N
W
E
S
1" = 200'
100 0 200
N.L.T. R/W
S.L.T. R/W
60'
30'
30'
8'
22'
22'
8'
2%
2%
JOHN STREET TYPICAL SECTION
ACCESS ROAD
NOT TO SCALE
SCALE 1" = 200'
DATE 12/30/2016
DESIGNED ---
CHECKED CHECKER
PLN CK REF.
P.S.
REVISIONS
DATE
BY
ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
2700 MURRAY STREET
RIVERSIDE, CA 92504
PH 951-686-1070
FAX 951-686-1250
PLOT DATE: 2016-11-15
CITY OF BANNING
ACCESS DETAIL
BANNING DISTRIBUTION CENTER
HLO 15-0233
SHEET 2
OF 2 SHEETS
DWG. NO.

Figure 1 – Directional Distribution for Project Traffic (Trucks)

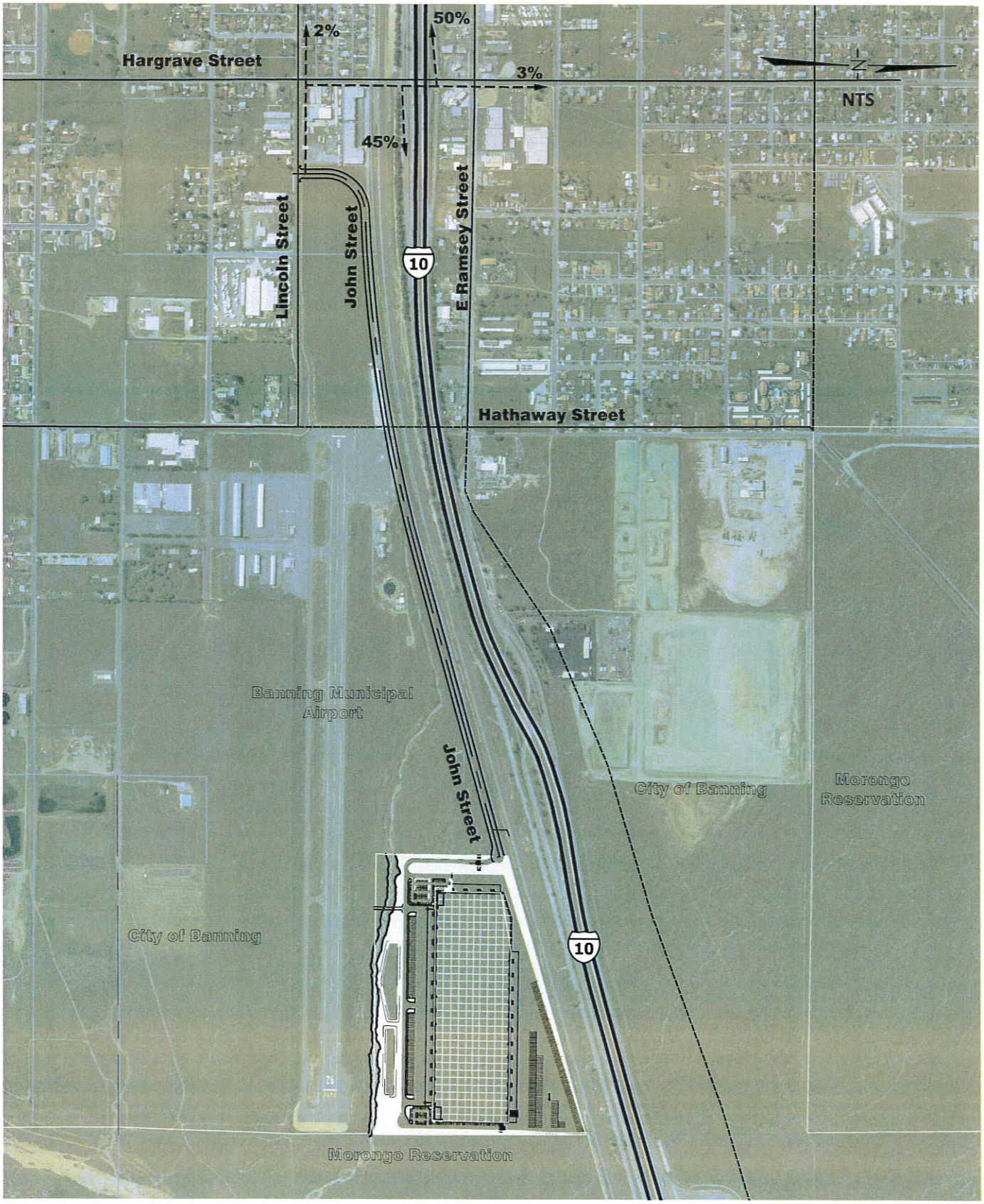
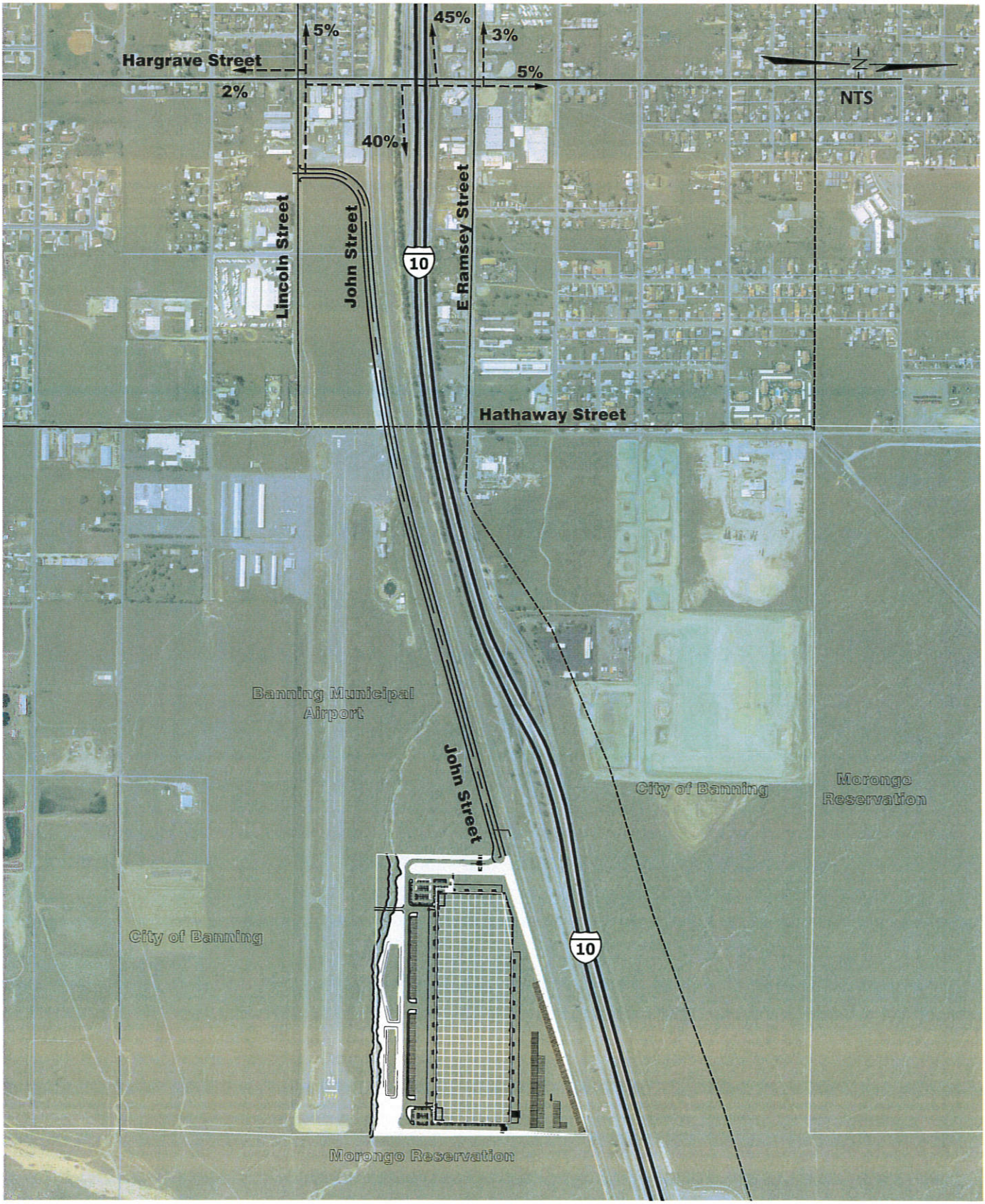


Figure 2 – Directional Distribution for Project Traffic (Passenger Cars)



Grace Cheng

From: Roberts, Mark B@DOT <mark.roberts@dot.ca.gov>
Sent: Tuesday, February 07, 2017 3:10 PM
To: Grace Cheng
Subject: RE: Banning Industrial Scoping Agreement

Hello

Use the SCAG Model for a growth rate, rather than 2%.
Provide a merge/diverge analysis for the ramps.
Provide a break down year, if any.
Provide a 2040 future year analysis.

****

Caltrans
District 8 (San Bernardino and Riverside Counties)
Mark Roberts
Office of Intergovernmental Review, Community and Regional Planning
Senior Transportation Planner, AICP
464 West 4th Street, 6th Floor, MS 725
San Bernardino, CA 92401-1400
(909) 383-4557

From: Grace Cheng [mailto:grace.cheng@webbassociates.com]
Sent: Tuesday, February 07, 2017 2:14 PM
To: Roberts, Mark B@DOT <mark.roberts@dot.ca.gov>
Subject: RE: Banning Industrial Scoping Agreement

Hi Mark,
Do you have any comments or issues with the scope of work as defined in the scoping agreement approved by the City of Banning? Thanks.

Grace Cheng, MS | MCP | PE | TE - Associate Engineer
Albert A. Webb Associates
3788 McCray Street, Riverside, CA 92506
t: 951.320.6038
e: grace.cheng@webbassociates.com w: www.webbassociates.com
LinkedIn | Twitter | Facebook | YouTube

From: Grace Cheng
Sent: Monday, January 30, 2017 1:37 PM
To: Roberts, Mark B
Subject: Banning Industrial Scoping Agreement

Hi Mark,
Attached you will find the scoping agreement with the City of Banning for an industrial project just south of the I-10 freeway. The only freeway ramps it will be accessing is the Hargrave ramps to the I-10. Please let me know if you have any comments or issues with the proposed scope of the traffic study as it is written.
Thanks!

Grace Cheng, MS | MCP | PE | TE - Associate Engineer
Albert A. Webb Associates
3788 McCray Street, Riverside, CA 92506
t: 951.320.6038
e: grace.cheng@webbassociates.com w: www.webbassociates.com
LinkedIn | Twitter | Facebook | YouTube



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Protection Notice

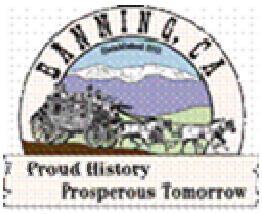
Click here to report this email as spam.

Grace Cheng

From: avela@ci.banning.ca.us
Sent: Friday, March 17, 2017 10:24 AM
To: Grace Cheng
Subject: RE: Banning Industrial - Data Request Information

Thanks Grace. I'm ok with the 1%.

Art Vela, P.E.
Public Works Director/City Engineer
99 E. Ramsey Street
Banning, CA 92220
Office: (951) 922-3130
Fax: (951) 922-3141
Email: avela@ci.banning.ca.us
Website: www.ci.banning.ca.us



The City of Banning promotes and supports a high quality of life that ensures a safe and friendly environment, fosters new opportunities and provides responsive, fair treatment to all and is the pride of its citizens.

From: Grace Cheng [mailto:grace.cheng@webbassociates.com]
Sent: Thursday, March 16, 2017 3:19 PM
To: Arturo Vela <avela@ci.banning.ca.us>
Subject: RE: Banning Industrial - Data Request Information

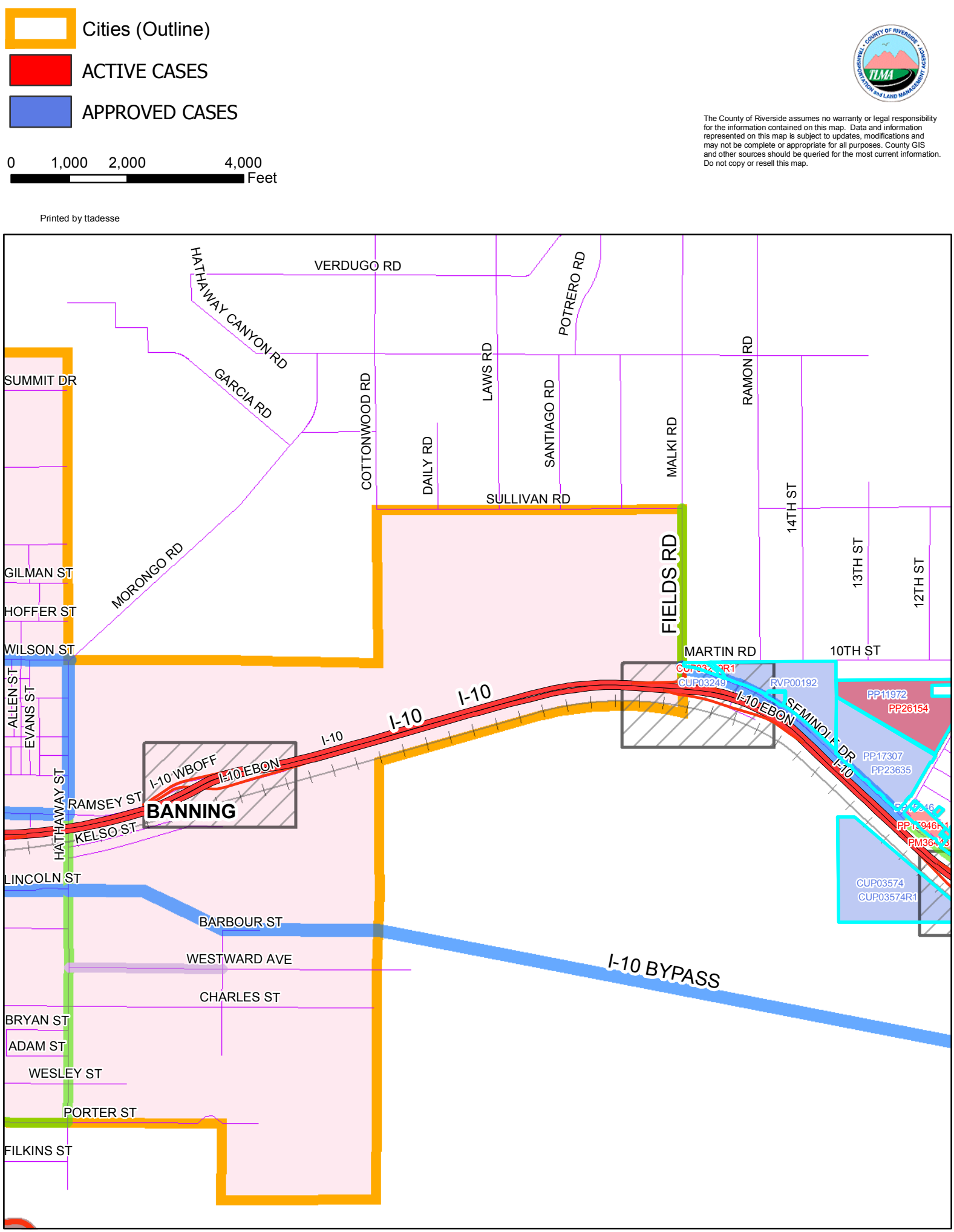
Hi Art,
For the past couple of weeks I've been in conversation with Caltrans and they have come up with the conclusion that based on the SCAG model, a 1% ambient growth is appropriate for consideration any future scenarios, which includes 2040. So instead of requesting the model from SCAG, they have just given us an ambient growth to use. Let me know if you have any thoughts or if you're ok with us moving forward with a 1% ambient growth for both near term and long term.
Thanks.

Grace Cheng, MS | MCP | PE | TE - Associate Engineer
Albert A. Webb Associates
3788 McCray Street, Riverside, CA 92506
t: 951.320.6038
e: grace.cheng@webbassociates.com w: www.webbassociates.com
LinkedIn | Twitter | Facebook | YouTube

From: avela@ci..banning.ca.us [mailto:avela@ci.banning.ca.us]
Sent: Tuesday, February 28, 2017 1:23 PM
To: Grace Cheng
Subject: RE: Banning Industrial - Data Request Information

APPENDIX B

Cumulative Project Information

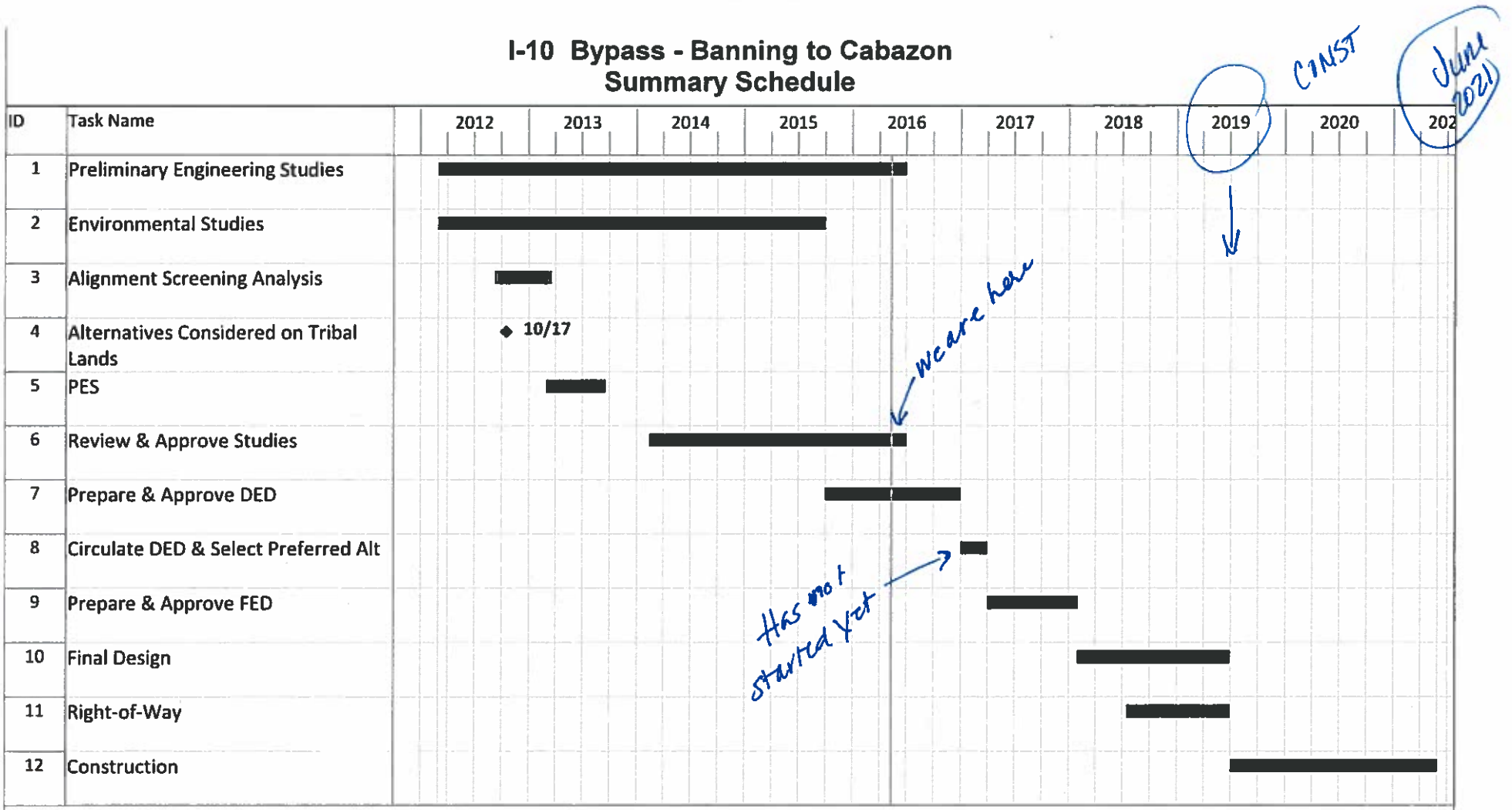

Cities (Outline)
ACTIVE CASES
APPROVED CASES
0 1,000 2,000 4,000
Feet
Printed by ttadesse
The County of Riverside assumes no warranty or legal responsibility for the information contained on this map. Data and information represented on this map is subject to updates, modifications and may not be complete or appropriate for all purposes. County GIS and other sources should be queried for the most current information. Do not copy or resell this map.
VERDUGO RD
HATHAWAY CANYON RD
GARCIA RD
POTRERO RD
COTTONWOOD RD
LAWS RD
DAILY RD
SANTIAGO RD
MALKI RD
RAMON RD
SUMMIT DR
SULLIVAN RD
FIELDS RD
14TH ST
13TH ST
12TH ST
MORONGO RD
GILMAN ST
HOFFER ST
WILSON ST
MARTIN RD
10TH ST
ALLEN ST
EVANS ST
I-10
I-10 WBOFF
I-10 EBON
I-10 EBON
SEMINOLE DR
I-10
CUP03249
RVP00192
PP11972
PP26154
PP17307
PP23635
HATHAWAY ST
RAMSEY ST
BANNING
KELSO ST
LINCOLN ST
BARBOUR ST
WESTWARD AVE
I-10 BYPASS
CHARLES ST
BRYAN ST
ADAM ST
WESLEY ST
PORTER ST
FILKINS ST
CUP03574
CUP03574R1

Active Cases as of 1/23/2017

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
CUP03249R1	DRT	20150806	0	0
INSTALL 10,000 GAL DIESEL TANK AT EXIST FOOD MART			No trip generation	
PM36443	DRT	20120607	0	20000000
CONFIGURE 21 PARCELS INTO 3 COMMERCIAL PARCELS			No trip generation	
PP15946R1	DRT	20120607	0	20000000
EXPAND CABAZON II W/NEW 79,150 SF RETAIL BUILDING			Constructed	
PP26154	APPLIED	20161206	0	0
NEW DISGUISED WIRELESS TELECOMM FACILITY 30' TALL			No trip generation	

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
CUP03249	APPROVED	11/03/1997	19980106	01/06/2018
GAS STA W MINI-MART W/SALE OF BEER & WINE OFFSITE			No trip generation - gas station existing	
CUP03574	APPROVED	11/29/2007	20080715	07/15/2010
The proposed project is an asphalt batch plant wit			Constructed	
CUP03574R1	APPROVED	11/10/2010	20110712	07/12/2013
The applicant proposes to modify the previously ap			Constructed	
PP11972	APPROVED	04/30/1990	19940503	05/03/1998
PLOT PLAN SUBMITTAL FOR PHASE II			See RVP00192	
PP15946	APPROVED	04/27/1999	19990818	NA
PLOT PLAN FOR 65000 SQFT RETAIL SALES CENTER			See PP15946R1	
PP17307	APPROVED	08/31/2001	20020404	04/04/2004
WIRELESS COM. FACILITY WITH 55' MONOPALM & EQPT.			No trip generation	
PP23635	APPROVED	08/01/2008	20120320	03/30/2014
PROPOSES TO ADD 158,492 SQ. FT. OF RETAIL SPACE AN			Constructed	
RVP00192	APPROVED	05/22/1996	19960701	07/01/1998
RVP TO PP 11972 -ADD 11,600 SQ FT STRUCTURE TO PHA			Constructed	

I-10 Bypass - Banning to Cabazon
Summary Schedule



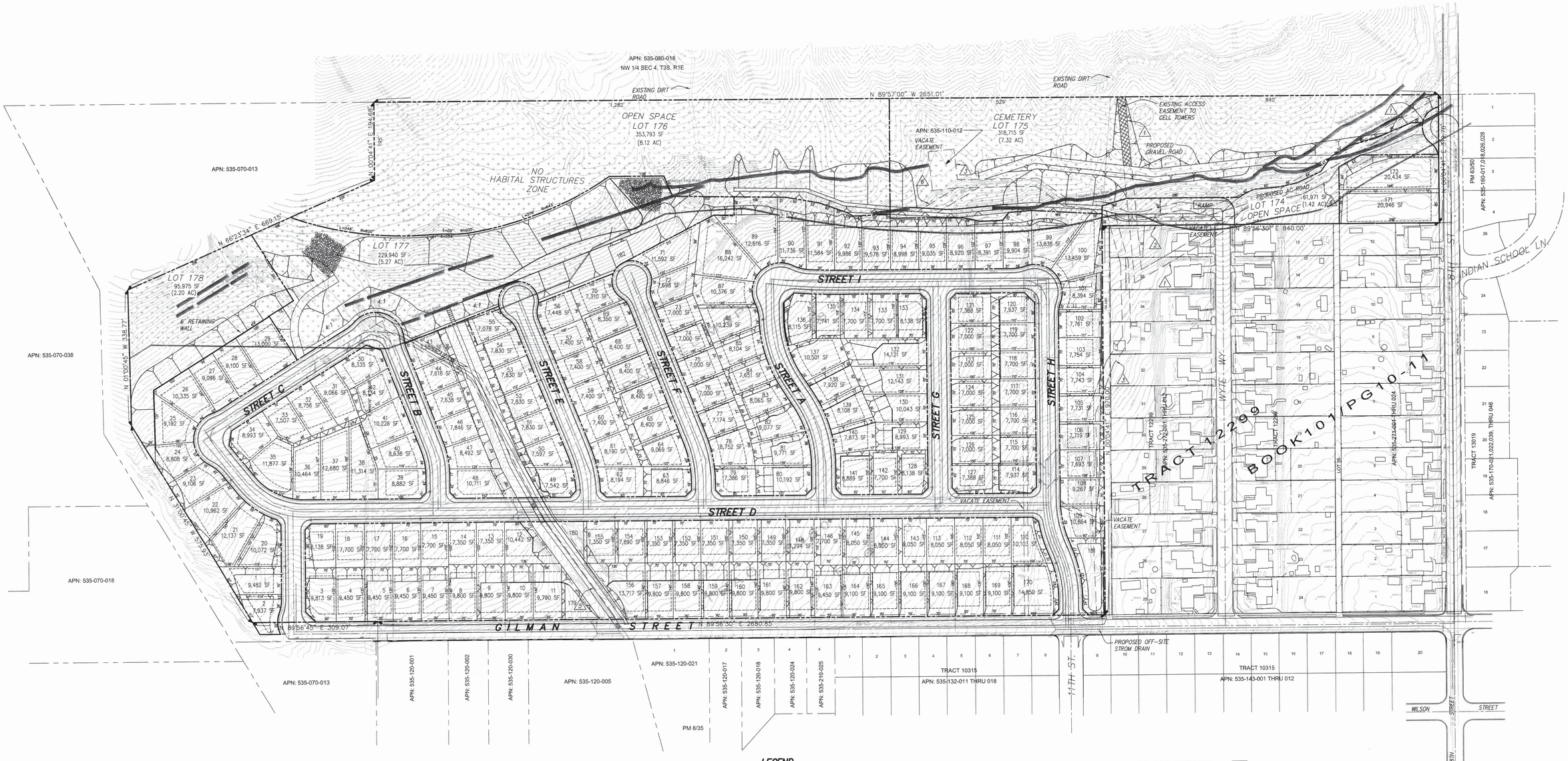
Date: Thu 5/12/16

Kimley»Horn

Task ▬▬▬ Milestone ◆ Manual Task ▬▬▬

TENTATIVE TRACT MAP NO. 33540

IN THE CITY OF BANNING, CALIFORNIA



GENERAL NOTES

1.– EXISTING USES OF THE PROPERTY: MOSTLY VACANT; PORTION FOR CEMETERY: PORTION RESIDENTIAL.
2.– EXISTING ZONING: R–A AND R–I
EXISTING GENERAL PLAN DESIGNATION: RESIDENTIAL
3.– PROPOSED USES OF THE PROPERTY: RESIDENTIAL; CEMETERY; OPEN SPACE; FLOOD CONTROL
4.– TOTAL AREA: 65 AC+/–
TOTAL LOTS: 182 LOTS
RESIDENTIAL: 172 LOTS
OPEN SPACE: 3 LOTS
CEMETERY: 1 LOT
FLOOD CONTROL: 1 LOT

LOTS 173, 175 & 177, 179 THRU 182 TO BE DEDICATED TO THE CITY OF BANNING FOR PARK, DRAINAGE AND OPEN SPACE PURPOSES.

LOT 174 TO BE DEDICATED FOR CEMETARY PURPOSES.

LOT 176 TO BE DEDICATED TO RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT FOR DRAINAGE PURPOSES.

EASEMENT NOTES

1.– EXISTING 20' WIDE EASEMENT FOR INGRESS & EGRESS AND INCIDENTAL PURPOSES, REC.6/25/47, BK 843, PG 148, O.R., IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY.
2.– EXISTING 20' WIDE EASEMENT FOR POLE LINES, CONDUITS OR UNDERGROUND FACILITIES AND INCIDENTAL PURPOSES, REC. 4/ 8/ 80 AS INST. NO. 80–67166, O.R., IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY.
3.– EASEMENT FOR INGRESS & EGRESS, CEMETERY PURPOSES AND INCIDENTAL PURPOSES, REC. 4/13/77 AS INST NO. 62895, O.R., IN FAVOR OF AMERICAN BOYS RANCH, INC. (TO BE QUITCLAIMED)
4.– EXISTING 10' WIDE EASEMENT FOR POLE LINES, CONDUITS OR UNDERGROUND FACILITIES AND INCIDENTAL PURPOSES, REC. 5/12/58 AS BOOK 2269, PG 468 OF O.R., IN FAVOR OF CALIFORNIA WATER AND TELEPHONE COMPANY.(TO BE QUITCLAIMED)
5.– EXISTING 25' WIDE EASEMENT FOR THE GILMAN HOME CHANNEL AS SHOWN ON PARCEL MAP NO. 78–4 ON FILE IN BOOK 51, PG. 18 OF PARCEL MAPS, RECORDS RIVERSIDE COUNTY, CALIFORNIA.
6.– NOT USED
7.– EXISTING EASEMENT FOR POLE LINE, CONDUITS AND INCIDENTAL PURPOSES, REC. 5/1/1914 AS BK 391, PG. 249 OF DEEDS IN FAVOR OF SOUTHERN SIERRAS POWER COMPANY. (EXACT LOCATION OF EASEMENT IS NOT YET DETERMINED)

UTILITIES

WATER: CITY OF BANNING
SEWER: CITY OF BANNING
FIRE: CITY OF BANNING
NATURAL GAS: SOUTHERN CALIFORNIA GAS COMPANY
ELECTRIC: SOUTHERN CALIFORNIA EDISON
CABLE TV: TIMEWARNER

ASSESSOR'S PARCEL NUMBERS

535–070–014; 535–110–002, 006, 011, 012
535–311–006 THROUGH 023, 029
535–312–001 THROUGH 024

LEGAL DESCRIPTION

LOTS 1 THROUGH 42 INCLUSIVE, OF TRACT 13360, AS SHOWN BY MAP ON FILE IN BOOK 107 PAGE 91, OF MAPS; PARCELS 1, 2 & 3, AS SHOWN BY PARCEL MAP 78–4, ON FILE IN BOOK 51 PAGE 18 OF PARCEL MAPS, AND A PORTION OF THE NE ¼ OF THE SE ¼ OF SECTION 5, TOWNSHIP 3 SOUTH, RANGE 1 EAST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF, ALL IN THE RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

LEGEND

- CUT & FILL SLOPE (2:1 MAX)
- 3350 / x 3365.2 — EXISTING CONTOUR / EXIST. SPOT ELEV.
- PROPOSED WALL
- EXISTING EASEMENT
- 2 — LOT NUMBER
- LOT LINE
- SUBDIVISION BOUNDARY
- HABITAL STRUCTURES
- GABION WALL OR RETAINING WALL
- BUILDING PAD TYP.
- PROPOSED 7' W X 6' D RCB OR PROPOSED AC ROAD
- RIP-RAP ON 5:1 SLOPE
- FIRE HYDRANT
- CATCHBASINS



VICINITY MAP
NOT TO SCALE

OWNER

GILMAN/BANNING, LLC.
280 SOUTH BEVERLY DRIVE
PENTHOUSE SUITE
BEVERLY HILLS, CA 90212
310–888–3222

DEVELOPER/SUBDIVIDER

HDS GROUP, LLC.
280 SOUTH BEVERLY DRIVE
PENTHOUSE SUITE
BEVERLY HILLS, CA 90212
310–888–3222

PREPARED BY

HALL & FOREMAN, INC.
9130 ANAHEIM PLACE , SUITE 120
RANCHO CUCAMONGA, CA 91730
(909) 919–7800
MATTHEW ADDINGTON PE, 43770
PLS, 7649
EXPIRATION 6–30–07

REV.	DESCRIPTION	DATE	APP'D
	CHANGED ENTRY TO 11th STREET	07/20/06	
	ADDED CROSS SECTIONS & SHEETS 4 & 5 AS REQUIRED BY CITY COUNCIL	08/07/06	

LICENSED LAND SURVEYOR MATTHEW ADDINGTON No. 7649 Exp. 12/31/06 STATE OF CALIFORNIA

Hall & Foreman, Inc.
Civil Engineering • Planning • Surveying • Public Works
9130 Anaheim Pl. Ste. 120 • Rancho Cucamonga, CA 91730 • 909–919–7800

PREPARED UNDER THE SUPERVISION OF:
MATTHEW ADDINGTON, P.L.S. 7649 DATE

Designed by: | Drawn by: | Checked by:

TENTATIVE TRACT MAP No. 33540

JOB NO: 06187

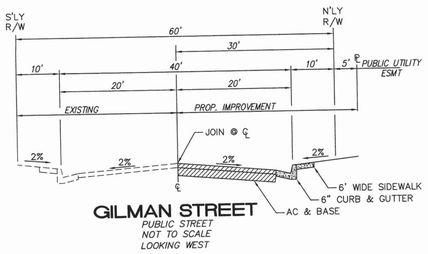
CITY OF BANNING, CA

DATE: 08/07/06
SHEET 1 OF 5

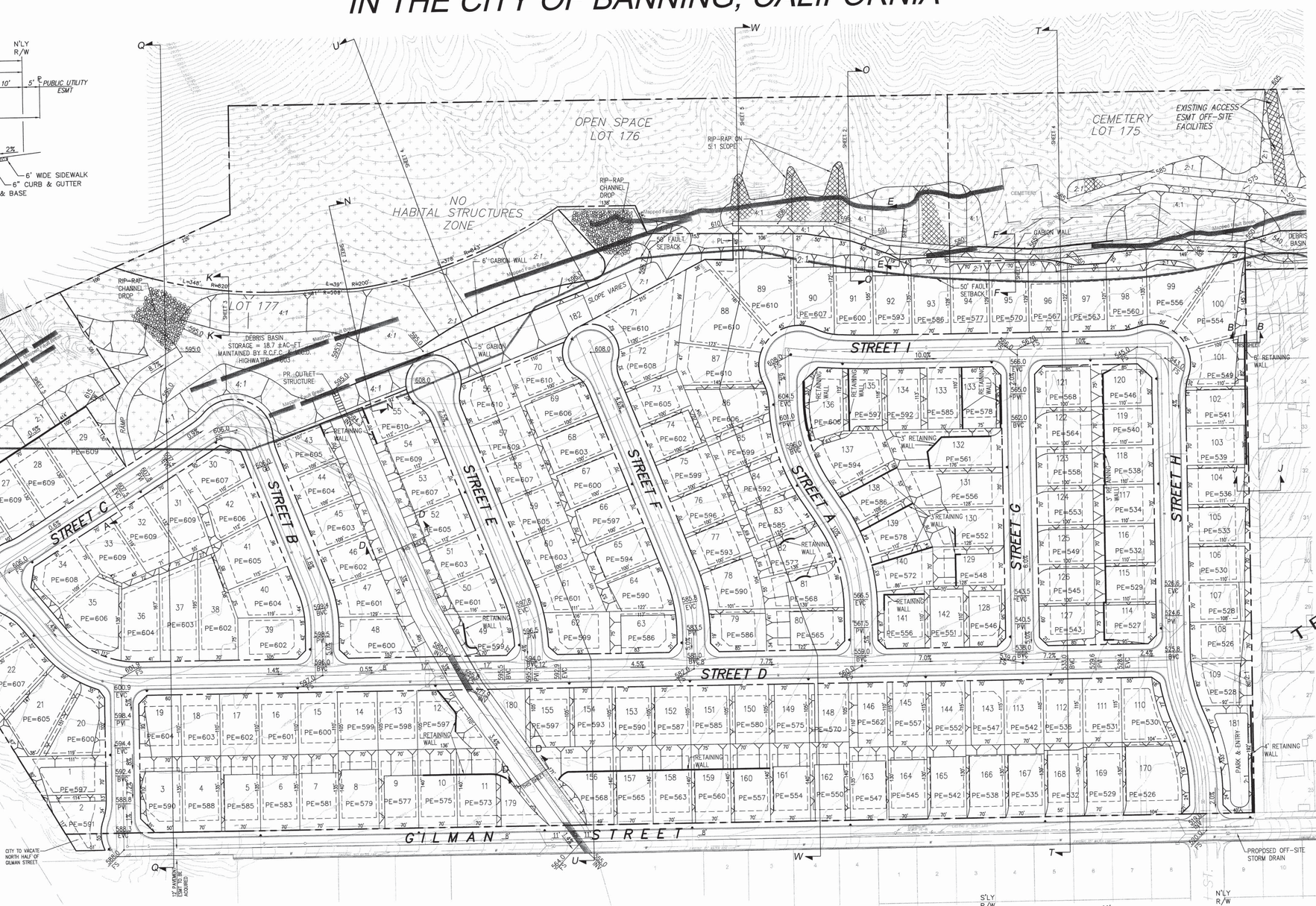
AUG 0 8 2006

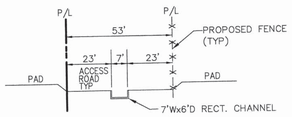
TENTATIVE TRACT MAP NO. 33540

IN THE CITY OF BANNING, CALIFORNIA



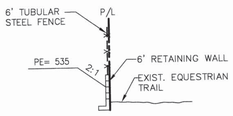
GILMAN STREET
PUBLIC STREET
NOT TO SCALE
LOOKING WEST





EAST GILMAN HOME CHANNEL
(R.C.F.C. & W.C.D. FACILITY)

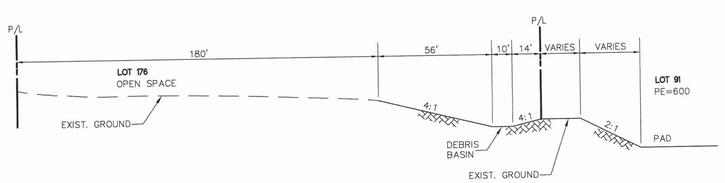
SECTION D
SCALE : 1" = 30'
THIS SHEET



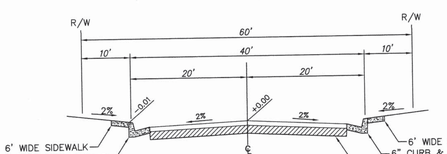
SECTION B
NOT TO SCALE
THIS SHEET

LEGEND

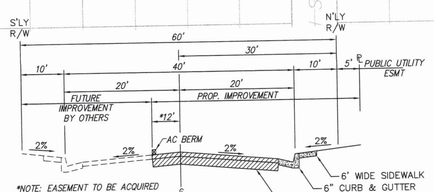
- CUT & FILL SLOPE (2:1 MAX)
- 3350 — EXISTING CONTOUR
- x 3365.2 — EXIST. SPOT ELEV.
- PROPOSED WALL
- EXISTING EASEMENT
- 2 — LOT NUMBER
- LOT LINE
- SUBDIVISION BOUNDARY
- HABITAL STRUCTURES
- GABION WALL OR RETAINING WALL
- BUILDING PAD TYP.
- PROPOSED 7' W X 6' D RCB OR PROPOSED AC ROAD
- RIP-RAP ON 5:1 SLOPE
- FIRE HYDRANT
- CATCHBASINS



SECTION O
SCALE : 1" = 30'
THIS SHEET

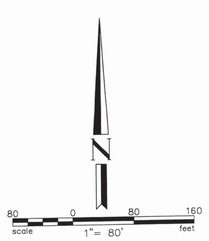


LOCAL STREET
PUBLIC STREETS
NOT TO SCALE



*NOTE: EASEMENT TO BE ACQUIRED IF NECESSARY AT LOTS 2 THRU 4

GILMAN STREET
PUBLIC STREET
NOT TO SCALE
LOOKING WEST



REV.	DESCRIPTION	DATE	APP'D
	CHANGED ENTRY TO 11th STREET	07/20/06	
	ADDED CROSS SECTIONS & SHEETS 4 & 5 AS REQUIRED BY CITY COUNCIL	08/07/06	

REGISTERED PROFESSIONAL ENGINEER — MATTHEW ADDINGTON — No. 43770 — Exp. 06/30/07 — CIVIL — STATE OF CALIFORNIA

Hall & Foreman, Inc.
Civil Engineering • Planning • Surveying • Public Works
9130 Anaheim Pl. Ste. 120 • Rancho Cucamonga, CA 91730 • 909-919-7800

PREPARED UNDER THE SUPERVISION OF:
MATTHEW ADDINGTON, P.E. R.C.E. 43770 — DATE

Designed by: | Drawn by: | Checked by:

TENTATIVE TRACT MAP No. 33540
PRELIMINARY GRADING PLAN
JOB NO: 06187

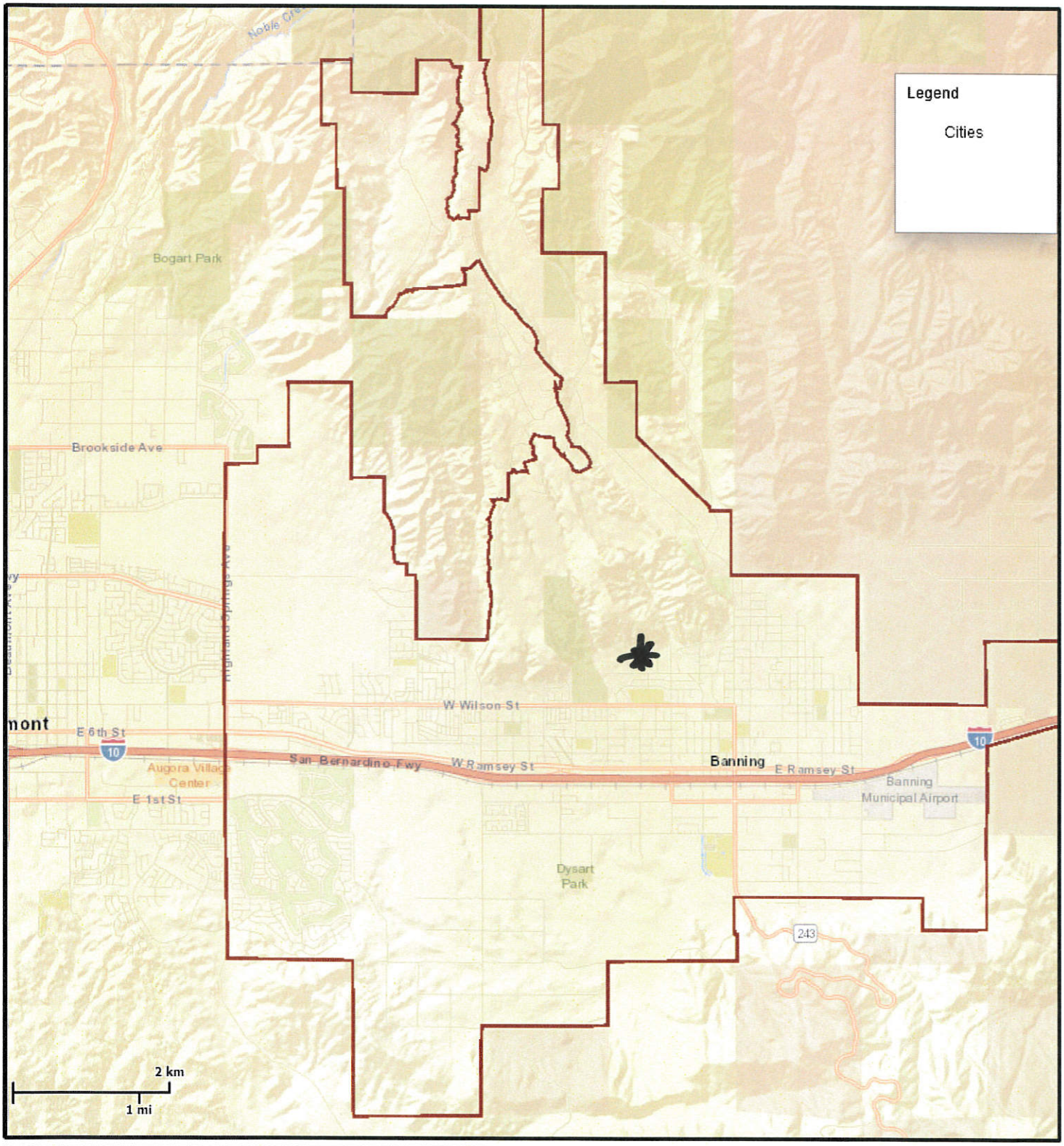
CITY OF BANNING, CA

DATE: 08/07/06
SHEET 2 OF 5

AUG 0 8 2006

Drawing Name: J:\06187\Eng\06187-000-Concept.dwg LAYOUT: LAYOUT2 06187-000-Concept.dwg

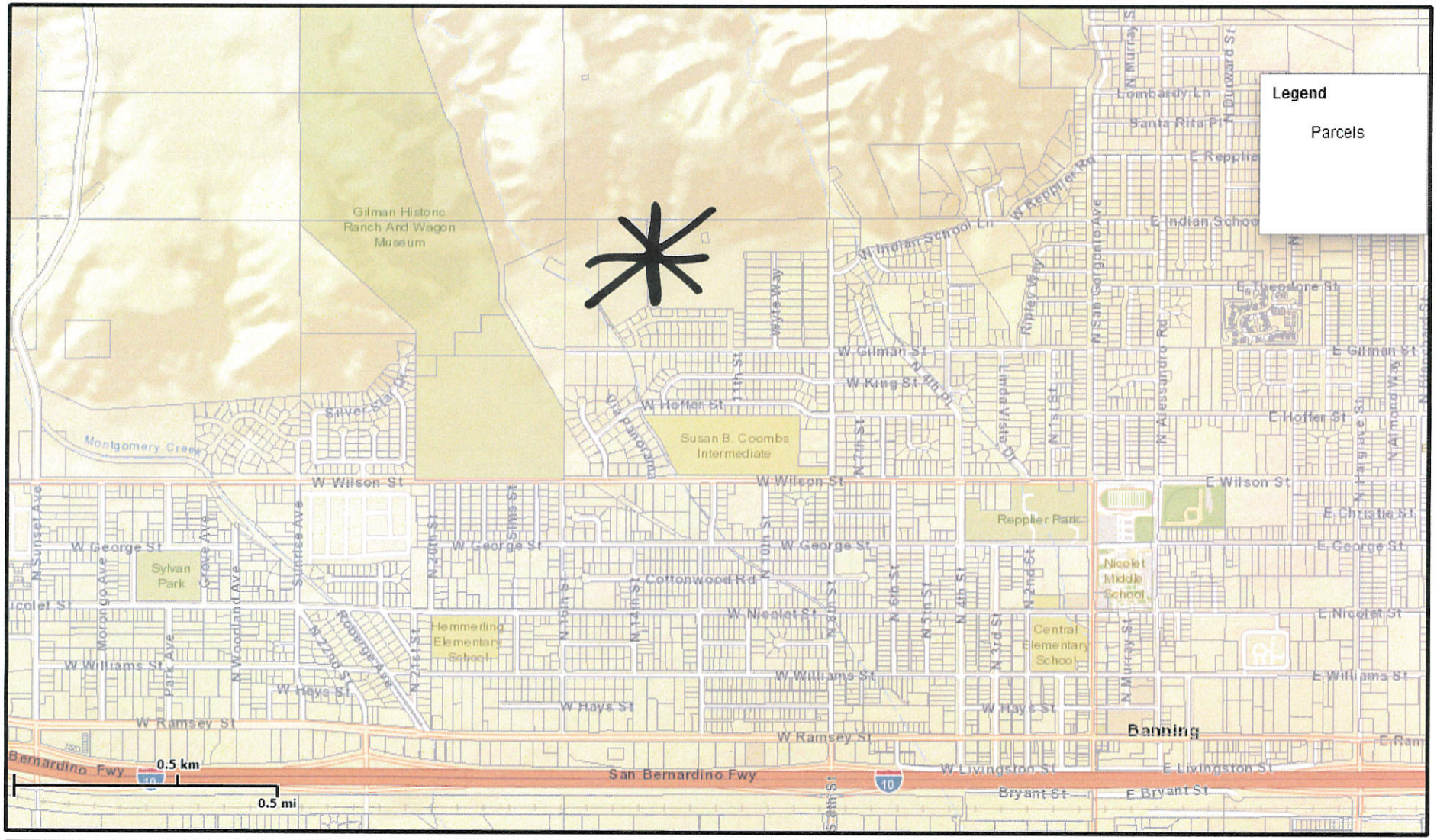
TTM 33540



1" = 6,019 ft	Sub Title	02/21/2017	N W E S	BANNING, CA Proud History Prosperous Tomorrow

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact Banning staff for the most up-to-date information.

TTM 33540



1" = 1,505 ft	Norht of Gilman, West of Wyte Wy	02/21/2017	N W E S	BANNING, CA Proud History Prosperous Tomorrow

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact Banning staff for the most up-to-date information.

KUNZMAN ASSOCIATES, INC.

RANCHO SAN GORGONIO SPECIFIC PLAN

TRAFFIC IMPACT ANALYSIS (REVISED)

April 20, 2016

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

Figure 1
Project Location Map

Legend

— · — = Project Site Boundary

- - - - - = Future Road

1 = Intersection Reference Number

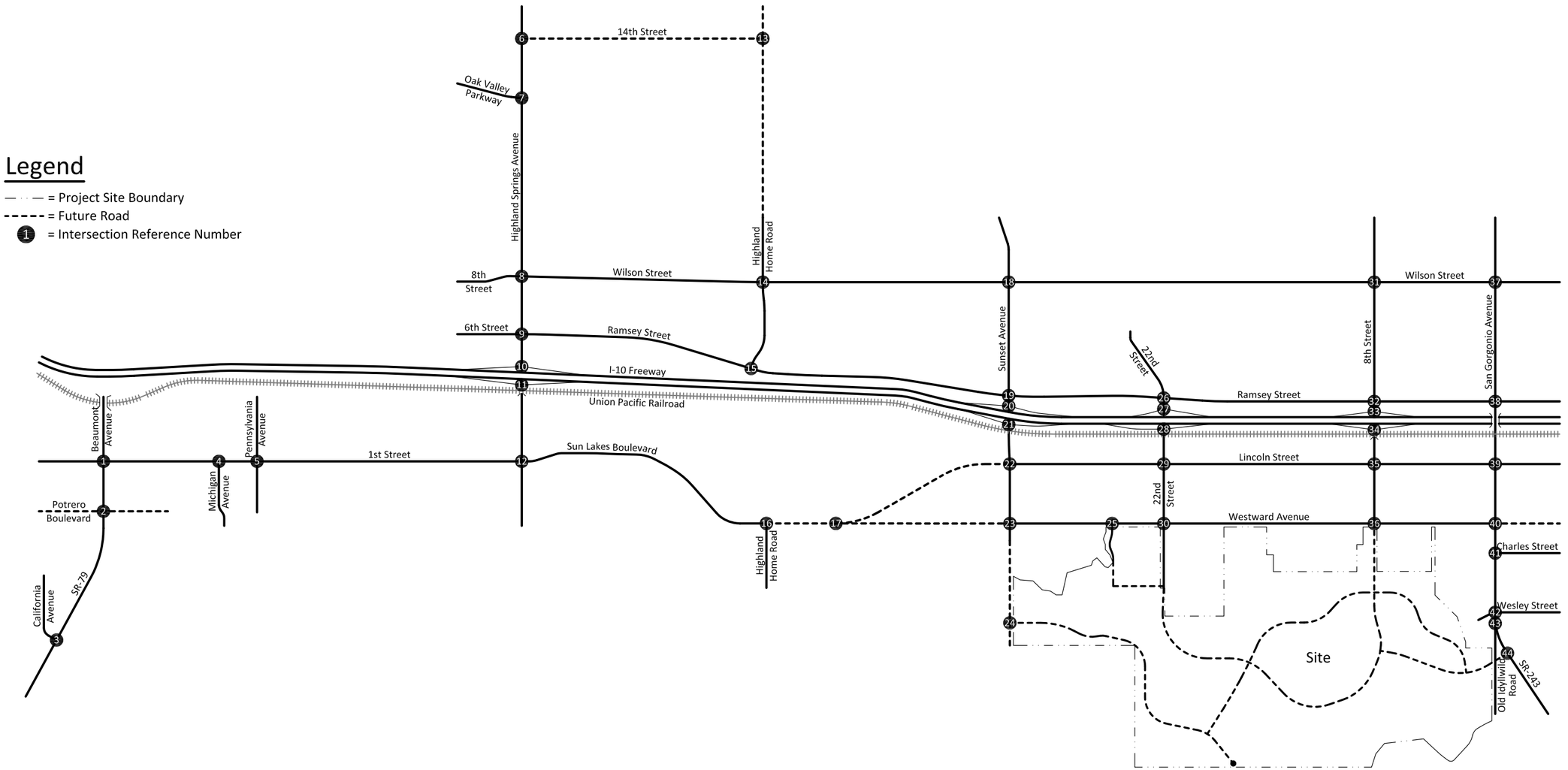


Figure 2
Site Plan

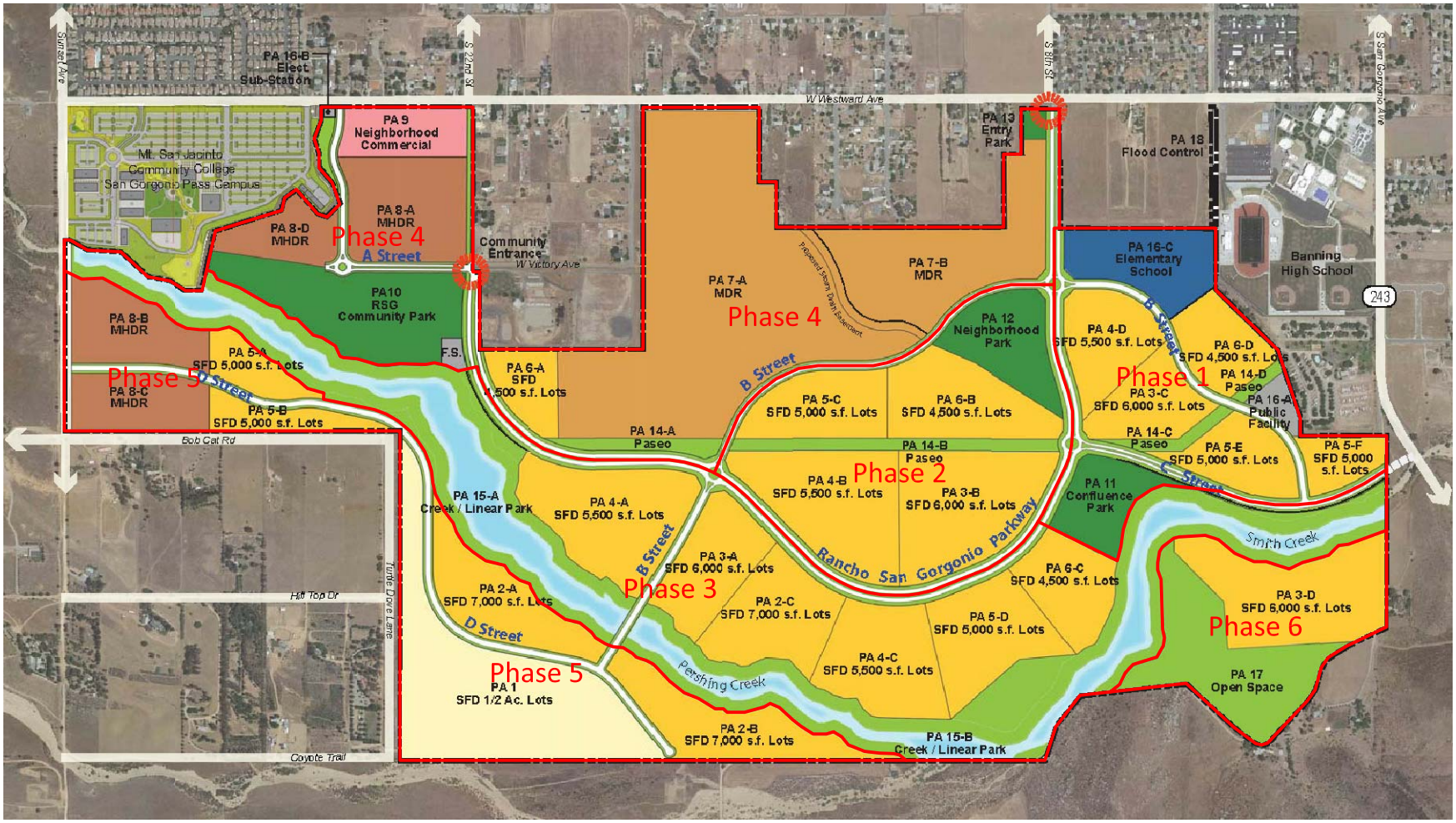


Table 1

Existing Intersection Delay and Level of Service

Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
		Northbound			Southbound			Eastbound			Westbound				
		L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Beaumont Avenue/SR-79 (NS) at:															
1st Street (EW) - #1	TS	1	1.5	0.5	1	1.5	0.5	1	1	d	1	1	1	16.0-B	19.0-B
California Avenue (EW) - #3	CSS	1	2	0	0	1.5	0.5	1	0	1	0	0	0	99.9-F[4]	99.9-F
Michigan Avenue (NS) at:															
1st Street (EW) - #4	AWS	0.5	0	0.5	0	0	0	0	1	d	1	1	0	13.4-B	12.0-B
Pennsylvania Avenue (NS) at:															
1st Street (EW) - #5	AWS	1	1	d	1	0.5	0.5	1	1	d	1	1	1	12.4-B	13.1-B
Highland Springs Avenue (NS) at:															
Oak Valley Parkway (EW) - #7	TS	1	1	0	0	0.5	0.5	1	0	1>	0	0	0	14.0-B	10.7-B
8th Street/Wilson Street (EW) - #8	TS	1	1	1>	1	1.5	0.5	1	1.5	0.5	1	2	1	21.5-C	26.1-C
6th Street/Ramsey Street (EW) - #9	TS	1	2	1	1	2	1	1	2	1	1	2	d	22.7-C	25.0-C
I-10 Freeway WB Ramps (EW) - #10	TS	1	2	0	0	2	1	0	0	0	0.5	0.5	1	13.9-B	18.9-B
I-10 Freeway EB Ramps (EW) - #11	TS	0	2	1	1	2	0	0.5	0.5	1	0	0	0	16.6-B	20.8-C
1st Street/Sun Lakes Boulevard (EW) - #12	TS	1	1.5	0.5	1	2	1>>	1	1.5	0.5	1	1	1>>	20.4-C	20.1-C
Highland Home Road (NS) at:															
Wilson Street (EW) - #14	CSS	1	1	1	0	1	0	1	2	d	1	2	d	16.1-C	15.6-C
Ramsey Street (EW) - #15	CSS	0	1	0	0.5	0.5	1	1	1.5	0.5	1	2	d	13.8-B	21.6-C
Sun Lakes Boulevard (EW) - #16	AWS	1	0	0	0	0	0	0	1	1	0	0	0	6.9-A	7.0-A
Sunset Avenue (NS) at:															
Wilson Street (EW) - #18	AWS	1	1	1	1	1.5	0.5	1	0.5	0.5	1	0.5	0.5	12.2-B	12.7-B
Ramsey Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	15.3-B	16.4-B
I-10 Freeway WB Ramps (EW) - #20	CSS	1	2	0	0	1.5	0.5	0	0	0	1	0	d	11.7-B	14.3-B
I-10 Freeway EB Ramps (EW) - #21	CSS	0	1	d	d	1	0	1	0	d	0	0	0	15.8-B	22.7-C
Lincoln Street (EW) - #22	CSS	0	0.5	0.5	0.5	0.5	0	0	0	0	0.5	0	0.5	8.9-A	9.0-A
Westward Avenue (EW) - #23	AWS	0	1	d	0.5	0.5	0	0	0	0	1	0	d	7.4-A	7.6-A
22nd Street (NS) at:															
Ramsey Street (EW) - #26	TS	1	1	1	0	1	0	1	2	d	1	2	d	17.6-B	18.7-B
I-10 Freeway WB Ramps (EW) - #27	CSS	1	2	0	0	1.5	0.5	0	0	0	1	0	d	12.3-B	12.6-B
I-10 Freeway EB Ramps (EW) - #28	CSS	0	1.5	0.5	1	2	0	1	0	d	0	0	0	14.4-B	13.5-B
Lincoln Street (EW) - #29	AWS	0.5	1	0.5	0.5	1	0.5	0	1	0	0	1	0	8.0-A	7.8-A
Westward Avenue (EW) - #30	AWS	0	1	0	0.5	0.5	1	0	1	0	0	1	0	7.7-A	7.4-A
8th Street (NS) at:															
Wilson Street (EW) - #31	AWS	0	1	0	0	1	0	1	1	1	1	1	d	9.5-A	9.4-A
Ramsey Street (EW) - #32	TS	1	1	d	1	0.5	0.5	1	1	1	1	1.5	0.5	22.3-C	24.5-C
I-10 Freeway WB Ramps (EW) - #33	CSS	0.5	0.5	0	0	1	d	0	0	0	1	0	d	30.1-D	25.6-D
I-10 Freeway EB Ramps (EW) - #34	CSS	0	1	d	0.5	0.5	0	1	0	d	0	0	0	72.7-F	36.5-E
Lincoln Street (EW) - #35	AWS	0	1	0	0.5	0.5	d	0	1	0	0.5	0.5	d	12.9-B	10.9-B
Westward Avenue (EW) - #36	AWS	0	0	0	0.5	0	0.5	0.5	0.5	0	0	1	d	10.4-B	7.5-A
San Gorgonio Avenue (NS) at:															
Wilson Street (EW) - #37	AWS	1	0.5	0.5	0	1	0	0	1	0	0	1	0	9.8-A	8.7-A
Ramsey Street (EW) - #38	TS	0	1	0	0.5	0.5	d	1	0.5	0.5	1	1	1	16.1-B	16.7-B
Lincoln Street (EW) - #39	AWS	1	1	d	1	0.5	0.5	0.5	0.5	d	1	1	1	11.6-B	8.9-A
Westward Avenue (EW) - #40	CSS	1	1	0	0	0.5	0.5	1	0	d	0	0	0	19.3-C	10.4-B
Charles Street (EW) - #41	CSS	0	0.5	0.5	0.5	1.5	0	0	0	0	0.5	0	0.5	8.9-A	8.7-A
Wesley Street (EW) - #42	CSS	0	1	0	0.5	0.5	d	0	1	0	0	1	0	9.3-A	9.6-A
San Gorgonio Avenue/SR-243 (NS) at:															
Old Idyllwild Road (EW) - #43	CSS	0.5	0.5	0	0	0.5	0.5	0.5	0	0.5	0	0	0	8.9-A	9.0-A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

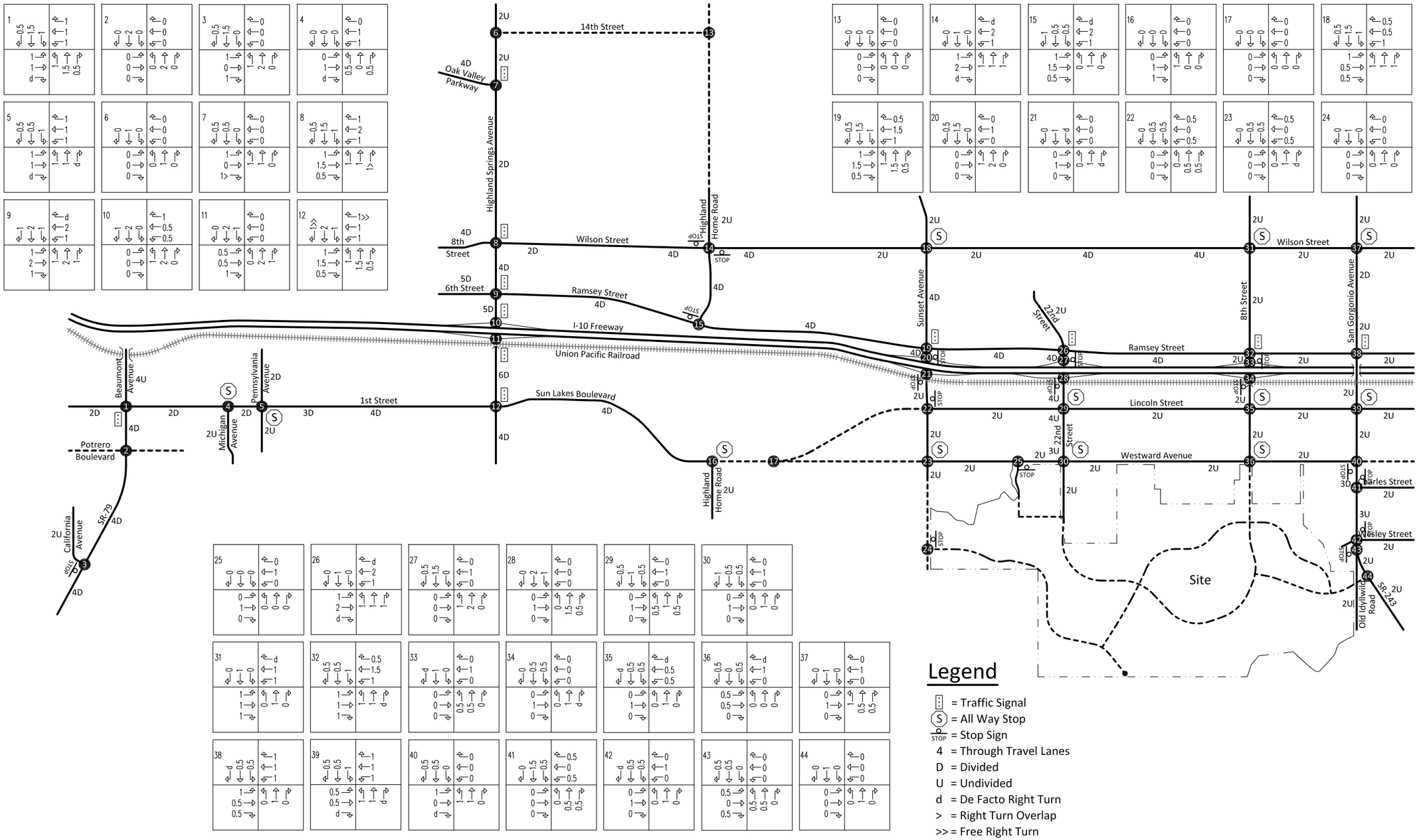
L = Left; T = Through; R = Right; d = De Facto Turn Lane; > = Right Turn Overlap; >> = Free Right Turn

[2] Delay and level of service calculated using the following analysis software: Traffix, Version 7.9.0215 (2008). Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F

Figure 3
Existing Through Travel Lanes and Intersection Controls



Intersection reference numbers are in upper left corner of turning movement boxes.

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Figure 4
Existing Average Daily Traffic Volumes

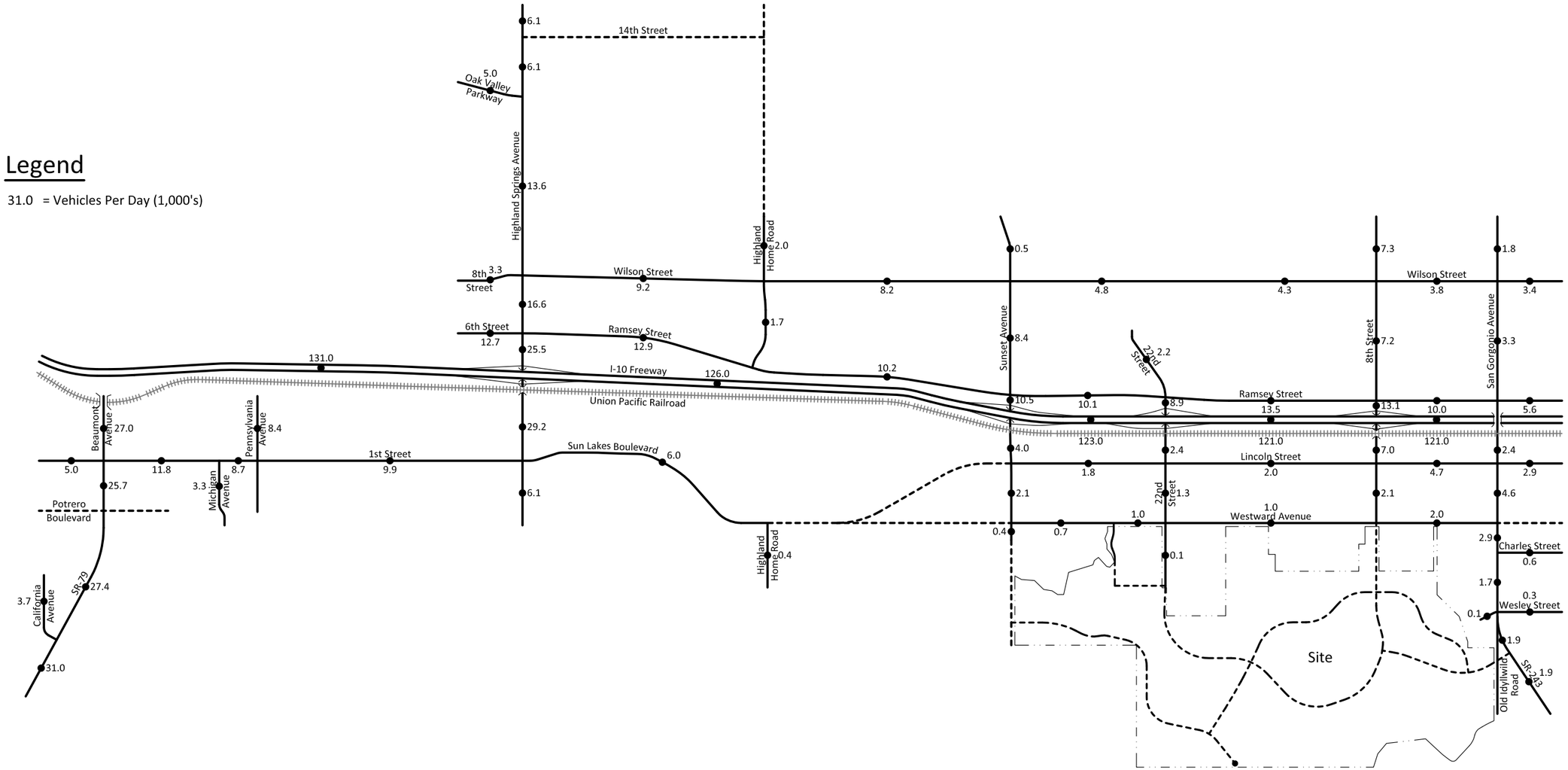
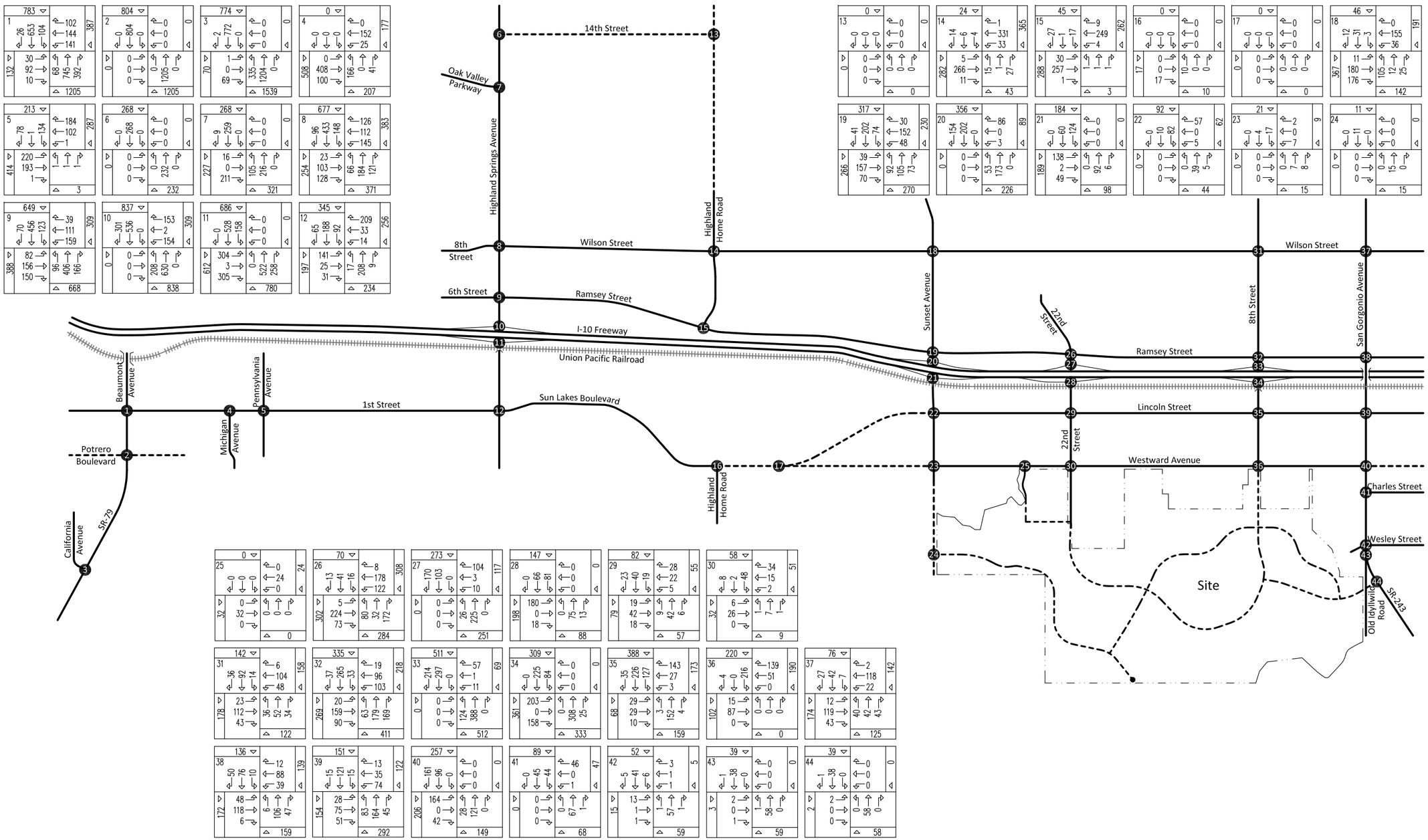


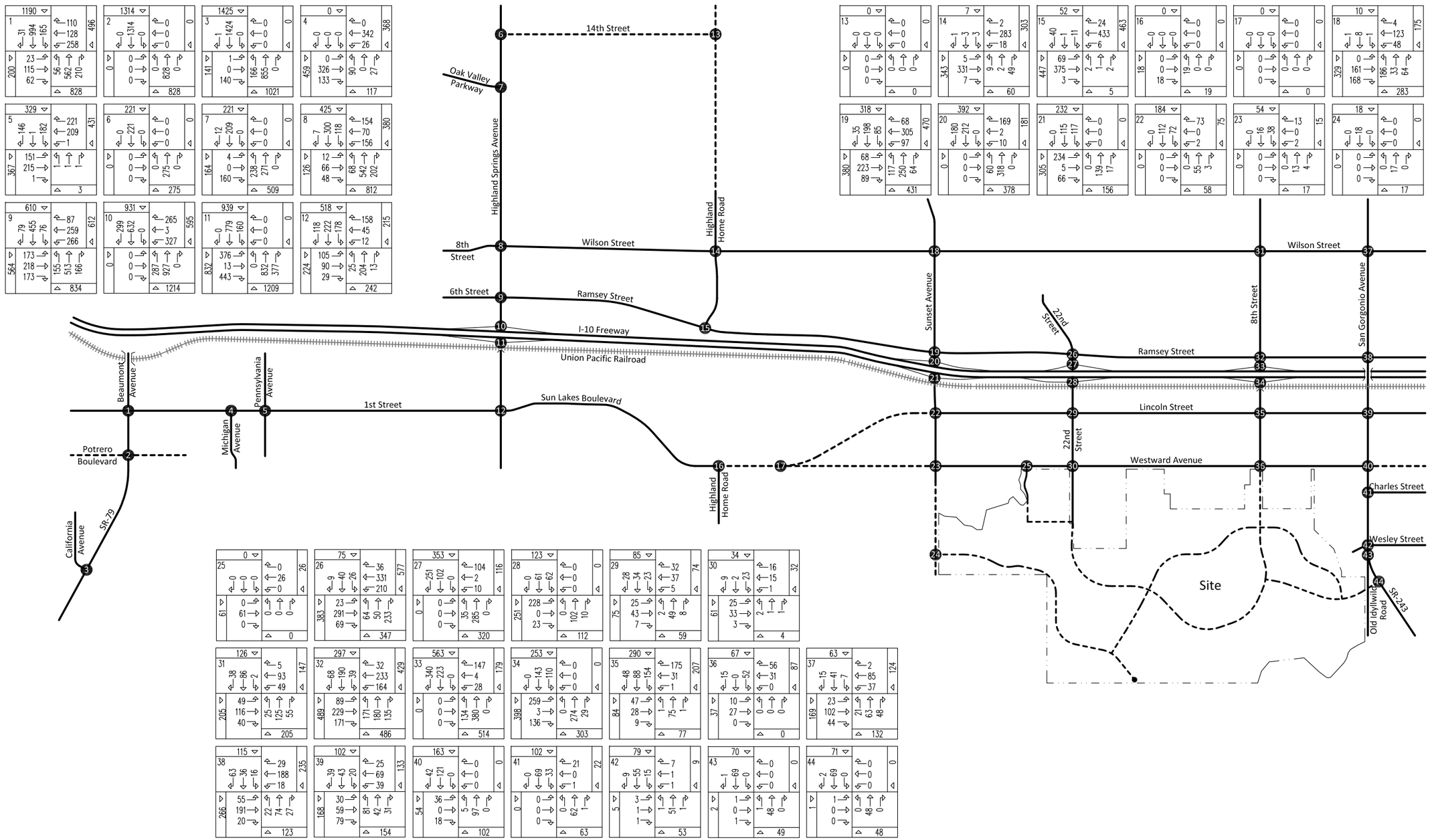
Figure 5
Existing Morning Peak Hour Intersection Turning Movement Volumes



Intersection reference numbers are in upper left corner of turning movement boxes.

JN 5217f

Figure 6
Existing Evening Peak Hour Intersection Turning Movement Volumes



Intersection reference numbers are in upper left corner of turning movement boxes.

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Table 2

Project Trip Generation Rates[1]

Land Use	Units[2]	Peak Hour						Daily
		Morning			Evening			
		Inbound	Outbound	Total	Inbound	Outbound	Total	
Single-Family Detached Residential	DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52
Senior Adult Detached Residential	DU	0.08	0.14	0.22	0.16	0.11	0.27	3.68
Apartment	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.65
Shopping Center	TSF	0.84	0.52	1.36	2.56	2.78	5.34	60.03
Community Park	AC	NOM[3]	NOM	NOM	2.25	2.25	4.50	50.00
Neighborhood Park/Open Space[4]	AC	NOM	NOM	NOM	NOM	NOM	NOM	NOM
Public Facility[5]	AC	NOM	NOM	NOM	NOM	NOM	NOM	NOM
Elementary School	ST	0.25	0.20	0.45	0.07	0.08	0.15	1.29

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for community park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] NOM = Nominal

[4] Trips generated would be nominal on weekdays and anticipated to remain internal to the Specific Plan.

[5] Consists of a proposed electrical switching station, or similar use, which would not generate trips on a regular daily basis.

Table 3

Project Opening Year (2017) Trip Generation[1]
- Phase 1

Trips Generated											
					Peak Hour						
					Morning			Evening			
Planning Area	Land Use	Quantity	Units[2]		Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Single-Family Detached Residential	94	DU	0%	0	0	0	0	0	0	0
2-A	Single-Family Detached Residential	53	DU	0%	0	0	0	0	0	0	0
2-B	Single-Family Detached Residential	60	DU	0%	0	0	0	0	0	0	0
2-C	Single-Family Detached Residential	56	DU	0%	0	0	0	0	0	0	0
3-A	Single-Family Detached Residential	53	DU	0%	0	0	0	0	0	0	0
3-B	Single-Family Detached Residential	90	DU	0%	0	0	0	0	0	0	0
3-C	Single-Family Detached Residential	40	DU	100%	8	22	30	25	15	40	381
3-D	Single-Family Detached Residential	91	DU	0%	0	0	0	0	0	0	0
4-A	Single-Family Detached Residential	102	DU	0%	0	0	0	0	0	0	0
4-B	Single-Family Detached Residential	102	DU	0%	0	0	0	0	0	0	0
4-C	Single-Family Detached Residential	78	DU	0%	0	0	0	0	0	0	0
4-D	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-A	Single-Family Detached Residential	31	DU	0%	0	0	0	0	0	0	0
5-B	Single-Family Detached Residential	34	DU	0%	0	0	0	0	0	0	0
5-C	Single-Family Detached Residential	66	DU	0%	0	0	0	0	0	0	0
5-D	Single-Family Detached Residential	85	DU	0%	0	0	0	0	0	0	0
5-E	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-F	Single-Family Detached Residential	31	DU	100%	6	17	23	20	11	31	295
6-A	Single-Family Detached Residential	44	DU	0%	0	0	0	0	0	0	0
6-B	Single-Family Detached Residential	101	DU	0%	0	0	0	0	0	0	0
6-C	Single-Family Detached Residential	70	DU	0%	0	0	0	0	0	0	0
6-D	Single-Family Detached Residential	60	DU	100%	11	34	45	38	22	60	571
7-A	Senior Adult Detached Housing	555	DU	0%	0	0	0	0	0	0	0
7-B	Senior Adult Detached Housing	199	DU	0%	0	0	0	0	0	0	0
8-A	Apartment	333	DU	0%	0	0	0	0	0	0	0
8-B	Apartment	232	DU	0%	0	0	0	0	0	0	0
8-C	Apartment	211	DU	0%	0	0	0	0	0	0	0
8-D	Apartment	155	DU	0%	0	0	0	0	0	0	0
9	Shopping Center	101.604	TSF		0	0	0	0	0	0	0
	- Pass-By Trips (34% PM)[3]			0%	0	0	0	0	0	0	0
	- Shopping Center Subtotal				0	0	0	0	0	0	0
10	Community Park	25.0	AC	0%	0	0	0	0	0	0	0
11	Confluence Park	10.2	AC	100%	0	0	0	0	0	0	0
12	Neighborhood Park	12.7	AC	0%	0	0	0	0	0	0	0
13	Entry Park	1.1	AC	100%	0	0	0	0	0	0	0
14-A	Village Paseo	3.3	AC	0%	0	0	0	0	0	0	0
14-B	Village Paseo	6.0	AC	0%	0	0	0	0	0	0	0
14-C	Village Paseo	2.3	AC	100%	0	0	0	0	0	0	0
14-D	Village Paseo	1.0	AC	100%	0	0	0	0	0	0	0
15-A	Creek/Creek Edge Linear Park	54.8	AC	0%	0	0	0	0	0	0	0
15-B	Creek/Creek Edge Linear Park	67.2	AC	0%	0	0	0	0	0	0	0
16-A	Public Facility	2.4	AC	100%	0	0	0	0	0	0	0
16-B	Electrical Sub-station	0.2	AC	0%	0	0	0	0	0	0	0
16-C	Elementary School (K-8)	800	ST	100%	200	160	360	56	64	120	1,032
17	Open Space	25.7	AC	0%	0	0	0	0	0	0	0
18	Storm Drain Easement	1.1	AC	100%	0	0	0	0	0	0	0
Total					245	293	538	207	152	359	3,307

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] Source: Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

Table 4

Project Opening Year (2019) Trip Generation[1]
- Phase 2

Trips Generated											
					Peak Hour						
					Morning			Evening			
Planning Area	Land Use	Quantity	Units[2]		Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Single-Family Detached Residential	94	DU	0%	0	0	0	0	0	0	0
2-A	Single-Family Detached Residential	53	DU	0%	0	0	0	0	0	0	0
2-B	Single-Family Detached Residential	60	DU	0%	0	0	0	0	0	0	0
2-C	Single-Family Detached Residential	56	DU	0%	0	0	0	0	0	0	0
3-A	Single-Family Detached Residential	53	DU	0%	0	0	0	0	0	0	0
3-B	Single-Family Detached Residential	90	DU	100%	17	50	67	57	33	90	857
3-C	Single-Family Detached Residential	40	DU	100%	8	22	30	25	15	40	381
3-D	Single-Family Detached Residential	91	DU	0%	0	0	0	0	0	0	0
4-A	Single-Family Detached Residential	102	DU	0%	0	0	0	0	0	0	0
4-B	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-C	Single-Family Detached Residential	78	DU	0%	0	0	0	0	0	0	0
4-D	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-A	Single-Family Detached Residential	31	DU	0%	0	0	0	0	0	0	0
5-B	Single-Family Detached Residential	34	DU	0%	0	0	0	0	0	0	0
5-C	Single-Family Detached Residential	66	DU	100%	13	37	50	42	24	66	628
5-D	Single-Family Detached Residential	85	DU	0%	0	0	0	0	0	0	0
5-E	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-F	Single-Family Detached Residential	31	DU	100%	6	17	23	20	11	31	295
6-A	Single-Family Detached Residential	44	DU	0%	0	0	0	0	0	0	0
6-B	Single-Family Detached Residential	101	DU	100%	19	57	76	64	37	101	962
6-C	Single-Family Detached Residential	70	DU	0%	0	0	0	0	0	0	0
6-D	Single-Family Detached Residential	60	DU	100%	11	34	45	38	22	60	571
7-A	Senior Adult Detached Housing	555	DU	0%	0	0	0	0	0	0	0
7-B	Senior Adult Detached Housing	199	DU	0%	0	0	0	0	0	0	0
8-A	Apartment	333	DU	0%	0	0	0	0	0	0	0
8-B	Apartment	232	DU	0%	0	0	0	0	0	0	0
8-C	Apartment	211	DU	0%	0	0	0	0	0	0	0
8-D	Apartment	155	DU	0%	0	0	0	0	0	0	0
9	Shopping Center	101.604	TSF	0%	0	0	0	0	0	0	0
	- Pass-By Trips (34% PM)[3]				0	0	0	0	0	0	0
	- Shopping Center Subtotal				0	0	0	0	0	0	0
10	Community Park	25.0	AC	0%	0	0	0	0	0	0	0
11	Confluence Park	10.2	AC	100%	0	0	0	0	0	0	0
12	Neighborhood Park	12.7	AC	100%	0	0	0	0	0	0	0
13	Entry Park	1.1	AC	100%	0	0	0	0	0	0	0
14-A	Village Paseo	3.3	AC	0%	0	0	0	0	0	0	0
14-B	Village Paseo	6.0	AC	100%	0	0	0	0	0	0	0
14-C	Village Paseo	2.3	AC	100%	0	0	0	0	0	0	0
14-D	Village Paseo	1.0	AC	100%	0	0	0	0	0	0	0
15-A	Creek/Creek Edge Linear Park	54.8	AC	0%	0	0	0	0	0	0	0
15-B	Creek/Creek Edge Linear Park	67.2	AC	0%	0	0	0	0	0	0	0
16-A	Public Facility	2.4	AC	100%	0	0	0	0	0	0	0
16-B	Electrical Sub-station	0.2	AC	0%	0	0	0	0	0	0	0
16-C	Elementary School (K-8)	800	ST	100%	200	160	360	56	64	120	1,032
17	Open Space	25.7	AC	0%	0	0	0	0	0	0	0
18	Storm Drain Easement	1.1	AC	100%	0	0	0	0	0	0	0
Total					313	494	807	434	284	718	6,725

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] Source: Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

Table 5

Project Interim Year (2022) Trip Generation[1]
- Phase 3

Trips Generated											
					Peak Hour						
					Morning			Evening			
Planning Area	Land Use	Quantity	Units[2]		Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Single-Family Detached Residential	94	DU	0%	0	0	0	0	0	0	0
2-A	Single-Family Detached Residential	53	DU	0%	0	0	0	0	0	0	0
2-B	Single-Family Detached Residential	60	DU	0%	0	0	0	0	0	0	0
2-C	Single-Family Detached Residential	56	DU	100%	11	31	42	35	21	56	533
3-A	Single-Family Detached Residential	53	DU	100%	10	30	40	33	20	53	505
3-B	Single-Family Detached Residential	90	DU	100%	17	50	67	57	33	90	857
3-C	Single-Family Detached Residential	40	DU	100%	8	22	30	25	15	40	381
3-D	Single-Family Detached Residential	91	DU	0%	0	0	0	0	0	0	0
4-A	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-B	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-C	Single-Family Detached Residential	78	DU	100%	15	44	59	49	29	78	743
4-D	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-A	Single-Family Detached Residential	31	DU	0%	0	0	0	0	0	0	0
5-B	Single-Family Detached Residential	34	DU	0%	0	0	0	0	0	0	0
5-C	Single-Family Detached Residential	66	DU	100%	13	37	50	42	24	66	628
5-D	Single-Family Detached Residential	85	DU	100%	16	48	64	54	31	85	809
5-E	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-F	Single-Family Detached Residential	31	DU	100%	6	17	23	20	11	31	295
6-A	Single-Family Detached Residential	44	DU	0%	0	0	0	0	0	0	0
6-B	Single-Family Detached Residential	101	DU	100%	19	57	76	64	37	101	962
6-C	Single-Family Detached Residential	70	DU	100%	13	39	52	44	26	70	666
6-D	Single-Family Detached Residential	60	DU	100%	11	34	45	38	22	60	571
7-A	Senior Adult Detached Housing	555	DU	0%	0	0	0	0	0	0	0
7-B	Senior Adult Detached Housing	199	DU	0%	0	0	0	0	0	0	0
8-A	Apartment	333	DU	0%	0	0	0	0	0	0	0
8-B	Apartment	232	DU	0%	0	0	0	0	0	0	0
8-C	Apartment	211	DU	0%	0	0	0	0	0	0	0
8-D	Apartment	155	DU	0%	0	0	0	0	0	0	0
9	Shopping Center	101.604	TSF		0	0	0	0	0	0	0
	- Pass-By Trips (34% PM)[3]			0%	0	0	0	0	0	0	0
	- Shopping Center Subtotal				0	0	0	0	0	0	0
10	Community Park	25.0	AC	0%	0	0	0	0	0	0	0
11	Confluence Park	10.2	AC	100%	0	0	0	0	0	0	0
12	Neighborhood Park	12.7	AC	100%	0	0	0	0	0	0	0
13	Entry Park	1.1	AC	100%	0	0	0	0	0	0	0
14-A	Village Paseo	3.3	AC	0%	0	0	0	0	0	0	0
14-B	Village Paseo	6.0	AC	100%	0	0	0	0	0	0	0
14-C	Village Paseo	2.3	AC	100%	0	0	0	0	0	0	0
14-D	Village Paseo	1.0	AC	100%	0	0	0	0	0	0	0
15-A	Creek/Creek Edge Linear Park	54.8	AC	100%	0	0	0	0	0	0	0
15-B	Creek/Creek Edge Linear Park	67.2	AC	100%	0	0	0	0	0	0	0
16-A	Public Facility	2.4	AC	100%	0	0	0	0	0	0	0
16-B	Electrical Sub-station	0.2	AC	0%	0	0	0	0	0	0	0
16-C	Elementary School (K-8)	800	ST	100%	200	160	360	56	64	120	1,032
17	Open Space	25.7	AC	0%	0	0	0	0	0	0	0
18	Storm Drain Easement	1.1	AC	100%	0	0	0	0	0	0	0
Total					397	743	1,140	713	449	1,162	10,952

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] Source: Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

Table 6

Project Interim Year (2025) Trip Generation[1]
- Phase 4

Trips Generated											
					Peak Hour						
					Morning			Evening			
Planning Area	Land Use	Quantity	Units[2]		Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Single-Family Detached Residential	94	DU	0%	0	0	0	0	0	0	0
2-A	Single-Family Detached Residential	53	DU	0%	0	0	0	0	0	0	0
2-B	Single-Family Detached Residential	60	DU	0%	0	0	0	0	0	0	0
2-C	Single-Family Detached Residential	56	DU	100%	11	31	42	35	21	56	533
3-A	Single-Family Detached Residential	53	DU	100%	10	30	40	33	20	53	505
3-B	Single-Family Detached Residential	90	DU	100%	17	50	67	57	33	90	857
3-C	Single-Family Detached Residential	40	DU	100%	8	22	30	25	15	40	381
3-D	Single-Family Detached Residential	91	DU	0%	0	0	0	0	0	0	0
4-A	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-B	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-C	Single-Family Detached Residential	78	DU	100%	15	44	59	49	29	78	743
4-D	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-A	Single-Family Detached Residential	31	DU	0%	0	0	0	0	0	0	0
5-B	Single-Family Detached Residential	34	DU	0%	0	0	0	0	0	0	0
5-C	Single-Family Detached Residential	66	DU	100%	13	37	50	42	24	66	628
5-D	Single-Family Detached Residential	85	DU	100%	16	48	64	54	31	85	809
5-E	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-F	Single-Family Detached Residential	31	DU	100%	6	17	23	20	11	31	295
6-A	Single-Family Detached Residential	44	DU	100%	8	25	33	28	16	44	419
6-B	Single-Family Detached Residential	101	DU	100%	19	57	76	64	37	101	962
6-C	Single-Family Detached Residential	70	DU	100%	13	39	52	44	26	70	666
6-D	Single-Family Detached Residential	60	DU	100%	11	34	45	38	22	60	571
7-A	Senior Adult Detached Housing	555	DU	100%	44	78	122	89	61	150	2,042
7-B	Senior Adult Detached Housing	199	DU	100%	16	28	44	32	22	54	732
8-A	Apartment	333	DU	100%	33	137	170	133	73	206	2,214
8-B	Apartment	232	DU	0%	0	0	0	0	0	0	0
8-C	Apartment	211	DU	0%	0	0	0	0	0	0	0
8-D	Apartment	155	DU	100%	16	64	80	62	34	96	1,031
9	Shopping Center	101.604	TSF		98	60	158	291	315	606	6,862
	- Pass-By Trips (34% PM)[3]			100%	0	0	0	-99	-107	-206	-206
	- Shopping Center Subtotal				98	60	158	192	208	400	6,656
10	Community Park	25.0	AC	100%	0	0	0	56	56	112	1,250
11	Confluence Park	10.2	AC	100%	0	0	0	0	0	0	0
12	Neighborhood Park	12.7	AC	100%	0	0	0	0	0	0	0
13	Entry Park	1.1	AC	100%	0	0	0	0	0	0	0
14-A	Village Paseo	3.3	AC	100%	0	0	0	0	0	0	0
14-B	Village Paseo	6.0	AC	100%	0	0	0	0	0	0	0
14-C	Village Paseo	2.3	AC	100%	0	0	0	0	0	0	0
14-D	Village Paseo	1.0	AC	100%	0	0	0	0	0	0	0
15-A	Creek/Creek Edge Linear Park	54.8	AC	100%	0	0	0	0	0	0	0
15-B	Creek/Creek Edge Linear Park	67.2	AC	100%	0	0	0	0	0	0	0
16-A	Public Facility	2.4	AC	100%	0	0	0	0	0	0	0
16-B	Electrical Sub-station	0.2	AC	100%	0	0	0	0	0	0	0
16-C	Elementary School (K-8)	800	ST	100%	200	160	360	56	64	120	1,032
17	Open Space	25.7	AC	0%	0	0	0	0	0	0	0
18	Storm Drain Easement	1.1	AC	100%	0	0	0	0	0	0	0
Total					612	1,135	1,747	1,305	919	2,224	25,296

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] Source: Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

Table 7

Project Interim Year (2029) Trip Generation[1]
- Phase 5

Trips Generated											
					Peak Hour						
					Morning			Evening			
Planning Area	Land Use	Quantity	Units[2]		Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Single-Family Detached Residential	94	DU	100%	18	53	71	59	35	94	895
2-A	Single-Family Detached Residential	53	DU	100%	10	30	40	33	20	53	505
2-B	Single-Family Detached Residential	60	DU	100%	11	34	45	38	22	60	571
2-C	Single-Family Detached Residential	56	DU	100%	11	31	42	35	21	56	533
3-A	Single-Family Detached Residential	53	DU	100%	10	30	40	33	20	53	505
3-B	Single-Family Detached Residential	90	DU	100%	17	50	67	57	33	90	857
3-C	Single-Family Detached Residential	40	DU	100%	8	22	30	25	15	40	381
3-D	Single-Family Detached Residential	91	DU	0%	0	0	0	0	0	0	0
4-A	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-B	Single-Family Detached Residential	102	DU	100%	19	57	76	64	38	102	971
4-C	Single-Family Detached Residential	78	DU	100%	15	44	59	49	29	78	743
4-D	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-A	Single-Family Detached Residential	31	DU	100%	6	17	23	20	11	31	295
5-B	Single-Family Detached Residential	34	DU	100%	6	19	25	21	13	34	324
5-C	Single-Family Detached Residential	66	DU	100%	13	37	50	42	24	66	628
5-D	Single-Family Detached Residential	85	DU	100%	16	48	64	54	31	85	809
5-E	Single-Family Detached Residential	54	DU	100%	10	30	40	34	20	54	514
5-F	Single-Family Detached Residential	31	DU	100%	6	17	23	20	11	31	295
6-A	Single-Family Detached Residential	44	DU	100%	8	25	33	28	16	44	419
6-B	Single-Family Detached Residential	101	DU	100%	19	57	76	64	37	101	962
6-C	Single-Family Detached Residential	70	DU	100%	13	39	52	44	26	70	666
6-D	Single-Family Detached Residential	60	DU	100%	11	34	45	38	22	60	571
7-A	Senior Adult Detached Housing	555	DU	100%	44	78	122	89	61	150	2,042
7-B	Senior Adult Detached Housing	199	DU	100%	16	28	44	32	22	54	732
8-A	Apartment	333	DU	100%	33	137	170	133	73	206	2,214
8-B	Apartment	232	DU	100%	23	95	118	93	51	144	1,543
8-C	Apartment	211	DU	100%	21	87	108	84	46	130	1,403
8-D	Apartment	155	DU	100%	16	64	80	62	34	96	1,031
9	Shopping Center	101.604	TSF	100%	98	60	158	291	315	606	6,862
	- Pass-By Trips (34% PM)[3]				0	0	0	-99	-107	-206	-206
	- Shopping Center Subtotal				98	60	158	192	208	400	6,656
10	Community Park	25.0	AC	100%	0	0	0	56	56	112	1,250
11	Confluence Park	10.2	AC	100%	0	0	0	0	0	0	0
12	Neighborhood Park	12.7	AC	100%	0	0	0	0	0	0	0
13	Entry Park	1.1	AC	100%	0	0	0	0	0	0	0
14-A	Village Paseo	3.3	AC	100%	0	0	0	0	0	0	0
14-B	Village Paseo	6.0	AC	100%	0	0	0	0	0	0	0
14-C	Village Paseo	2.3	AC	100%	0	0	0	0	0	0	0
14-D	Village Paseo	1.0	AC	100%	0	0	0	0	0	0	0
15-A	Creek/Creek Edge Linear Park	54.8	AC	100%	0	0	0	0	0	0	0
15-B	Creek/Creek Edge Linear Park	67.2	AC	100%	0	0	0	0	0	0	0
16-A	Public Facility	2.4	AC	100%	0	0	0	0	0	0	0
16-B	Electrical Sub-station	0.2	AC	100%	0	0	0	0	0	0	0
16-C	Elementary School (K-8)	800	ST	100%	200	160	360	56	64	120	1,032
17	Open Space	25.7	AC	0%	0	0	0	0	0	0	0
18	Storm Drain Easement	1.1	AC	100%	0	0	0	0	0	0	0
Total					707	1,470	2,177	1,653	1,117	2,770	30,832

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] Source: Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

Table 8

Project Buildout Year (2035) Trip Generation [1]
- Phase 6

Trips Generated										
				Peak Hour						
				Morning			Evening			
Planning Area	Land Use	Quantity	Units[2]	Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
1	Single-Family Detached Residential	94	DU	18	53	71	59	35	94	895
2-A	Single-Family Detached Residential	53	DU	10	30	40	33	20	53	505
2-B	Single-Family Detached Residential	60	DU	11	34	45	38	22	60	571
2-C	Single-Family Detached Residential	56	DU	11	31	42	35	21	56	533
3-A	Single-Family Detached Residential	53	DU	10	30	40	33	20	53	505
3-B	Single-Family Detached Residential	90	DU	17	50	67	57	33	90	857
3-C	Single-Family Detached Residential	40	DU	8	22	30	25	15	40	381
3-D	Single-Family Detached Residential	91	DU	17	51	68	57	34	91	866
4-A	Single-Family Detached Residential	102	DU	19	57	76	64	38	102	971
4-B	Single-Family Detached Residential	102	DU	19	57	76	64	38	102	971
4-C	Single-Family Detached Residential	78	DU	15	44	59	49	29	78	743
4-D	Single-Family Detached Residential	54	DU	10	30	40	34	20	54	514
5-A	Single-Family Detached Residential	31	DU	6	17	23	20	11	31	295
5-B	Single-Family Detached Residential	34	DU	6	19	25	21	13	34	324
5-C	Single-Family Detached Residential	66	DU	13	37	50	42	24	66	628
5-D	Single-Family Detached Residential	85	DU	16	48	64	54	31	85	809
5-E	Single-Family Detached Residential	54	DU	10	30	40	34	20	54	514
5-F	Single-Family Detached Residential	31	DU	6	17	23	20	11	31	295
6-A	Single-Family Detached Residential	44	DU	8	25	33	28	16	44	419
6-B	Single-Family Detached Residential	101	DU	19	57	76	64	37	101	962
6-C	Single-Family Detached Residential	70	DU	13	39	52	44	26	70	666
6-D	Single-Family Detached Residential	60	DU	11	34	45	38	22	60	571
7-A	Senior Adult Detached Housing	555	DU	44	78	122	89	61	150	2,042
7-B	Senior Adult Detached Housing	199	DU	16	28	44	32	22	54	732
8-A	Apartment	333	DU	33	137	170	133	73	206	2,214
8-B	Apartment	232	DU	23	95	118	93	51	144	1,543
8-C	Apartment	211	DU	21	87	108	84	46	130	1,403
8-D	Apartment	155	DU	16	64	80	62	34	96	1,031
9	Shopping Center	101.604	TSF	98	60	158	291	315	606	6,862
	- Pass-By Trips (34% PM) [3]			0	0	0	-99	-107	-206	-206
	- Shopping Center Subtotal			98	60	158	192	208	400	6,656
10	Community Park	25.0	AC	0	0	0	56	56	112	1,250
11	Confluence Park	10.2	AC	0	0	0	0	0	0	0
12	Neighborhood Park	12.7	AC	0	0	0	0	0	0	0
13	Entry Park	1.1	AC	0	0	0	0	0	0	0
14-A	Village Paseo	3.3	AC	0	0	0	0	0	0	0
14-B	Village Paseo	6.0	AC	0	0	0	0	0	0	0
14-C	Village Paseo	2.3	AC	0	0	0	0	0	0	0
14-D	Village Paseo	1.0	AC	0	0	0	0	0	0	0
15-A	Creek/Creek Edge Linear Park	54.8	AC	0	0	0	0	0	0	0
15-B	Creek/Creek Edge Linear Park	67.2	AC	0	0	0	0	0	0	0
16-A	Public Facility	2.4	AC	0	0	0	0	0	0	0
16-B	Electrical Sub-station	0.2	AC	0	0	0	0	0	0	0
16-C	Elementary School (K-8)	800	ST	200	160	360	56	64	120	1,032
17	Open Space	25.7	AC	0	0	0	0	0	0	0
18	Unspecified Future Development	79.3	AC	0	0	0	0	0	0	0
Total				724	1,521	2,245	1,710	1,151	2,861	31,698

[1] Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Categories 210, 230, 251, 520, and 820.
San Diego Association of Governments, Traffic Generators, April 2002 for park land use.
Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

[2] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres

[3] Source: Institute of Transportation Engineers, Trip Generation Handbook, 2nd Edition, 2004.

Figure 13
Project Traffic Analysis Zone Map

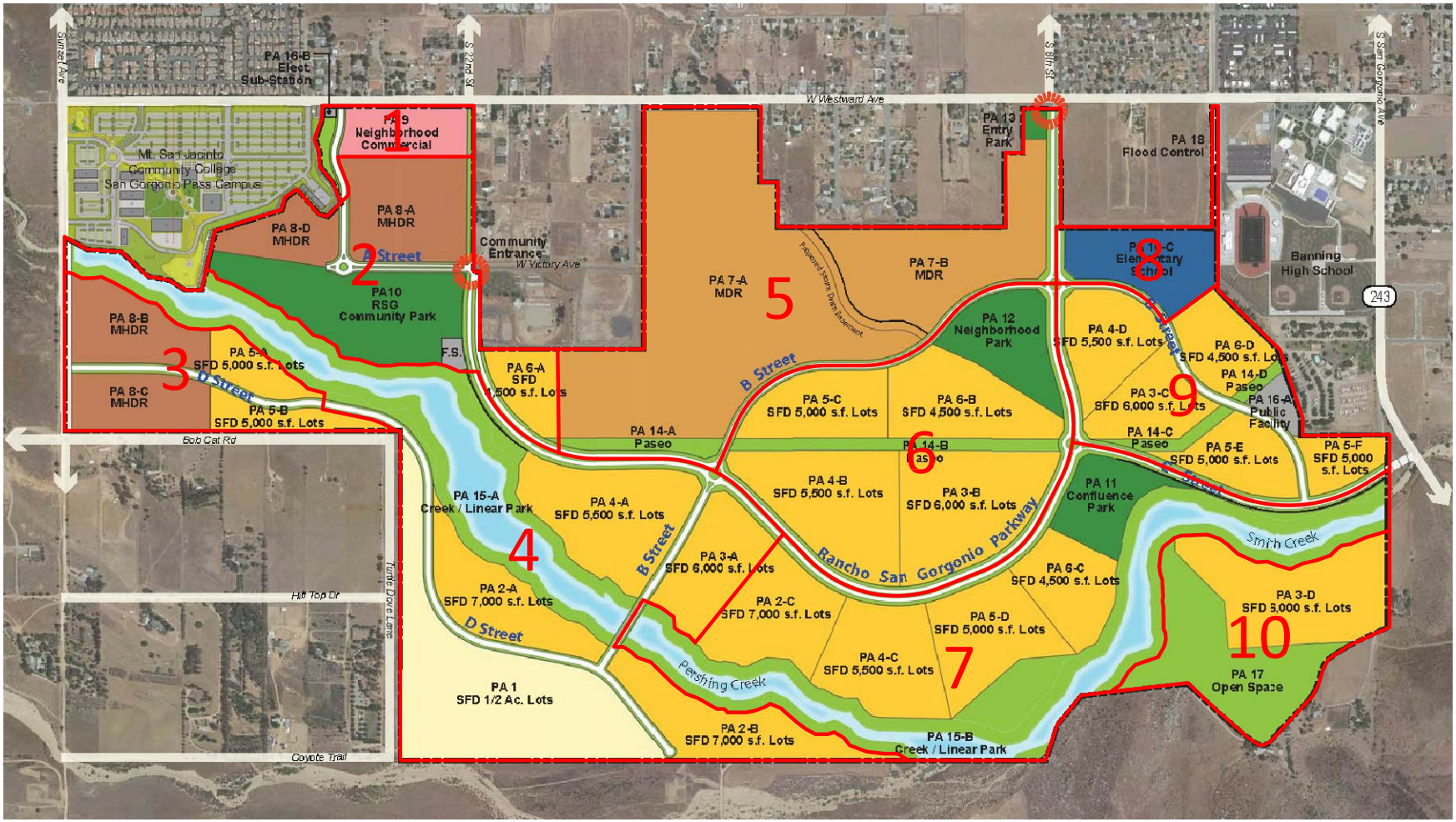


Figure 14
Project Trip Distribution - Traffic Analysis Zone 1 (Interim Year 2029)

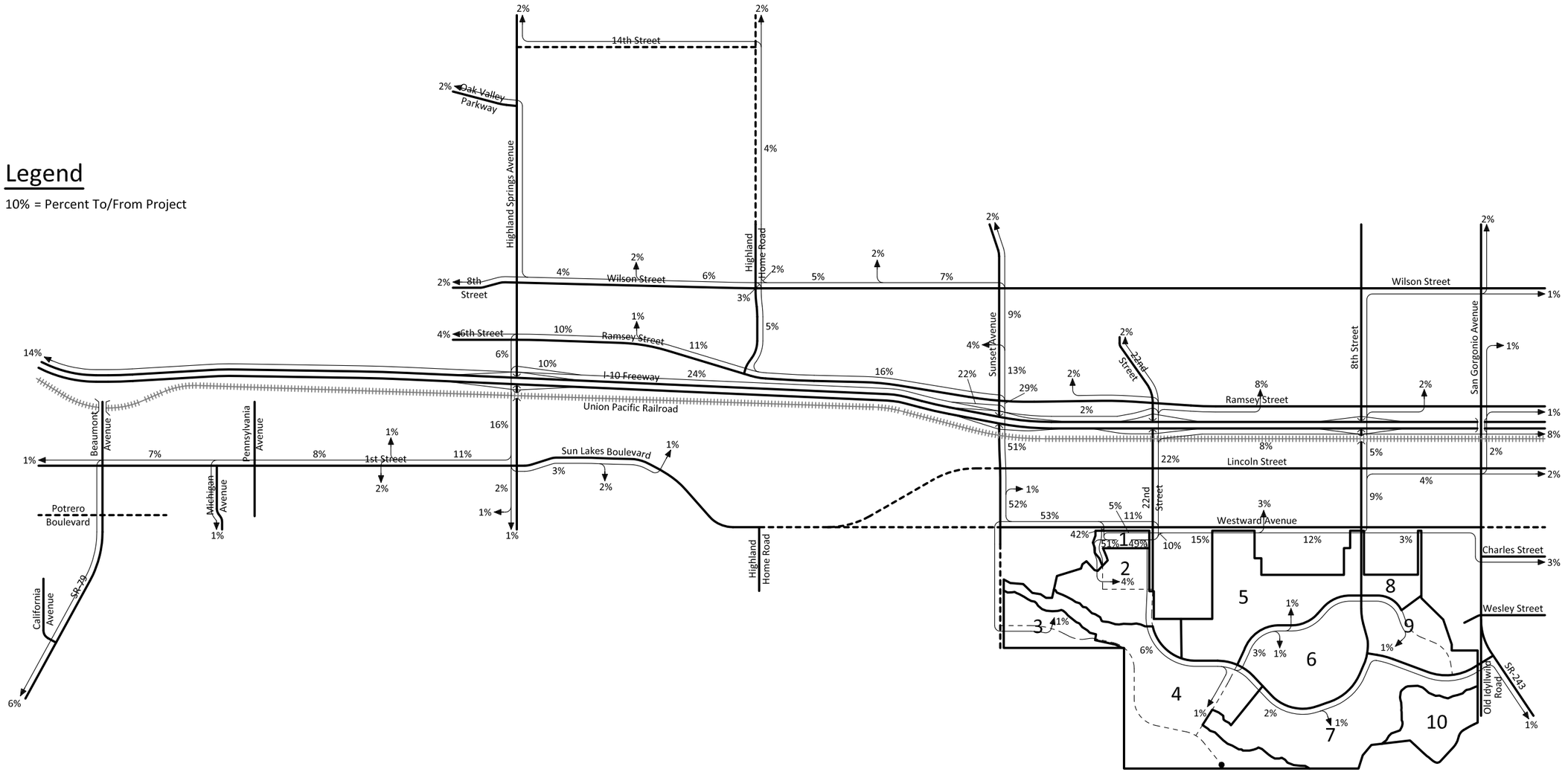


Figure 15
Project Trip Distribution - Traffic Analysis Zone 1 (General Plan Buildout)

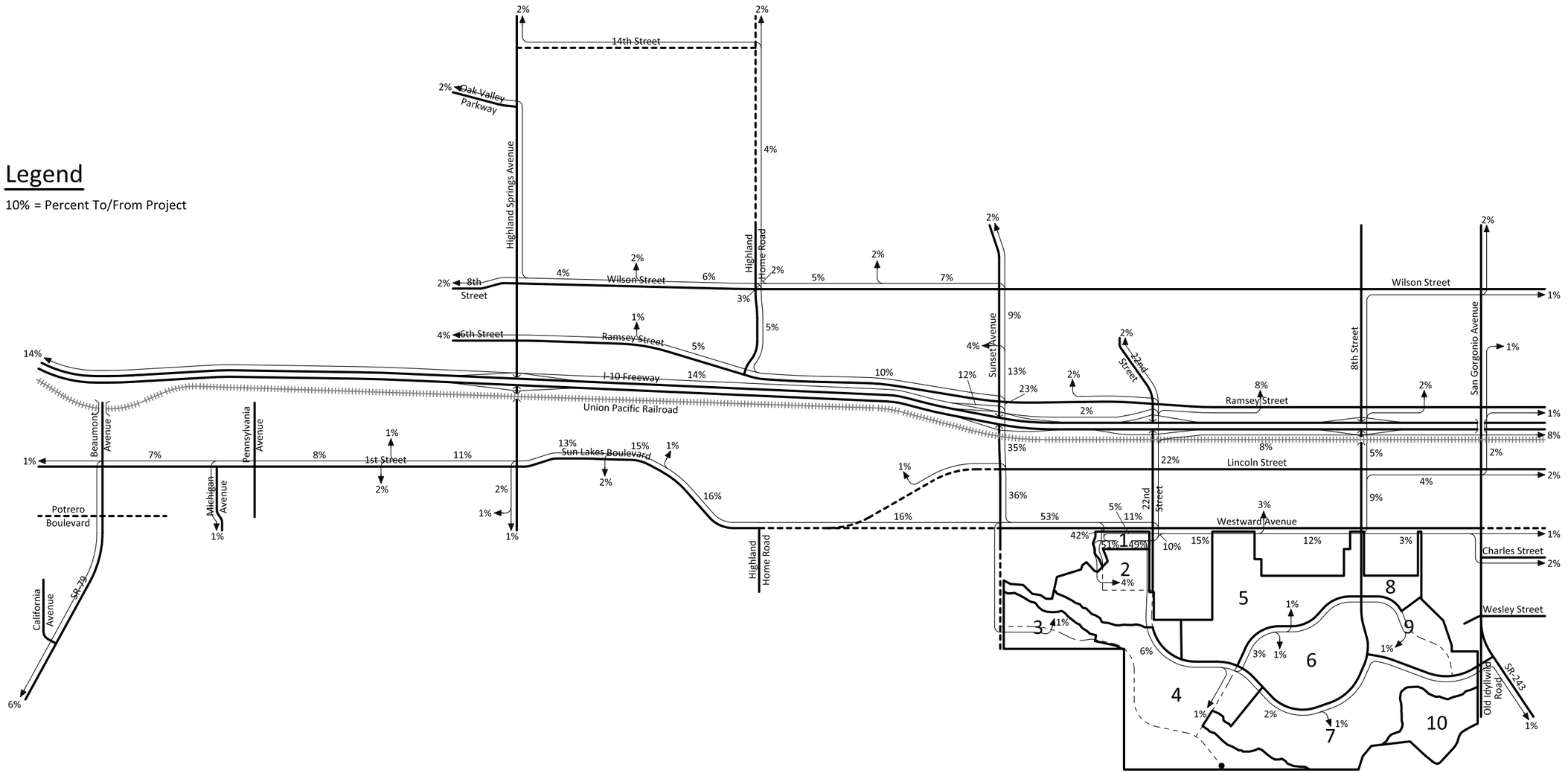


Figure 16
Project Trip Distribution - Traffic Analysis Zone 2 (Interim Year 2025)

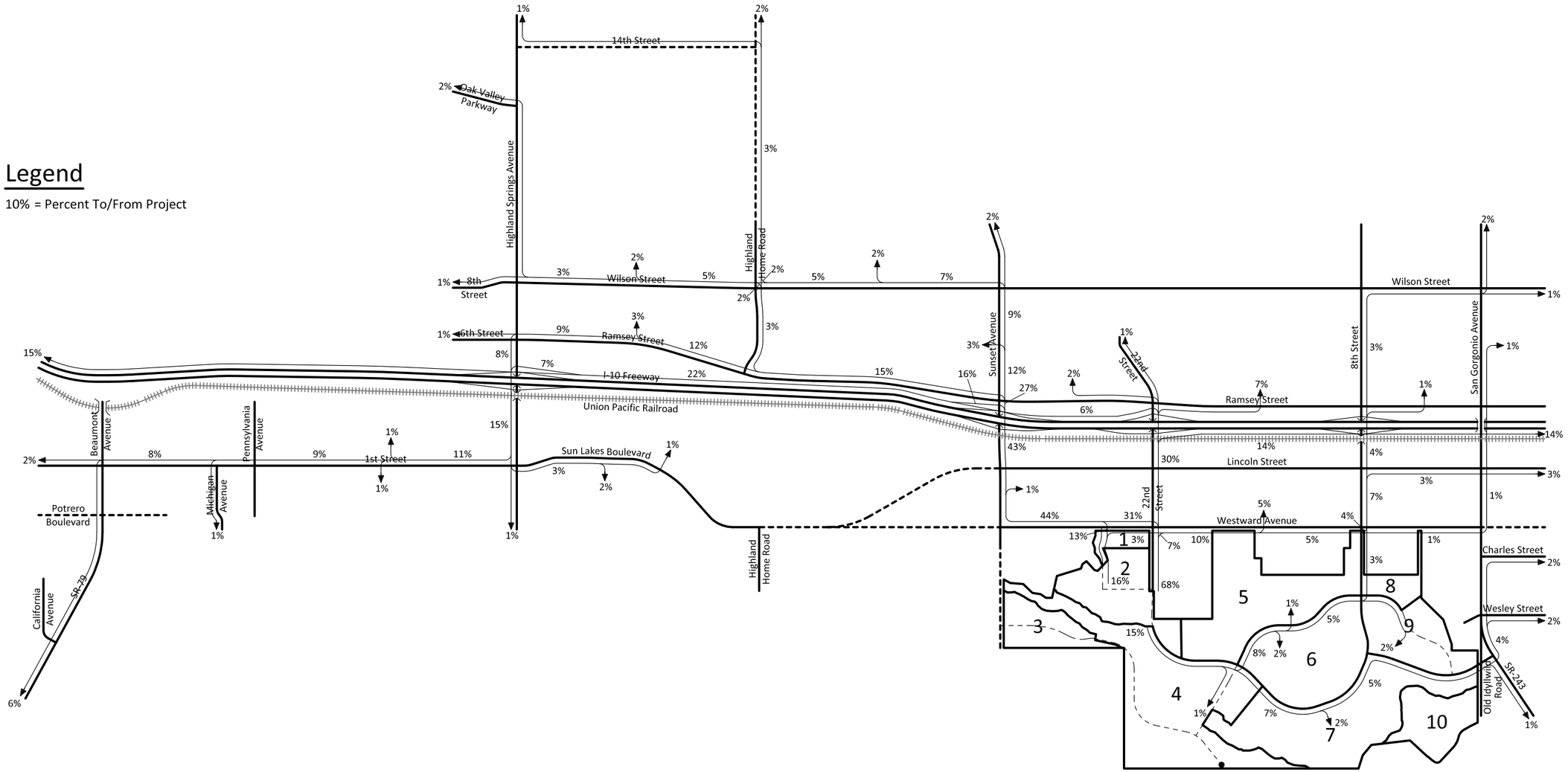


Figure 17
Project Trip Distribution - Traffic Analysis Zone 2 (Interim Year 2029)

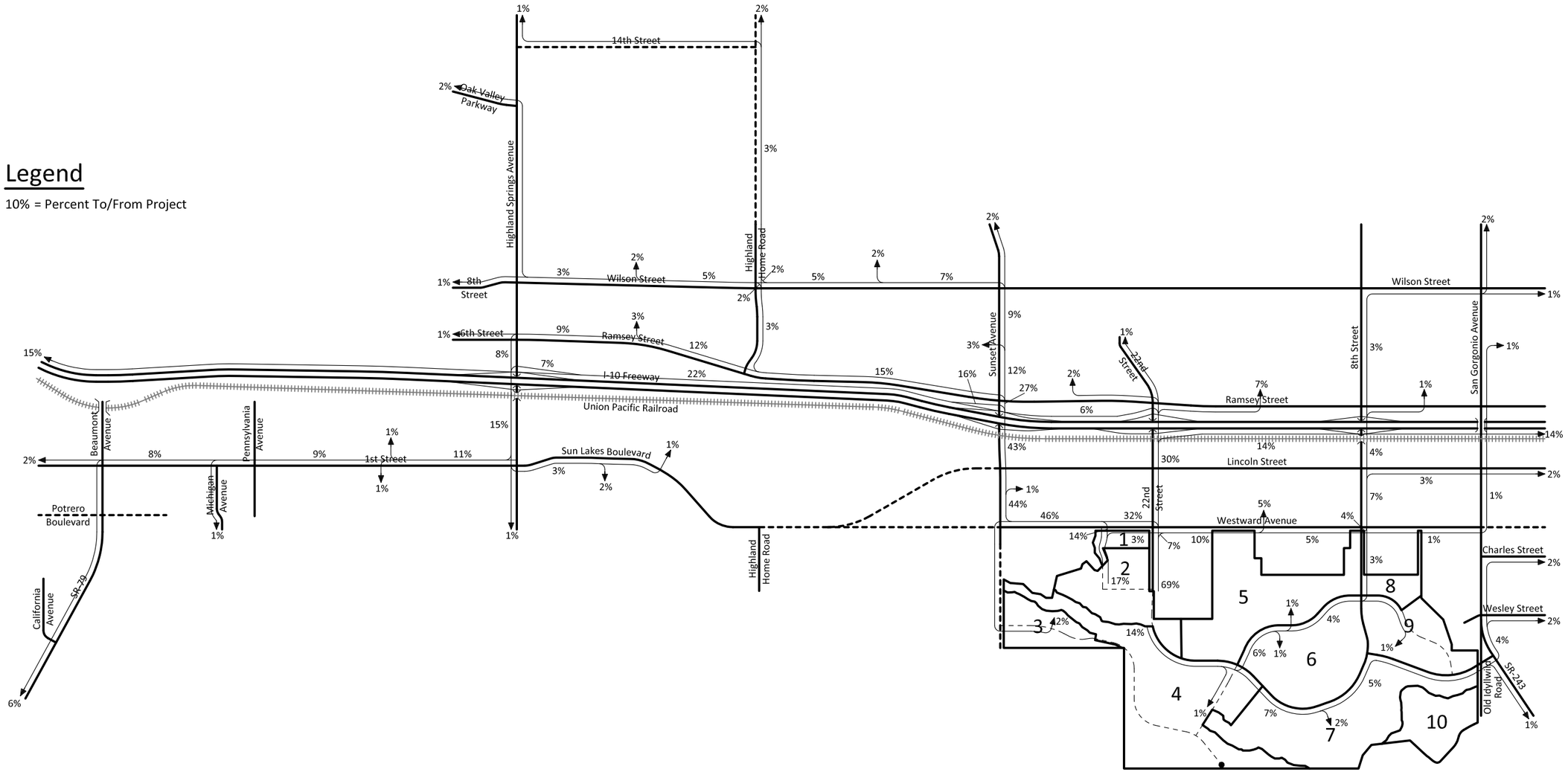


Figure 18
Project Trip Distribution - Traffic Analysis Zone 2 (General Plan Buildout)

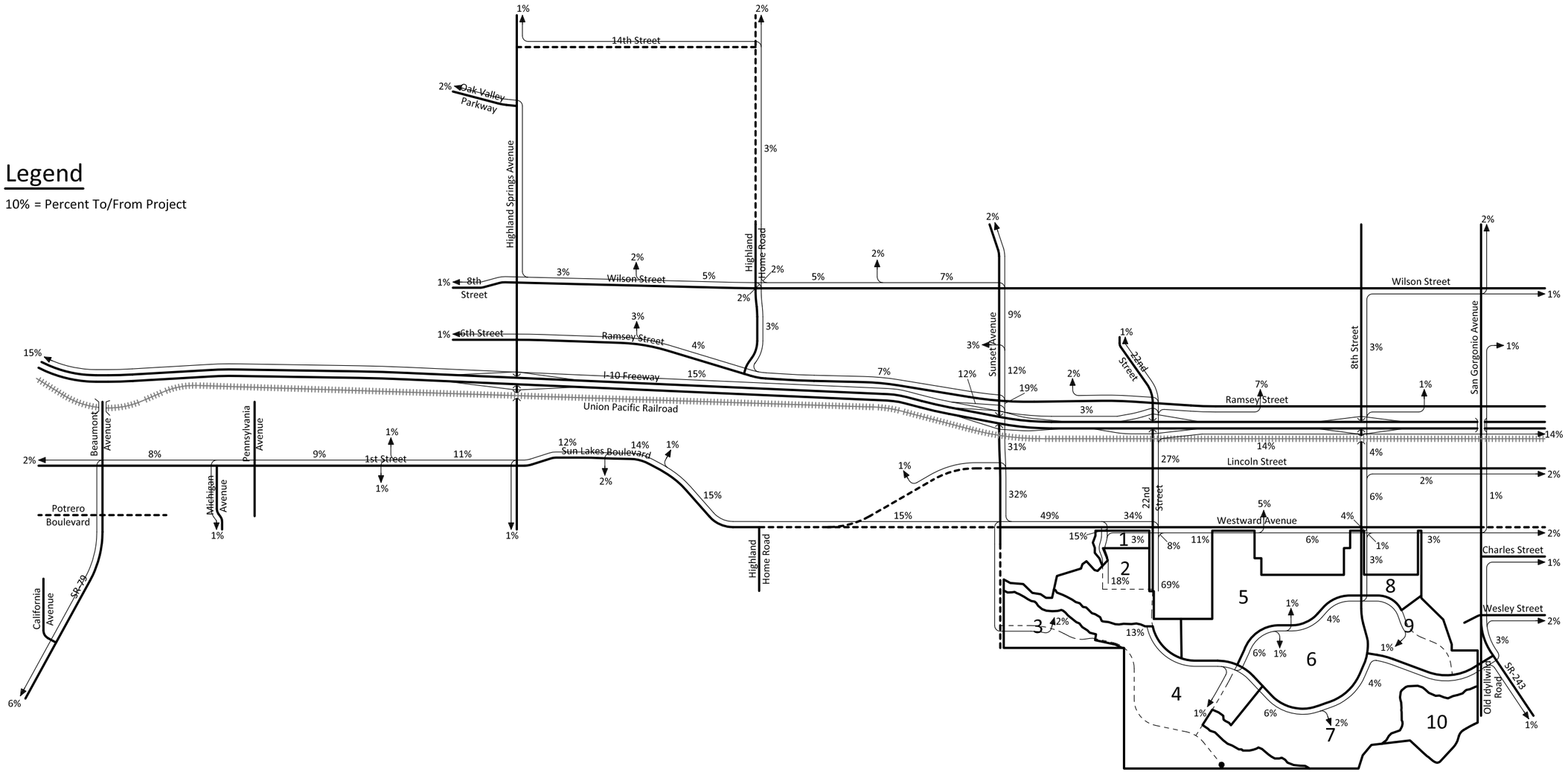


Figure 19
Project Trip Distribution - Traffic Analysis Zone 3 (Interim Year 2029)

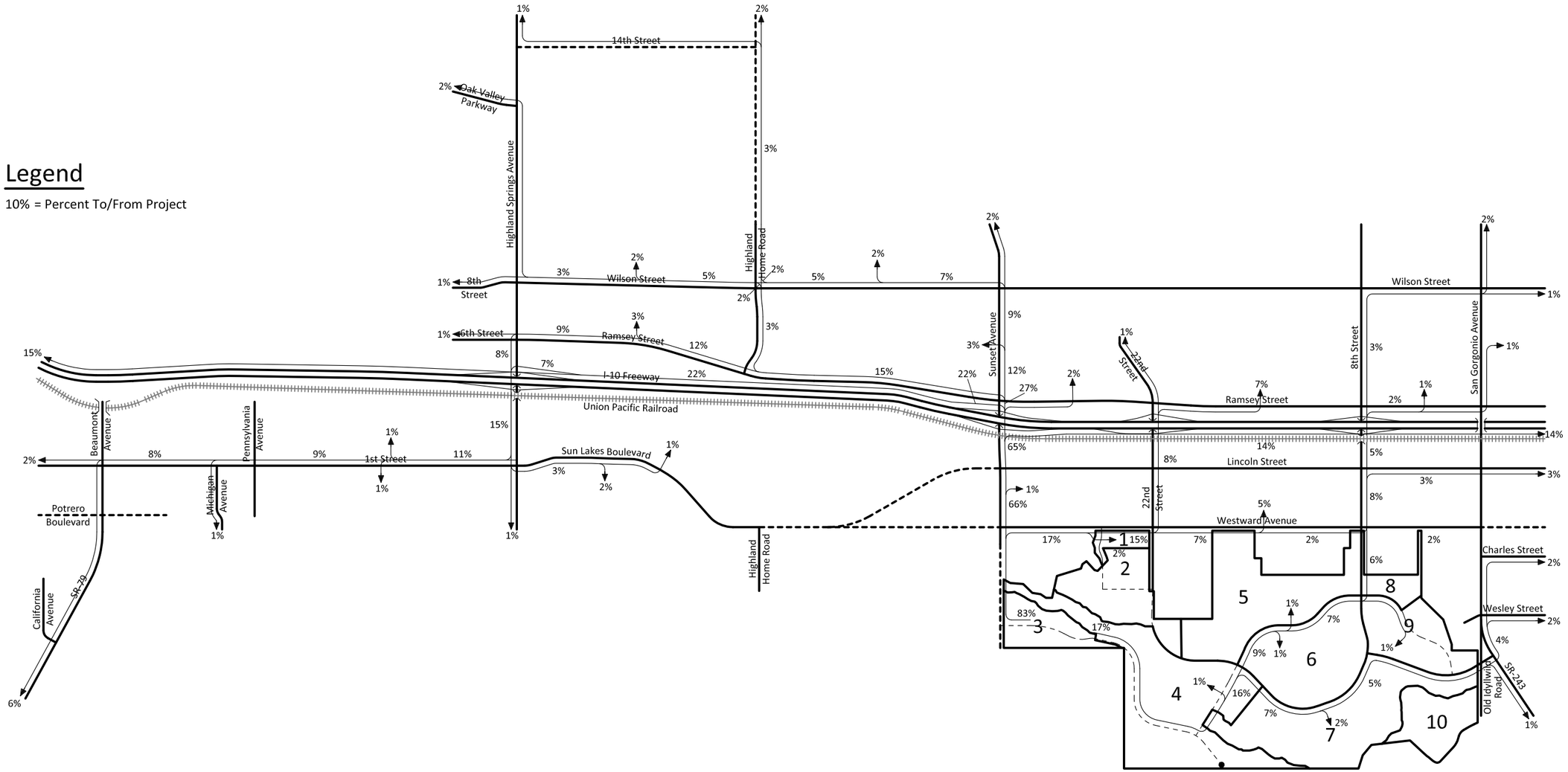
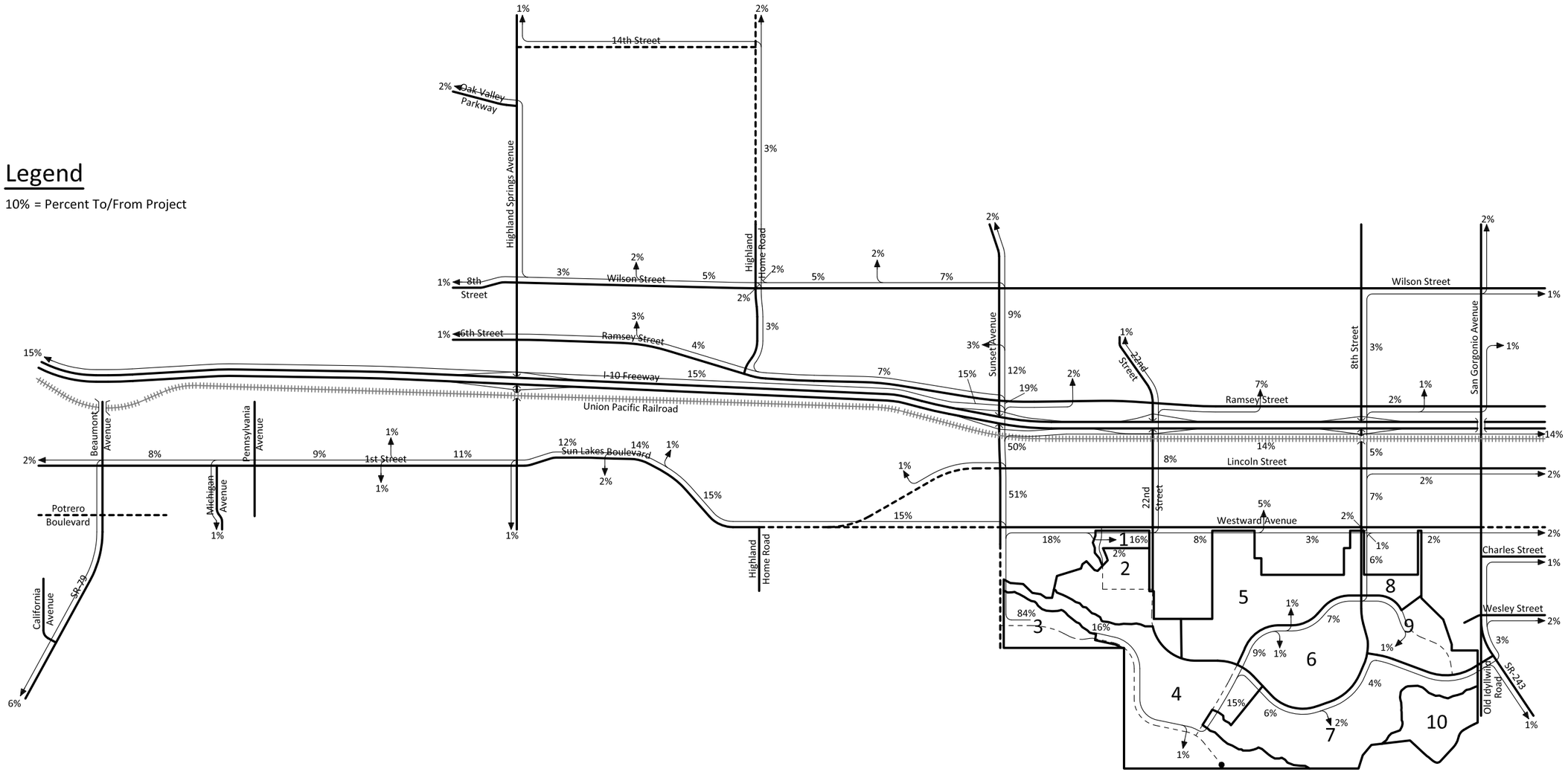


Figure 20
Project Trip Distribution - Traffic Analysis Zone 3 (General Plan Buildout)



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JN 5217f

Figure 21
Project Trip Distribution - Traffic Analysis Zone 4 (Interim Year 2022)

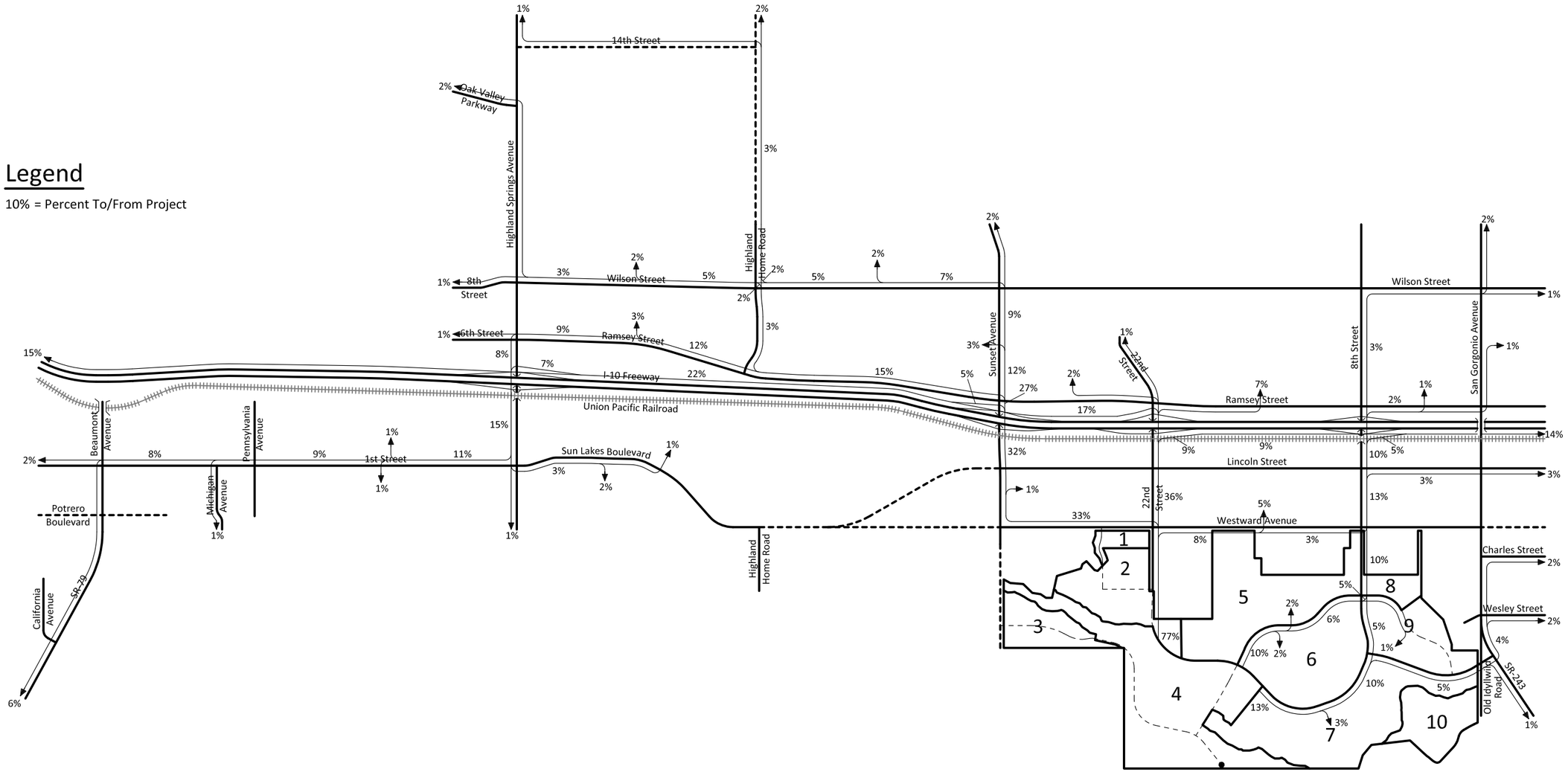


Figure 22
Project Trip Distribution - Traffic Analysis Zone 4 (Interim Year 2025)

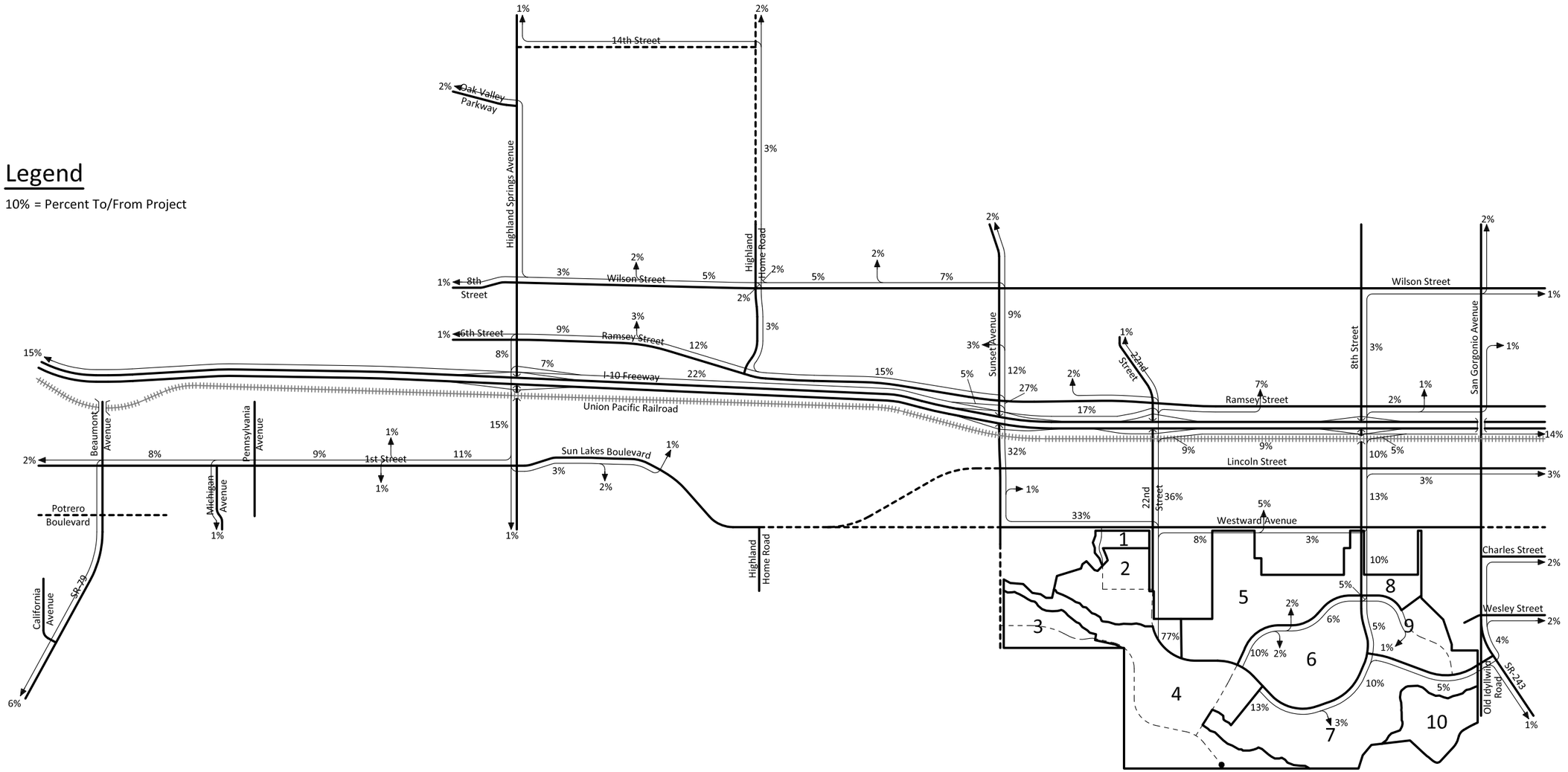


Figure 23
Project Trip Distribution - Traffic Analysis Zone 4 (Interim Year 2029)

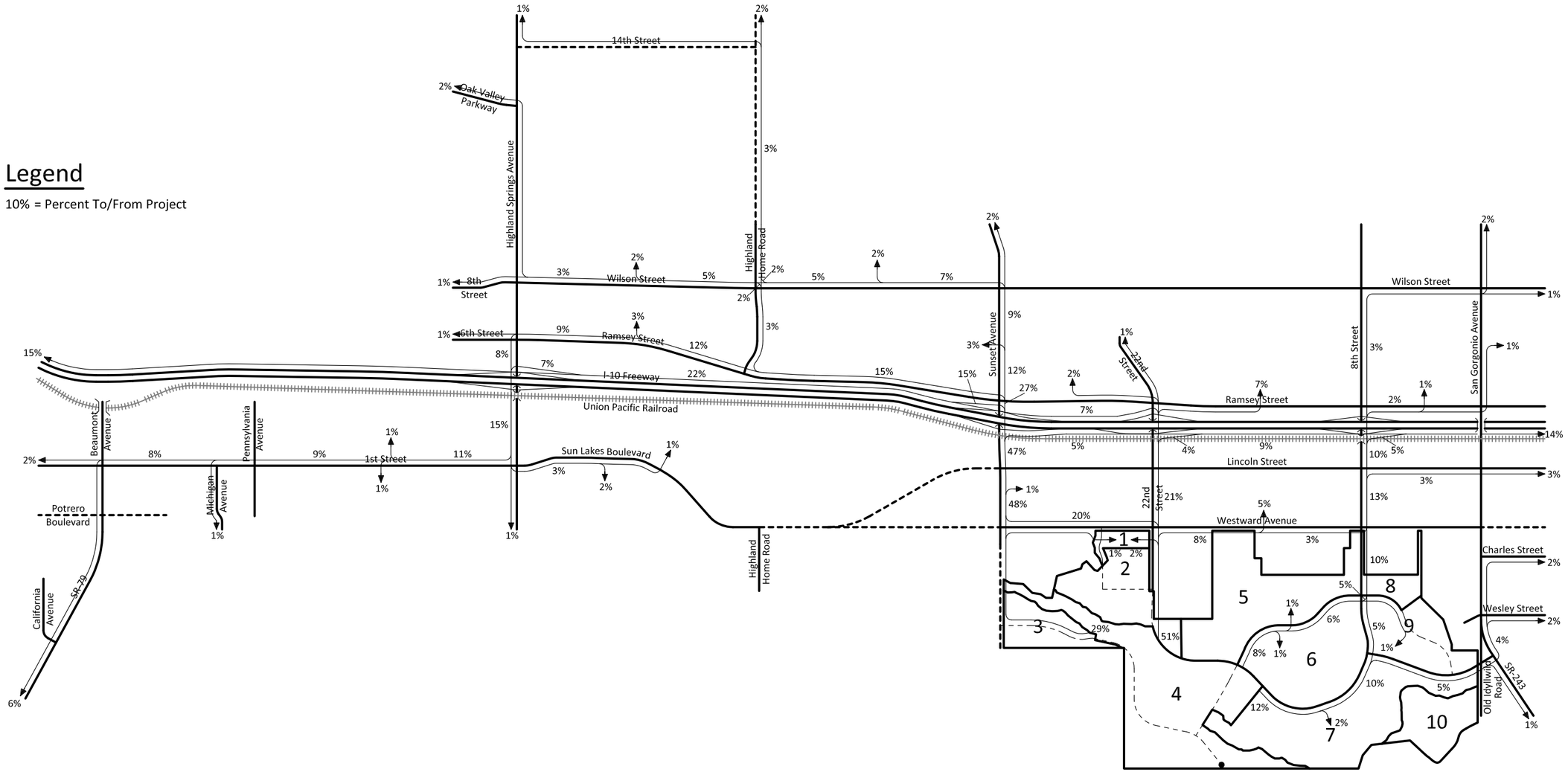
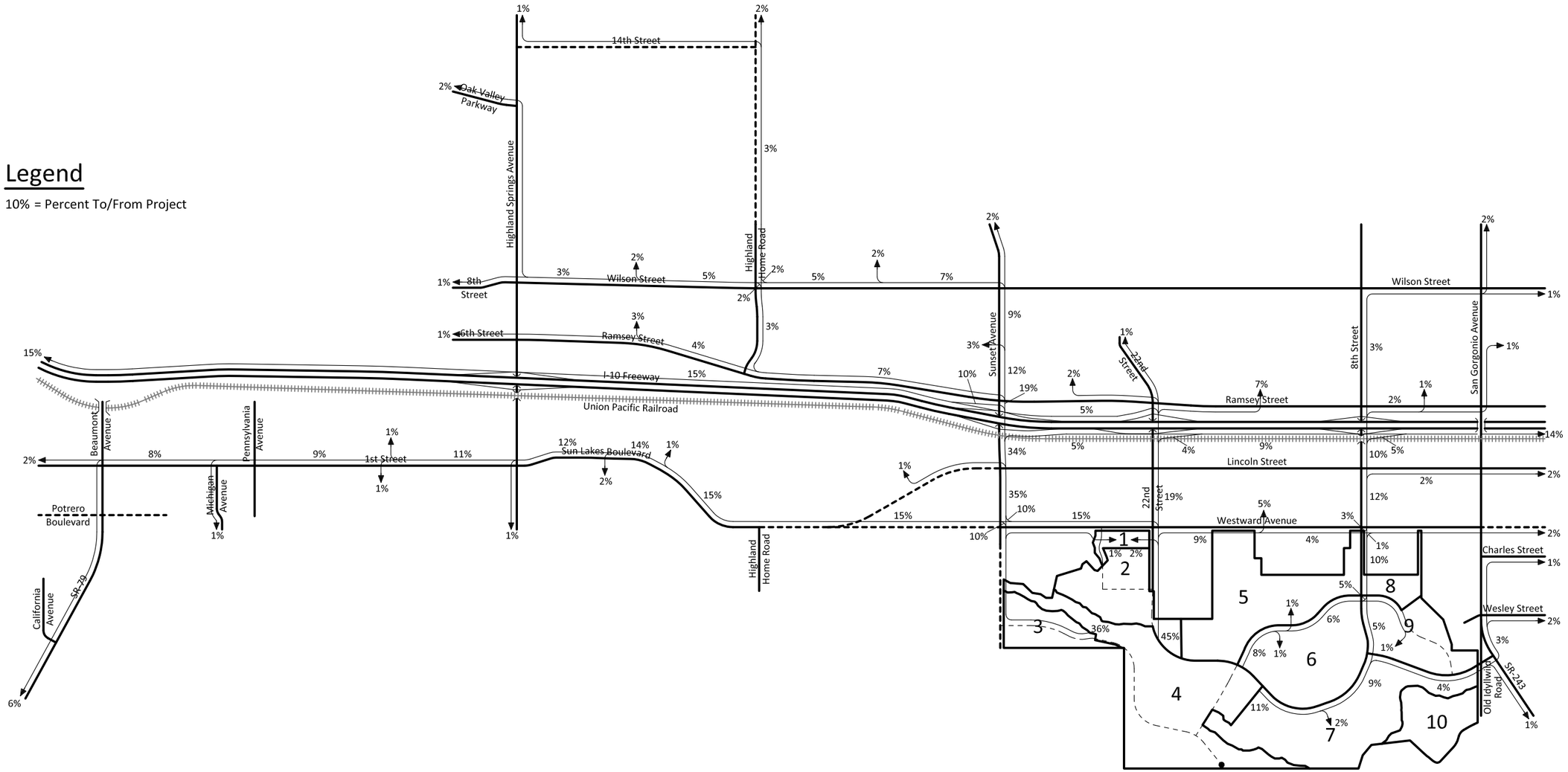


Figure 24
Project Trip Distribution - Traffic Analysis Zone 4 (General Plan Buildout)



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OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

Figure 25
Project Trip Distribution - Traffic Analysis Zone 5 (Interim Year 2025)

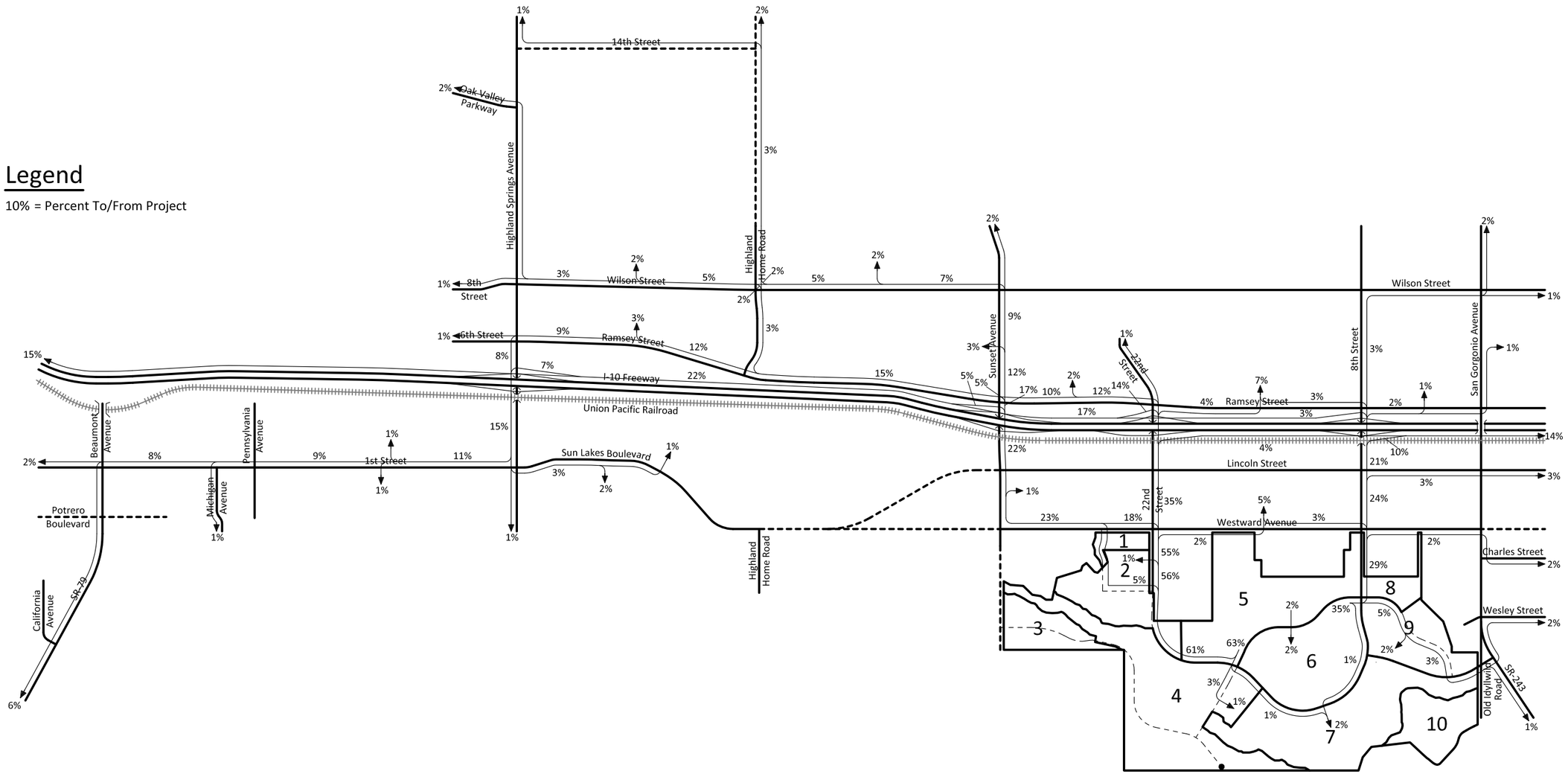


Figure 26
Project Trip Distribution - Traffic Analysis Zone 5 (Interim Year 2029)

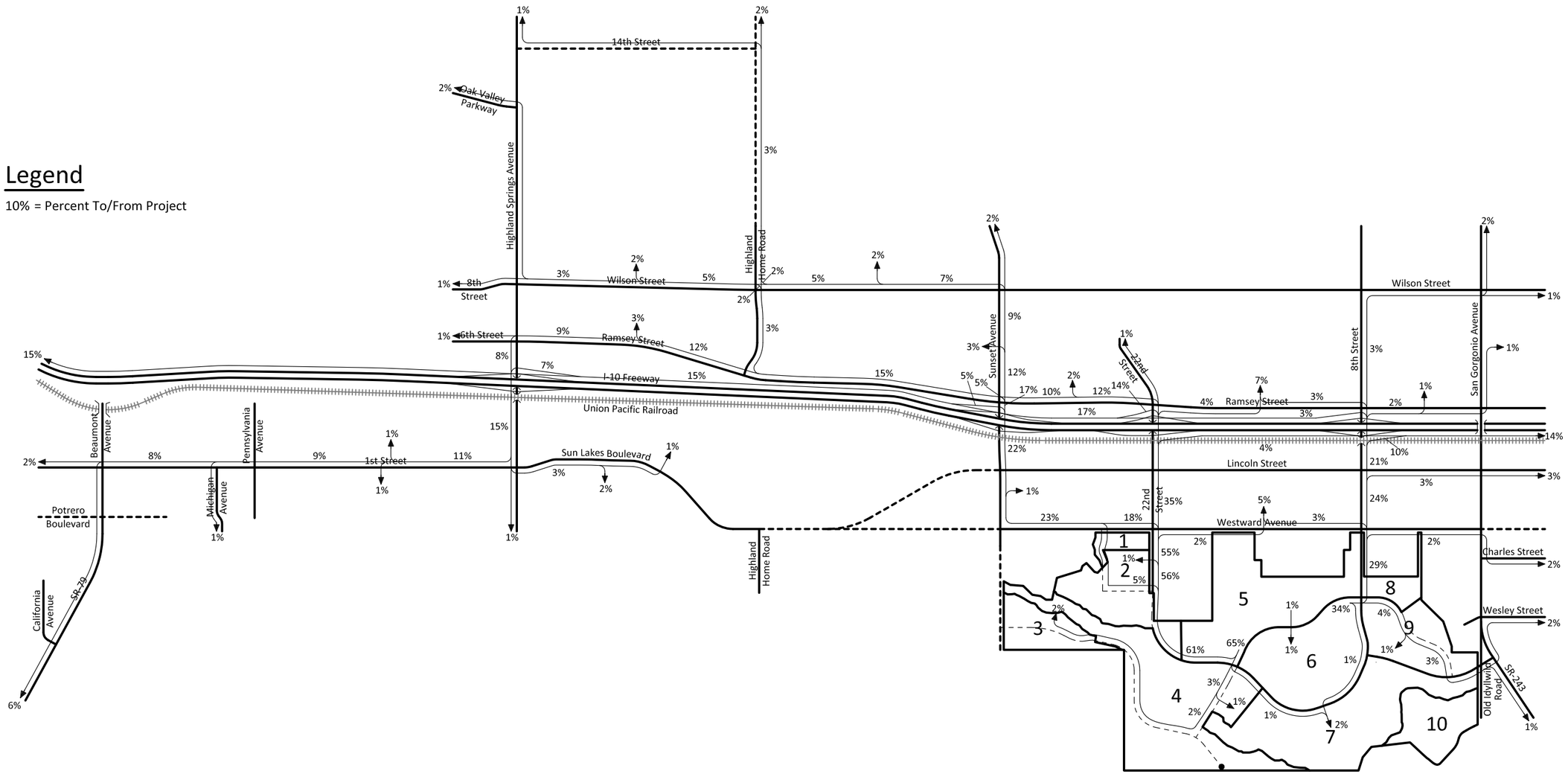


Figure 27
Project Trip Distribution - Traffic Analysis Zone 5 (General Plan Buildout)

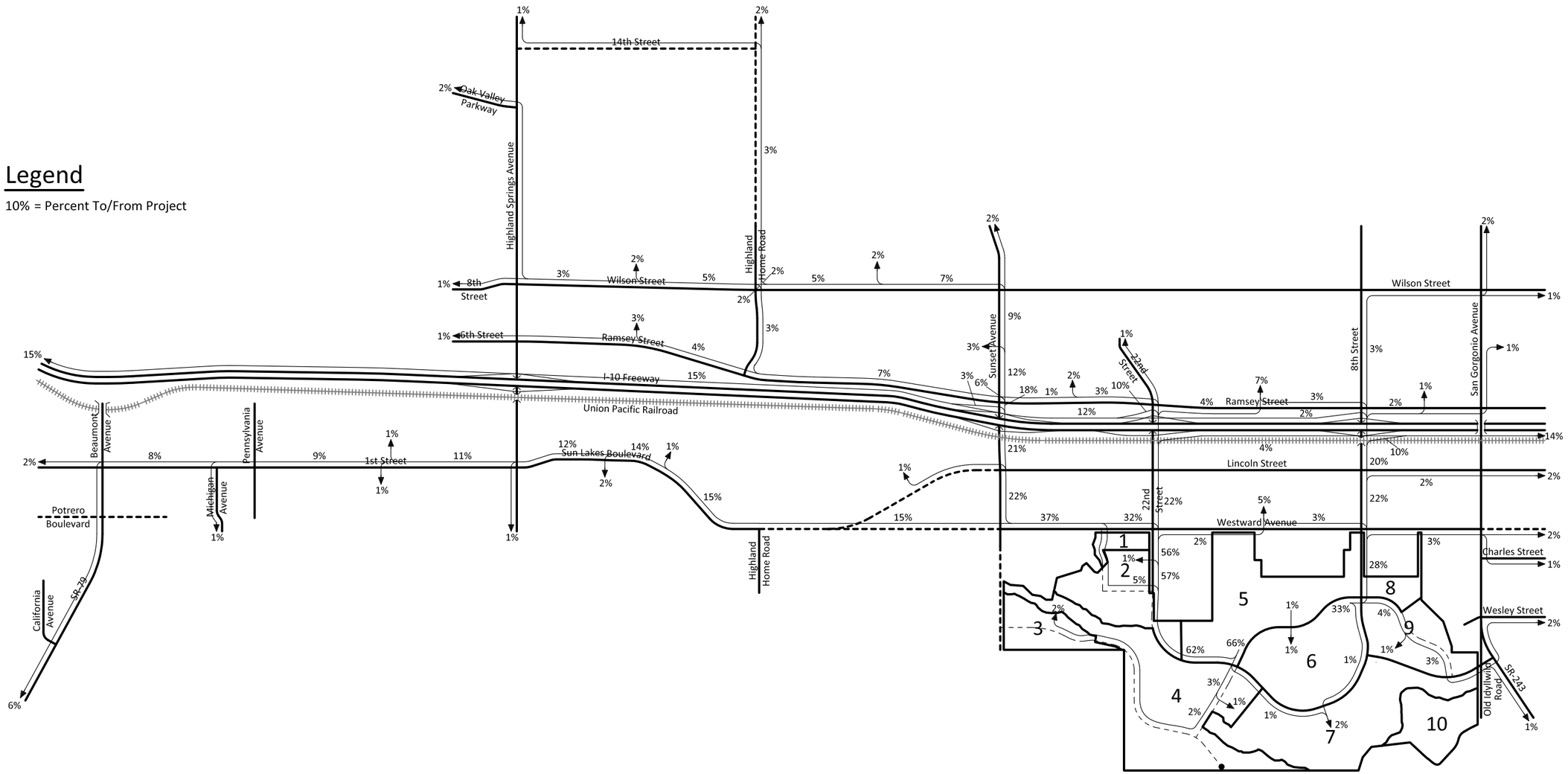


Figure 28
Project Trip Distribution - Traffic Analysis Zone 6 (Interim Year 2019)

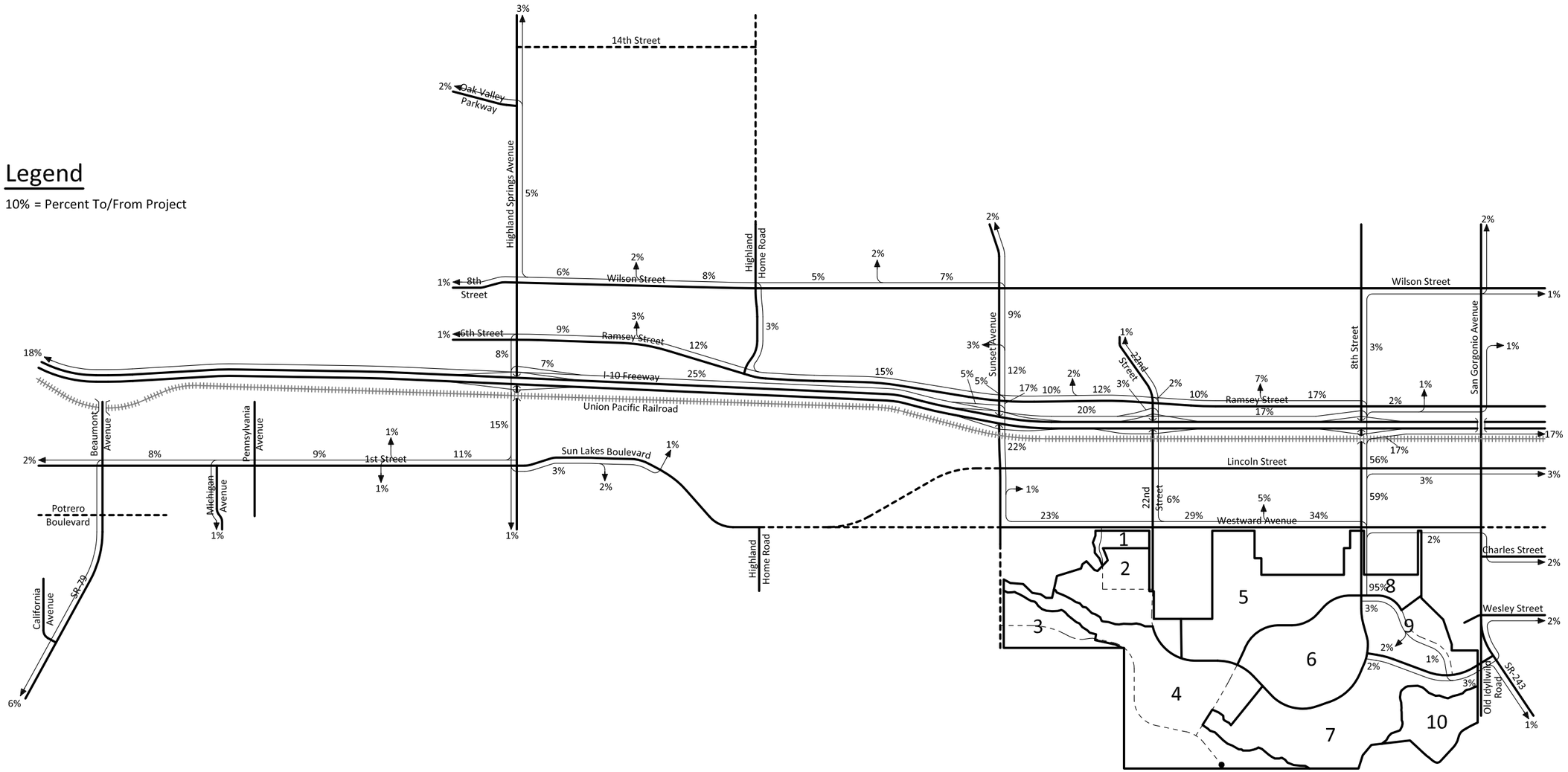


Figure 29
Project Trip Distribution - Traffic Analysis Zone 6 (Interim Year 2022)

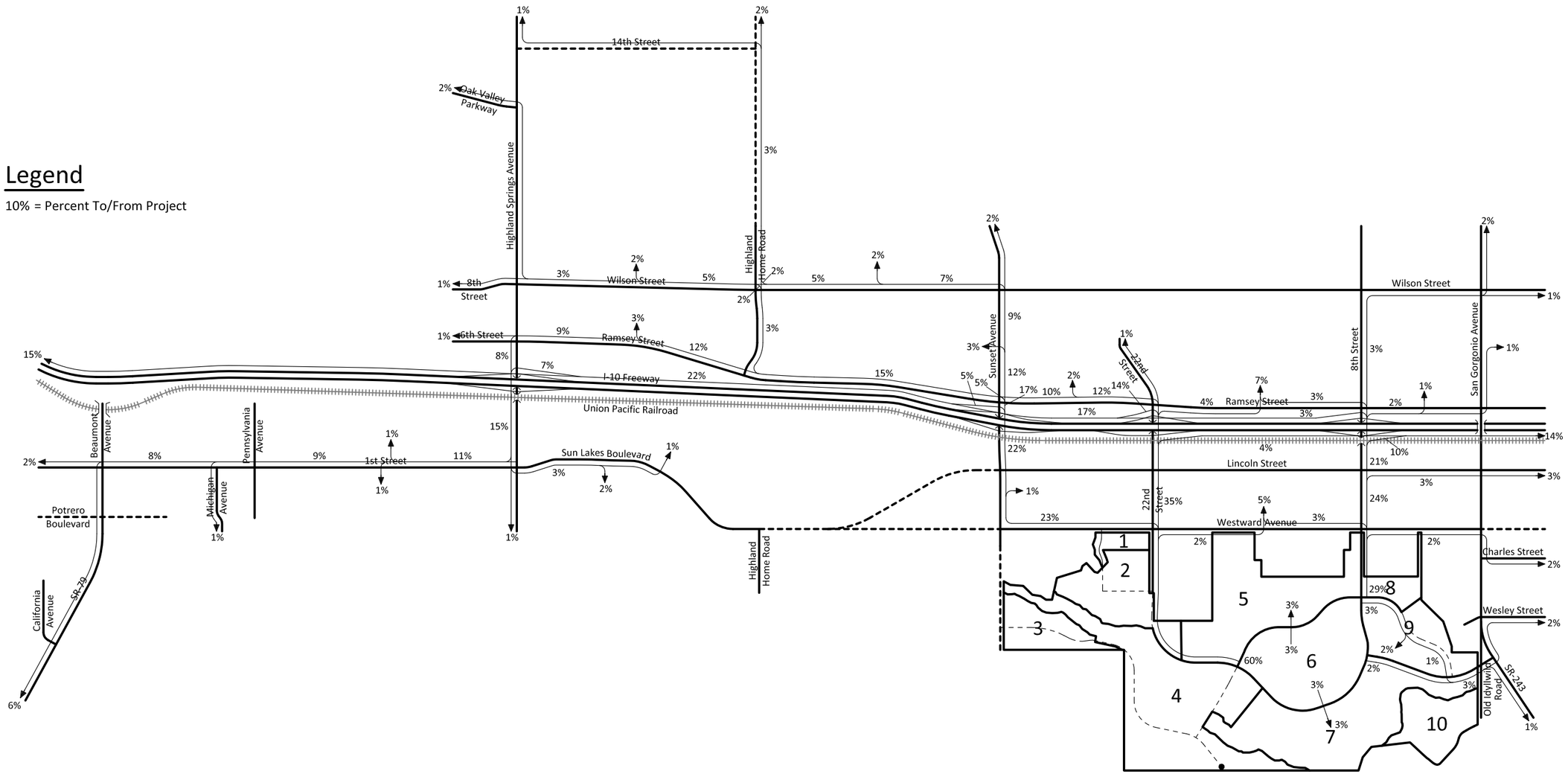


Figure 30
Project Trip Distribution - Traffic Analysis Zone 6 (Interim Year 2025)

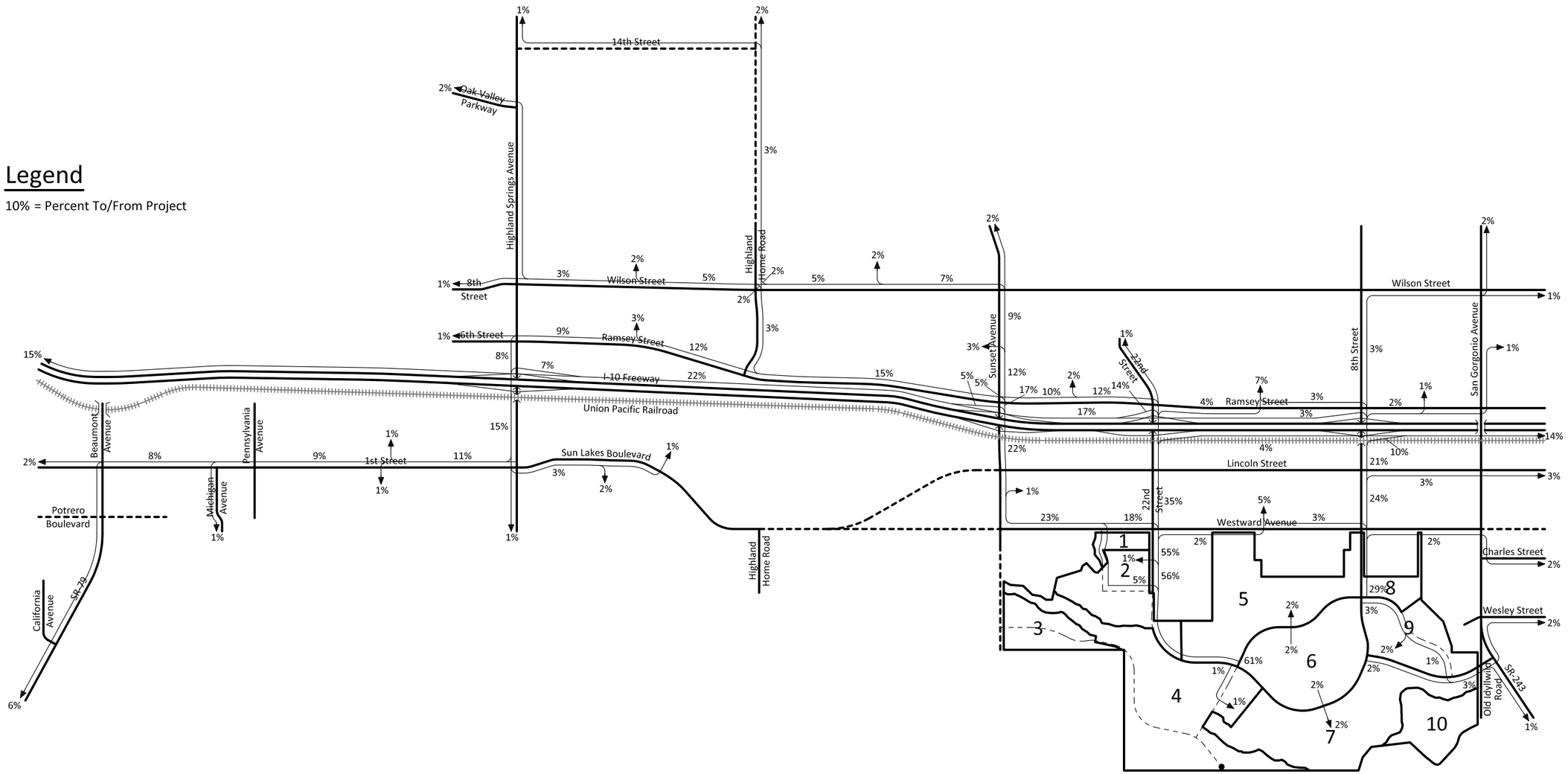


Figure 31
Project Trip Distribution - Traffic Analysis Zone 6 (Interim Year 2029)

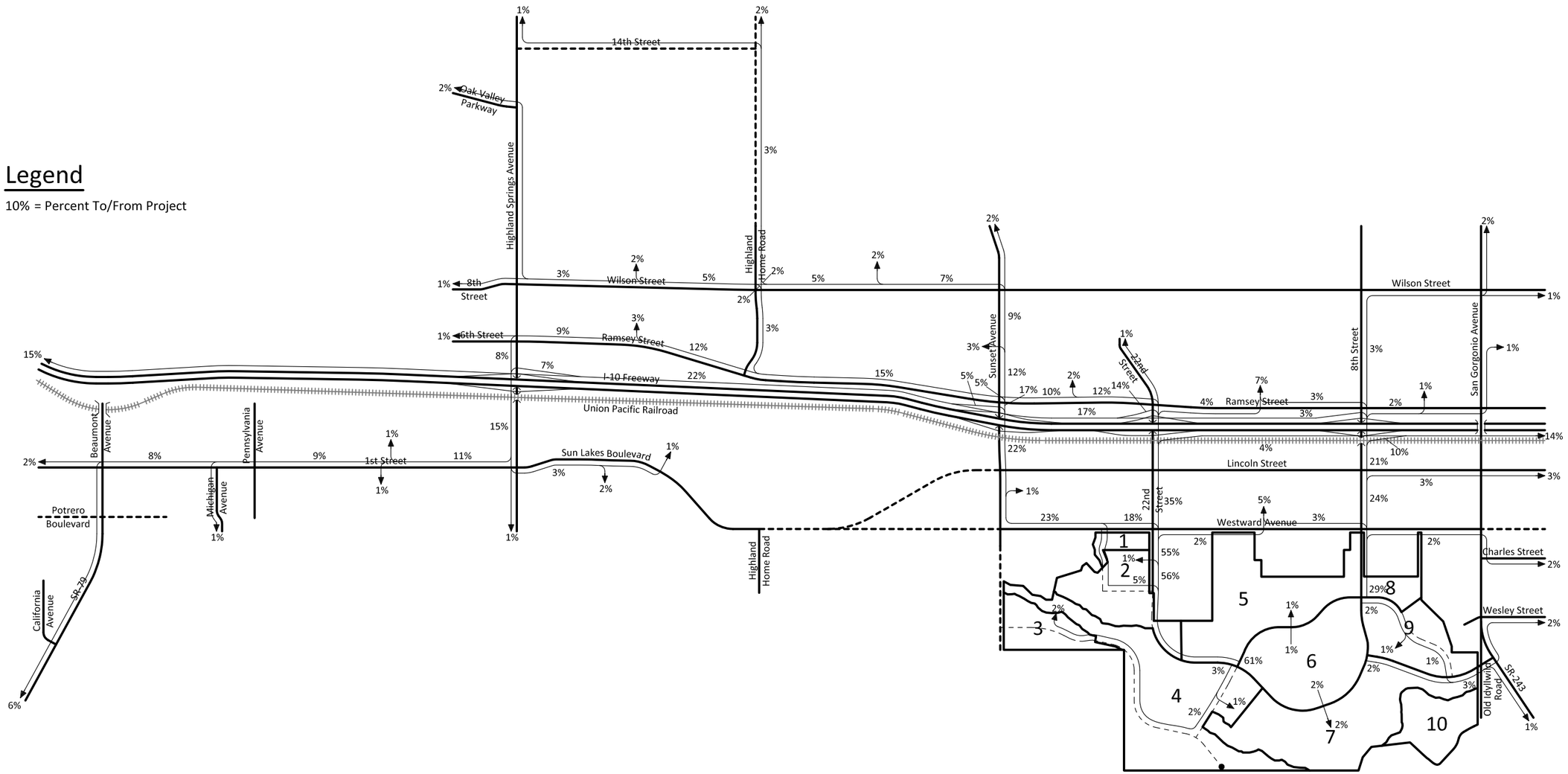


Figure 32
Project Trip Distribution - Traffic Analysis Zone 6 (General Plan Buildout)

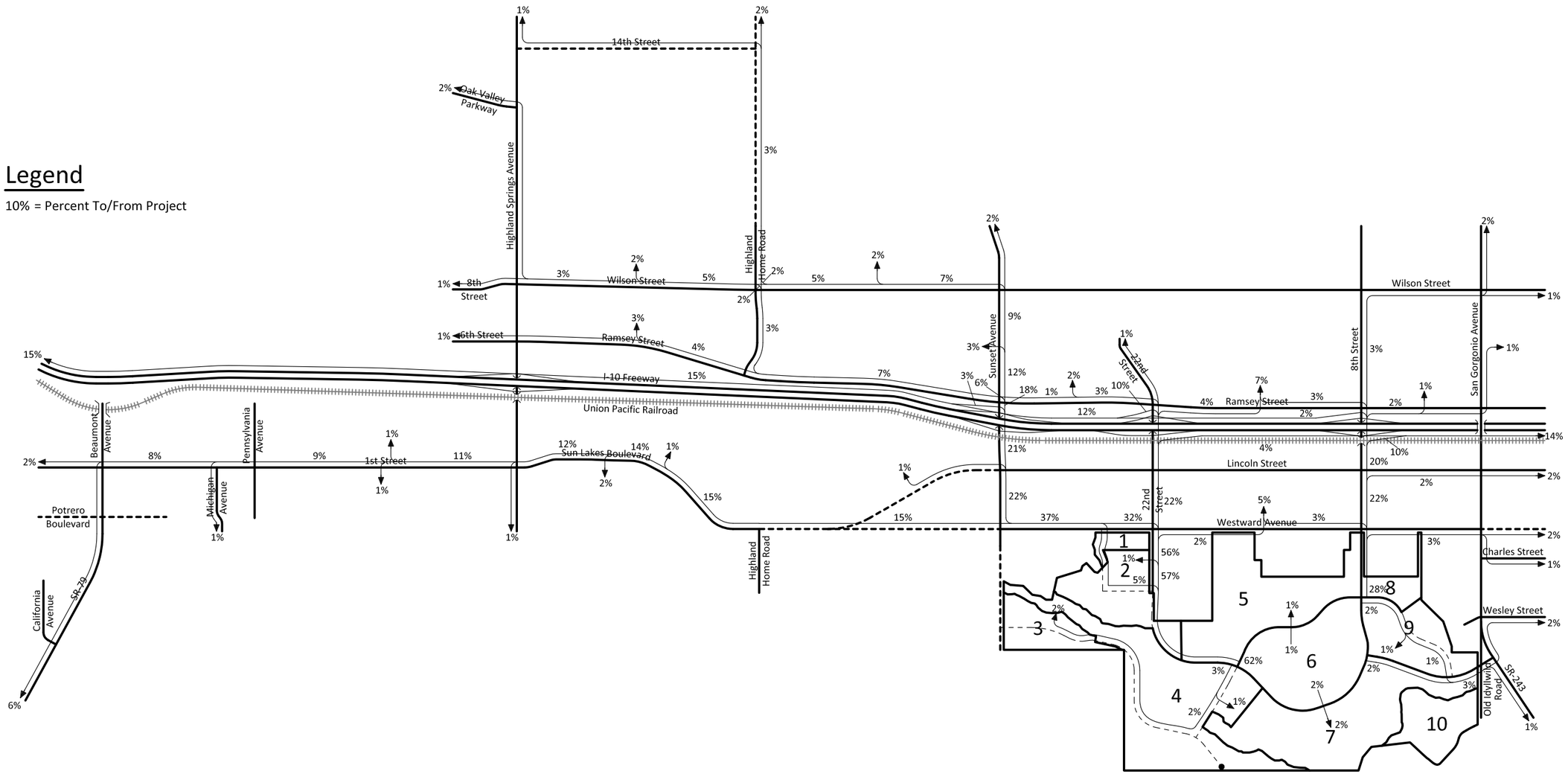


Figure 33
Project Trip Distribution - Traffic Analysis Zone 7 (Interim Year 2022)

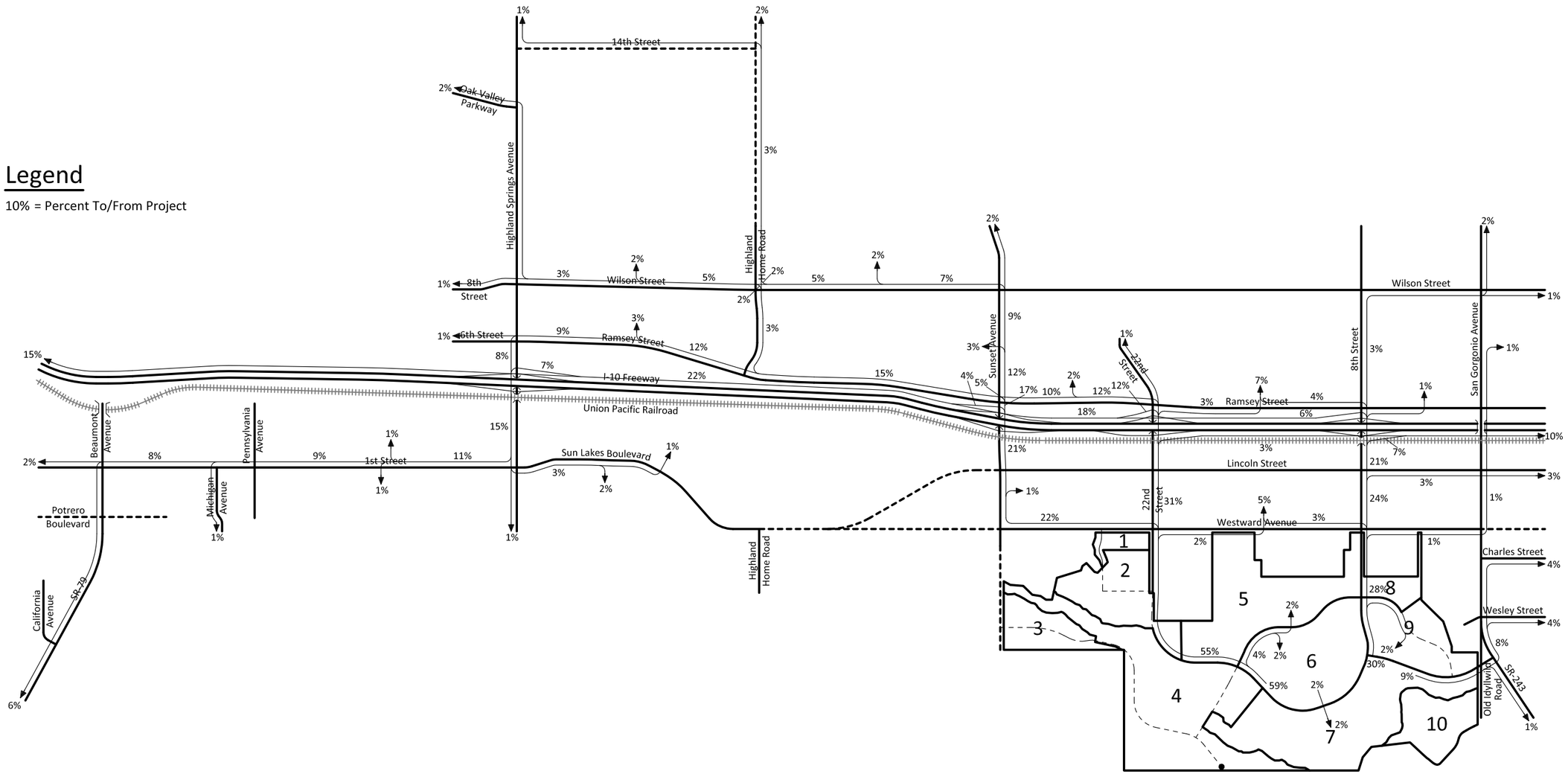


Figure 34
Project Trip Distribution - Traffic Analysis Zone 7 (Interim Year 2025)

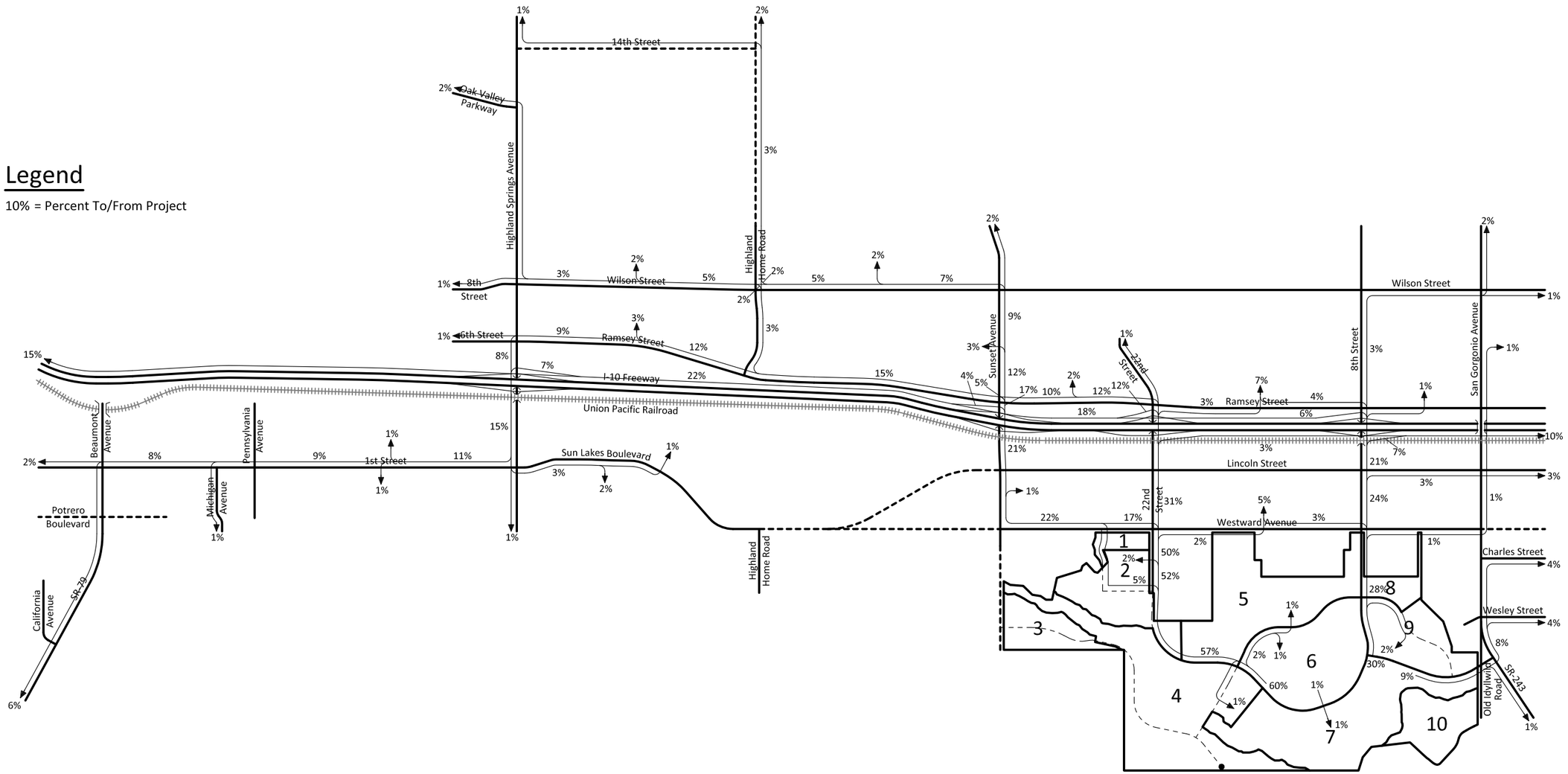


Figure 35
Project Trip Distribution - Traffic Analysis Zone 7 (Interim Year 2029)

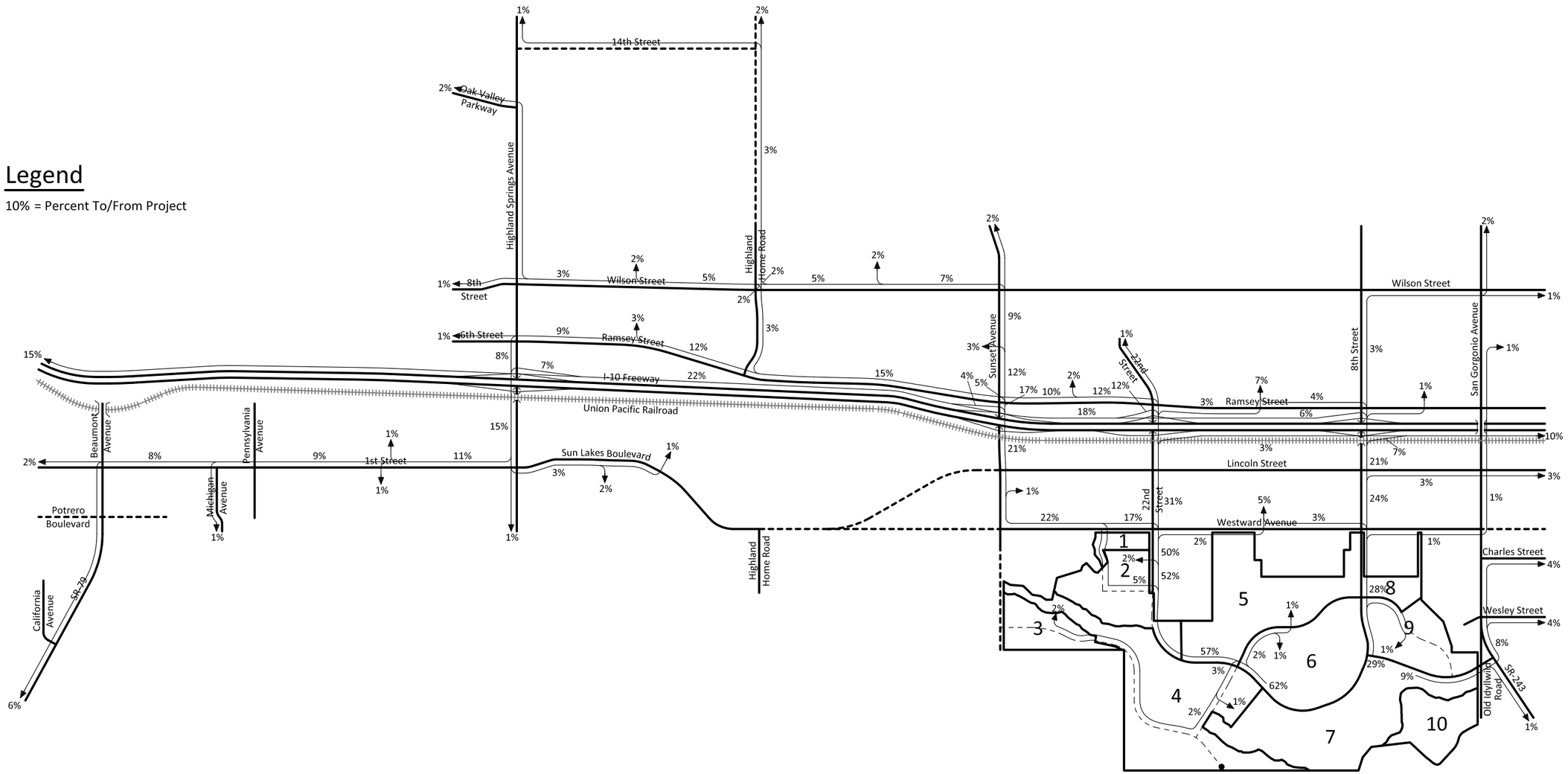
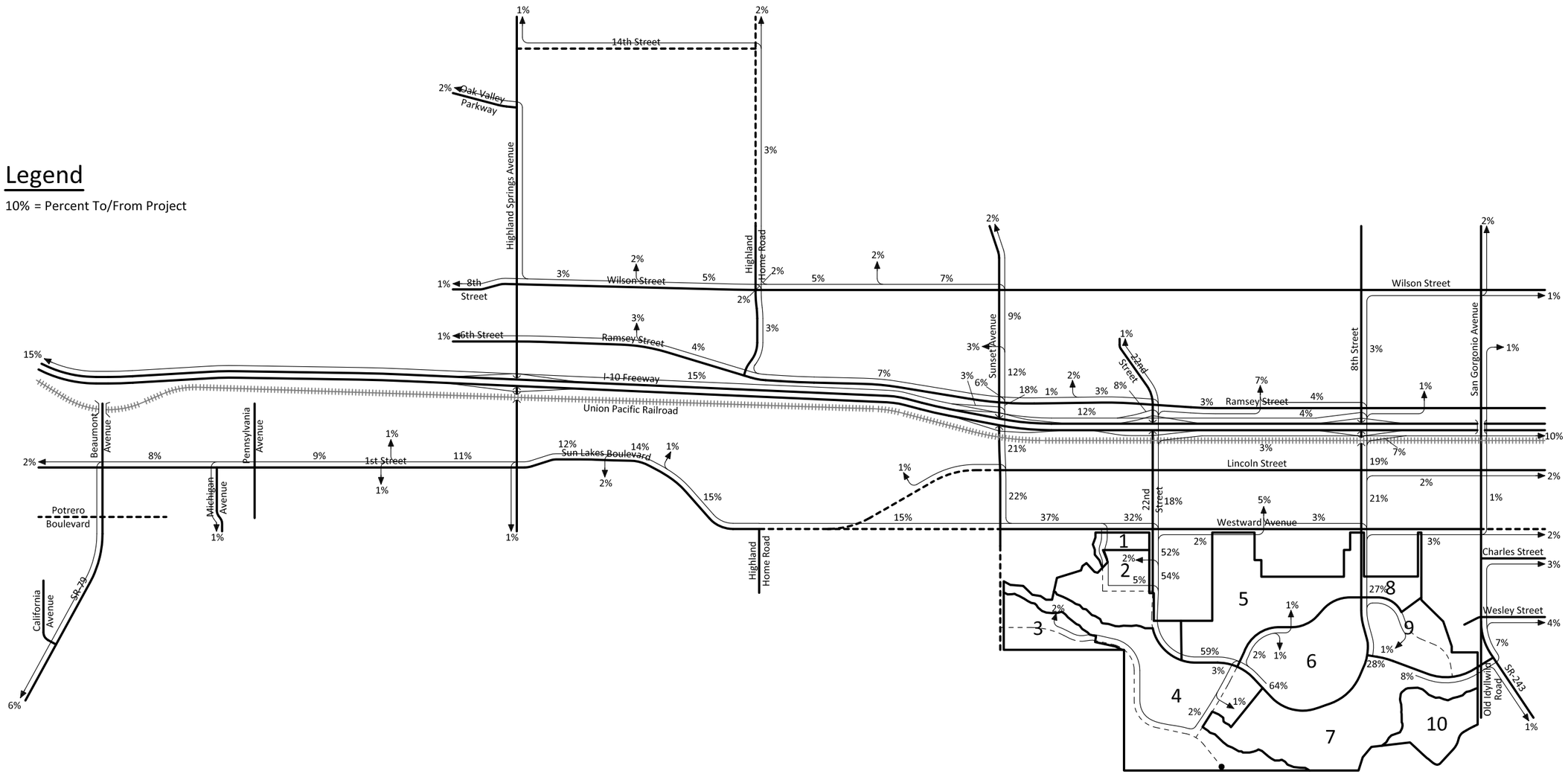


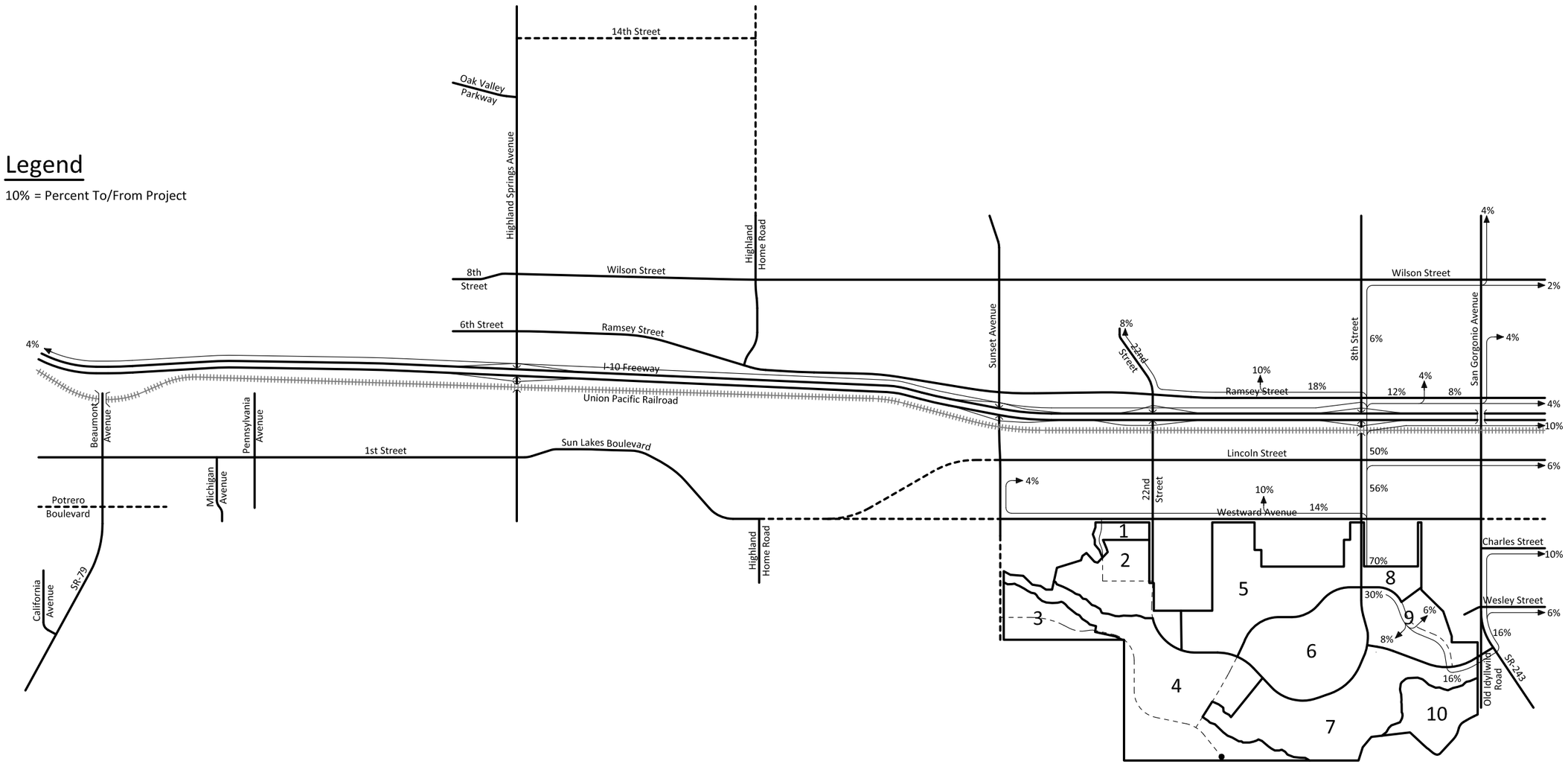
Figure 36
Project Trip Distribution - Traffic Analysis Zone 7 (General Plan Buildout)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

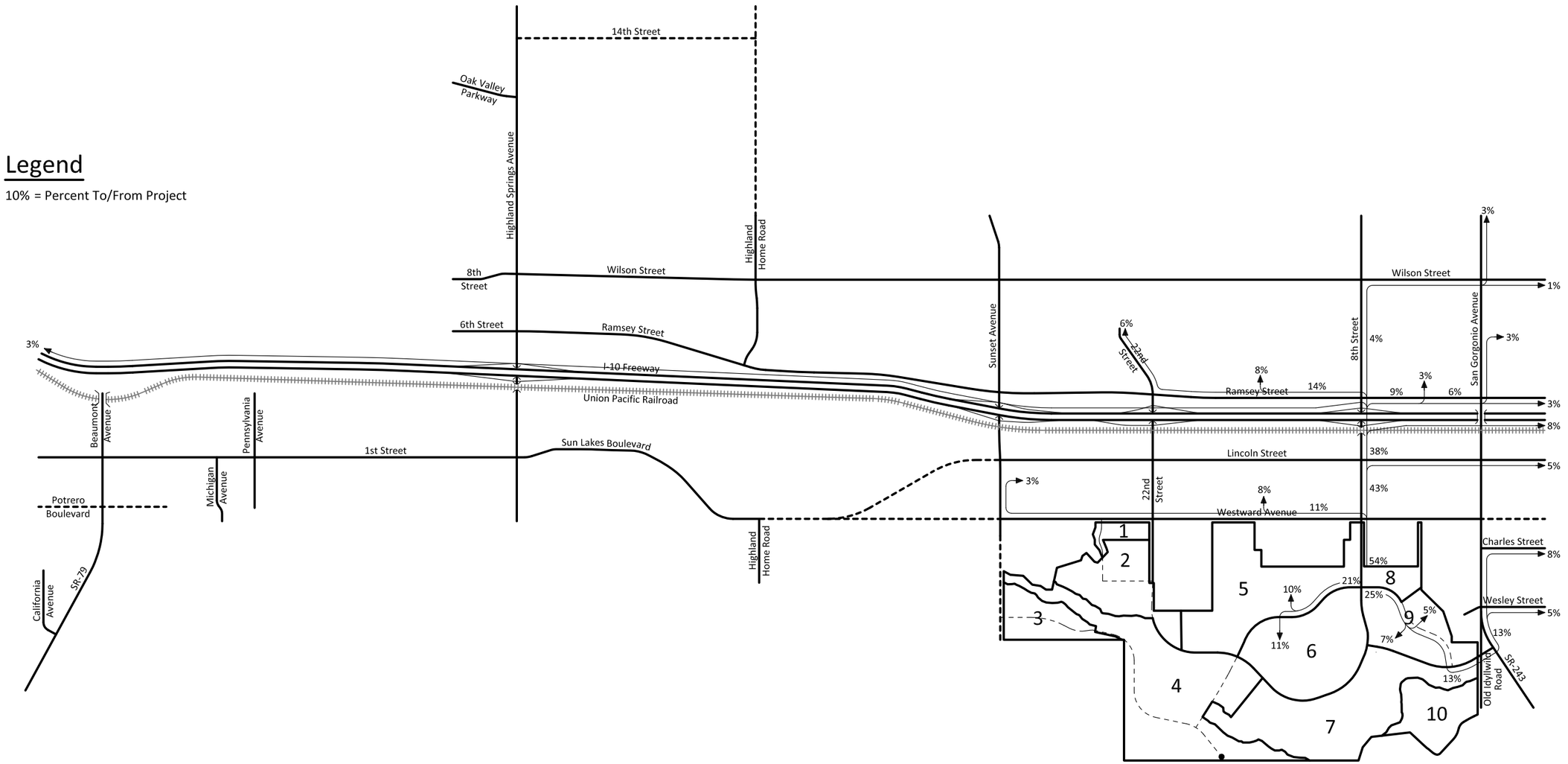
Figure 37
Project Trip Distribution - Traffic Analysis Zone 8 (Opening Year 2017)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

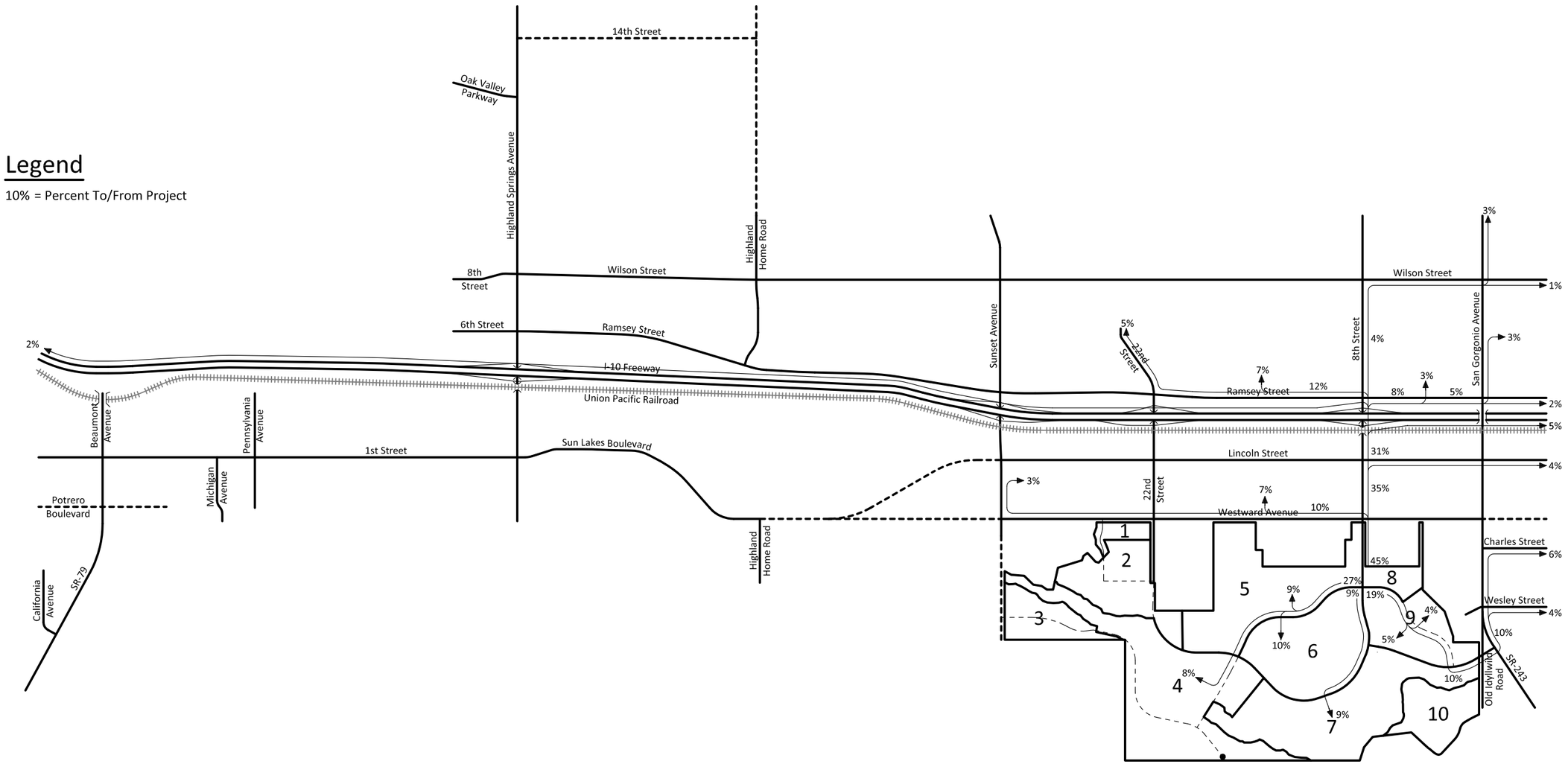
Figure 38
Project Trip Distribution - Traffic Analysis Zone 8 (Interim Year 2019)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

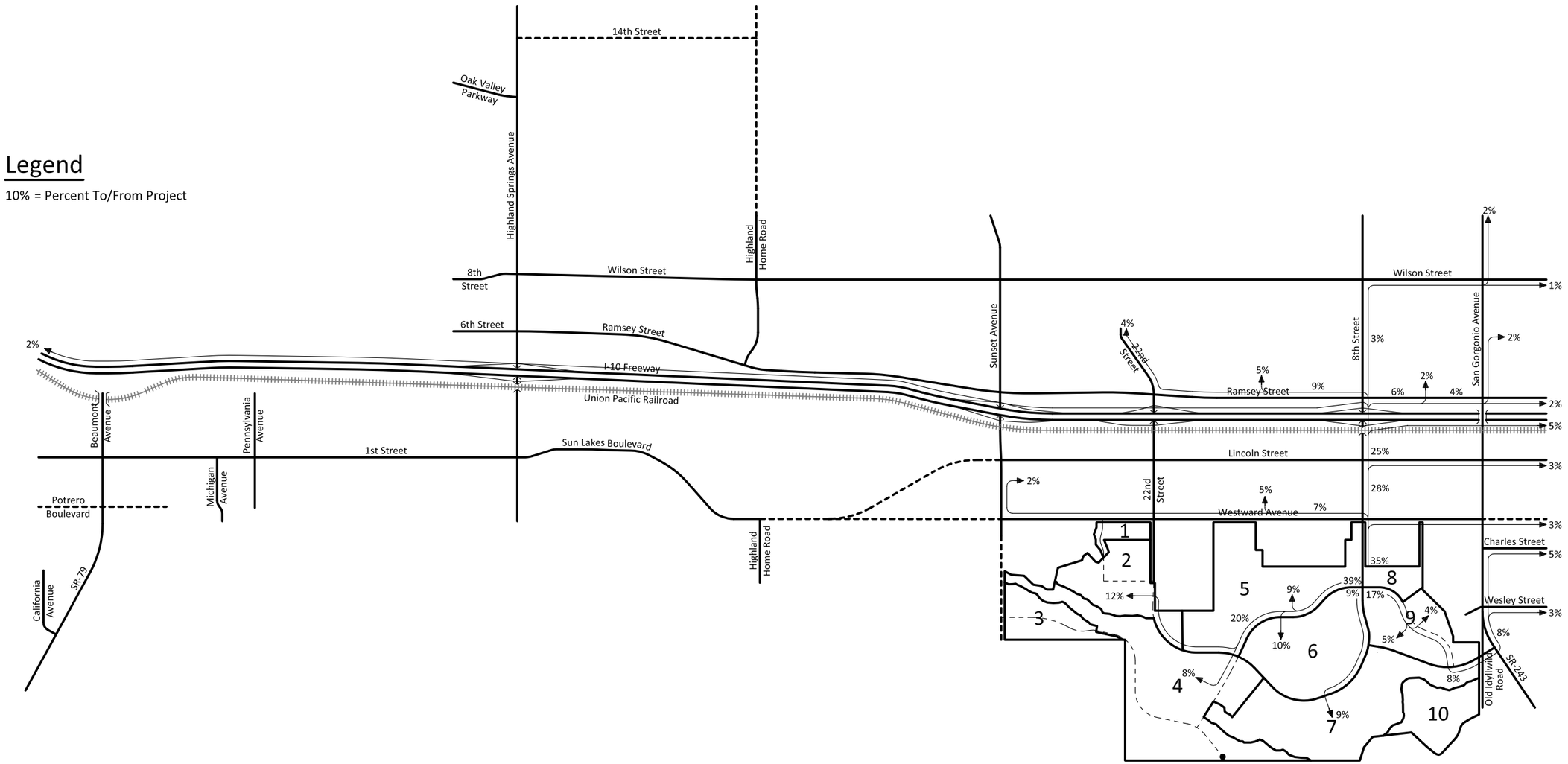
Figure 39
Project Trip Distribution - Traffic Analysis Zone 8 (Interim Year 2022)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

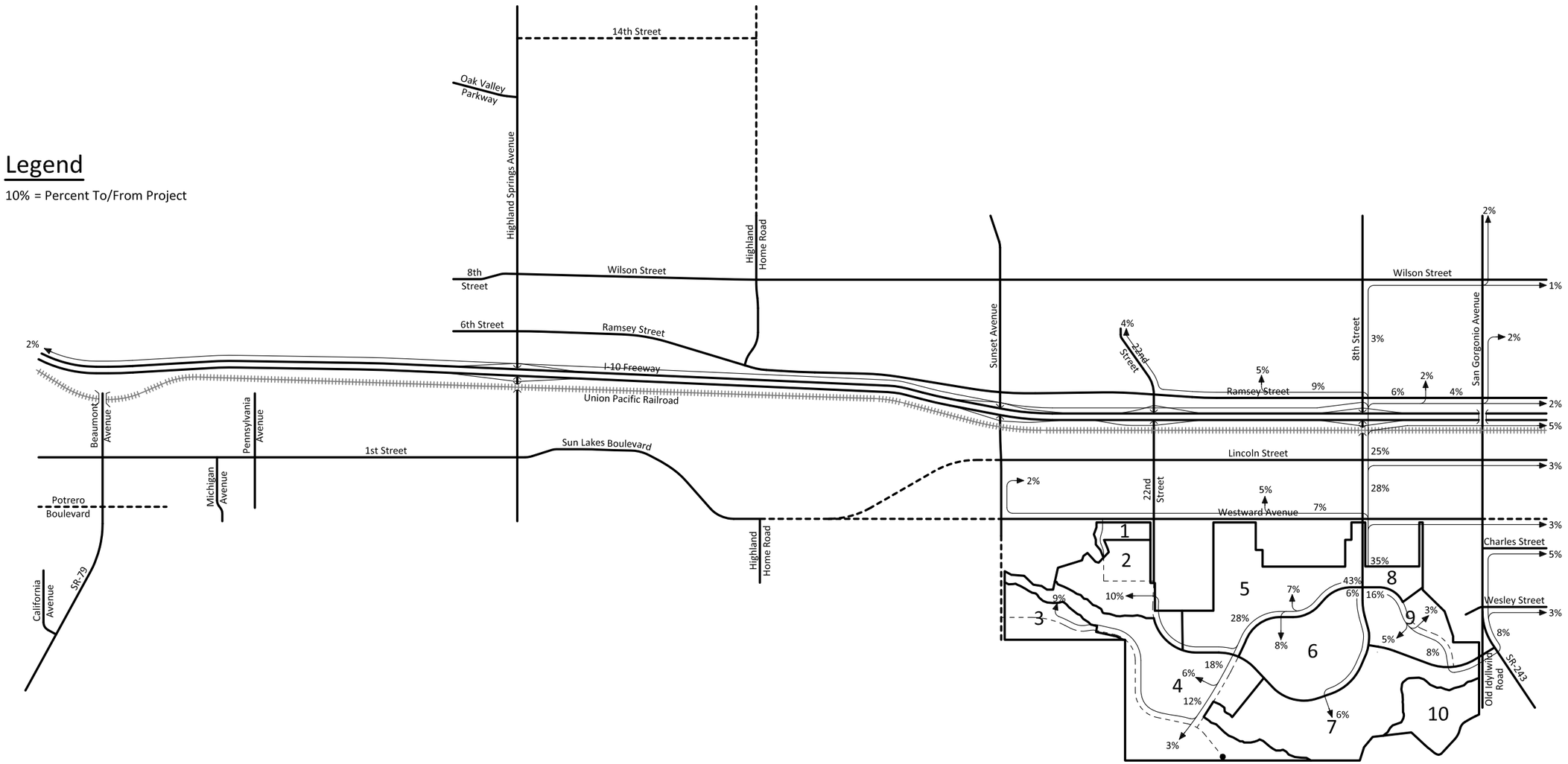
Figure 40
Project Trip Distribution - Traffic Analysis Zone 8 (Interim Year 2025)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

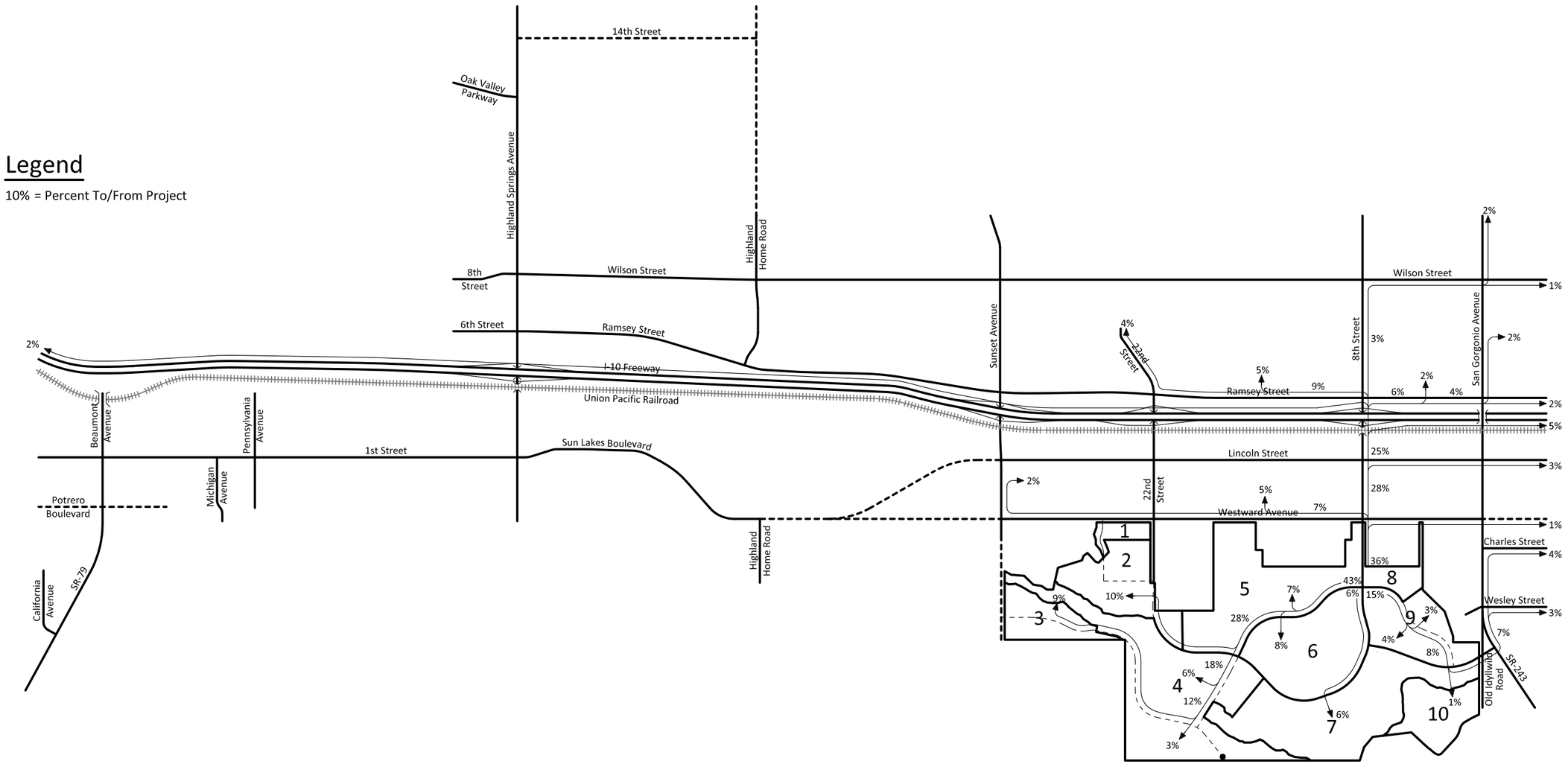
Figure 41
Project Trip Distribution - Traffic Analysis Zone 8 (Interim Year 2029)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

Figure 42
Project Trip Distribution - Traffic Analysis Zone 8 (General Plan Buildout)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

Figure 43
Project Trip Distribution - Traffic Analysis Zone 9 (Opening Year 2017)

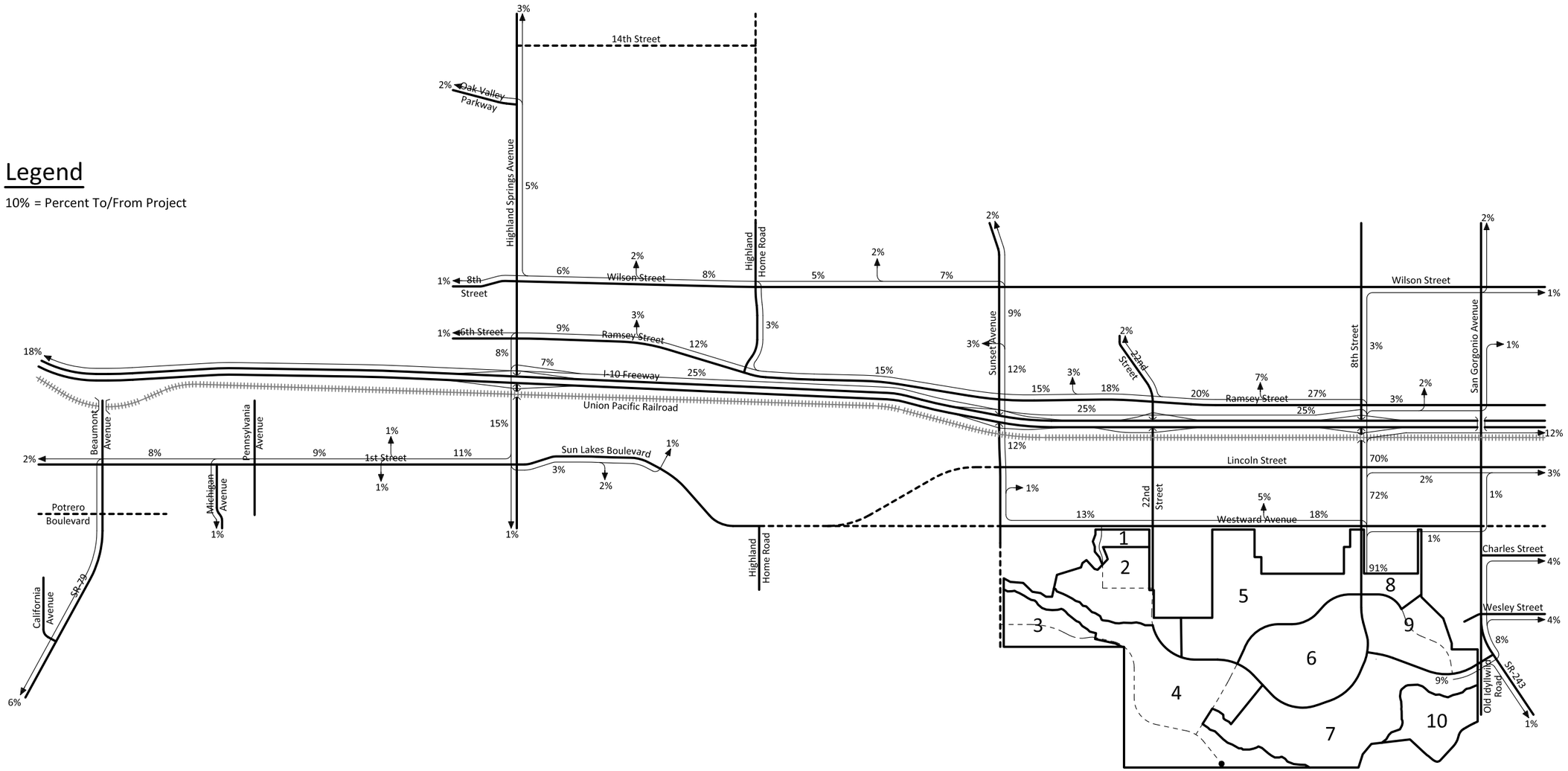
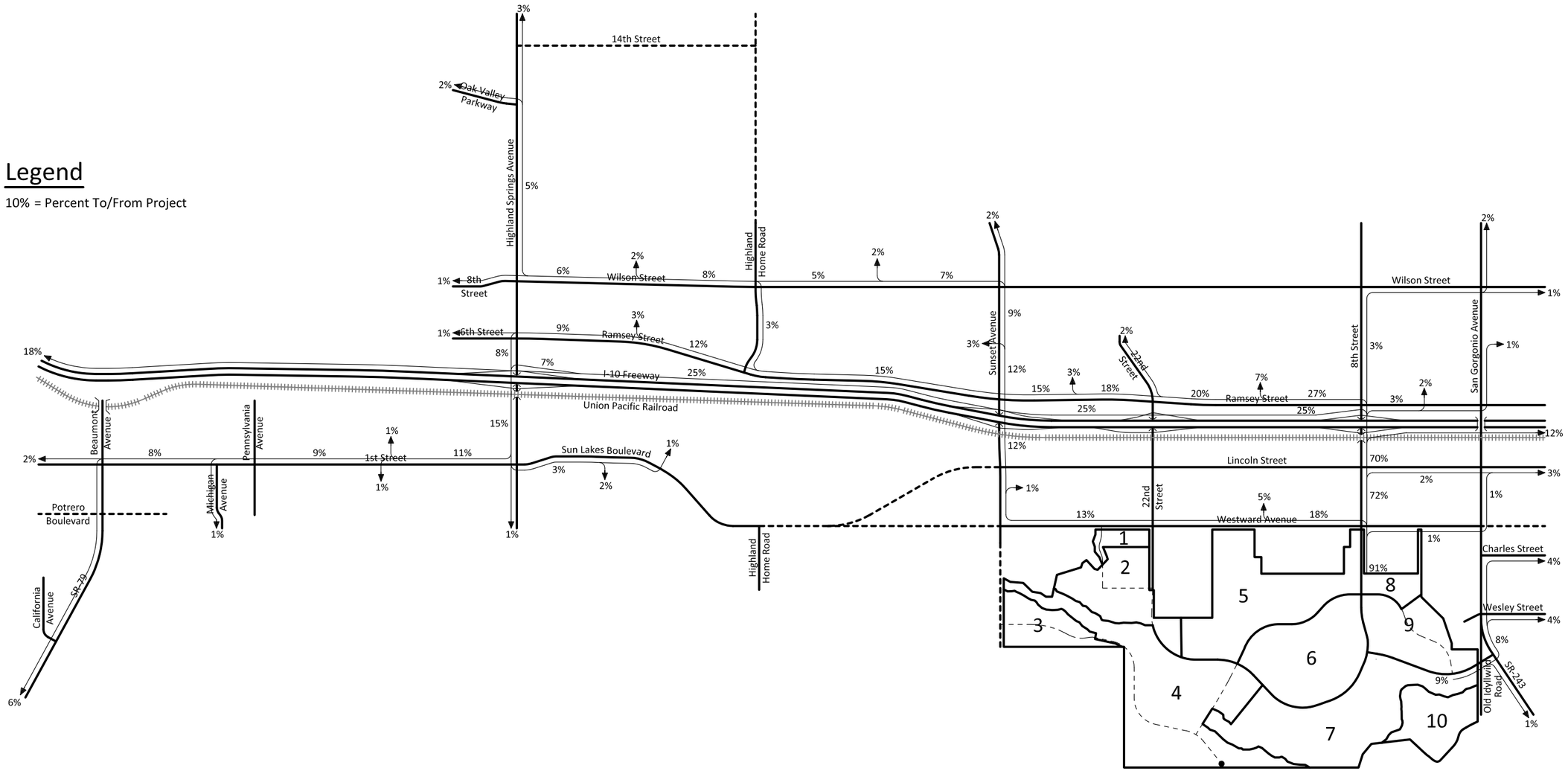


Figure 44
Project Trip Distribution - Traffic Analysis Zone 9 (Opening Year 2019)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

Figure 45
Project Trip Distribution - Traffic Analysis Zone 9 (Interim Year 2022)

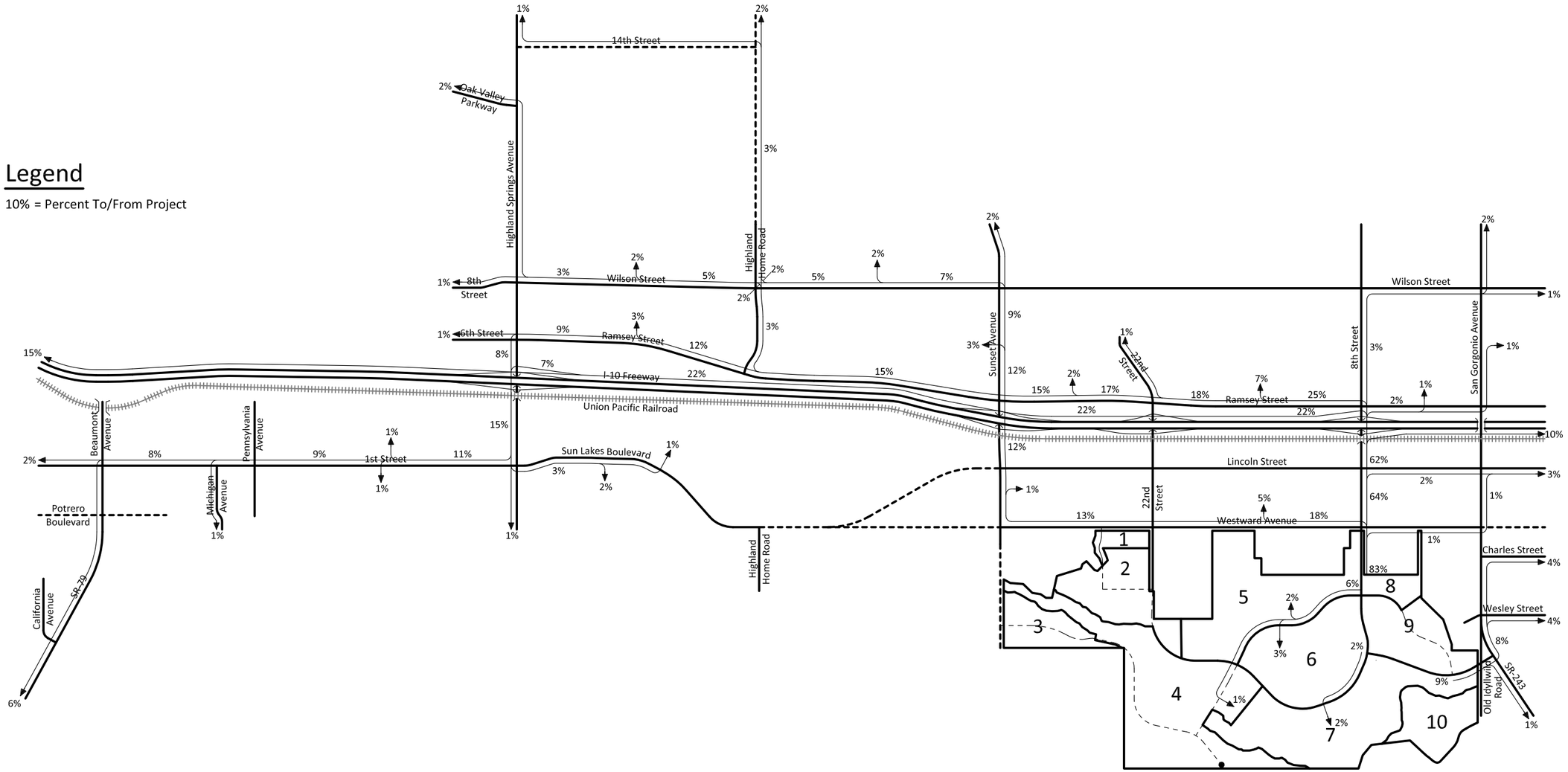
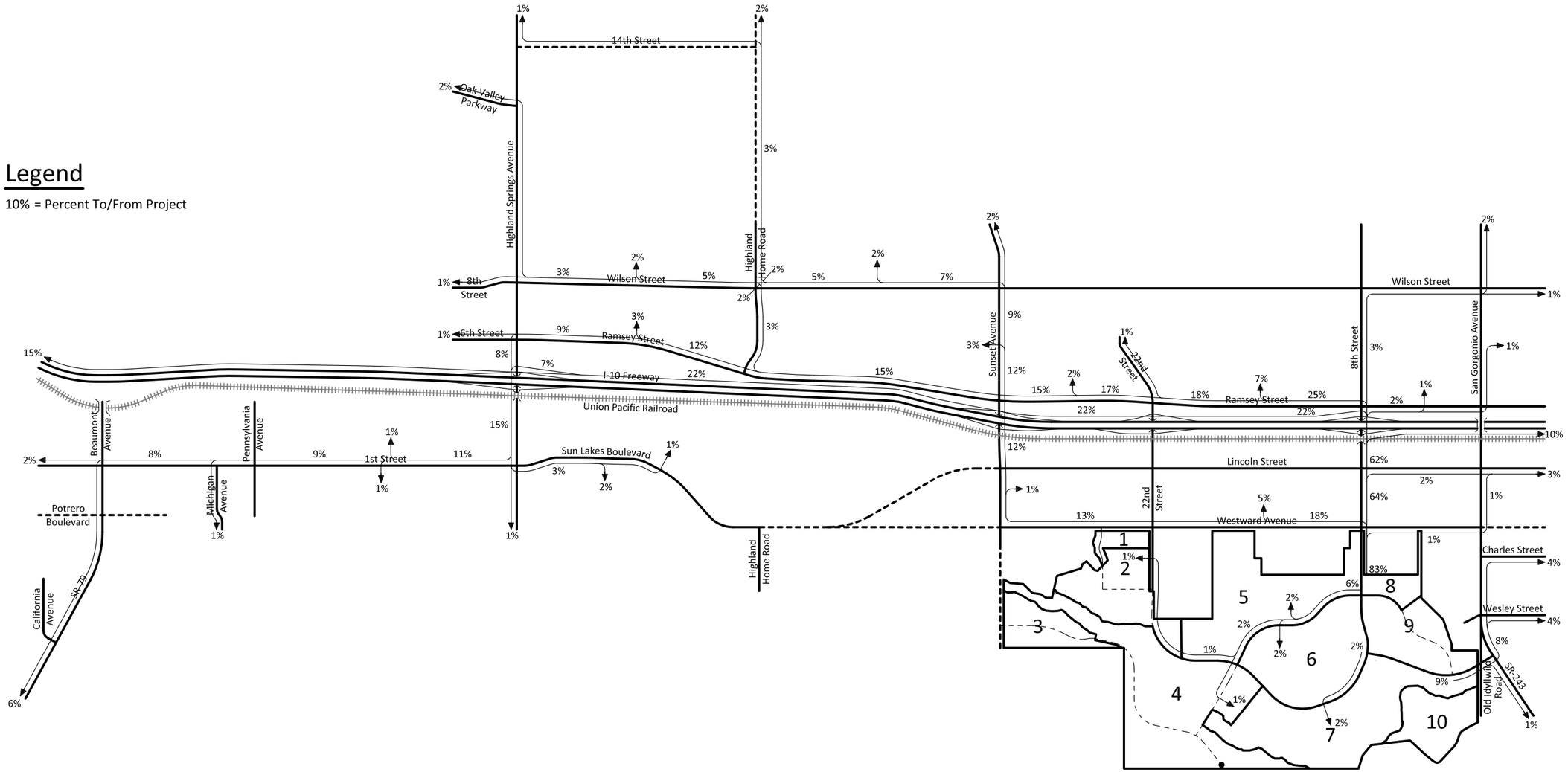


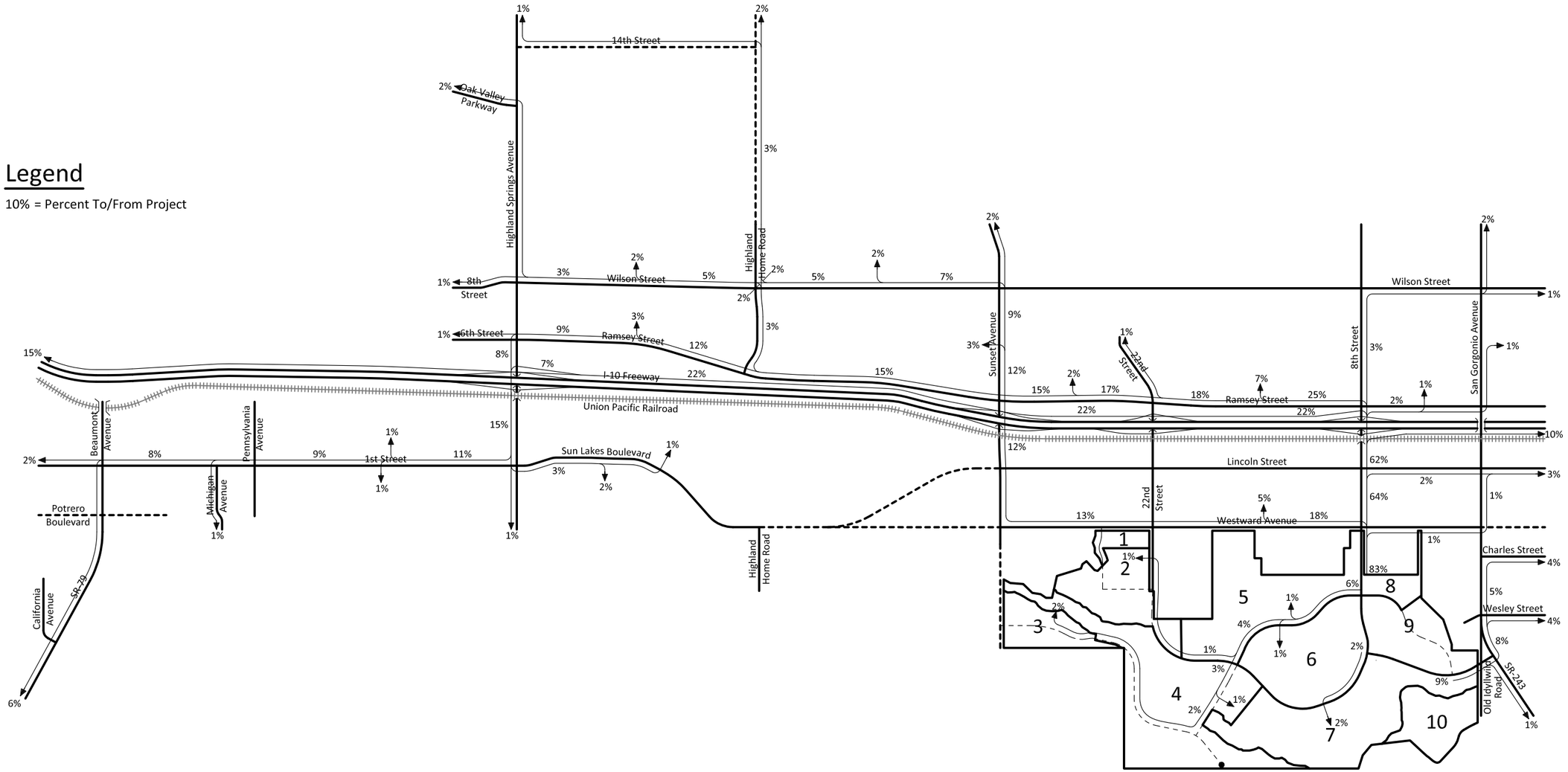
Figure 46
Project Trip Distribution - Traffic Analysis Zone 9 (Interim Year 2025)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

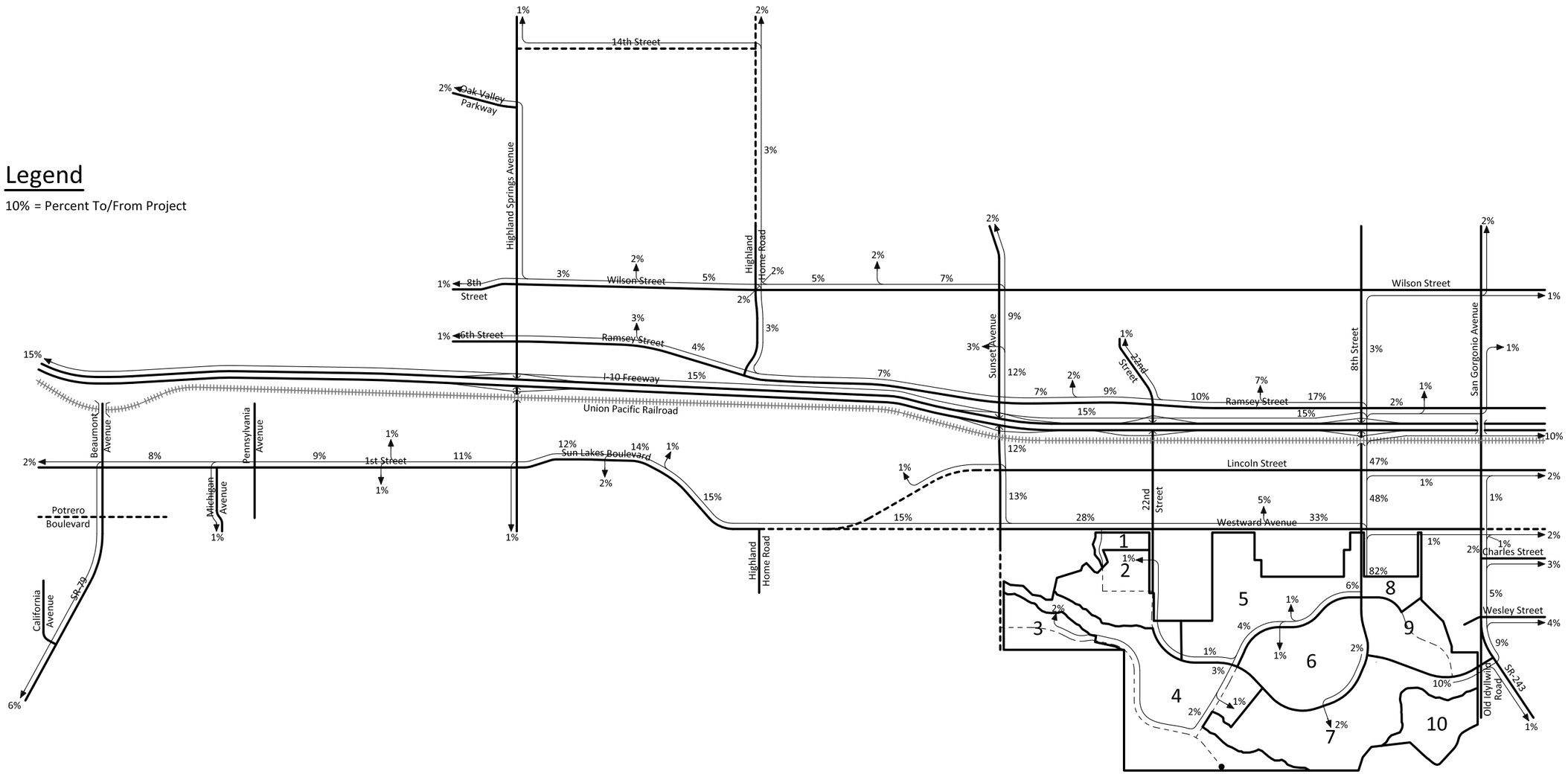
Figure 47
Project Trip Distribution - Traffic Analysis Zone 9 (Interim Year 2029)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

Figure 48
Project Trip Distribution - Traffic Analysis Zone 9 (General Plan Buildout)



KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

JN 5217f

Figure 49
Project Trip Distribution - Traffic Analysis Zone 10 (General Plan Buildout)

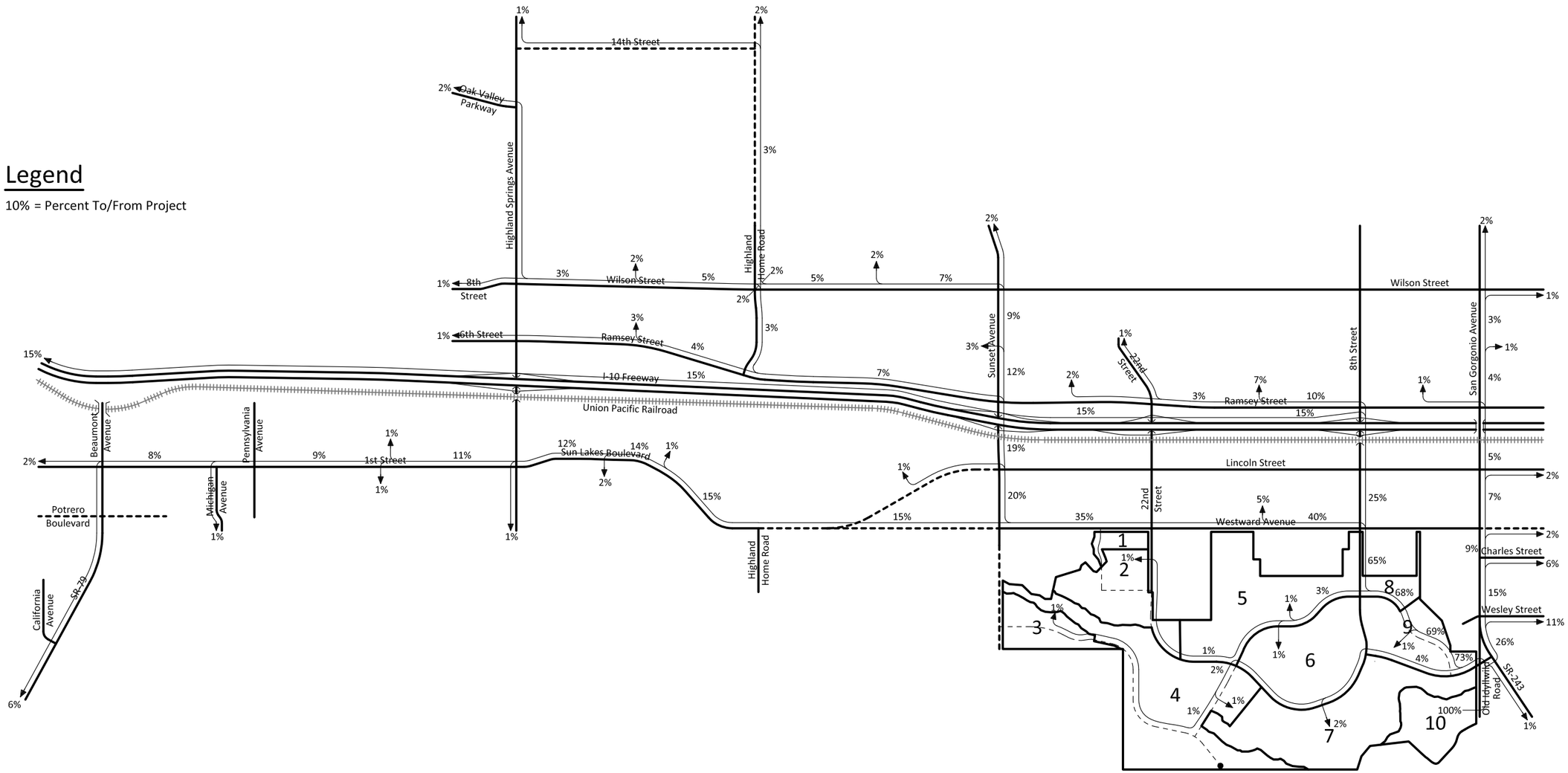


Figure 50
Project Average Daily Traffic Volumes - Existing Plus Project Conditions

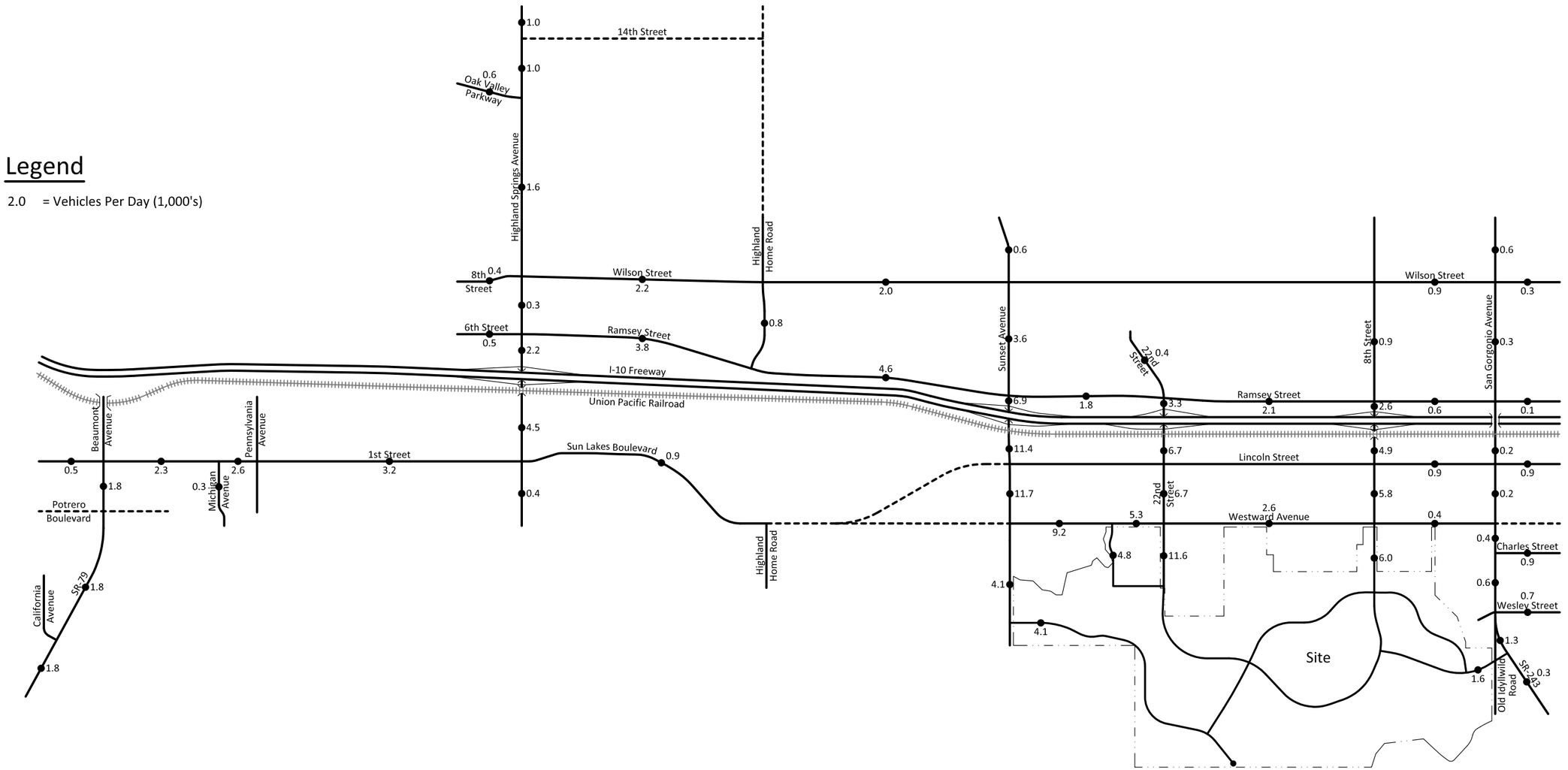


Figure 51
Project Average Daily Traffic Volumes - Opening Year (2017) Conditions

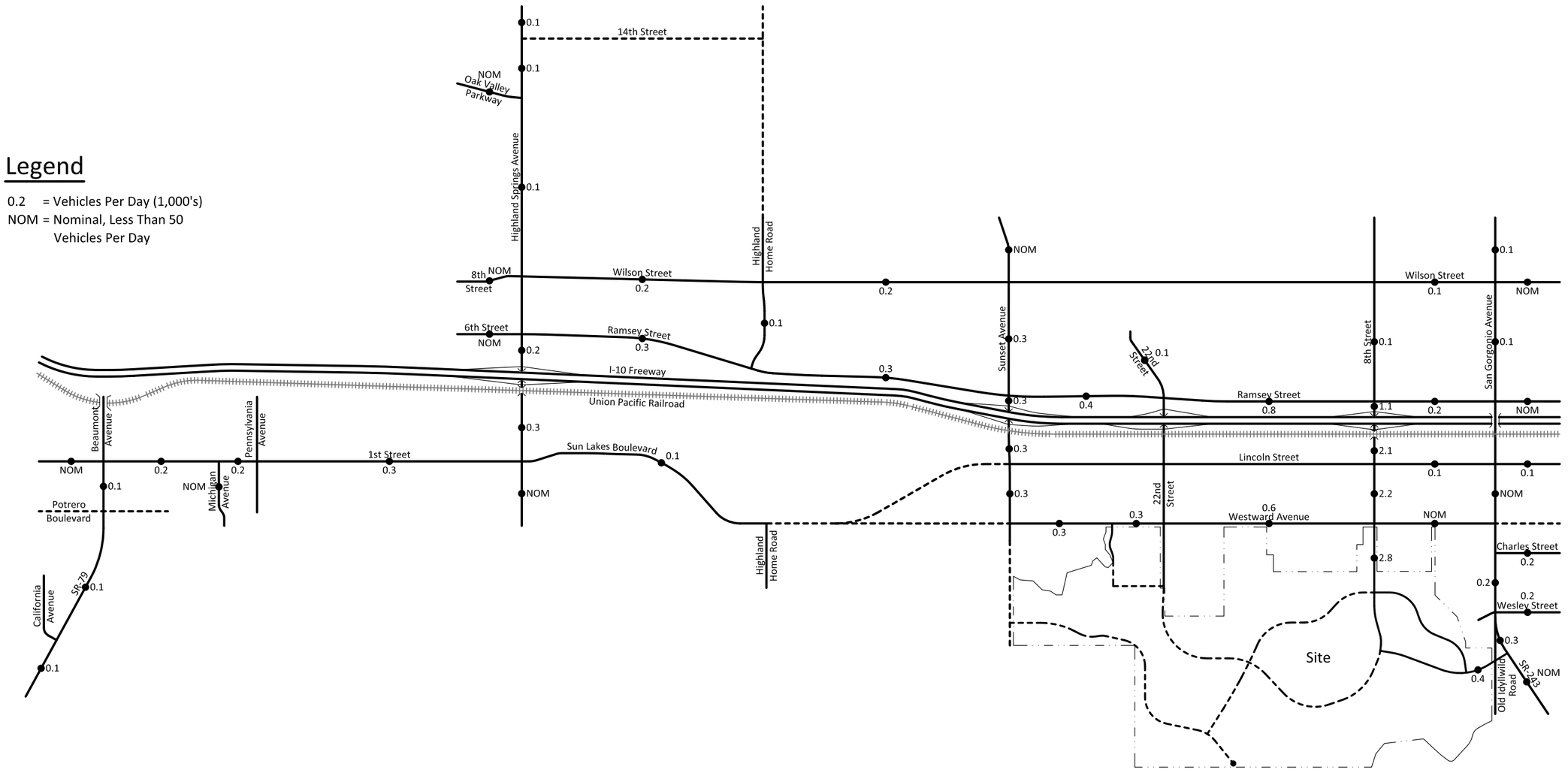


Figure 52
Project Average Daily Traffic Volumes - Interim Year (2019) Conditions

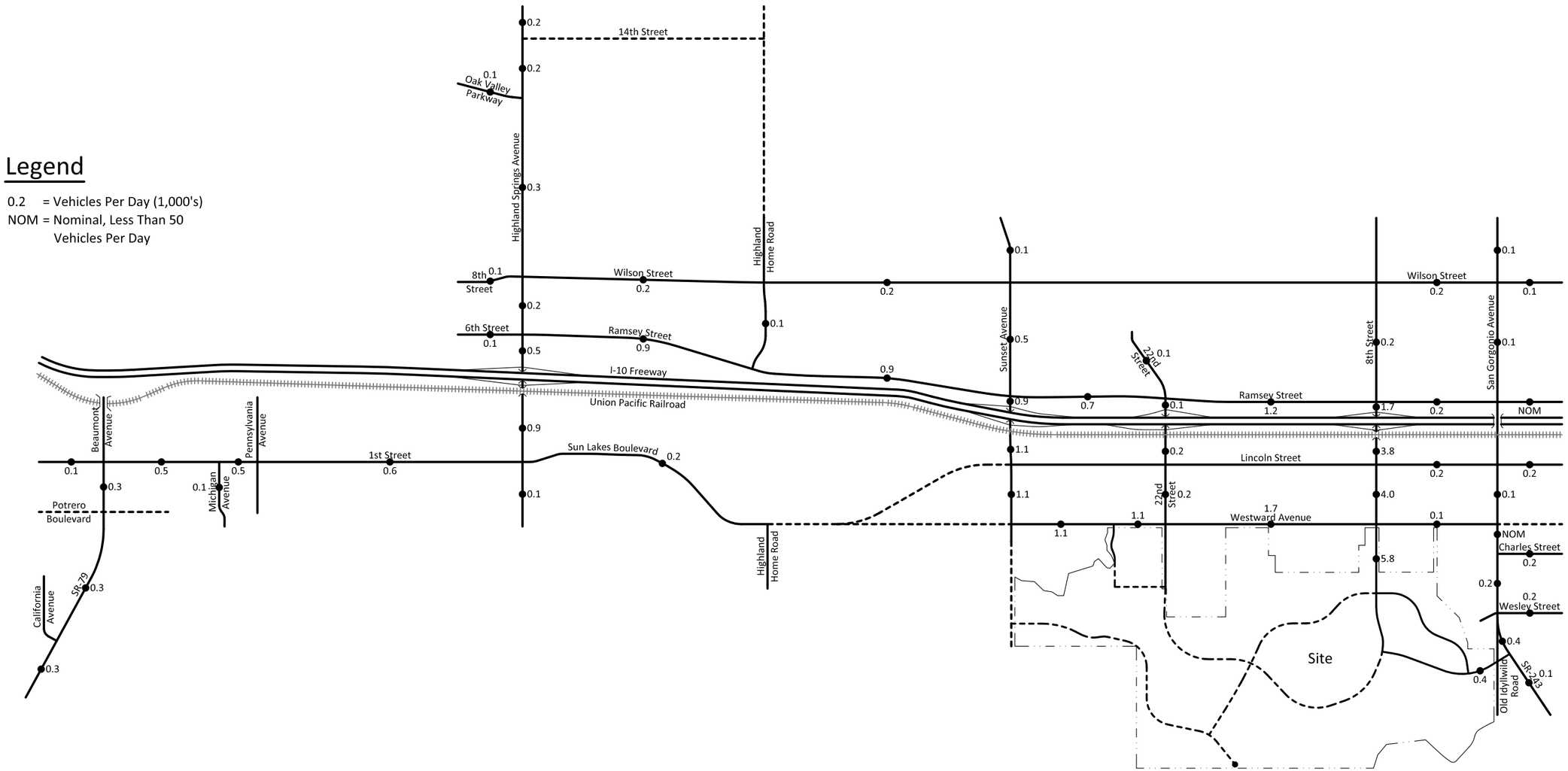


Figure 53
Project Average Daily Traffic Volumes - Interim Year (2022) Conditions

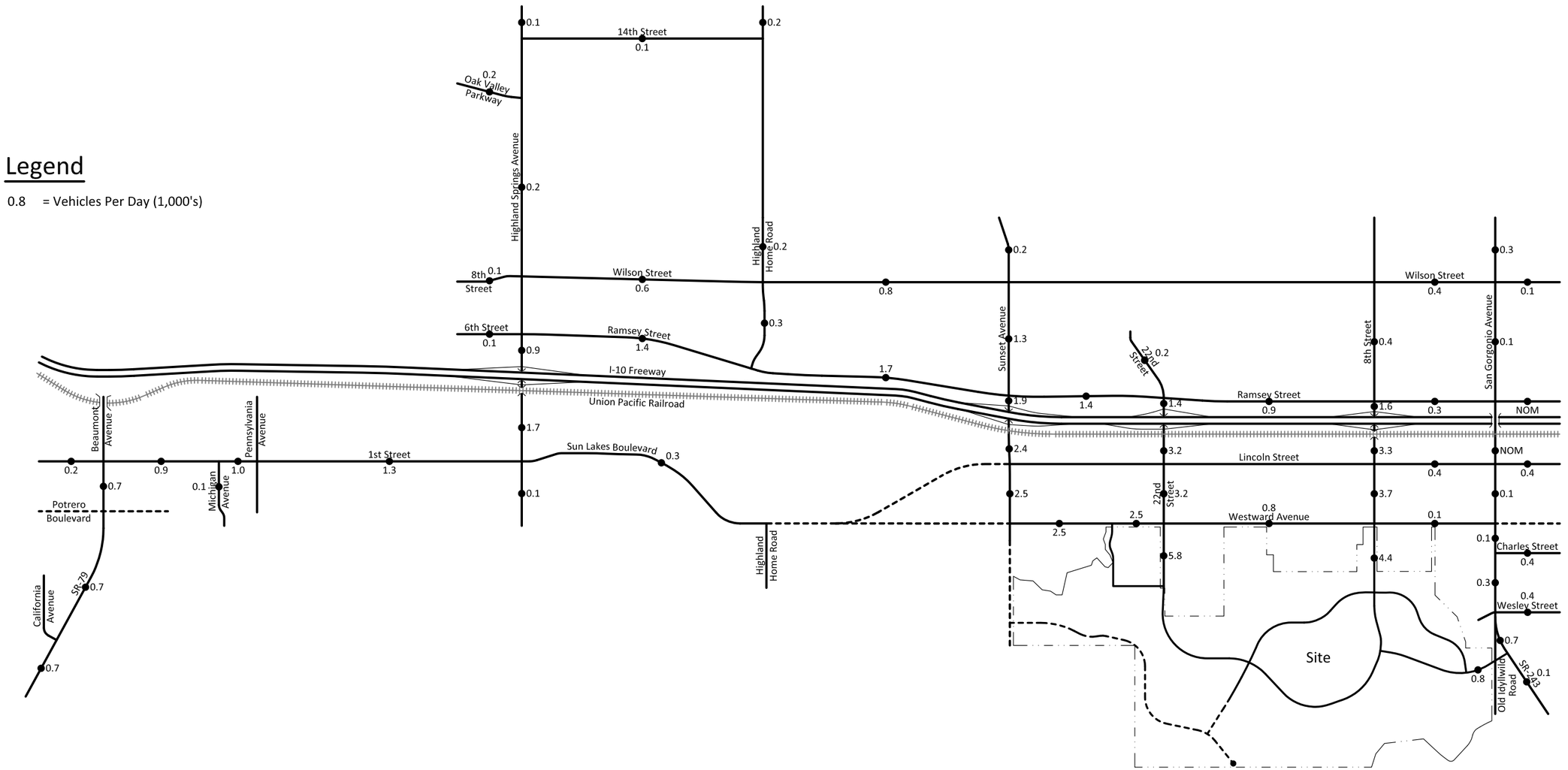


Figure 54
Project Average Daily Traffic Volumes - Interim Year (2025) Conditions

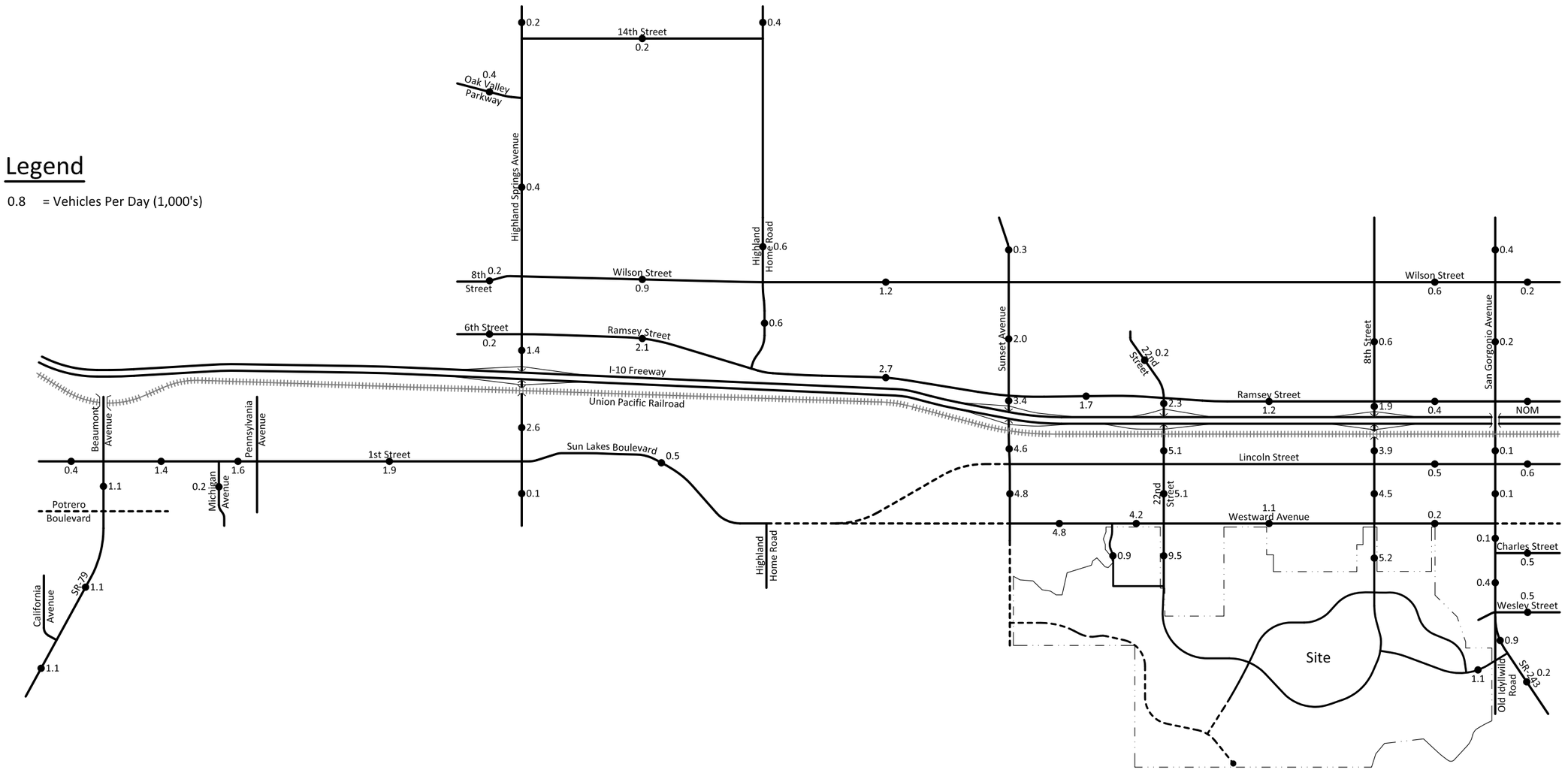


Figure 55
Project Average Daily Traffic Volumes - Interim Year (2029) Conditions

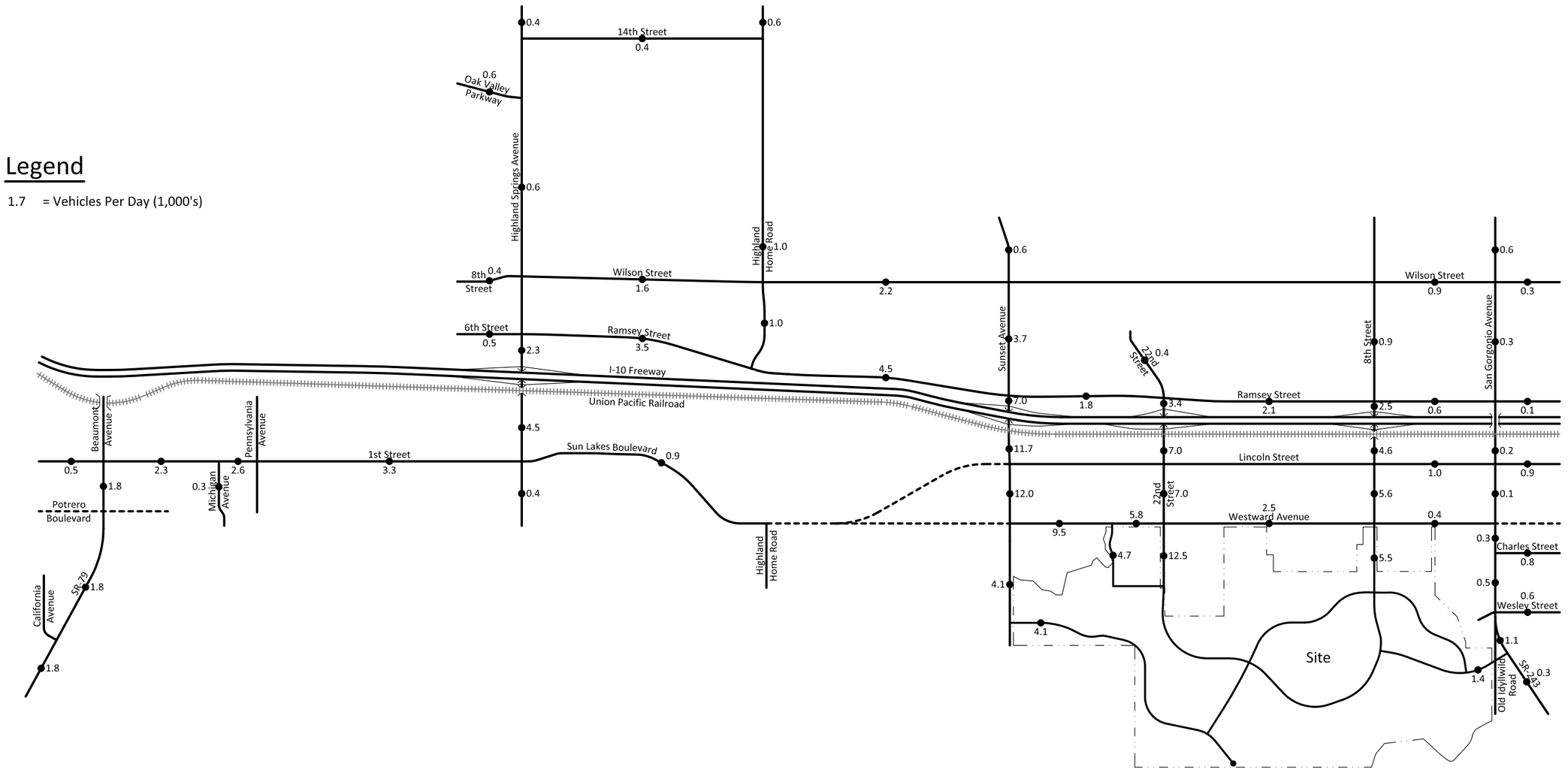
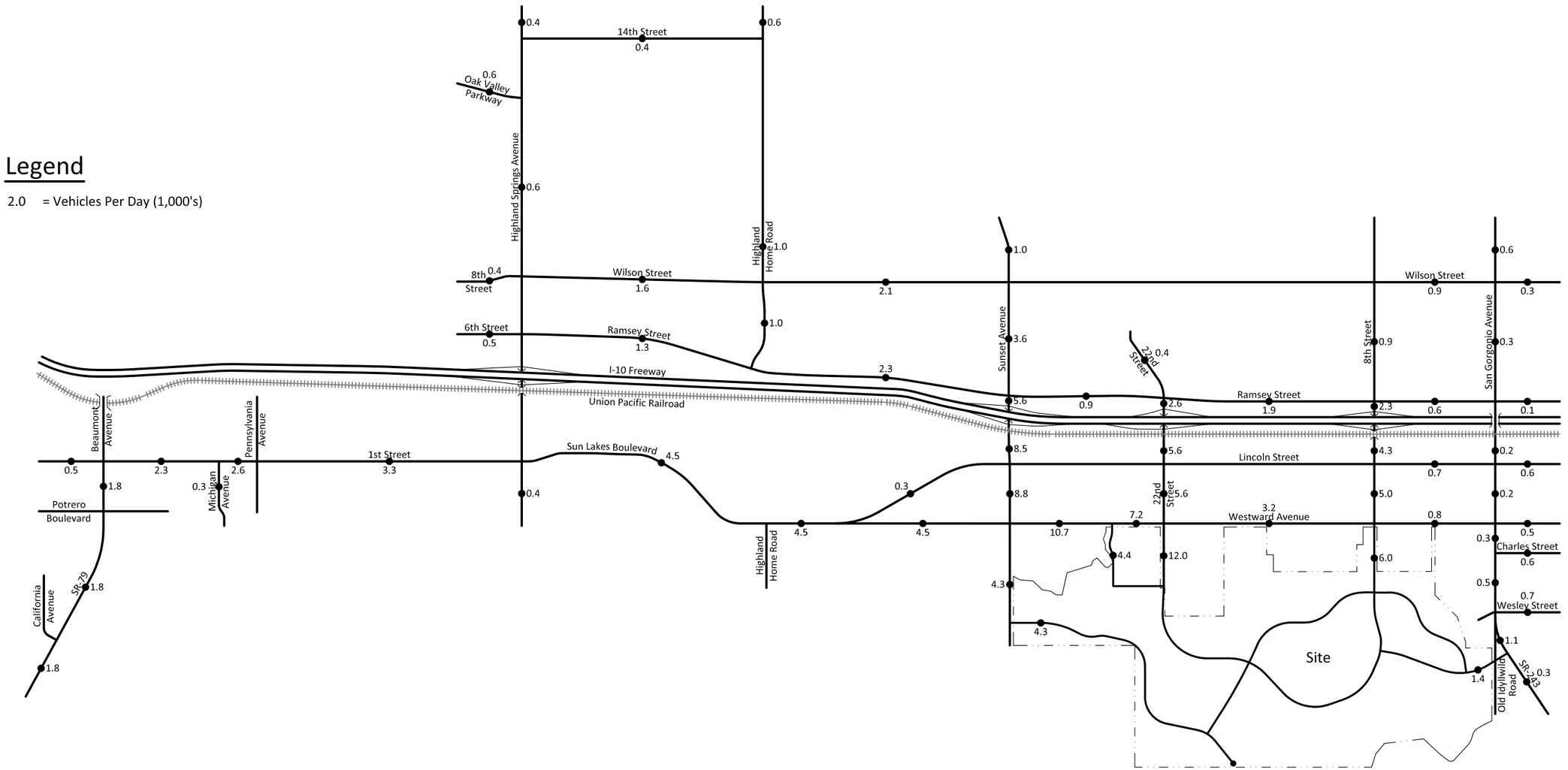


Figure 56
Project Average Daily Traffic Volumes - General Plan Buildout Year (2035) Conditions



BUTTERFIELD SPECIFIC PLAN PROJECT ADDENDUM

CITY OF BANNING

LSA

December 2016



LSA

FIGURE 2.3

N

NOT TO SCALE

SOURCE: Michael Baker International

Revised Butterfield Specific Plan

Proposed Land Use Plan

I:\TPO1501\G\Proposed Land Use.cdr (9/8/2016)

Table 3.I: Project Trip Generation Comparison

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
2012 Specific Plan Project[1]								
Residential[2]	4,182 DU	794	2,341	3,135	2,634	1,591	4,225	40,022
Commercial[3]	549 TSF	257	136	393	841	920	1,761	18,423
Condominium/Townhouse[4]	1,205 DU	90	440	530	420	207	627	7,001
Elementary School[5]	200 TSF	584	458	1,042				3,092
Golf Course[6]	18 Holes	32	8	40	23	28	51	643
Internal Trip Capture[7]	10%	(176)	(338)	(514)	(392)	(275)	(666)	(6,918)
2012 Specific Plan Project Total Trip Generation		**1,582**	**3,044**	**4,626**	**3,526**	**2,471**	**5,998**	**62,263**
Proposed Project 2								
Residential[2]	4,296 DU	819	2,403	3,222	2,704	1,631	4,335	41,113
Commercial[3]	560 TSF	261	137	399	855	935	1,791	18,719
Condominium/Townhouse[4]	566 DU	42	207	249	197	97	294	3,288
Elementary School[5]	236 TSF	687	540	1,227				3,643
Internal Trip Capture[7]	10%	(181)	(329)	(510)	(376)	(266)	(642)	(6,676)
Proposed Project Total Trip Generation		**1,628**	**2,958**	**4,587**	**3,381**	**2,397**	**5,778**	**60,087**

Source: *Traffic Impact Analysis* (September 2016) (Appendix C)

1 Trip Generation for Approved Project obtained from BSPTIA.

2 Rates based on Land Use 210 - Single Family Detached Housing from Institute of 'Transportation Engineers (ITE) Trip Generation, 8th Edition.

3 Trip Generation rates based on Land Use 820 - Shopping Center from ITE *Trip Generation*, 8th Edition and Pass-By Rates based on Land Use 820 - Shopping Center from ITE *Trip Generation Handbook* , 2nd Edition.

4 Rates based on Land Use 230 - Residential Condominium/Townhomes from ITE *Trip Generation*, 8th Edition.

5 Rates based on Land Use 520 - Elementary School from ITE *Trip Generation*, 8th Edition.

6 Rates based on Land Use 430 - Golf Course from ITE *Trip Generation*, 8th Edition.

7 Internal Trip Capture Rates based on Project Select Zone from the Pass Area Model

As a result of the analysis conducted in the TIA for the Proposed Project, the following six intersections were determined to exceed LOS thresholds following project implementation:

- Highland Springs Avenue/16th Street-Cougar Way [City of Beaumont/City of Banning];
- Highland Springs Avenue/F Street [City of Beaumont/City of Banning];
- Highland Springs Avenue/Starlight Avenue-A Street [City of Beaumont/City of Banning];
- Highland Springs Avenue/Wilson Street [City of Beaumont/City of Banning];
- C Street-Apex Avenue/Wilson Street [City of Banning];
- Highland Home Road/Wilson Street [City of Banning].

APPENDIX C

Traffic Count Worksheets

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Banning
N/S: Hargrave Street
E/W: East Ramsey Street
Weather: Clear

File Name : BANHARAAM
Site Code : 00000000
Start Date : 1/31/2017

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

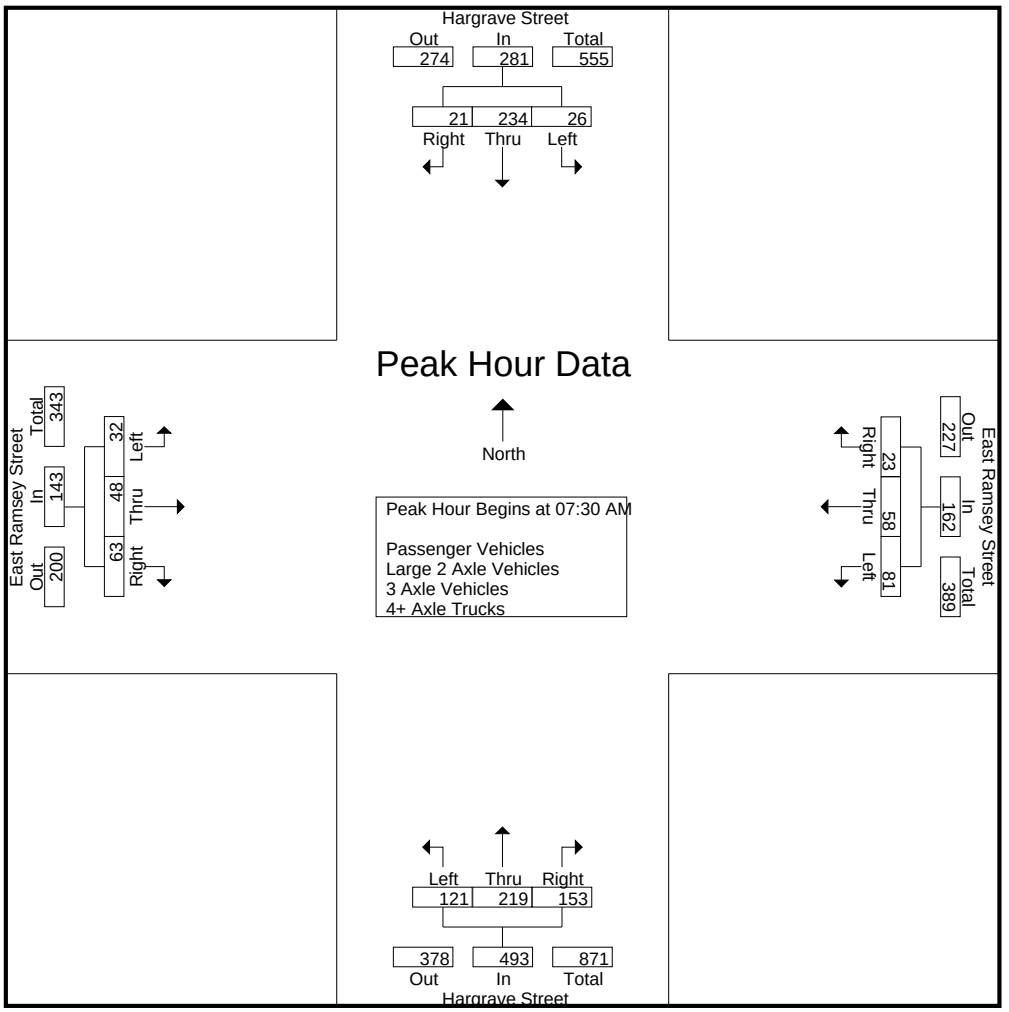
	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	57	2	63	9	6	5	20	12	31	9	52	2	4	8	14	149
07:15 AM	3	59	4	66	13	15	7	35	13	47	16	76	4	10	12	26	203
07:30 AM	5	82	8	95	12	10	2	24	36	69	36	141	12	9	22	43	303
07:45 AM	6	54	3	63	20	16	6	42	40	55	56	151	5	14	12	31	287
Total	18	252	17	287	54	47	20	121	101	202	117	420	23	37	54	114	942
08:00 AM	7	58	3	68	27	19	7	53	22	45	40	107	6	7	12	25	253
08:15 AM	8	40	7	55	22	13	8	43	23	50	21	94	9	18	17	44	236
08:30 AM	6	51	12	69	23	19	3	45	22	33	31	86	10	15	12	37	237
08:45 AM	8	64	4	76	18	11	7	36	22	38	19	79	5	23	15	43	234
Total	29	213	26	268	90	62	25	177	89	166	111	366	30	63	56	149	960
Grand Total	47	465	43	555	144	109	45	298	190	368	228	786	53	100	110	263	1902
Apprch %	8.5	83.8	7.7		48.3	36.6	15.1		24.2	46.8	29		20.2	38	41.8		
Total %	2.5	24.4	2.3	29.2	7.6	5.7	2.4	15.7	10	19.3	12	41.3	2.8	5.3	5.8	13.8	
Passenger Vehicles	47	459	43	549	123	102	43	268	187	360	217	764	53	96	107	256	1837
% Passenger Vehicles	100	98.7	100	98.9	85.4	93.6	95.6	89.9	98.4	97.8	95.2	97.2	100	96	97.3	97.3	96.6
Large 2 Axle Vehicles	0	5	0	5	12	6	2	20	3	8	6	17	0	4	3	7	49
% Large 2 Axle Vehicles	0	1.1	0	0.9	8.3	5.5	4.4	6.7	1.6	2.2	2.6	2.2	0	4	2.7	2.7	2.6
3 Axle Vehicles	0	0	0	0	2	0	0	2	0	0	1	1	0	0	0	0	3
% 3 Axle Vehicles	0	0	0	0	1.4	0	0	0.7	0	0	0.4	0.1	0	0	0	0	0.2
4+ Axle Trucks	0	1	0	1	7	1	0	8	0	0	4	4	0	0	0	0	13
% 4+ Axle Trucks	0	0.2	0	0.2	4.9	0.9	0	2.7	0	0	1.8	0.5	0	0	0	0	0.7

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	**82**	**8**	**95**	12	10	2	24	36	**69**	36	141	**12**	9	**22**	43	**303**
07:45 AM	6	54	3	63	20	16	6	42	**40**	55	**56**	**151**	5	14	12	31	287
08:00 AM	7	58	3	68	**27**	**19**	7	**53**	22	45	40	107	6	7	12	25	253
08:15 AM	**8**	40	7	55	22	13	**8**	43	23	50	21	94	9	**18**	17	**44**	236
Total Volume	26	234	21	281	81	58	23	162	121	219	153	493	32	48	63	143	1079
% App. Total	9.3	83.3	7.5		50	35.8	14.2		24.5	44.4	31		22.4	33.6	44.1		
PHF	.813	.713	.656	.739	.750	.763	.719	.764	.756	.793	.683	.816	.667	.667	.716	.813	.890

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Banning
N/S: Hargrave Street
E/W: East Ramsey Street
Weather: Clear

File Name : BANHARAAM
Site Code : 00000000
Start Date : 1/31/2017
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:30 AM				08:00 AM			
+0 mins.	3	59	4	66	20	16	6	42	36	**69**	36	141	6	7	12	25
+15 mins.	5	**82**	**8**	**95**	**27**	**19**	7	**53**	**40**	55	**56**	**151**	9	18	**17**	**44**
+30 mins.	6	54	3	63	22	13	**8**	43	22	45	40	107	**10**	15	12	37
+45 mins.	**7**	58	3	68	23	19	3	45	23	50	21	94	5	**23**	15	43
Total Volume	21	253	18	292	92	67	24	183	121	219	153	493	30	63	56	149
% App. Total	7.2	86.6	6.2		50.3	36.6	13.1		24.5	44.4	31		20.1	42.3	37.6	
PHF	.750	.771	.563	.768	.852	.882	.750	.863	.756	.793	.683	.816	.750	.685	.824	.847

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Banning
N/S: Hargrave Street
E/W: East Ramsey Street
Weather: Clear

File Name : BANHARAAM
Site Code : 00000000
Start Date : 1/31/2017
Page No : 1

Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	56	2	62	8	6	4	18	12	30	9	51	2	4	8	14	145
07:15 AM	3	58	4	65	11	13	7	31	13	44	15	72	4	9	12	25	193
07:30 AM	5	80	8	93	12	9	2	23	35	68	35	138	12	9	22	43	297
07:45 AM	6	54	3	63	17	16	6	39	39	55	54	148	5	14	12	31	281
Total	18	248	17	283	48	44	19	111	99	197	113	409	23	36	54	113	916
08:00 AM	7	58	3	68	22	18	7	47	21	45	39	105	6	7	10	23	243
08:15 AM	8	40	7	55	18	13	8	39	23	49	18	90	9	17	17	43	227
08:30 AM	6	50	12	68	20	17	3	40	22	32	28	82	10	13	12	35	225
08:45 AM	8	63	4	75	15	10	6	31	22	37	19	78	5	23	14	42	226
Total	29	211	26	266	75	58	24	157	88	163	104	355	30	60	53	143	921
Grand Total	47	459	43	549	123	102	43	268	187	360	217	764	53	96	107	256	1837
Apprch %	8.6	83.6	7.8		45.9	38.1	16		24.5	47.1	28.4		20.7	37.5	41.8		
Total %	2.6	25	2.3	29.9	6.7	5.6	2.3	14.6	10.2	19.6	11.8	41.6	2.9	5.2	5.8	13.9	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	**80**	**8**	**93**	12	9	2	23	35	**68**	35	138	**12**	9	**22**	**43**	**297**
07:45 AM	6	54	3	63	17	16	6	39	**39**	55	**54**	**148**	5	14	12	31	281
08:00 AM	7	58	3	68	**22**	**18**	7	**47**	21	45	39	105	6	7	10	23	243
08:15 AM	**8**	40	7	55	18	13	**8**	39	23	49	18	90	9	**17**	17	43	227
Total Volume	26	232	21	279	69	56	23	148	118	217	146	481	32	47	61	140	1048
% App. Total	9.3	83.2	7.5		46.6	37.8	15.5		24.5	45.1	30.4		22.9	33.6	43.6		
PHF	.813	.725	.656	.750	.784	.778	.719	.787	.756	.798	.676	.813	.667	.691	.693	.814	.882

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City of Banning
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E/W: East Ramsey Street
Weather: Clear

File Name : BANHARAAM
Site Code : 00000000
Start Date : 1/31/2017
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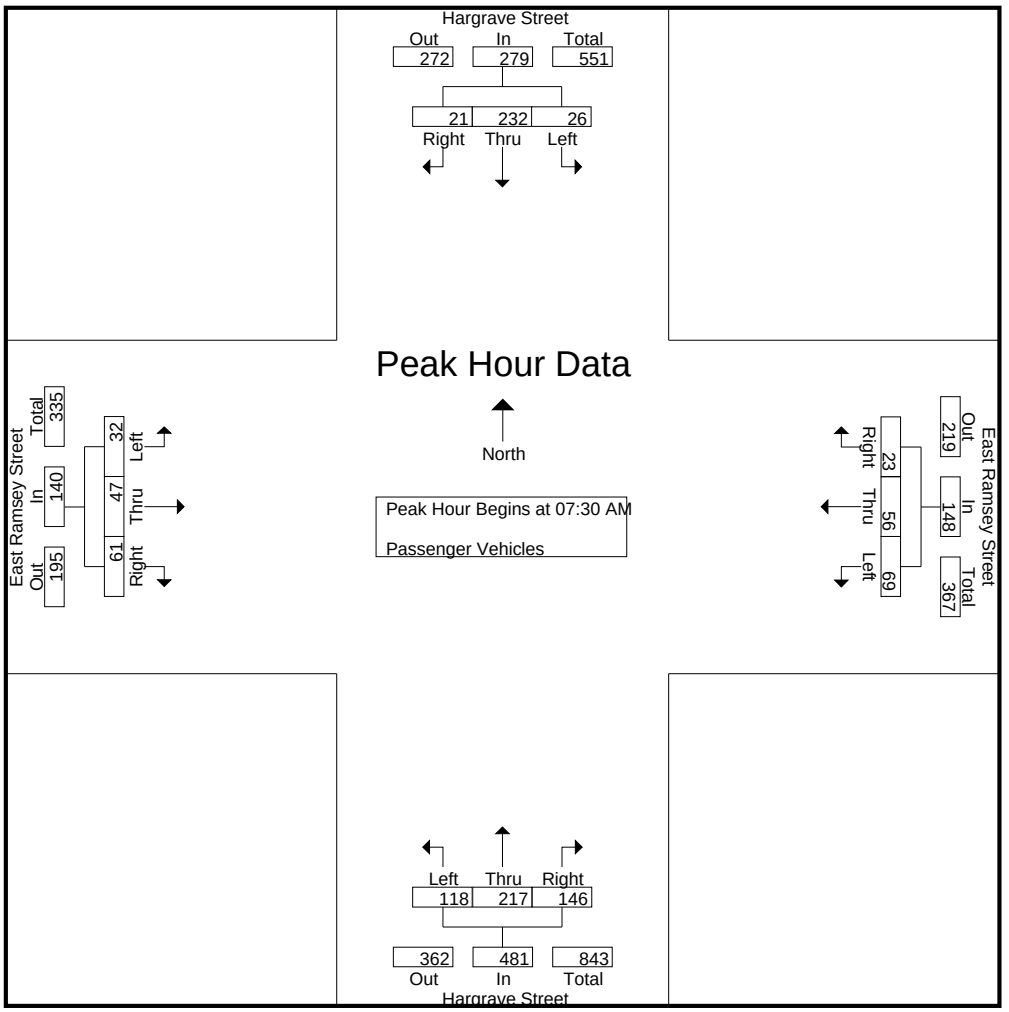

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	5	**80**	**8**	**93**	12	9	2	23	35	**68**	35	138	**12**	9	**22**	**43**
+15 mins.	6	54	3	63	17	16	6	39	**39**	55	**54**	**148**	5	14	12	31
+30 mins.	7	58	3	68	**22**	**18**	7	**47**	21	45	39	105	6	7	10	23
+45 mins.	**8**	40	7	55	18	13	**8**	39	23	49	18	90	9	**17**	17	43
Total Volume	26	232	21	279	69	56	23	148	118	217	146	481	32	47	61	140
% App. Total	9.3	83.2	7.5		46.6	37.8	15.5		24.5	45.1	30.4		22.9	33.6	43.6	
PHF	.813	.725	.656	.750	.784	.778	.719	.787	.756	.798	.676	.813	.667	.691	.693	.814

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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	1	0	1	2	0	1	0	1	0	0	0	0	3
07:15 AM	0	1	0	1	1	2	0	3	0	3	1	4	0	1	0	1	9
07:30 AM	0	2	0	2	0	1	0	1	1	1	1	3	0	0	0	0	6
07:45 AM	0	0	0	0	0	0	0	0	1	0	2	3	0	0	0	0	3
Total	0	3	0	3	2	3	1	6	2	5	4	11	0	1	0	1	21
08:00 AM	0	0	0	0	5	1	0	6	1	0	0	1	0	0	2	2	9
08:15 AM	0	0	0	0	3	0	0	3	0	1	1	2	0	1	0	1	6
08:30 AM	0	1	0	1	1	2	0	3	0	1	1	2	0	2	0	2	8
08:45 AM	0	1	0	1	1	0	1	2	0	1	0	1	0	0	1	1	5
Total	0	2	0	2	10	3	1	14	1	3	2	6	0	3	3	6	28
Grand Total	0	5	0	5	12	6	2	20	3	8	6	17	0	4	3	7	49
Apprch %	0	100	0		60	30	10		17.6	47.1	35.3		0	57.1	42.9		
Total %	0	10.2	0	10.2	24.5	12.2	4.1	40.8	6.1	16.3	12.2	34.7	0	8.2	6.1	14.3	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	**2**	0	**2**	0	**1**	0	1	**1**	**1**	1	**3**	0	0	0	0	6
07:45 AM	0	0	0	0	0	0	0	0	1	0	**2**	3	0	0	0	0	3
08:00 AM	0	0	0	0	**5**	1	0	**6**	1	0	0	1	0	0	**2**	**2**	**9**
08:15 AM	0	0	0	0	3	0	0	3	0	1	1	2	0	**1**	0	1	6
Total Volume	0	2	0	2	8	2	0	10	3	2	4	9	0	1	2	3	24
% App. Total	0	100	0		80	20	0		33.3	22.2	44.4		0	33.3	66.7		
PHF	.000	.250	.000	.250	.400	.500	.000	.417	.750	.500	.500	.750	.000	.250	.250	.375	.667

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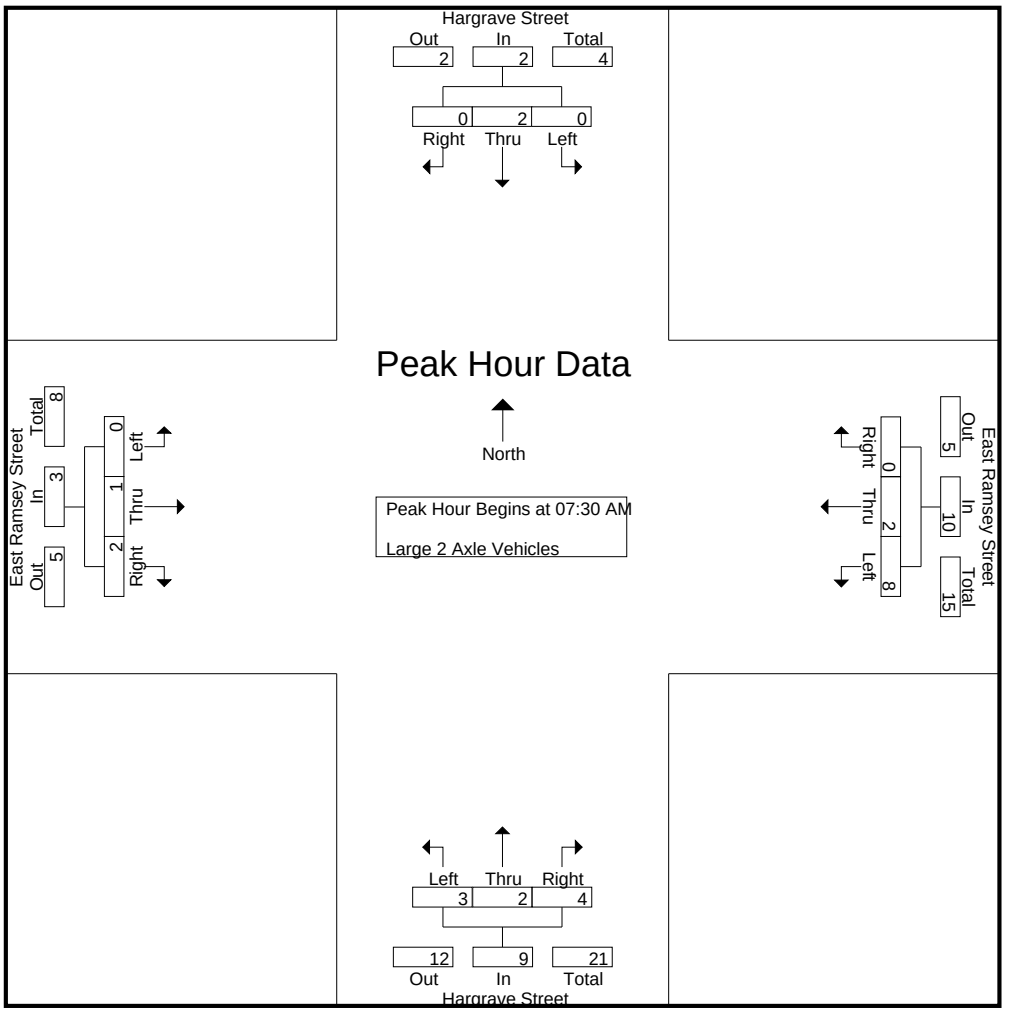

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	**2**	0	**2**	0	**1**	0	1	**1**	**1**	1	**3**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	1	0	**2**	3	0	0	0	0
+30 mins.	0	0	0	0	**5**	1	0	**6**	1	0	0	1	0	0	**2**	**2**
+45 mins.	0	0	0	0	3	0	0	3	0	1	1	2	0	**1**	0	1
Total Volume	0	2	0	2	8	2	0	10	3	2	4	9	0	1	2	3
% App. Total	0	100	0		80	20	0		33.3	22.2	44.4		0	33.3	66.7	
PHF	.000	.250	.000	.250	.400	.500	.000	.417	.750	.500	.500	.750	.000	.250	.250	.375

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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
Grand Total	0	0	0	0	2	0	0	2	0	0	1	1	0	0	0	0	3
Apprch %	0	0	0		100	0	0		0	0	100		0	0	0		
Total %	0	0	0	0	66.7	0	0	66.7	0	0	33.3	33.3	0	0	0	0	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Banning
N/S: Hargrave Street
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Weather: Clear

File Name : BANHARAAM
Site Code : 00000000
Start Date : 1/31/2017
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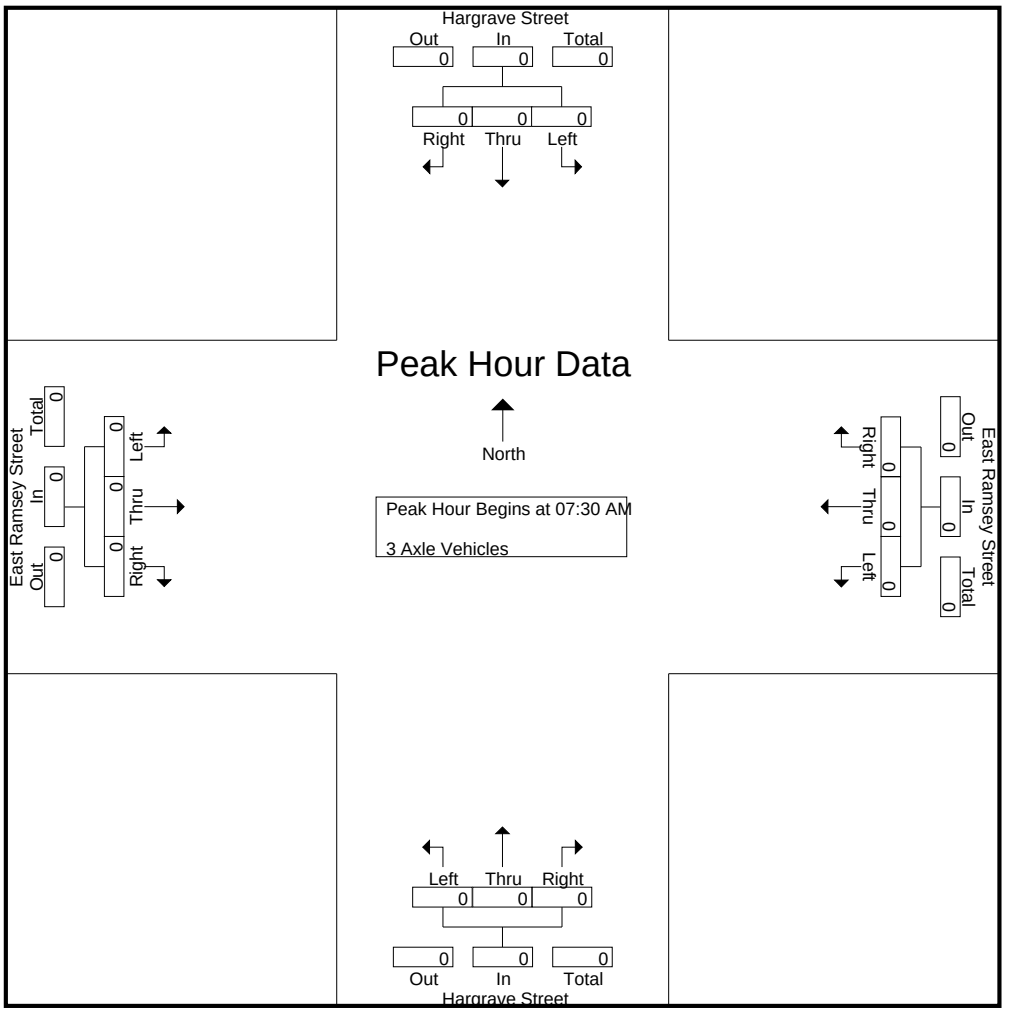

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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E/W: East Ramsey Street
Weather: Clear

File Name : BANHARAAM
Site Code : 00000000
Start Date : 1/31/2017
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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
Total	0	1	0	1	3	0	0	3	0	0	0	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
08:15 AM	0	0	0	0	1	0	0	1	0	0	2	2	0	0	0	0	3
08:30 AM	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
08:45 AM	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	4	1	0	5	0	0	4	4	0	0	0	0	9
Grand Total	0	1	0	1	7	1	0	8	0	0	4	4	0	0	0	0	13
Apprch %	0	100	0		87.5	12.5	0		0	0	100		0	0	0		
Total %	0	7.7	0	7.7	53.8	7.7	0	61.5	0	0	30.8	30.8	0	0	0	0	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	0	0	0	**3**
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
08:15 AM	0	0	0	0	1	0	0	1	0	0	**2**	**2**	0	0	0	0	3
Total Volume	0	0	0	0	4	0	0	4	0	0	3	3	0	0	0	0	7
% App. Total	0	0	0		100	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.333	.000	.000	.333	.000	.000	.375	.375	.000	.000	.000	.000	.583

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City of Banning
N/S: Hargrave Street
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Site Code : 00000000
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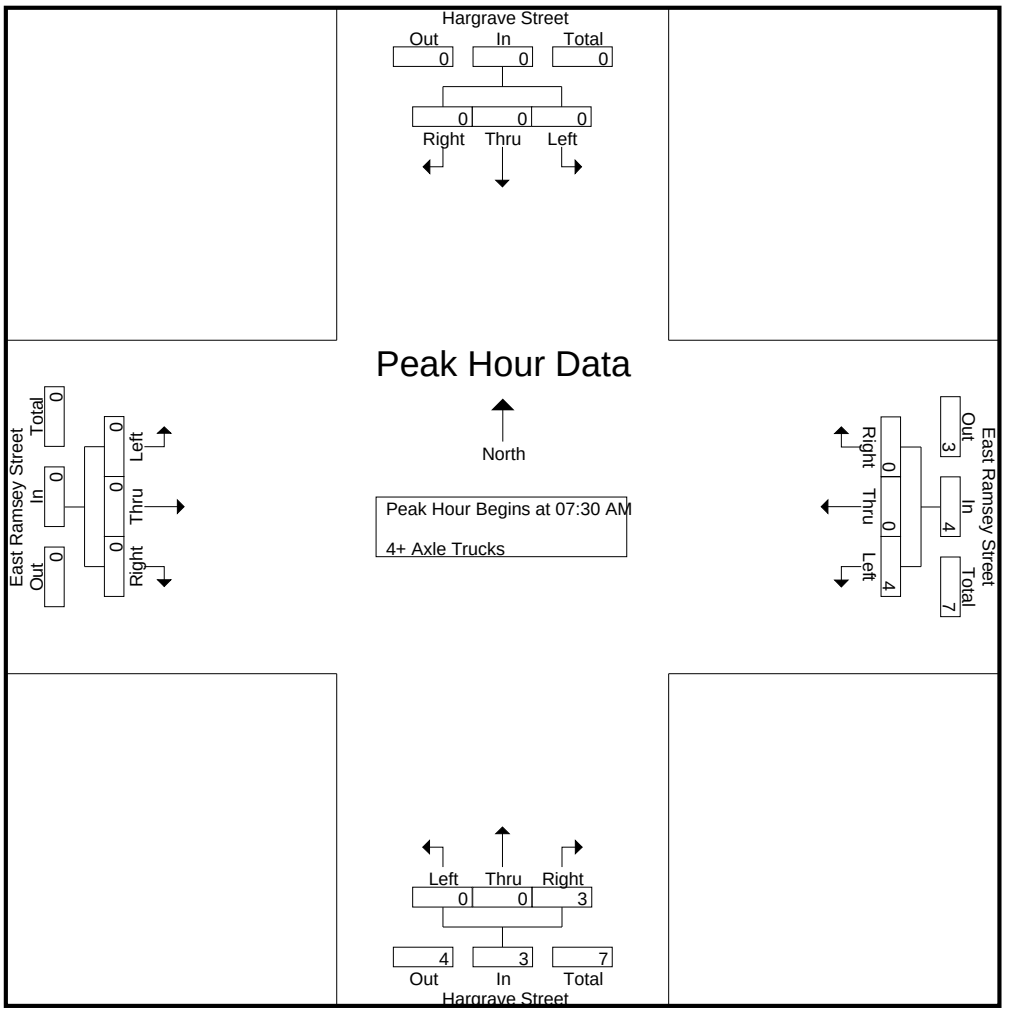

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
+45 mins.	0	0	0	0	1	0	0	1	0	0	**2**	**2**	0	0	0	0
Total Volume	0	0	0	0	4	0	0	4	0	0	3	3	0	0	0	0
% App. Total	0	0	0		100	0	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.333	.000	.000	.333	.000	.000	.375	.375	.000	.000	.000	.000

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City of Banning
N/S: Hargrave Street
E/W: East Ramsey Street
Weather: Clear

File Name : BANHARAPM
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	6	65	7	78	30	31	8	69	18	52	20	90	5	32	26	63	300
04:15 PM	5	42	8	55	31	19	12	62	9	49	20	78	13	17	20	50	245
04:30 PM	5	62	12	79	25	17	11	53	17	38	28	83	13	25	29	67	282
04:45 PM	7	50	8	65	19	24	10	53	14	43	23	80	4	14	16	34	232
Total	23	219	35	277	105	91	41	237	58	182	91	331	35	88	91	214	1059
05:00 PM	9	71	6	86	56	19	12	87	11	50	17	78	9	16	32	57	308
05:15 PM	8	51	7	66	17	17	17	51	21	51	15	87	9	13	22	44	248
05:30 PM	7	50	4	61	29	21	15	65	11	52	19	82	7	20	14	41	249
05:45 PM	14	54	7	75	26	23	12	61	12	41	25	78	13	16	21	50	264
Total	38	226	24	288	128	80	56	264	55	194	76	325	38	65	89	192	1069
Grand Total	61	445	59	565	233	171	97	501	113	376	167	656	73	153	180	406	2128
Apprch %	10.8	78.8	10.4		46.5	34.1	19.4		17.2	57.3	25.5		18	37.7	44.3		
Total %	2.9	20.9	2.8	26.6	10.9	8	4.6	23.5	5.3	17.7	7.8	30.8	3.4	7.2	8.5	19.1	
Passenger Vehicles	61	438	57	556	225	160	96	481	108	375	165	648	73	145	177	395	2080
% Passenger Vehicles	100	98.4	96.6	98.4	96.6	93.6	99	96	95.6	99.7	98.8	98.8	100	94.8	98.3	97.3	97.7
Large 2 Axle Vehicles	0	6	2	8	2	8	1	11	4	1	2	7	0	8	3	11	37
% Large 2 Axle Vehicles	0	1.3	3.4	1.4	0.9	4.7	1	2.2	3.5	0.3	1.2	1.1	0	5.2	1.7	2.7	1.7
3 Axle Vehicles	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
% 3 Axle Vehicles	0	0	0	0	0.9	0.6	0	0.6	0	0	0	0	0	0	0	0	0.1
4+ Axle Trucks	0	1	0	1	4	2	0	6	1	0	0	1	0	0	0	0	8
% 4+ Axle Trucks	0	0.2	0	0.2	1.7	1.2	0	1.2	0.9	0	0	0.2	0	0	0	0	0.4

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	5	62	**12**	79	25	17	11	53	17	38	**28**	83	**13**	**25**	29	**67**	282
04:45 PM	7	50	8	65	19	**24**	10	53	14	43	23	80	4	14	16	34	232
05:00 PM	**9**	**71**	6	**86**	**56**	19	12	**87**	11	50	17	78	9	16	**32**	57	**308**
05:15 PM	8	51	7	66	17	17	**17**	51	**21**	**51**	15	**87**	9	13	22	44	248
Total Volume	29	234	33	296	117	77	50	244	63	182	83	328	35	68	99	202	1070
% App. Total	9.8	79.1	11.1		48	31.6	20.5		19.2	55.5	25.3		17.3	33.7	49		
PHF	.806	.824	.688	.860	.522	.802	.735	.701	.750	.892	.741	.943	.673	.680	.773	.754	.869

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City of Banning
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Weather: Clear

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Site Code : 00000000
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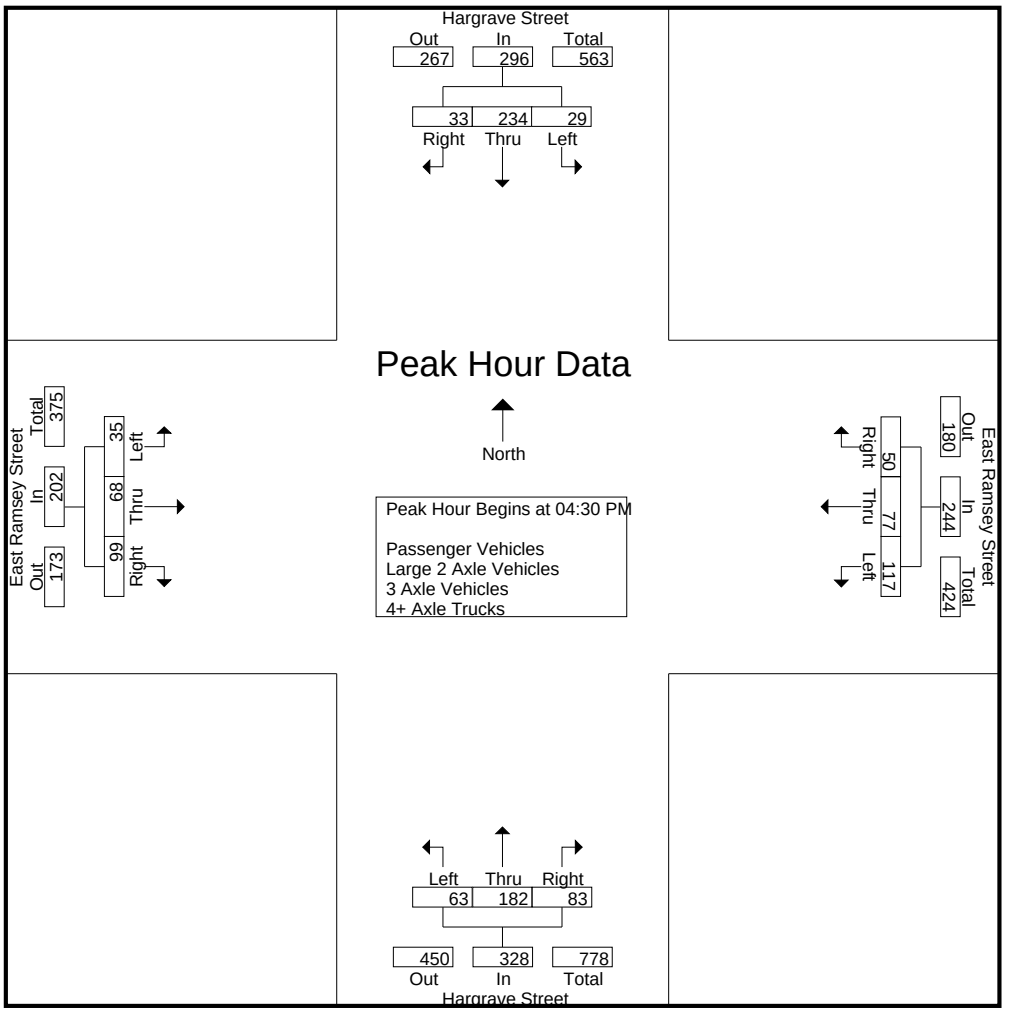

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	5	62	**12**	79	**56**	19	12	**87**	**18**	**52**	20	**90**	5	**32**	26	63
+15 mins.	7	50	8	65	17	17	**17**	51	9	49	20	78	**13**	17	20	50
+30 mins.	**9**	**71**	6	**86**	29	21	15	65	17	38	**28**	83	13	25	**29**	**67**
+45 mins.	8	51	7	66	26	**23**	12	61	14	43	23	80	4	14	16	34
Total Volume	29	234	33	296	128	80	56	264	58	182	91	331	35	88	91	214
% App. Total	9.8	79.1	11.1		48.5	30.3	21.2		17.5	55	27.5		16.4	41.1	42.5	
PHF	.806	.824	.688	.860	.571	.870	.824	.759	.806	.875	.813	.919	.673	.688	.784	.799

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Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	6	62	6	74	28	27	7	62	17	52	19	88	5	32	25	62	286
04:15 PM	5	42	8	55	28	19	12	59	9	49	20	78	13	15	20	48	240
04:30 PM	5	61	11	77	25	14	11	50	16	38	28	82	13	23	28	64	273
04:45 PM	7	49	8	64	19	24	10	53	13	42	23	78	4	13	16	33	228
Total	23	214	33	270	100	84	40	224	55	181	90	326	35	83	89	207	1027
05:00 PM	9	70	6	85	56	18	12	86	11	50	16	77	9	16	32	57	305
05:15 PM	8	51	7	66	15	15	17	47	20	51	15	86	9	12	22	43	242
05:30 PM	7	49	4	60	28	21	15	64	11	52	19	82	7	20	14	41	247
05:45 PM	14	54	7	75	26	22	12	60	11	41	25	77	13	14	20	47	259
Total	38	224	24	286	125	76	56	257	53	194	75	322	38	62	88	188	1053
Grand Total	61	438	57	556	225	160	96	481	108	375	165	648	73	145	177	395	2080
Apprch %	11	78.8	10.3		46.8	33.3	20		16.7	57.9	25.5		18.5	36.7	44.8		
Total %	2.9	21.1	2.7	26.7	10.8	7.7	4.6	23.1	5.2	18	7.9	31.2	3.5	7	8.5	19	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	5	61	**11**	77	25	14	11	50	16	38	**28**	82	**13**	**23**	28	**64**	273
04:45 PM	7	49	8	64	19	**24**	10	53	13	42	23	78	4	13	16	33	228
05:00 PM	**9**	**70**	6	**85**	**56**	18	12	**86**	11	50	16	77	9	16	**32**	57	**305**
05:15 PM	8	51	7	66	15	15	**17**	47	**20**	**51**	15	**86**	9	12	22	43	242
Total Volume	29	231	32	292	115	71	50	236	60	181	82	323	35	64	98	197	1048
% App. Total	9.9	79.1	11		48.7	30.1	21.2		18.6	56	25.4		17.8	32.5	49.7		
PHF	.806	.825	.727	.859	.513	.740	.735	.686	.750	.887	.732	.939	.673	.696	.766	.770	.859

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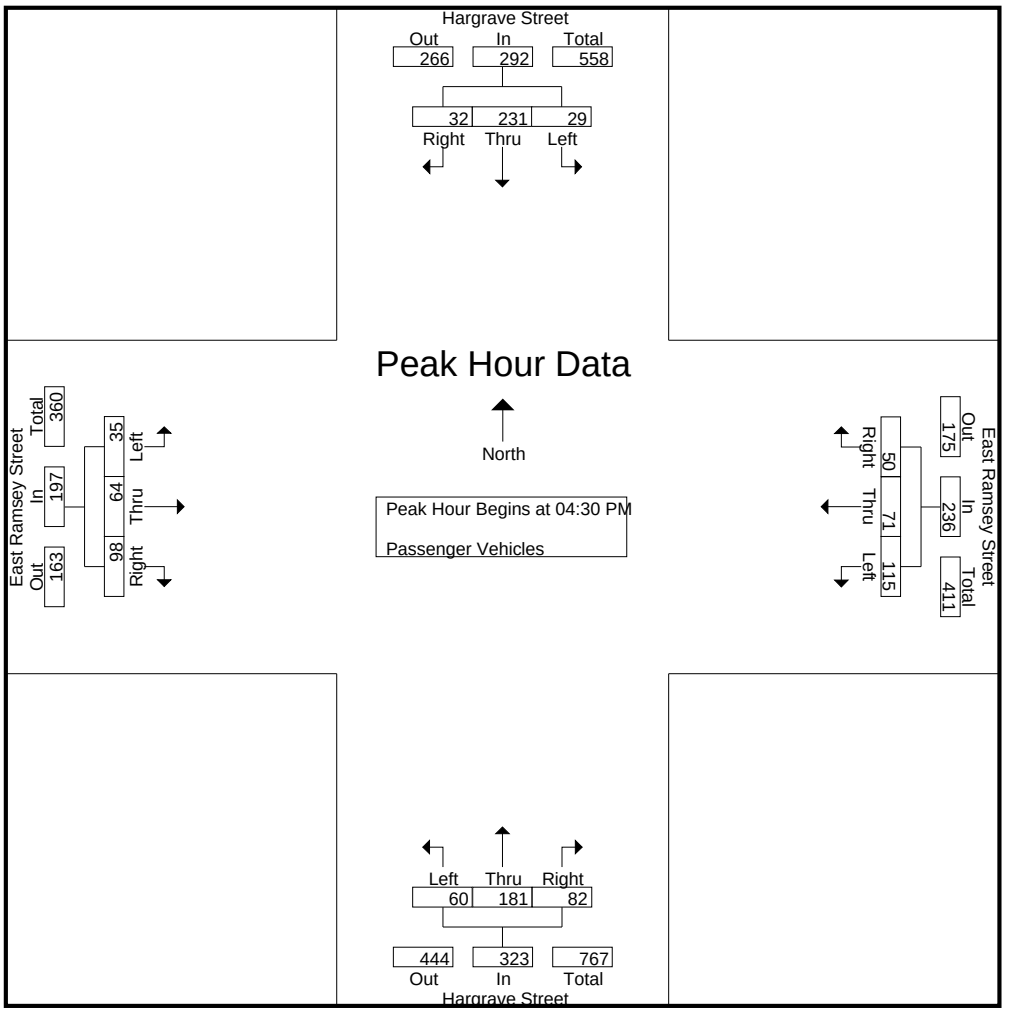

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	5	61	**11**	77	25	14	11	50	16	38	**28**	82	**13**	**23**	28	**64**
+15 mins.	7	49	8	64	19	**24**	10	53	13	42	23	78	4	13	16	33
+30 mins.	**9**	**70**	6	**85**	**56**	18	12	**86**	11	50	16	77	9	16	**32**	57
+45 mins.	8	51	7	66	15	15	**17**	47	**20**	**51**	15	**86**	9	12	22	43
Total Volume	29	231	32	292	115	71	50	236	60	181	82	323	35	64	98	197
% App. Total	9.9	79.1	11		48.7	30.1	21.2		18.6	56	25.4		17.8	32.5	49.7	
PHF	.806	.825	.727	.859	.513	.740	.735	.686	.750	.887	.732	.939	.673	.696	.766	.770

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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	3	1	4	0	3	1	4	1	0	1	2	0	0	1	1	11
04:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	2	4
04:30 PM	0	1	1	2	0	2	0	2	0	0	0	0	0	2	1	3	7
04:45 PM	0	1	0	1	0	0	0	0	1	1	0	2	0	1	0	1	4
Total	0	5	2	7	2	5	1	8	2	1	1	4	0	5	2	7	26
05:00 PM	0	1	0	1	0	1	0	1	0	0	1	1	0	0	0	0	3
05:15 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	1	0	1	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	2	1	3	5
Total	0	1	0	1	0	3	0	3	2	0	1	3	0	3	1	4	11
Grand Total	0	6	2	8	2	8	1	11	4	1	2	7	0	8	3	11	37
Apprch %	0	75	25		18.2	72.7	9.1		57.1	14.3	28.6		0	72.7	27.3		
Total %	0	16.2	5.4	21.6	5.4	21.6	2.7	29.7	10.8	2.7	5.4	18.9	0	21.6	8.1	29.7	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**1**	**1**	**2**	0	**2**	0	**2**	0	0	0	0	0	**2**	**1**	**3**	**7**
04:45 PM	0	1	0	1	0	0	0	0	**1**	**1**	0	**2**	0	1	0	1	4
05:00 PM	0	1	0	1	0	1	0	1	0	0	**1**	1	0	0	0	0	3
05:15 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	1	0	1	3
Total Volume	0	3	1	4	0	4	0	4	2	1	1	4	0	4	1	5	17
% App. Total	0	75	25		0	100	0		50	25	25		0	80	20		
PHF	.000	.750	.250	.500	.000	.500	.000	.500	.500	.250	.250	.500	.000	.500	.250	.417	.607

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City of Banning
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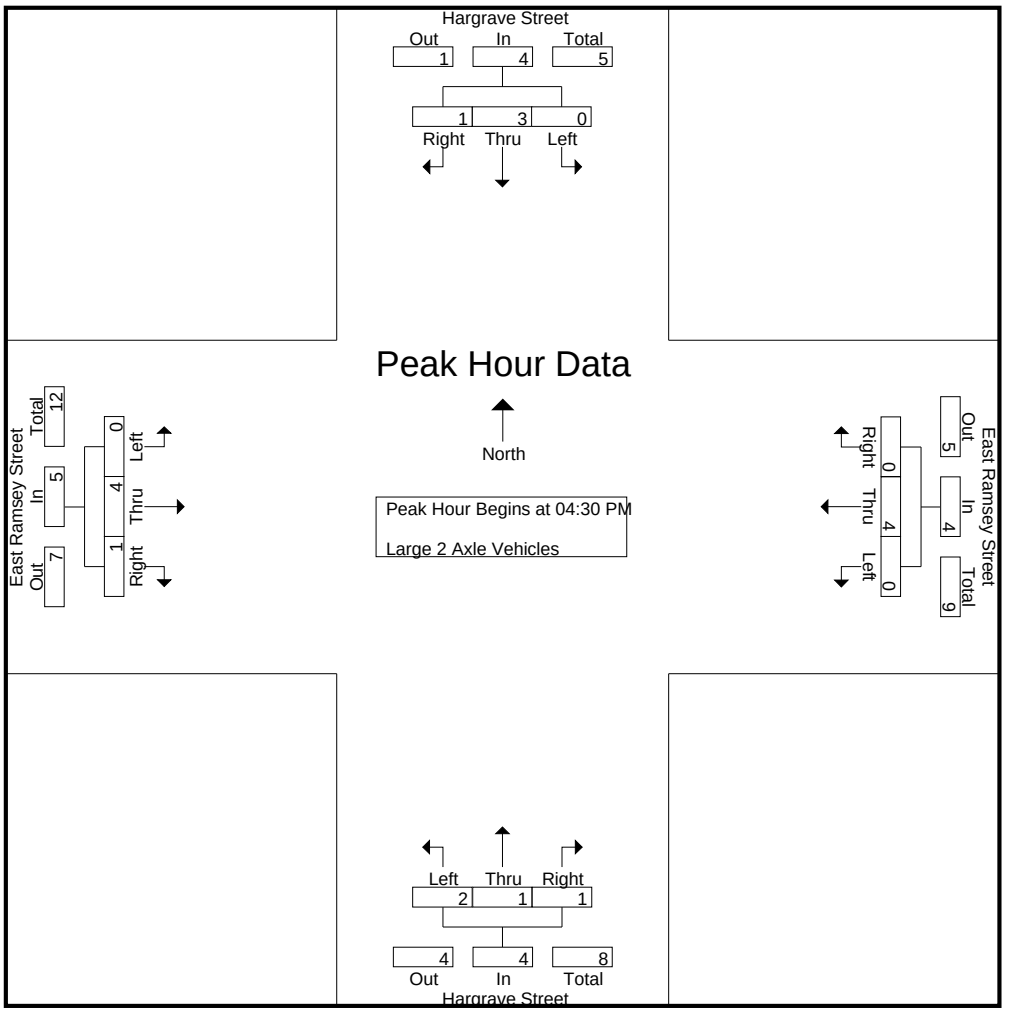

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**1**	**1**	**2**	0	**2**	0	**2**	0	0	0	0	0	**2**	**1**	**3**
+15 mins.	0	1	0	1	0	0	0	0	**1**	**1**	0	**2**	0	1	0	1
+30 mins.	0	1	0	1	0	1	0	1	0	0	**1**	1	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	1	0	0	1	0	1	0	1
Total Volume	0	3	1	4	0	4	0	4	2	1	1	4	0	4	1	5
% App. Total	0	75	25		0	100	0		50	25	25		0	80	20	
PHF	.000	.750	.250	.500	.000	.500	.000	.500	.500	.250	.250	.500	.000	.500	.250	.417

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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
Apprch %	0	0	0		66.7	33.3	0		0	0	0		0	0	0		
Total %	0	0	0	0	66.7	33.3	0	100	0	0	0	0	0	0	0	0	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Banning
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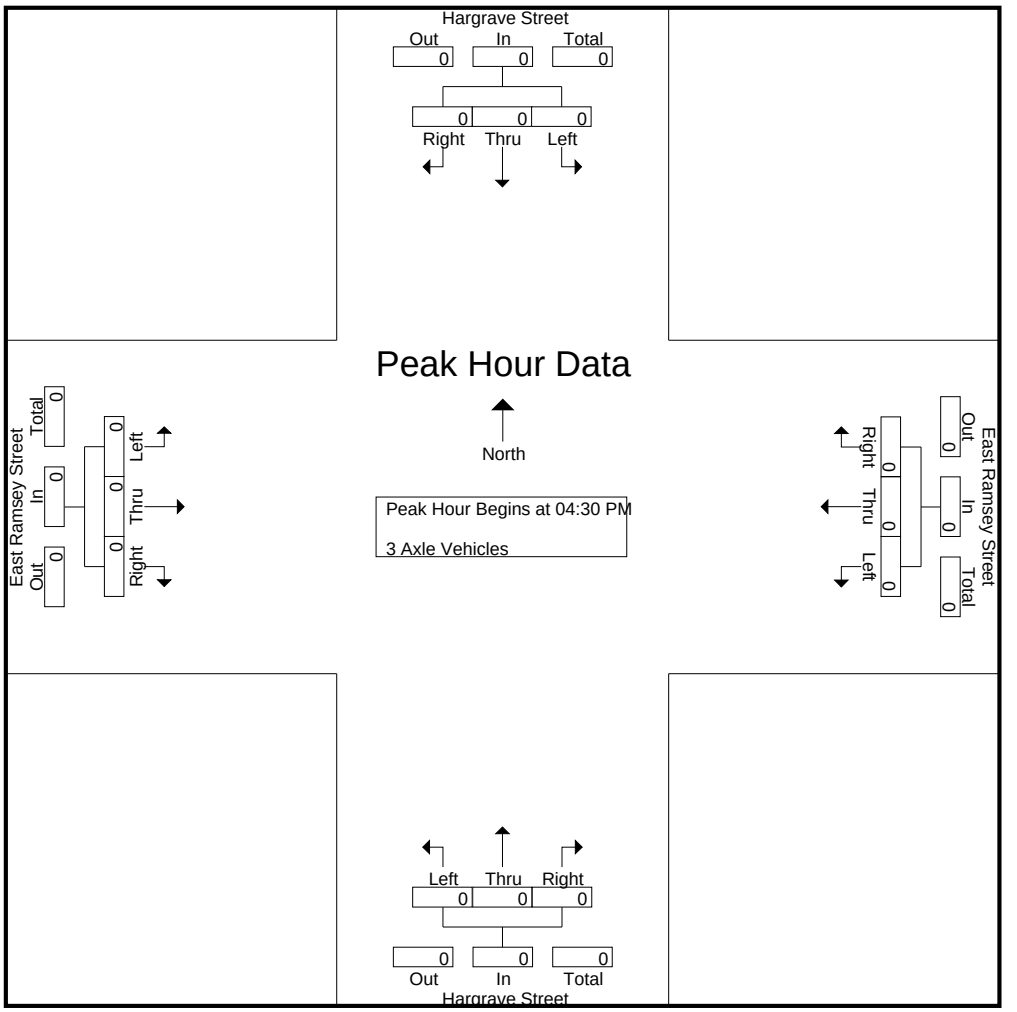

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	2	1	0	0	1	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	3
05:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	3	1	0	4	0	0	0	0	0	0	0	0	5
Grand Total	0	1	0	1	4	2	0	6	1	0	0	1	0	0	0	0	8
Apprch %	0	100	0		66.7	33.3	0		100	0	0		0	0	0		
Total %	0	12.5	0	12.5	50	25	0	75	12.5	0	0	12.5	0	0	0	0	

	Hargrave Street Southbound				East Ramsey Street Westbound				Hargrave Street Northbound				East Ramsey Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**1**	0	1	**1**	0	0	**1**	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	**2**	1	0	**3**	0	0	0	0	0	0	0	0	**3**
Total Volume	0	0	0	0	2	2	0	4	1	0	0	1	0	0	0	0	5
% App. Total	0	0	0		50	50	0		100	0	0		0	0	0		
PHF	.000	.000	.000	.000	.250	.500	.000	.333	.250	.000	.000	.250	.000	.000	.000	.000	.417

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City of Banning
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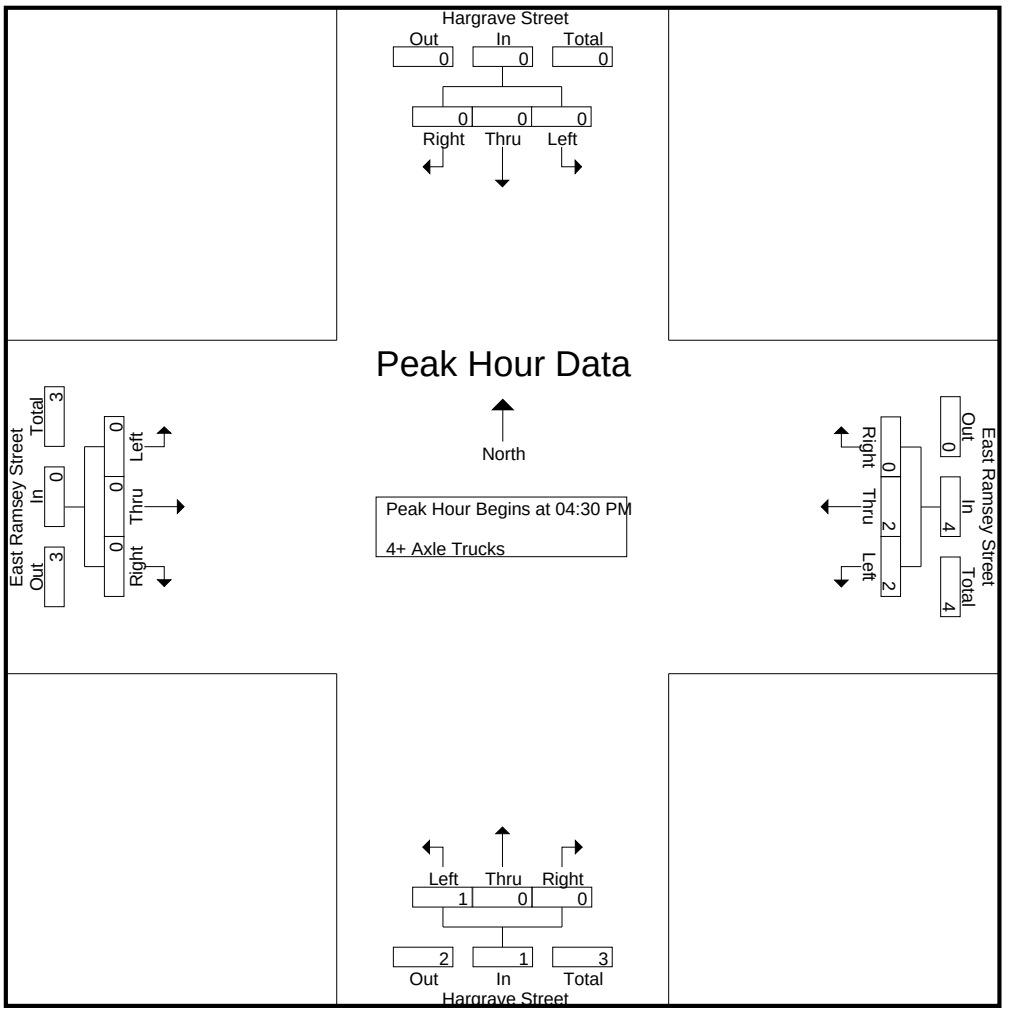

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**1**	0	1	**1**	0	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	**2**	1	0	**3**	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	2	2	0	4	1	0	0	1	0	0	0	0
% App. Total	0	0	0		50	50	0		100	0	0		0	0	0	
PHF	.000	.000	.000	.000	.250	.500	.000	.333	.250	.000	.000	.250	.000	.000	.000	.000

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City of Banning
N/S: Hargrave Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : BANHA10WAM
Site Code : 00000000
Start Date : 1/31/2017
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	32	42	74	11	0	8	19	21	50	0	71	0	0	0	0	164
07:15 AM	0	56	37	93	16	0	15	31	14	70	0	84	0	0	0	0	208
07:30 AM	0	71	45	116	6	1	6	13	15	148	0	163	0	0	0	0	292
07:45 AM	0	34	57	91	3	0	8	11	15	139	0	154	0	0	0	0	256
Total	0	193	181	374	36	1	37	74	65	407	0	472	0	0	0	0	920
08:00 AM	0	28	70	98	9	0	9	18	15	99	0	114	0	0	0	0	230
08:15 AM	0	36	49	85	6	0	13	19	11	79	0	90	0	0	0	0	194
08:30 AM	0	33	56	89	7	0	14	21	8	77	0	85	0	0	0	0	195
08:45 AM	0	41	59	100	14	0	11	25	14	70	0	84	0	0	0	0	209
Total	0	138	234	372	36	0	47	83	48	325	0	373	0	0	0	0	828
Grand Total	0	331	415	746	72	1	84	157	113	732	0	845	0	0	0	0	1748
Apprch %	0	44.4	55.6		45.9	0.6	53.5		13.4	86.6	0		0	0	0		
Total %	0	18.9	23.7	42.7	4.1	0.1	4.8	9	6.5	41.9	0	48.3	0	0	0	0	
Passenger Vehicles	0	314	390	704	61	1	82	144	104	702	0	806	0	0	0	0	1654
% Passenger Vehicles	0	94.9	94	94.4	84.7	100	97.6	91.7	92	95.9	0	95.4	0	0	0	0	94.6
Large 2 Axle Vehicles	0	17	13	30	8	0	2	10	6	25	0	31	0	0	0	0	71
% Large 2 Axle Vehicles	0	5.1	3.1	4	11.1	0	2.4	6.4	5.3	3.4	0	3.7	0	0	0	0	4.1
3 Axle Vehicles	0	0	2	2	1	0	0	1	0	1	0	1	0	0	0	0	4
% 3 Axle Vehicles	0	0	0.5	0.3	1.4	0	0	0.6	0	0.1	0	0.1	0	0	0	0	0.2
4+ Axle Trucks	0	0	10	10	2	0	0	2	3	4	0	7	0	0	0	0	19
% 4+ Axle Trucks	0	0	2.4	1.3	2.8	0	0	1.3	2.7	0.5	0	0.8	0	0	0	0	1.1

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	56	37	93	**16**	0	**15**	**31**	14	70	0	84	0	0	0	0	208
07:30 AM	0	**71**	45	**116**	6	**1**	6	13	**15**	**148**	0	**163**	0	0	0	0	**292**
07:45 AM	0	34	57	91	3	0	8	11	15	139	0	154	0	0	0	0	256
08:00 AM	0	28	**70**	98	9	0	9	18	15	99	0	114	0	0	0	0	230
Total Volume	0	189	209	398	34	1	38	73	59	456	0	515	0	0	0	0	986
% App. Total	0	47.5	52.5		46.6	1.4	52.1		11.5	88.5	0		0	0	0		
PHF	.000	.665	.746	.858	.531	.250	.633	.589	.983	.770	.000	.790	.000	.000	.000	.000	.844

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City of Banning
N/S: Hargrave Street
E/W: I-10 Westbound Ramps
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File Name : BANHA10WAM
Site Code : 00000000
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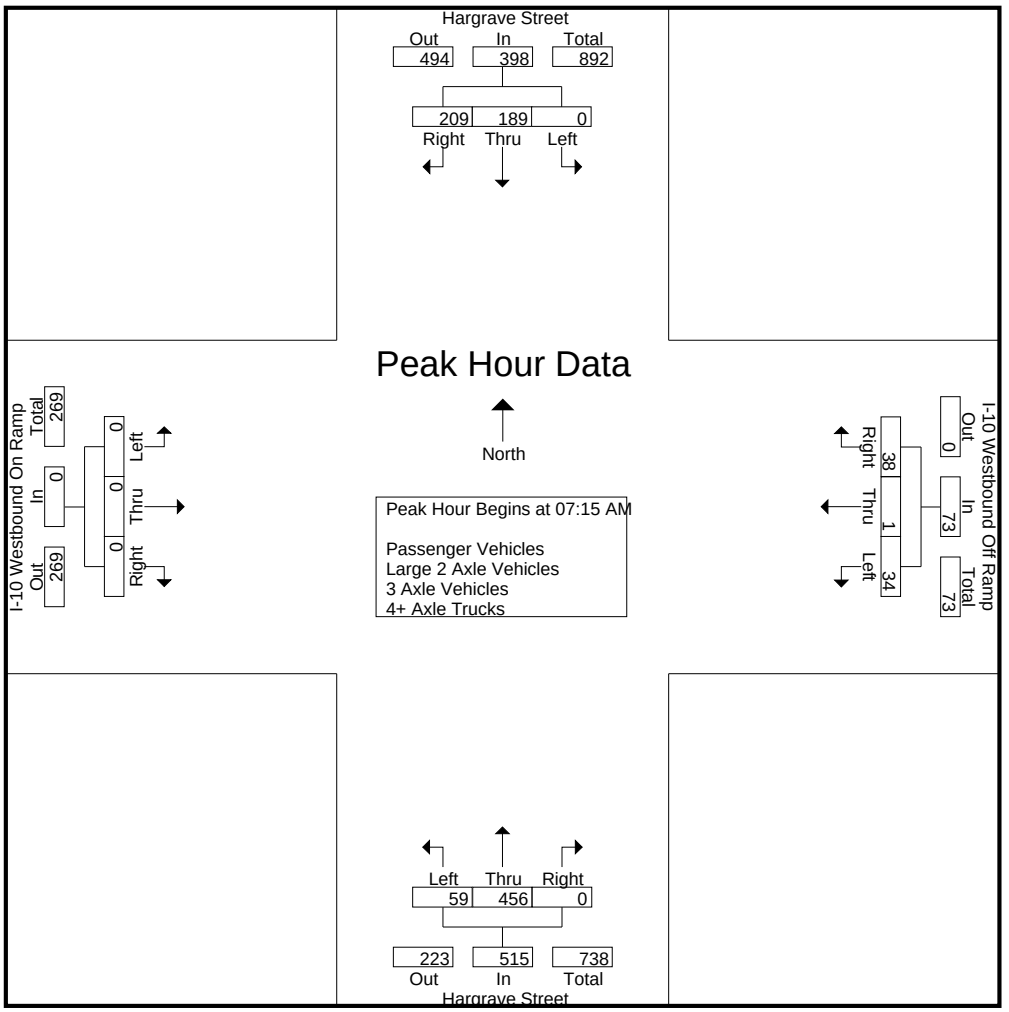

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				08:00 AM				07:30 AM				07:00 AM			
+0 mins.	0	56	37	93	9	0	9	18	**15**	**148**	0	**163**	0	0	0	0
+15 mins.	0	**71**	45	**116**	6	0	13	19	15	139	0	154	0	0	0	0
+30 mins.	0	34	57	91	7	0	**14**	21	15	99	0	114	0	0	0	0
+45 mins.	0	28	**70**	98	**14**	0	11	**25**	11	79	0	90	0	0	0	0
Total Volume	0	189	209	398	36	0	47	83	56	465	0	521	0	0	0	0
% App. Total	0	47.5	52.5		43.4	0	56.6		10.7	89.3	0		0	0	0	
PHF	.000	.665	.746	.858	.643	.000	.839	.830	.933	.785	.000	.799	.000	.000	.000	.000

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City of Banning
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E/W: I-10 Westbound Ramps
Weather: Clear

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Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	31	41	72	9	0	8	17	21	49	0	70	0	0	0	0	159
07:15 AM	0	54	35	89	15	0	14	29	13	65	0	78	0	0	0	0	196
07:30 AM	0	68	44	112	6	1	6	13	15	143	0	158	0	0	0	0	283
07:45 AM	0	34	53	87	3	0	8	11	13	136	0	149	0	0	0	0	247
Total	0	187	173	360	33	1	36	70	62	393	0	455	0	0	0	0	885
08:00 AM	0	27	64	91	7	0	8	15	13	93	0	106	0	0	0	0	212
08:15 AM	0	31	47	78	5	0	13	18	10	74	0	84	0	0	0	0	180
08:30 AM	0	32	50	82	6	0	14	20	6	73	0	79	0	0	0	0	181
08:45 AM	0	37	56	93	10	0	11	21	13	69	0	82	0	0	0	0	196
Total	0	127	217	344	28	0	46	74	42	309	0	351	0	0	0	0	769
Grand Total	0	314	390	704	61	1	82	144	104	702	0	806	0	0	0	0	1654
Apprch %	0	44.6	55.4		42.4	0.7	56.9		12.9	87.1	0		0	0	0		
Total %	0	19	23.6	42.6	3.7	0.1	5	8.7	6.3	42.4	0	48.7	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	54	35	89	**15**	0	**14**	**29**	13	65	0	78	0	0	0	0	196
07:30 AM	0	**68**	44	**112**	6	**1**	6	13	**15**	**143**	0	**158**	0	0	0	0	**283**
07:45 AM	0	34	53	87	3	0	8	11	13	136	0	149	0	0	0	0	247
08:00 AM	0	27	**64**	91	7	0	8	15	13	93	0	106	0	0	0	0	212
Total Volume	0	183	196	379	31	1	36	68	54	437	0	491	0	0	0	0	938
% App. Total	0	48.3	51.7		45.6	1.5	52.9		11	89	0		0	0	0		
PHF	.000	.673	.766	.846	.517	.250	.643	.586	.900	.764	.000	.777	.000	.000	.000	.000	.829

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File Name : BANHA10WAM
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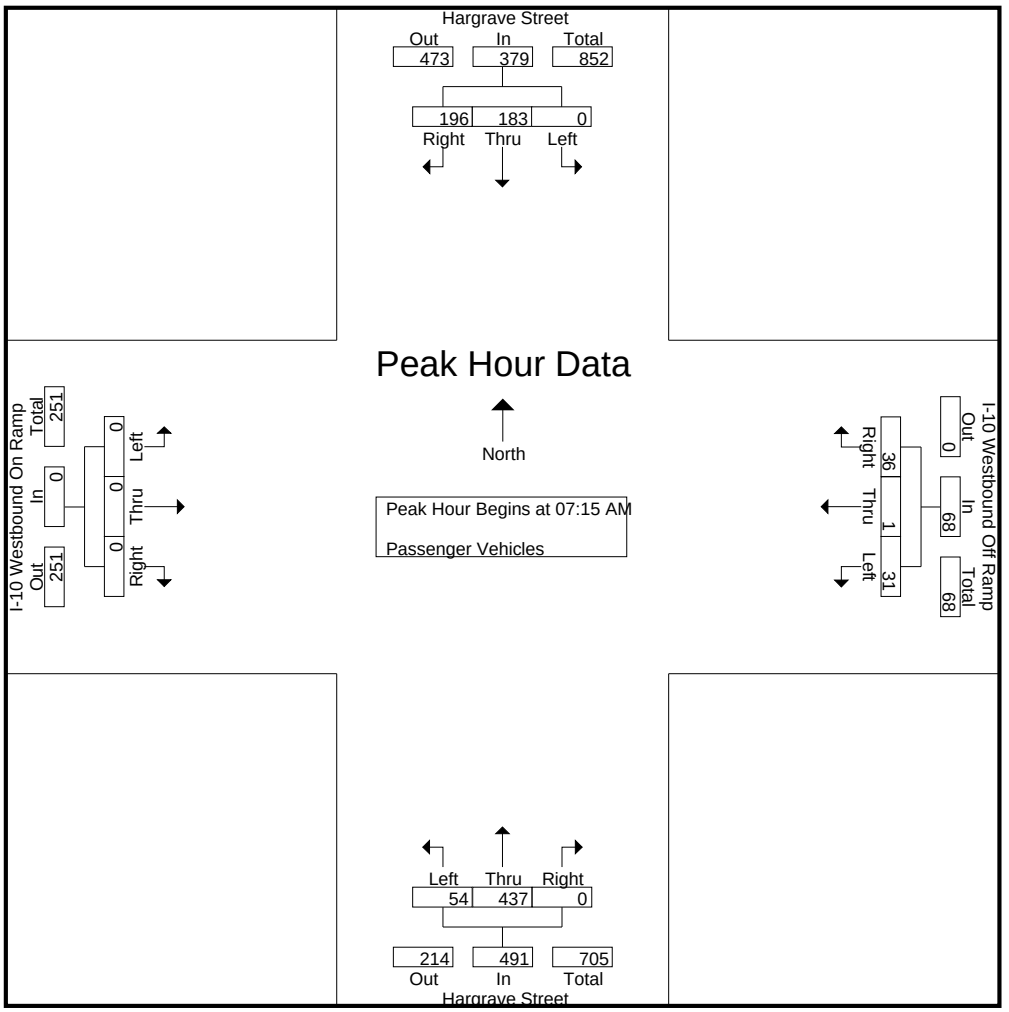

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	54	35	89	**15**	0	**14**	**29**	13	65	0	78	0	0	0	0
+15 mins.	0	**68**	44	**112**	6	**1**	6	13	**15**	**143**	0	**158**	0	0	0	0
+30 mins.	0	34	53	87	3	0	8	11	13	136	0	149	0	0	0	0
+45 mins.	0	27	**64**	91	7	0	8	15	13	93	0	106	0	0	0	0
Total Volume	0	183	196	379	31	1	36	68	54	437	0	491	0	0	0	0
% App. Total	0	48.3	51.7		45.6	1.5	52.9		11	89	0		0	0	0	
PHF	.000	.673	.766	.846	.517	.250	.643	.586	.900	.764	.000	.777	.000	.000	.000	.000

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City of Banning
N/S: Hargrave Street
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Weather: Clear

File Name : BANHA10WAM
Site Code : 00000000
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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	0	1	2	0	0	2	0	1	0	1	0	0	0	0	4
07:15 AM	0	2	1	3	1	0	1	2	1	5	0	6	0	0	0	0	11
07:30 AM	0	3	0	3	0	0	0	0	0	5	0	5	0	0	0	0	8
07:45 AM	0	0	1	1	0	0	0	0	0	3	0	3	0	0	0	0	4
Total	0	6	2	8	3	0	1	4	1	14	0	15	0	0	0	0	27
08:00 AM	0	1	6	7	1	0	1	2	1	5	0	6	0	0	0	0	15
08:15 AM	0	5	1	6	1	0	0	1	1	3	0	4	0	0	0	0	11
08:30 AM	0	1	3	4	0	0	0	0	2	2	0	4	0	0	0	0	8
08:45 AM	0	4	1	5	3	0	0	3	1	1	0	2	0	0	0	0	10
Total	0	11	11	22	5	0	1	6	5	11	0	16	0	0	0	0	44
Grand Total	0	17	13	30	8	0	2	10	6	25	0	31	0	0	0	0	71
Apprch %	0	56.7	43.3		80	0	20		19.4	80.6	0		0	0	0		
Total %	0	23.9	18.3	42.3	11.3	0	2.8	14.1	8.5	35.2	0	43.7	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	2	1	3	**1**	0	**1**	**2**	**1**	**5**	0	**6**	0	0	0	0	11
07:30 AM	0	**3**	0	3	0	0	0	0	0	5	0	5	0	0	0	0	8
07:45 AM	0	0	1	1	0	0	0	0	0	3	0	3	0	0	0	0	4
08:00 AM	0	1	**6**	**7**	1	0	1	2	1	5	0	6	0	0	0	0	**15**
Total Volume	0	6	8	14	2	0	2	4	2	18	0	20	0	0	0	0	38
% App. Total	0	42.9	57.1		50	0	50		10	90	0		0	0	0		
PHF	.000	.500	.333	.500	.500	.000	.500	.500	.500	.900	.000	.833	.000	.000	.000	.000	.633

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City of Banning
N/S: Hargrave Street
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File Name : BANHA10WAM
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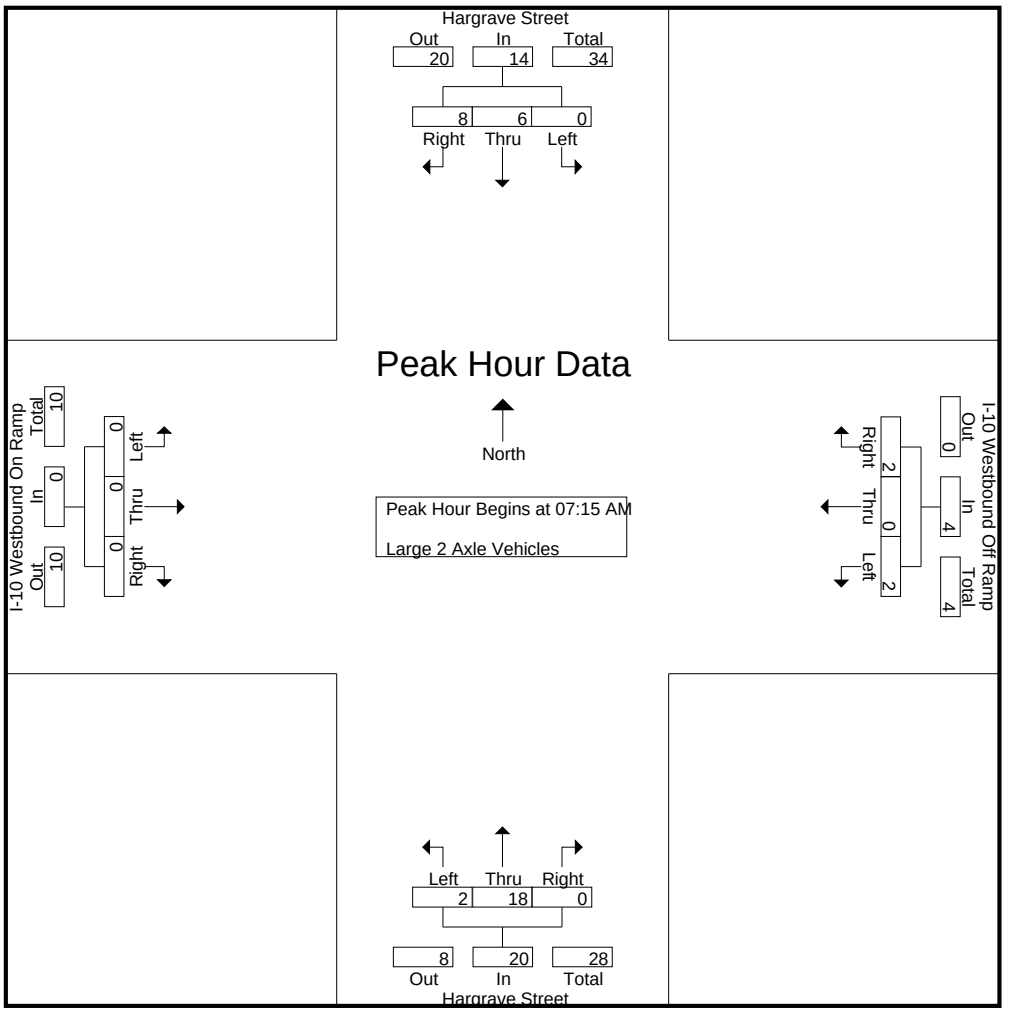

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	2	1	3	**1**	0	**1**	**2**	**1**	**5**	0	**6**	0	0	0	0
+15 mins.	0	**3**	0	3	0	0	0	0	0	5	0	5	0	0	0	0
+30 mins.	0	0	1	1	0	0	0	0	0	3	0	3	0	0	0	0
+45 mins.	0	1	**6**	**7**	1	0	1	2	1	5	0	6	0	0	0	0
Total Volume	0	6	8	14	2	0	2	4	2	18	0	20	0	0	0	0
% App. Total	0	42.9	57.1		50	0	50		10	90	0		0	0	0	
PHF	.000	.500	.333	.500	.500	.000	.500	.500	.500	.900	.000	.833	.000	.000	.000	.000

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City of Banning
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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	2
08:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	1	1	1	0	0	1	0	1	0	1	0	0	0	0	3
Grand Total	0	0	2	2	1	0	0	1	0	1	0	1	0	0	0	0	4
Apprch %	0	0	100		100	0	0		0	100	0		0	0	0		
Total %	0	0	50	50	25	0	0	25	0	25	0	25	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Banning
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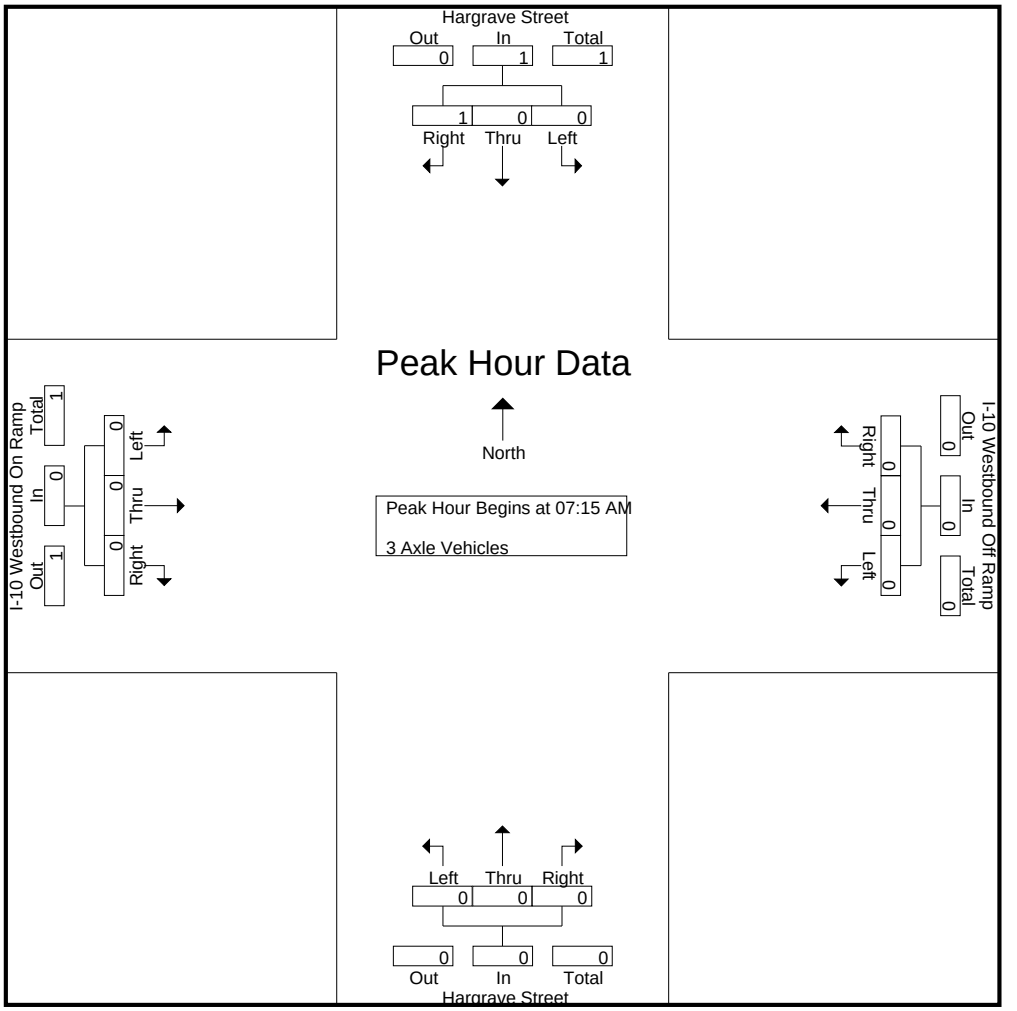

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Banning
N/S: Hargrave Street
E/W: I-10 Westbound Ramps
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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	3	3	0	0	0	0	2	0	0	2	0	0	0	0	5
Total	0	0	5	5	0	0	0	0	2	0	0	2	0	0	0	0	7
08:00 AM	0	0	0	0	1	0	0	1	1	1	0	2	0	0	0	0	3
08:15 AM	0	0	1	1	0	0	0	0	0	2	0	2	0	0	0	0	3
08:30 AM	0	0	2	2	1	0	0	1	0	1	0	1	0	0	0	0	4
08:45 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	5	5	2	0	0	2	1	4	0	5	0	0	0	0	12
Grand Total	0	0	10	10	2	0	0	2	3	4	0	7	0	0	0	0	19
Apprch %	0	0	100		100	0	0		42.9	57.1	0		0	0	0		
Total %	0	0	52.6	52.6	10.5	0	0	10.5	15.8	21.1	0	36.8	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	**3**	**3**	0	0	0	0	**2**	0	0	**2**	0	0	0	0	**5**
08:00 AM	0	0	0	0	**1**	0	0	**1**	1	**1**	0	2	0	0	0	0	3
Total Volume	0	0	4	4	1	0	0	1	3	1	0	4	0	0	0	0	9
% App. Total	0	0	100		100	0	0		75	25	0		0	0	0		
PHF	.000	.000	.333	.333	.250	.000	.000	.250	.375	.250	.000	.500	.000	.000	.000	.000	.450

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City of Banning
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E/W: I-10 Westbound Ramps
Weather: Clear

File Name : BANHA10WAM
Site Code : 00000000
Start Date : 1/31/2017
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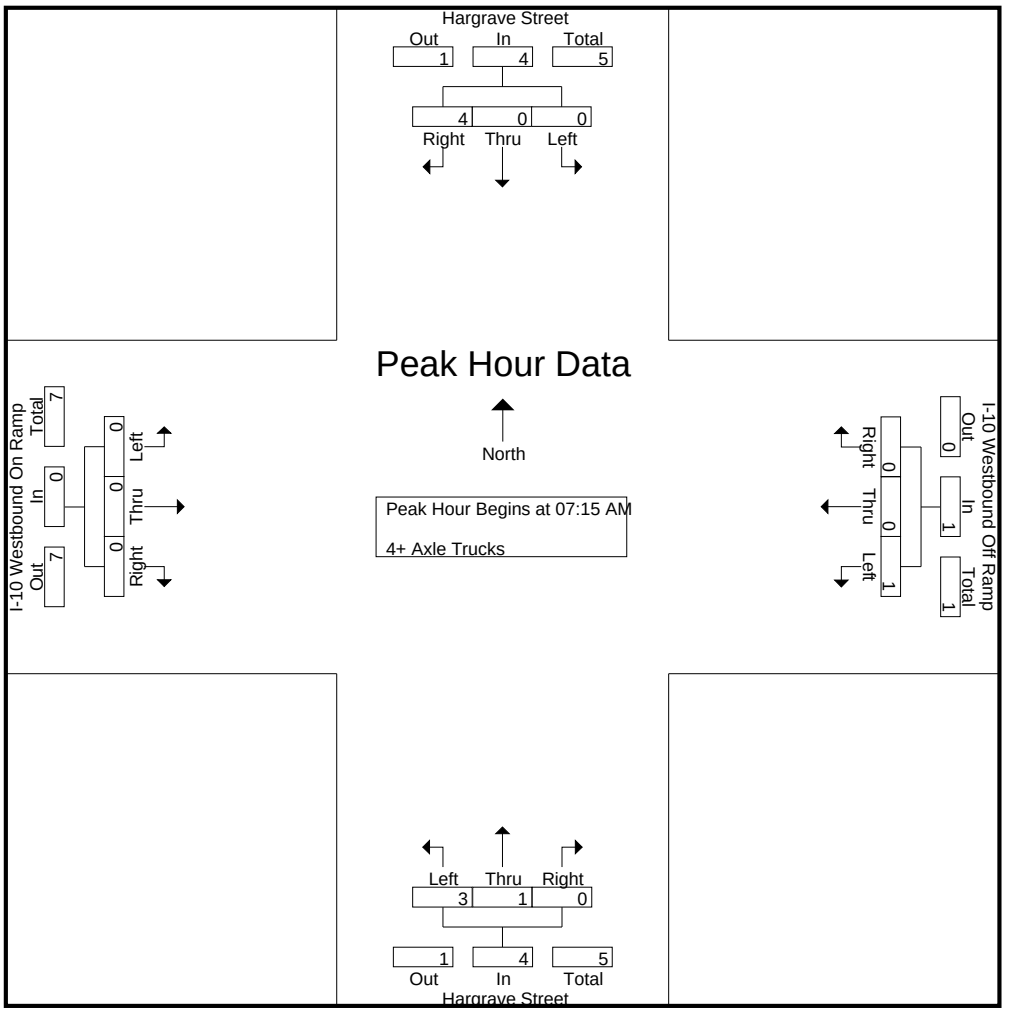

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	**3**	**3**	0	0	0	0	**2**	0	0	**2**	0	0	0	0
+45 mins.	0	0	0	0	**1**	0	0	**1**	1	**1**	0	2	0	0	0	0
Total Volume	0	0	4	4	1	0	0	1	3	1	0	4	0	0	0	0
% App. Total	0	0	100		100	0	0		75	25	0		0	0	0	
PHF	.000	.000	.333	.333	.250	.000	.000	.250	.375	.250	.000	.500	.000	.000	.000	.000

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Weather: Clear

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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	45	80	125	7	1	13	21	51	84	0	135	0	0	0	0	281
04:15 PM	0	45	48	93	11	1	11	23	34	69	0	103	0	0	0	0	219
04:30 PM	0	37	84	121	8	3	14	25	29	85	0	114	0	0	0	0	260
04:45 PM	0	33	58	91	11	1	11	23	43	68	0	111	0	0	0	0	225
Total	0	160	270	430	37	6	49	92	157	306	0	463	0	0	0	0	985
05:00 PM	0	39	121	160	12	0	11	23	34	69	0	103	0	0	0	0	286
05:15 PM	0	30	76	106	12	1	21	34	16	75	0	91	0	0	0	0	231
05:30 PM	0	32	78	110	15	0	20	35	20	78	0	98	0	0	0	0	243
05:45 PM	0	34	65	99	12	2	18	32	15	55	0	70	0	0	0	0	201
Total	0	135	340	475	51	3	70	124	85	277	0	362	0	0	0	0	961
Grand Total	0	295	610	905	88	9	119	216	242	583	0	825	0	0	0	0	1946
Apprch %	0	32.6	67.4		40.7	4.2	55.1		29.3	70.7	0		0	0	0		
Total %	0	15.2	31.3	46.5	4.5	0.5	6.1	11.1	12.4	30	0	42.4	0	0	0	0	
Passenger Vehicles	0	285	597	882	82	7	115	204	238	573	0	811	0	0	0	0	1897
% Passenger Vehicles	0	96.6	97.9	97.5	93.2	77.8	96.6	94.4	98.3	98.3	0	98.3	0	0	0	0	97.5
Large 2 Axle Vehicles	0	7	8	15	3	0	3	6	3	9	0	12	0	0	0	0	33
% Large 2 Axle Vehicles	0	2.4	1.3	1.7	3.4	0	2.5	2.8	1.2	1.5	0	1.5	0	0	0	0	1.7
3 Axle Vehicles	0	2	1	3	2	1	0	3	0	0	0	0	0	0	0	0	6
% 3 Axle Vehicles	0	0.7	0.2	0.3	2.3	11.1	0	1.4	0	0	0	0	0	0	0	0	0.3
4+ Axle Trucks	0	1	4	5	1	1	1	3	1	1	0	2	0	0	0	0	10
% 4+ Axle Trucks	0	0.3	0.7	0.6	1.1	11.1	0.8	1.4	0.4	0.2	0	0.2	0	0	0	0	0.5

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	37	84	121	8	**3**	14	25	29	**85**	0	**114**	0	0	0	0	260
04:45 PM	0	33	58	91	11	1	11	23	**43**	68	0	111	0	0	0	0	225
05:00 PM	0	**39**	**121**	**160**	**12**	0	11	23	34	69	0	103	0	0	0	0	**286**
05:15 PM	0	30	76	106	12	1	**21**	**34**	16	75	0	91	0	0	0	0	231
Total Volume	0	139	339	478	43	5	57	105	122	297	0	419	0	0	0	0	1002
% App. Total	0	29.1	70.9		41	4.8	54.3		29.1	70.9	0		0	0	0		
PHF	.000	.891	.700	.747	.896	.417	.679	.772	.709	.874	.000	.919	.000	.000	.000	.000	.876

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E/W: I-10 Westbound Ramps
Weather: Clear

File Name : BANHA10WPM
Site Code : 00000000
Start Date : 1/31/2017
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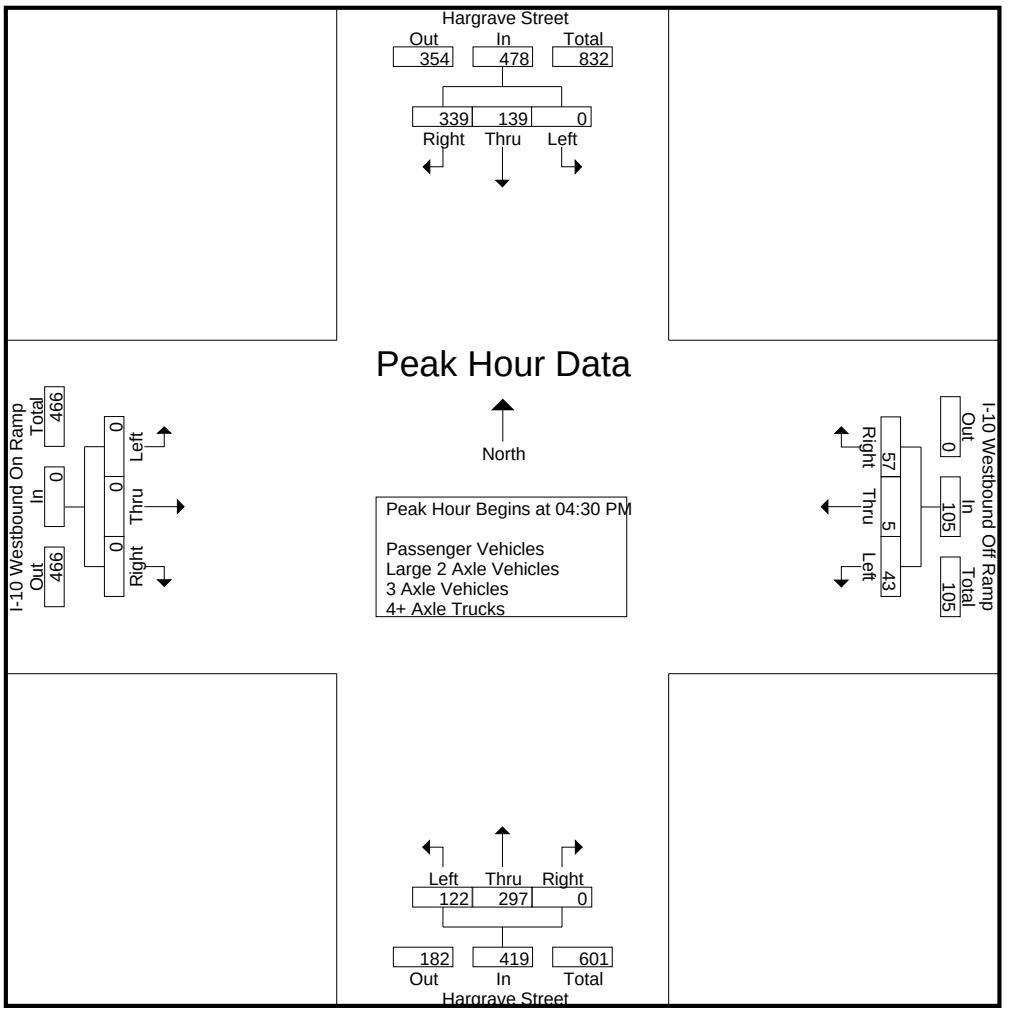

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	37	84	121	12	0	11	23	**51**	84	0	**135**	0	0	0	0
+15 mins.	0	33	58	91	12	1	**21**	34	34	69	0	103	0	0	0	0
+30 mins.	0	**39**	**121**	**160**	**15**	0	20	**35**	29	**85**	0	114	0	0	0	0
+45 mins.	0	30	76	106	12	**2**	18	32	43	68	0	111	0	0	0	0
Total Volume	0	139	339	478	51	3	70	124	157	306	0	463	0	0	0	0
% App. Total	0	29.1	70.9		41.1	2.4	56.5		33.9	66.1	0		0	0	0	
PHF	.000	.891	.700	.747	.850	.375	.833	.886	.770	.900	.000	.857	.000	.000	.000	.000

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Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	41	79	120	7	1	13	21	51	82	0	133	0	0	0	0	274
04:15 PM	0	44	46	90	9	1	10	20	32	68	0	100	0	0	0	0	210
04:30 PM	0	33	84	117	8	2	13	23	28	83	0	111	0	0	0	0	251
04:45 PM	0	32	58	90	11	1	11	23	42	66	0	108	0	0	0	0	221
Total	0	150	267	417	35	5	47	87	153	299	0	452	0	0	0	0	956
05:00 PM	0	39	117	156	10	0	10	20	34	68	0	102	0	0	0	0	278
05:15 PM	0	30	74	104	12	1	21	34	16	74	0	90	0	0	0	0	228
05:30 PM	0	32	75	107	14	0	20	34	20	78	0	98	0	0	0	0	239
05:45 PM	0	34	64	98	11	1	17	29	15	54	0	69	0	0	0	0	196
Total	0	135	330	465	47	2	68	117	85	274	0	359	0	0	0	0	941
Grand Total	0	285	597	882	82	7	115	204	238	573	0	811	0	0	0	0	1897
Apprch %	0	32.3	67.7		40.2	3.4	56.4		29.3	70.7	0		0	0	0		
Total %	0	15	31.5	46.5	4.3	0.4	6.1	10.8	12.5	30.2	0	42.8	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	33	84	117	8	**2**	13	23	28	**83**	0	**111**	0	0	0	0	251
04:45 PM	0	32	58	90	11	1	11	23	**42**	66	0	108	0	0	0	0	221
05:00 PM	0	**39**	**117**	**156**	10	0	10	20	34	68	0	102	0	0	0	0	**278**
05:15 PM	0	30	74	104	**12**	1	**21**	**34**	16	74	0	90	0	0	0	0	228
Total Volume	0	134	333	467	41	4	55	100	120	291	0	411	0	0	0	0	978
% App. Total	0	28.7	71.3		41	4	55		29.2	70.8	0		0	0	0		
PHF	.000	.859	.712	.748	.854	.500	.655	.735	.714	.877	.000	.926	.000	.000	.000	.000	.879

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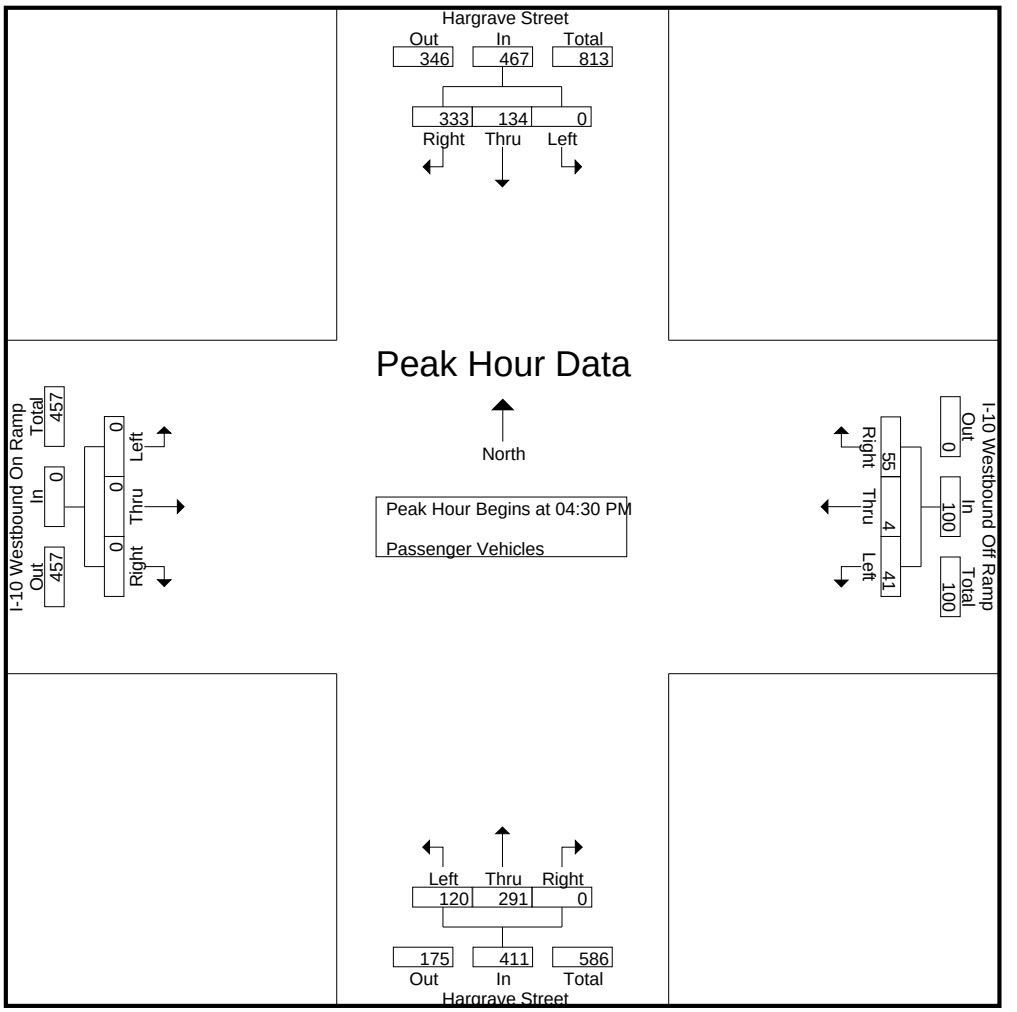

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	33	84	117	8	**2**	13	23	28	**83**	0	**111**	0	0	0	0
+15 mins.	0	32	58	90	11	1	11	23	**42**	66	0	108	0	0	0	0
+30 mins.	0	**39**	**117**	**156**	10	0	10	20	34	68	0	102	0	0	0	0
+45 mins.	0	30	74	104	**12**	1	**21**	**34**	16	74	0	90	0	0	0	0
Total Volume	0	134	333	467	41	4	55	100	120	291	0	411	0	0	0	0
% App. Total	0	28.7	71.3		41	4	55		29.2	70.8	0		0	0	0	
PHF	.000	.859	.712	.748	.854	.500	.655	.735	.714	.877	.000	.926	.000	.000	.000	.000

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City of Banning
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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	3	0	3	0	0	0	0	0	2	0	2	0	0	0	0	5
04:15 PM	0	0	2	2	2	0	1	3	2	1	0	3	0	0	0	0	8
04:30 PM	0	3	0	3	0	0	0	0	0	2	0	2	0	0	0	0	5
04:45 PM	0	1	0	1	0	0	0	0	1	2	0	3	0	0	0	0	4
Total	0	7	2	9	2	0	1	3	3	7	0	10	0	0	0	0	22
05:00 PM	0	0	4	4	1	0	1	2	0	1	0	1	0	0	0	0	7
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2
Total	0	0	6	6	1	0	2	3	0	2	0	2	0	0	0	0	11
Grand Total	0	7	8	15	3	0	3	6	3	9	0	12	0	0	0	0	33
Apprch %	0	46.7	53.3		50	0	50		25	75	0		0	0	0		
Total %	0	21.2	24.2	45.5	9.1	0	9.1	18.2	9.1	27.3	0	36.4	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**3**	0	3	0	0	0	0	0	**2**	0	2	0	0	0	0	5
04:45 PM	0	1	0	1	0	0	0	0	**1**	2	0	**3**	0	0	0	0	4
05:00 PM	0	0	**4**	**4**	**1**	0	**1**	**2**	0	1	0	1	0	0	0	0	**7**
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	4	4	8	1	0	1	2	1	6	0	7	0	0	0	0	17
% App. Total	0	50	50		50	0	50		14.3	85.7	0		0	0	0		
PHF	.000	.333	.250	.500	.250	.000	.250	.250	.250	.750	.000	.583	.000	.000	.000	.000	.607

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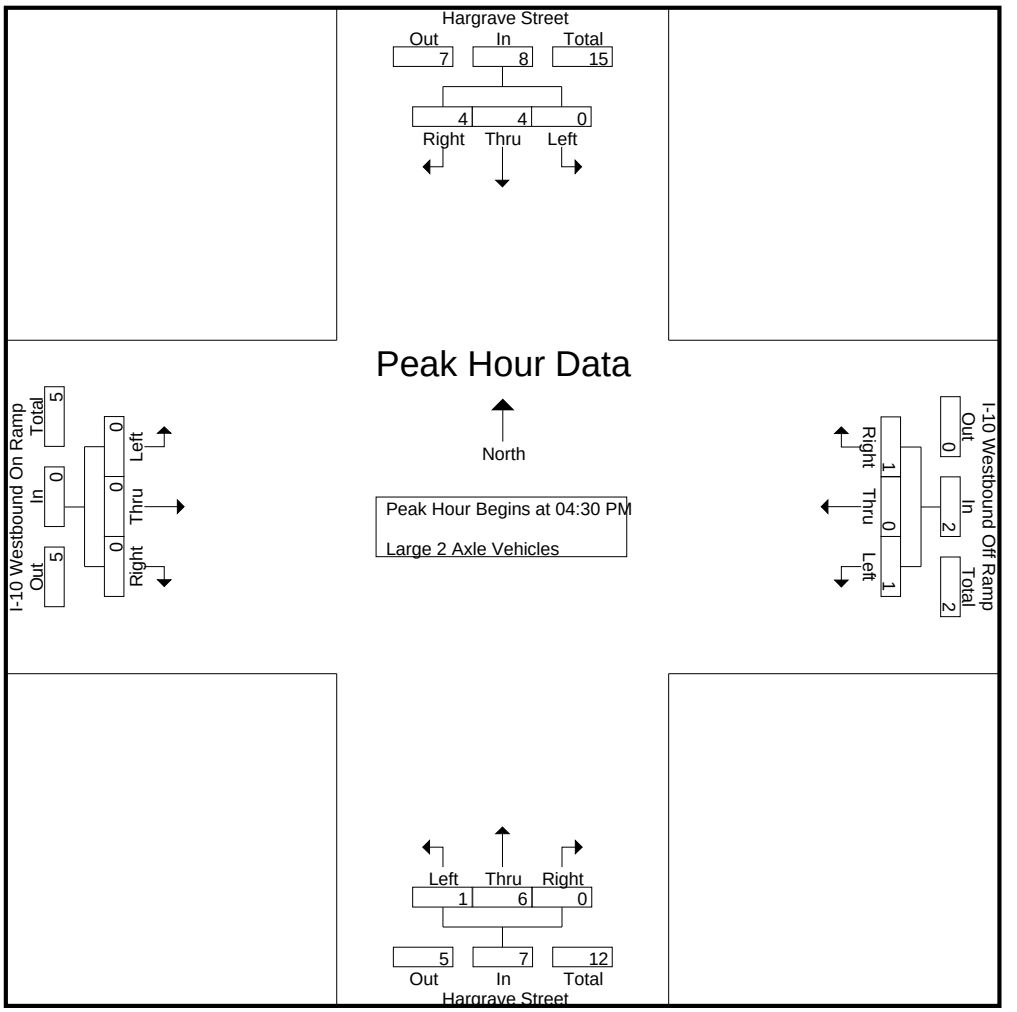

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**3**	0	3	0	0	0	0	0	**2**	0	2	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	**1**	2	0	**3**	0	0	0	0
+30 mins.	0	0	**4**	**4**	**1**	0	**1**	**2**	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	4	4	8	1	0	1	2	1	6	0	7	0	0	0	0
% App. Total	0	50	50		50	0	50		14.3	85.7	0		0	0	0	
PHF	.000	.333	.250	.500	.250	.000	.250	.250	.250	.750	.000	.583	.000	.000	.000	.000

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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	1	3	0	1	0	1	0	0	0	0	0	0	0	0	4
05:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2
Grand Total	0	2	1	3	2	1	0	3	0	0	0	0	0	0	0	0	6
Apprch %	0	66.7	33.3		66.7	33.3	0		0	0	0		0	0	0		
Total %	0	33.3	16.7	50	33.3	16.7	0	50	0	0	0	0	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**1**	0	**1**	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	1	1	0	2	0	0	0	0	0	0	0	0	3
% App. Total	0	100	0		50	50	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.375

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City of Banning
N/S: Hargrave Street
E/W: I-10 Westbound Ramps
Weather: Clear

File Name : BANHA10WPM
Site Code : 00000000
Start Date : 1/31/2017
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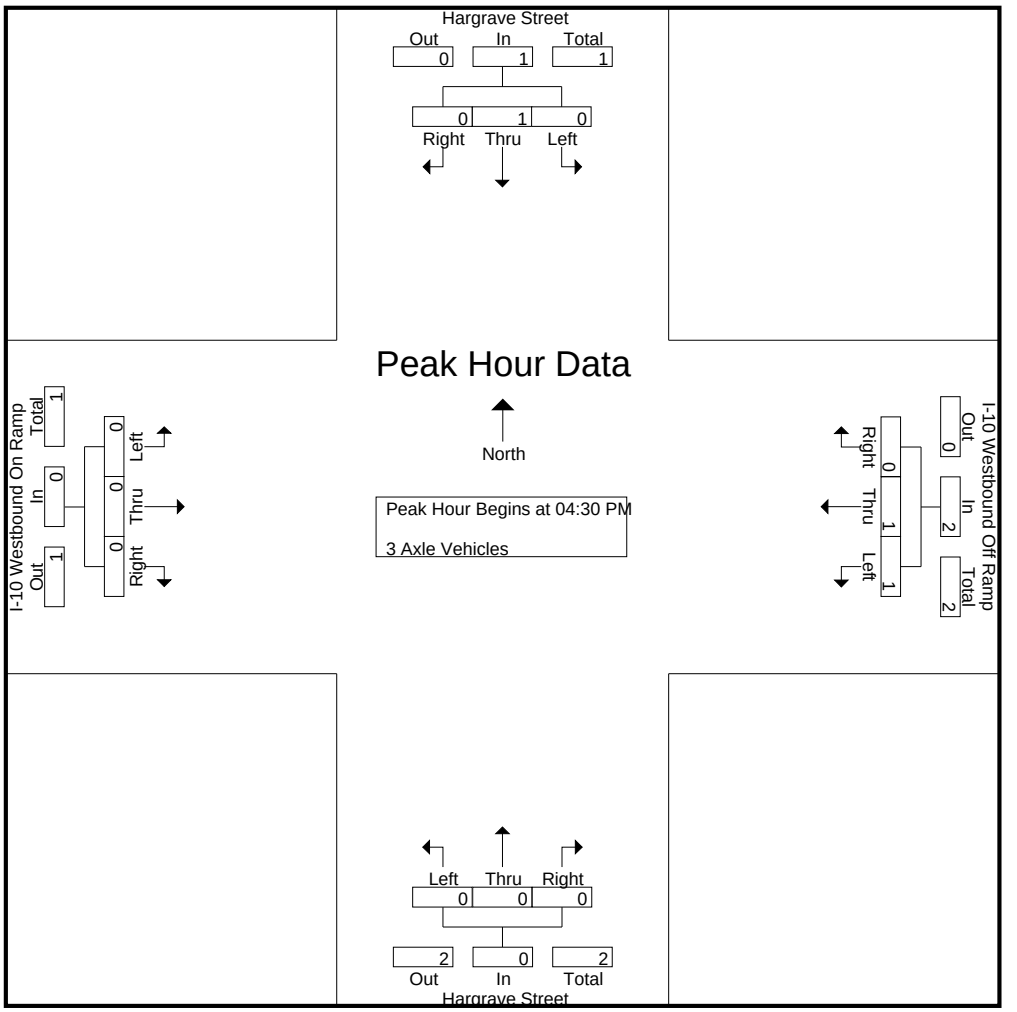

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**1**	0	**1**	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	1	1	0	2	0	0	0	0	0	0	0	0
% App. Total	0	100	0		50	50	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000

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N/S: Hargrave Street
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Weather: Clear

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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	1	1	1	0	0	1	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	1	1	0	2	0	1	0	1	0	0	0	0	3
Total	0	0	4	4	1	1	0	2	0	1	0	1	0	0	0	0	7
Grand Total	0	1	4	5	1	1	1	3	1	1	0	2	0	0	0	0	10
Apprch %	0	20	80		33.3	33.3	33.3		50	50	0		0	0	0		
Total %	0	10	40	50	10	10	10	30	10	10	0	20	0	0	0	0	

	Hargrave Street Southbound				I-10 Westbound Off Ramp Westbound				Hargrave Street Northbound				I-10 Westbound On Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	**1**	**1**	**1**	0	0	**1**	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	2	2	0	0	1	1	1	0	0	1	0	0	0	0	4
% App. Total	0	0	100		0	0	100		100	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.250	.250	.250	.000	.000	.250	.000	.000	.000	.000	.500

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Site Code : 00000000
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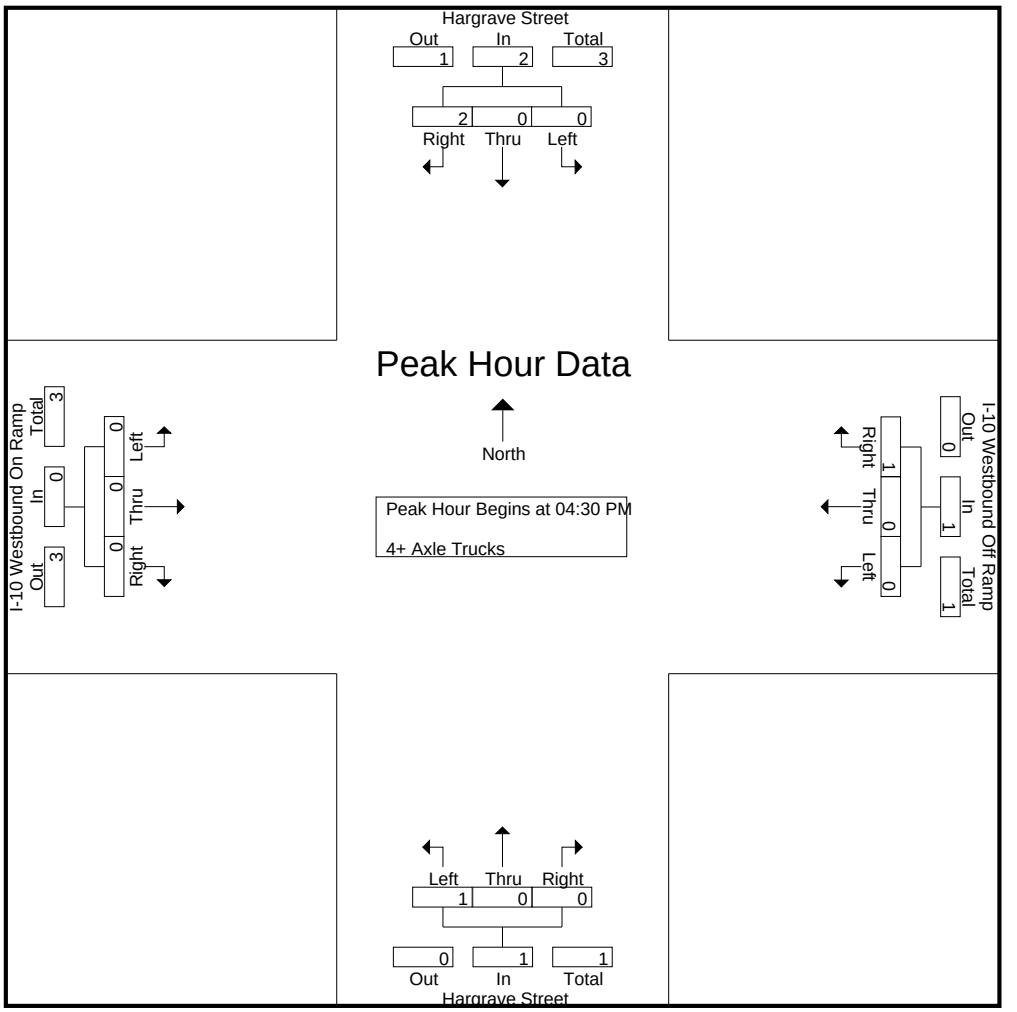

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	**1**	**1**	**1**	0	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	2	0	0	1	1	1	0	0	1	0	0	0	0
% App. Total	0	0	100		0	0	100		100	0	0		0	0	0	
PHF	.000	.000	.250	.250	.000	.000	.250	.250	.250	.000	.000	.250	.000	.000	.000	.000

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City of Banning
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Weather: Clear

File Name : BANHA10EAM
Site Code : 00000000
Start Date : 1/31/2017
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	15	26	0	41	0	0	0	0	0	34	11	45	35	0	20	55	141
07:15 AM	16	51	0	67	0	0	0	0	0	30	14	44	55	1	17	73	184
07:30 AM	30	50	0	80	0	0	0	0	0	71	17	88	84	0	21	105	273
07:45 AM	17	23	0	40	0	0	0	0	0	29	9	38	122	1	14	137	215
Total	78	150	0	228	0	0	0	0	0	164	51	215	296	2	72	370	813
08:00 AM	13	24	0	37	0	0	0	0	0	34	13	47	78	2	11	91	175
08:15 AM	18	23	0	41	0	0	0	0	0	39	6	45	53	0	17	70	156
08:30 AM	9	27	0	36	0	0	0	0	0	27	10	37	55	0	14	69	142
08:45 AM	17	37	0	54	0	0	0	0	0	39	15	54	46	0	7	53	161
Total	57	111	0	168	0	0	0	0	0	139	44	183	232	2	49	283	634
Grand Total	135	261	0	396	0	0	0	0	0	303	95	398	528	4	121	653	1447
Apprch %	34.1	65.9	0		0	0	0		0	76.1	23.9		80.9	0.6	18.5		
Total %	9.3	18	0	27.4	0	0	0	0	0	20.9	6.6	27.5	36.5	0.3	8.4	45.1	
Passenger Vehicles	131	242	0	373	0	0	0	0	0	287	86	373	515	2	116	633	1379
% Passenger Vehicles	97	92.7	0	94.2	0	0	0	0	0	94.7	90.5	93.7	97.5	50	95.9	96.9	95.3
Large 2 Axle Vehicles	4	16	0	20	0	0	0	0	0	14	6	20	7	0	4	11	51
% Large 2 Axle Vehicles	3	6.1	0	5.1	0	0	0	0	0	4.6	6.3	5	1.3	0	3.3	1.7	3.5
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
% 3 Axle Vehicles	0	0.4	0	0.3	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0.1
4+ Axle Trucks	0	2	0	2	0	0	0	0	0	2	3	5	5	2	1	8	15
% 4+ Axle Trucks	0	0.8	0	0.5	0	0	0	0	0	0.7	3.2	1.3	0.9	50	0.8	1.2	1

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	16	**51**	0	67	0	0	0	0	0	30	14	44	55	1	17	73	184
07:30 AM	**30**	50	0	**80**	0	0	0	0	0	**71**	**17**	**88**	84	0	**21**	105	**273**
07:45 AM	17	23	0	40	0	0	0	0	0	29	9	38	**122**	1	14	**137**	215
08:00 AM	13	24	0	37	0	0	0	0	0	34	13	47	78	**2**	11	91	175
Total Volume	76	148	0	224	0	0	0	0	0	164	53	217	339	4	63	406	847
% App. Total	33.9	66.1	0		0	0	0		0	75.6	24.4		83.5	1	15.5		
PHF	.633	.725	.000	.700	.000	.000	.000	.000	.000	.577	.779	.616	.695	.500	.750	.741	.776

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File Name : BANHA10EAM
Site Code : 00000000
Start Date : 1/31/2017
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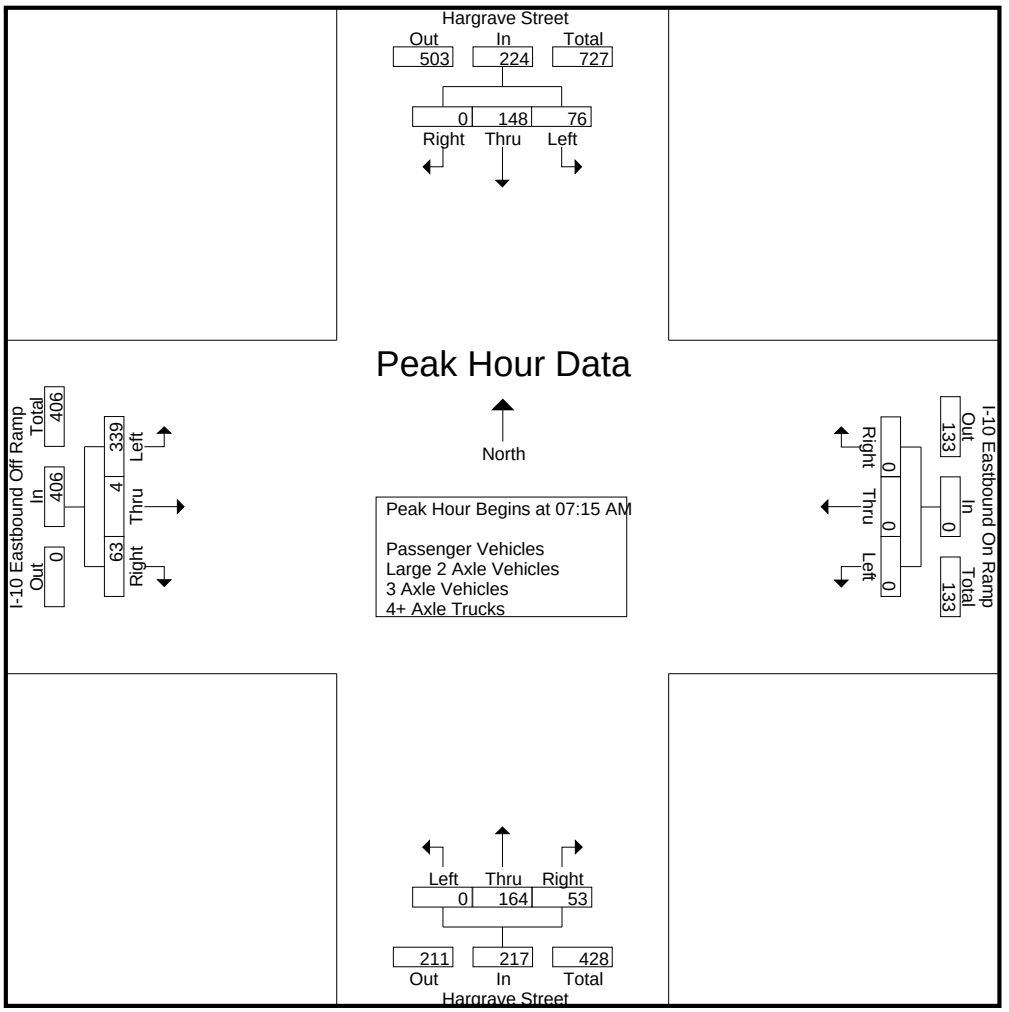

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:30 AM				07:15 AM			
+0 mins.	15	26	0	41	0	0	0	0	0	**71**	**17**	**88**	55	1	17	73
+15 mins.	16	**51**	0	67	0	0	0	0	0	29	9	38	84	0	**21**	105
+30 mins.	**30**	50	0	**80**	0	0	0	0	0	34	13	47	**122**	1	14	**137**
+45 mins.	17	23	0	40	0	0	0	0	0	39	6	45	78	**2**	11	91
Total Volume	78	150	0	228	0	0	0	0	0	173	45	218	339	4	63	406
% App. Total	34.2	65.8	0		0	0	0		0	79.4	20.6		83.5	1	15.5	
PHF	.650	.735	.000	.713	.000	.000	.000	.000	.000	.609	.662	.619	.695	.500	.750	.741

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Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	15	23	0	38	0	0	0	0	0	33	10	43	35	0	20	55	136
07:15 AM	16	49	0	65	0	0	0	0	0	28	12	40	52	0	17	69	174
07:30 AM	28	49	0	77	0	0	0	0	0	69	16	85	83	0	20	103	265
07:45 AM	17	23	0	40	0	0	0	0	0	26	9	35	120	0	14	134	209
Total	76	144	0	220	0	0	0	0	0	156	47	203	290	0	71	361	784
08:00 AM	12	22	0	34	0	0	0	0	0	33	11	44	76	2	10	88	166
08:15 AM	17	21	0	38	0	0	0	0	0	36	5	41	51	0	16	67	146
08:30 AM	9	24	0	33	0	0	0	0	0	24	10	34	52	0	13	65	132
08:45 AM	17	31	0	48	0	0	0	0	0	38	13	51	46	0	6	52	151
Total	55	98	0	153	0	0	0	0	0	131	39	170	225	2	45	272	595
Grand Total	131	242	0	373	0	0	0	0	0	287	86	373	515	2	116	633	1379
Apprch %	35.1	64.9	0		0	0	0		0	76.9	23.1		81.4	0.3	18.3		
Total %	9.5	17.5	0	27	0	0	0	0	0	20.8	6.2	27	37.3	0.1	8.4	45.9	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	16	**49**	0	65	0	0	0	0	0	28	12	40	52	0	17	69	174
07:30 AM	**28**	49	0	**77**	0	0	0	0	0	**69**	**16**	**85**	83	0	**20**	103	**265**
07:45 AM	17	23	0	40	0	0	0	0	0	26	9	35	**120**	0	14	**134**	209
08:00 AM	12	22	0	34	0	0	0	0	0	33	11	44	76	**2**	10	88	166
Total Volume	73	143	0	216	0	0	0	0	0	156	48	204	331	2	61	394	814
% App. Total	33.8	66.2	0		0	0	0		0	76.5	23.5		84	0.5	15.5		
PHF	.652	.730	.000	.701	.000	.000	.000	.000	.000	.565	.750	.600	.690	.250	.763	.735	.768

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File Name : BANHA10EAM
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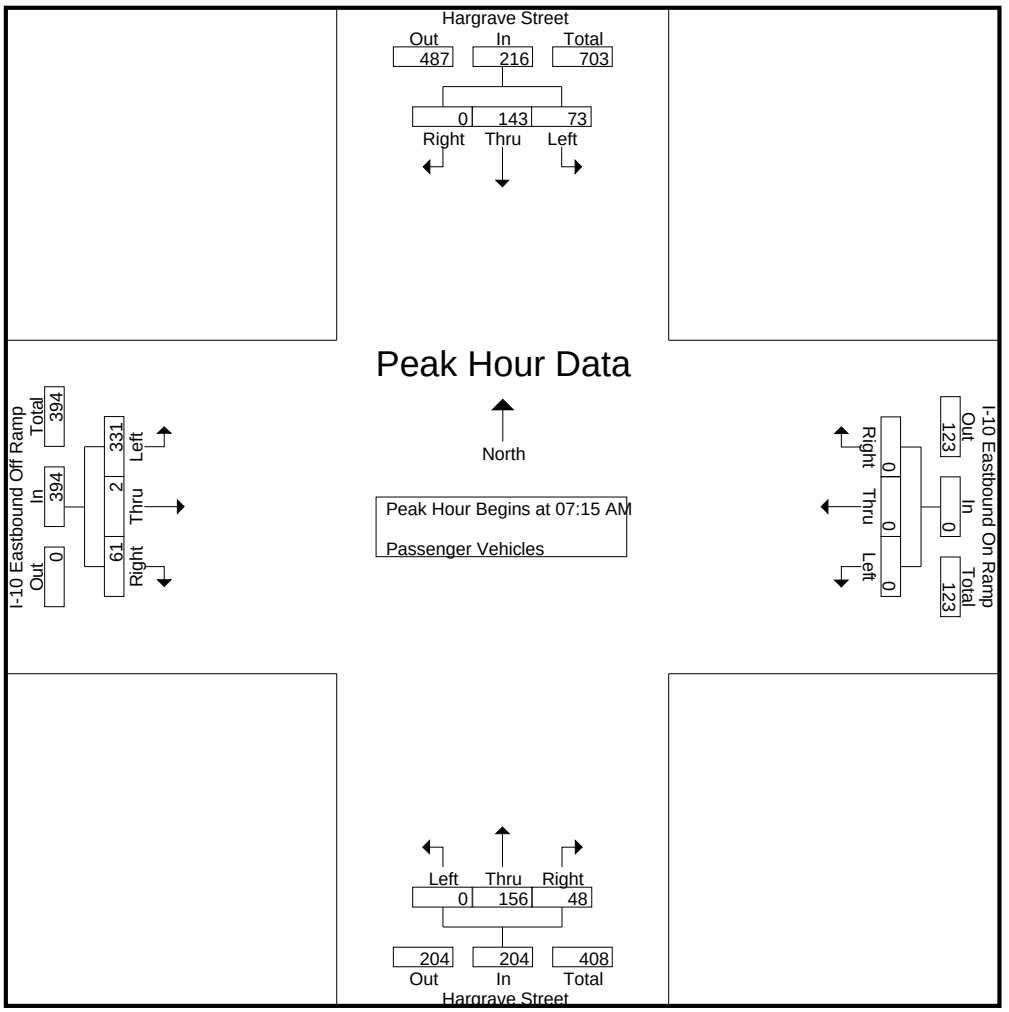

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	16	**49**	0	65	0	0	0	0	0	28	12	40	52	0	17	69
+15 mins.	**28**	49	0	**77**	0	0	0	0	0	**69**	**16**	**85**	83	0	**20**	103
+30 mins.	17	23	0	40	0	0	0	0	0	26	9	35	**120**	0	14	**134**
+45 mins.	12	22	0	34	0	0	0	0	0	33	11	44	76	**2**	10	88
Total Volume	73	143	0	216	0	0	0	0	0	156	48	204	331	2	61	394
% App. Total	33.8	66.2	0		0	0	0		0	76.5	23.5		84	0.5	15.5	
PHF	.652	.730	.000	.701	.000	.000	.000	.000	.000	.565	.750	.600	.690	.250	.763	.735

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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
07:15 AM	0	2	0	2	0	0	0	0	0	2	2	4	3	0	0	3	9
07:30 AM	2	1	0	3	0	0	0	0	0	2	1	3	1	0	1	2	8
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	3
Total	2	6	0	8	0	0	0	0	0	6	3	9	6	0	1	7	24
08:00 AM	1	1	0	2	0	0	0	0	0	1	1	2	0	0	1	1	5
08:15 AM	1	2	0	3	0	0	0	0	0	3	1	4	0	0	1	1	8
08:30 AM	0	2	0	2	0	0	0	0	0	3	0	3	1	0	0	1	6
08:45 AM	0	5	0	5	0	0	0	0	0	1	1	2	0	0	1	1	8
Total	2	10	0	12	0	0	0	0	0	8	3	11	1	0	3	4	27
Grand Total	4	16	0	20	0	0	0	0	0	14	6	20	7	0	4	11	51
Apprch %	20	80	0		0	0	0		0	70	30		63.6	0	36.4		
Total %	7.8	31.4	0	39.2	0	0	0	0	0	27.5	11.8	39.2	13.7	0	7.8	21.6	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**2**	0	2	0	0	0	0	0	**2**	**2**	**4**	**3**	0	0	**3**	**9**
07:30 AM	**2**	1	0	**3**	0	0	0	0	0	2	1	3	1	0	**1**	2	8
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	3
08:00 AM	1	1	0	2	0	0	0	0	0	1	1	2	0	0	1	1	5
Total Volume	3	4	0	7	0	0	0	0	0	6	4	10	6	0	2	8	25
% App. Total	42.9	57.1	0		0	0	0		0	60	40		75	0	25		
PHF	.375	.500	.000	.583	.000	.000	.000	.000	.000	.750	.500	.625	.500	.000	.500	.667	.694

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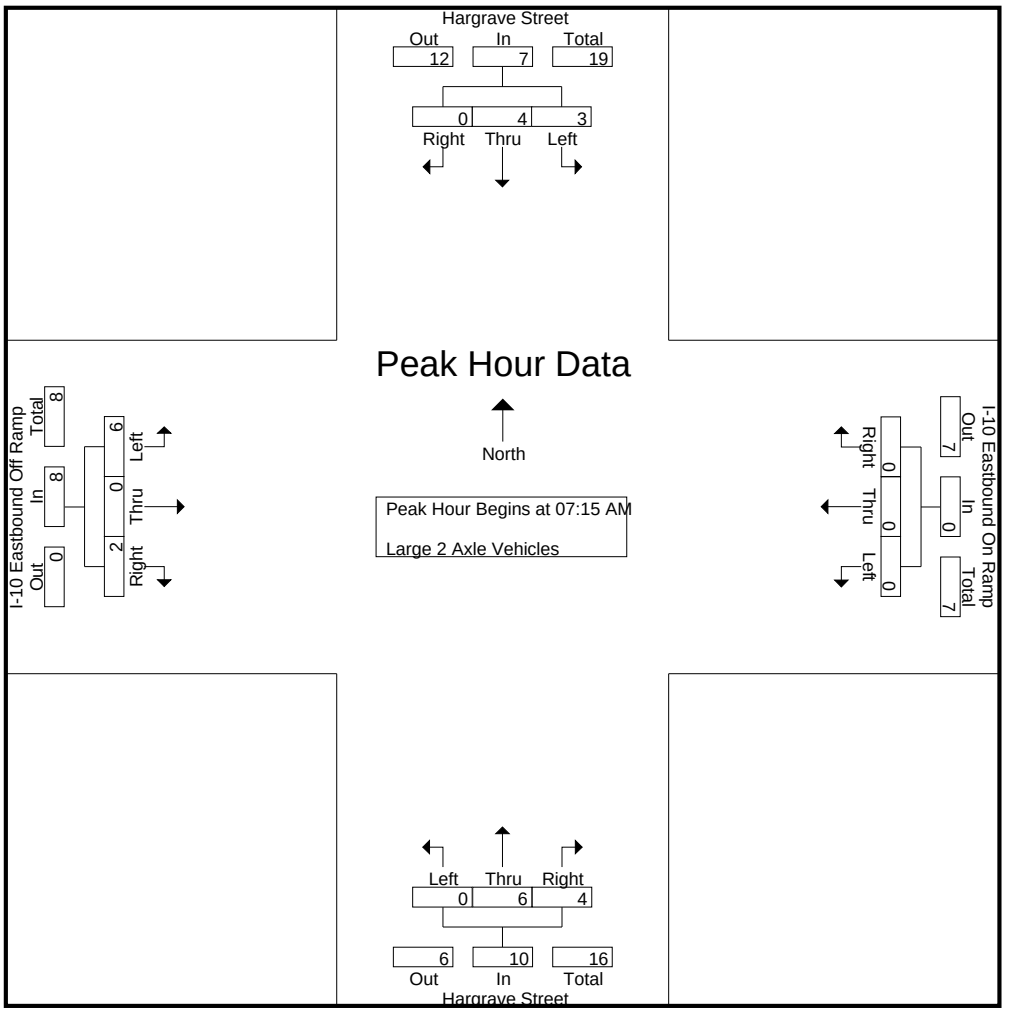

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**2**	0	2	0	0	0	0	0	**2**	**2**	**4**	**3**	0	0	**3**
+15 mins.	**2**	1	0	**3**	0	0	0	0	0	2	1	3	1	0	**1**	2
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2
+45 mins.	1	1	0	2	0	0	0	0	0	1	1	2	0	0	1	1
Total Volume	3	4	0	7	0	0	0	0	0	6	4	10	6	0	2	8
% App. Total	42.9	57.1	0		0	0	0		0	60	40		75	0	25	
PHF	.375	.500	.000	.583	.000	.000	.000	.000	.000	.750	.500	.625	.500	.000	.500	.667

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City of Banning
N/S: Hargrave Street
E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : BANHA10EAM
Site Code : 00000000
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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
Grand Total	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
Apprch %	0	100	0		0	0	0		0	0	0		100	0	0		
Total %	0	50	0	50	0	0	0	0	0	0	0	0	50	0	0	50	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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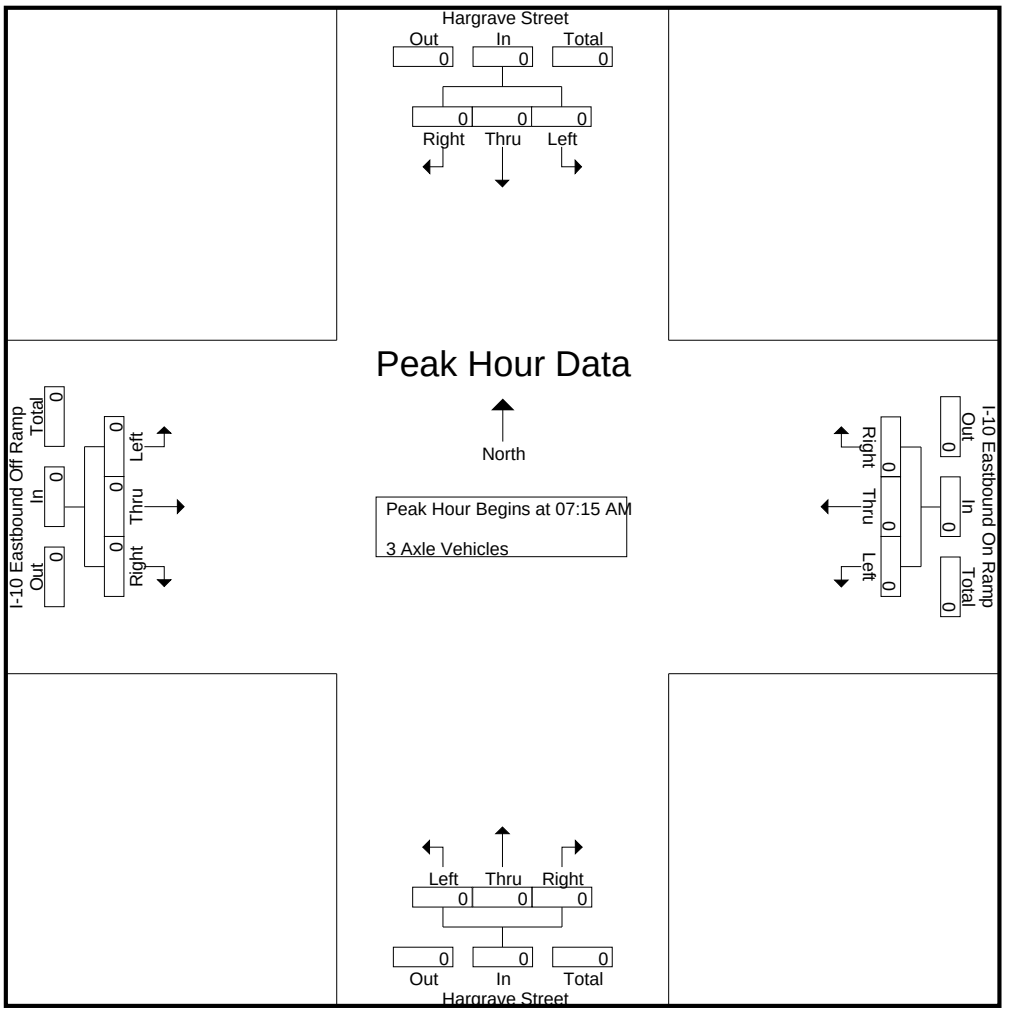

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
Total	0	0	0	0	0	0	0	0	0	2	1	3	0	2	0	2	5
08:00 AM	0	1	0	1	0	0	0	0	0	0	1	1	2	0	0	2	4
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
08:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	1	2	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	0	0	2	2	5	0	1	6	10
Grand Total	0	2	0	2	0	0	0	0	0	2	3	5	5	2	1	8	15
Apprch %	0	100	0		0	0	0		0	40	60		62.5	25	12.5		
Total %	0	13.3	0	13.3	0	0	0	0	0	13.3	20	33.3	33.3	13.3	6.7	53.3	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	1	0	1	3
08:00 AM	0	**1**	0	**1**	0	0	0	0	0	0	**1**	1	**2**	0	0	**2**	**4**
Total Volume	0	1	0	1	0	0	0	0	0	2	1	3	2	2	0	4	8
% App. Total	0	100	0		0	0	0		0	66.7	33.3		50	50	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.250	.375	.250	.500	.000	.500	.500

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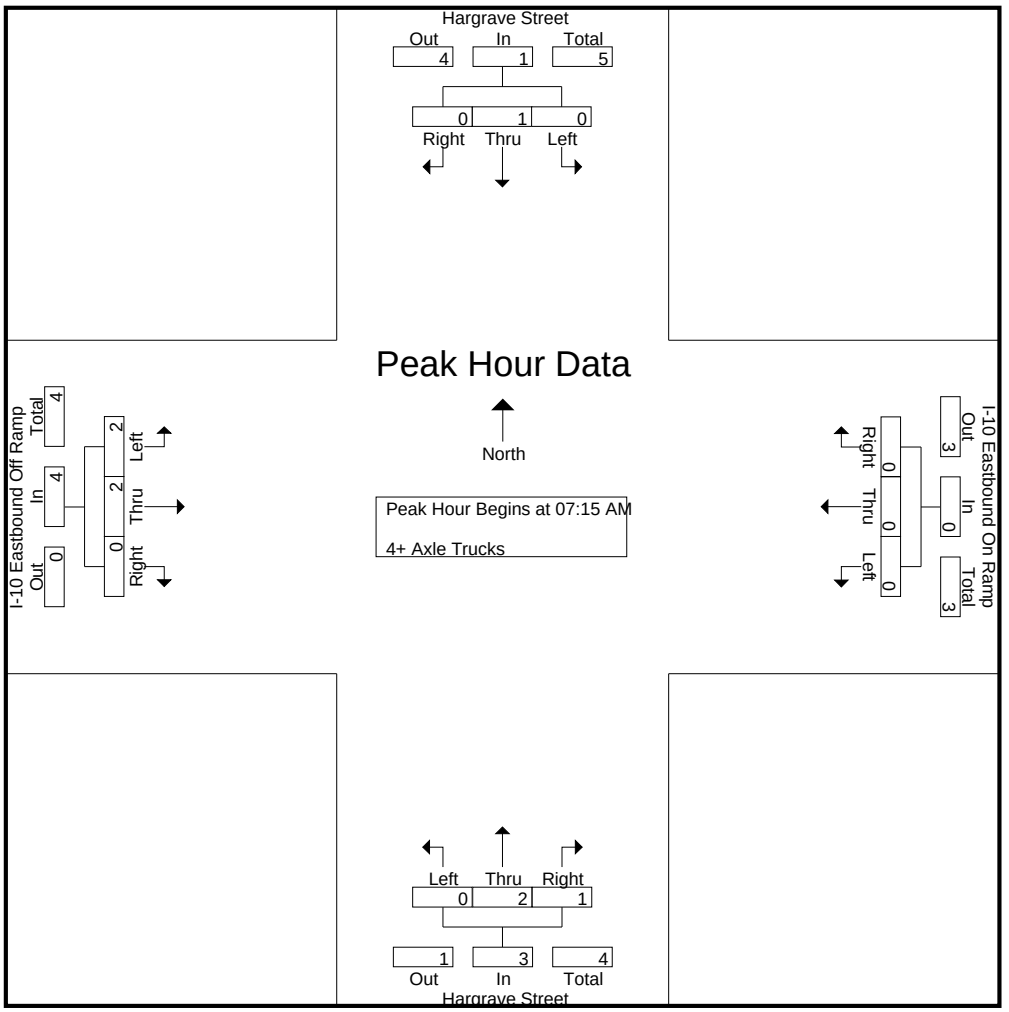

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	1	0	1
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	**1**	1	**2**	0	0	**2**
Total Volume	0	1	0	1	0	0	0	0	0	2	1	3	2	2	0	4
% App. Total	0	100	0		0	0	0		0	66.7	33.3		50	50	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.250	.375	.250	.500	.000	.500

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City of Banning
N/S: Hargrave Street
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	21	29	0	50	0	0	0	0	0	76	16	92	63	1	14	78	220
04:15 PM	27	25	0	52	0	0	0	0	0	51	13	64	52	2	16	70	186
04:30 PM	18	33	0	51	0	0	0	0	0	46	18	64	64	0	11	75	190
04:45 PM	13	25	0	38	0	0	0	0	0	62	12	74	50	0	13	63	175
Total	79	112	0	191	0	0	0	0	0	235	59	294	229	3	54	286	771
05:00 PM	18	38	0	56	0	0	0	0	0	47	14	61	58	1	7	66	183
05:15 PM	13	28	0	41	0	0	0	0	0	40	13	53	52	0	13	65	159
05:30 PM	14	32	0	46	0	0	0	0	0	38	9	47	59	0	25	84	177
05:45 PM	16	27	0	43	0	0	0	0	0	28	2	30	43	1	9	53	126
Total	61	125	0	186	0	0	0	0	0	153	38	191	212	2	54	268	645
Grand Total	140	237	0	377	0	0	0	0	0	388	97	485	441	5	108	554	1416
Apprch %	37.1	62.9	0		0	0	0		0	80	20		79.6	0.9	19.5		
Total %	9.9	16.7	0	26.6	0	0	0	0	0	27.4	6.9	34.3	31.1	0.4	7.6	39.1	
Passenger Vehicles	137	226	0	363	0	0	0	0	0	383	96	479	433	0	101	534	1376
% Passenger Vehicles	97.9	95.4	0	96.3	0	0	0	0	0	98.7	99	98.8	98.2	0	93.5	96.4	97.2
Large 2 Axle Vehicles	1	8	0	9	0	0	0	0	0	4	0	4	7	1	4	12	25
% Large 2 Axle Vehicles	0.7	3.4	0	2.4	0	0	0	0	0	1	0	0.8	1.6	20	3.7	2.2	1.8
3 Axle Vehicles	1	3	0	4	0	0	0	0	0	0	0	0	0	0	3	3	7
% 3 Axle Vehicles	0.7	1.3	0	1.1	0	0	0	0	0	0	0	0	0	0	2.8	0.5	0.5
4+ Axle Trucks	1	0	0	1	0	0	0	0	0	1	1	2	1	4	0	5	8
% 4+ Axle Trucks	0.7	0	0	0.3	0	0	0	0	0	0.3	1	0.4	0.2	80	0	0.9	0.6

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	21	29	0	50	0	0	0	0	0	**76**	16	**92**	63	1	14	**78**	**220**
04:15 PM	**27**	25	0	**52**	0	0	0	0	0	51	13	64	52	**2**	**16**	70	186
04:30 PM	18	**33**	0	51	0	0	0	0	0	46	**18**	64	**64**	0	11	75	190
04:45 PM	13	25	0	38	0	0	0	0	0	62	12	74	50	0	13	63	175
Total Volume	79	112	0	191	0	0	0	0	0	235	59	294	229	3	54	286	771
% App. Total	41.4	58.6	0		0	0	0		0	79.9	20.1		80.1	1	18.9		
PHF	.731	.848	.000	.918	.000	.000	.000	.000	.000	.773	.819	.799	.895	.375	.844	.917	.876

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File Name : BANHA10EPM
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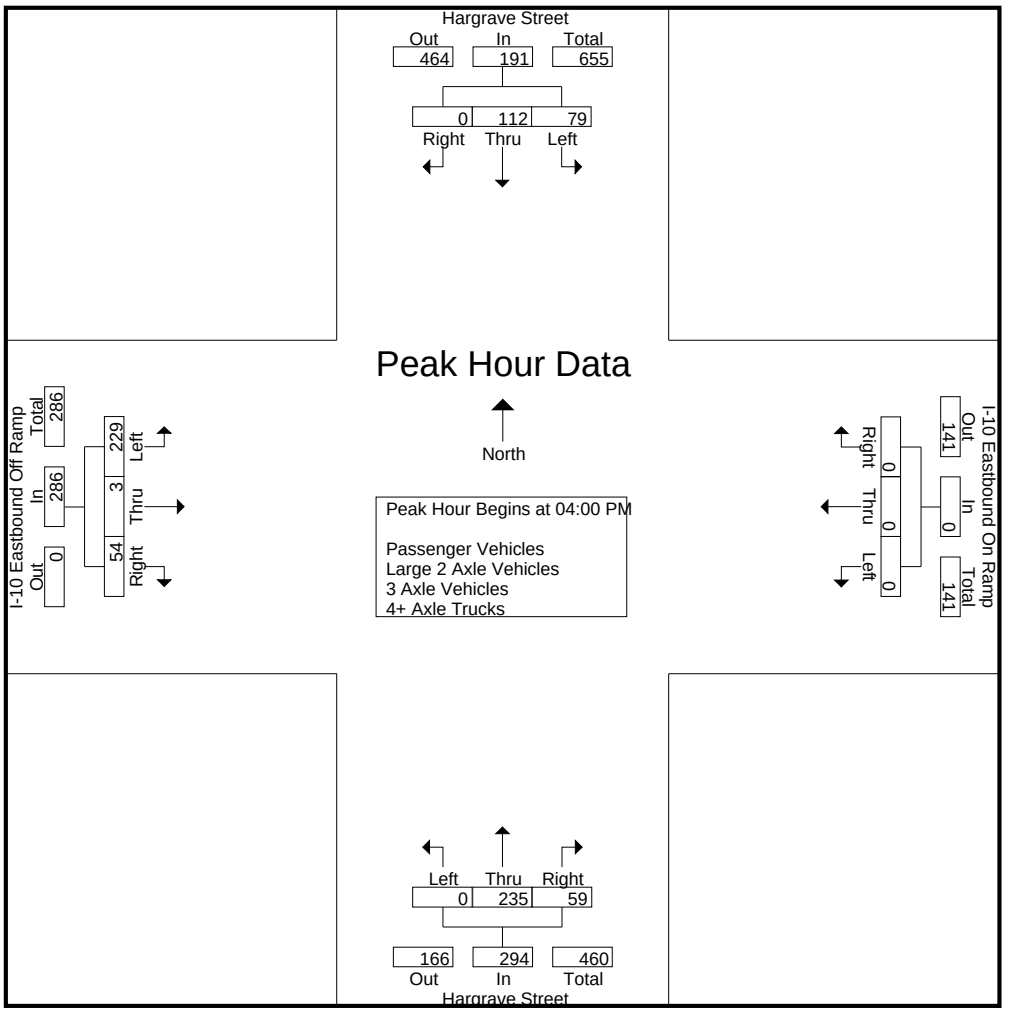

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**27**	25	0	52	0	0	0	0	0	**76**	16	**92**	63	1	14	**78**
+15 mins.	18	33	0	51	0	0	0	0	0	51	13	64	52	**2**	**16**	70
+30 mins.	13	25	0	38	0	0	0	0	0	46	**18**	64	**64**	0	11	75
+45 mins.	18	**38**	0	**56**	0	0	0	0	0	62	12	74	50	0	13	63
Total Volume	76	121	0	197	0	0	0	0	0	235	59	294	229	3	54	286
% App. Total	38.6	61.4	0		0	0	0		0	79.9	20.1		80.1	1	18.9	
PHF	.704	.796	.000	.879	.000	.000	.000	.000	.000	.773	.819	.799	.895	.375	.844	.917

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Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	19	27	0	46	0	0	0	0	0	76	16	92	61	0	12	73	211
04:15 PM	26	24	0	50	0	0	0	0	0	50	13	63	51	0	15	66	179
04:30 PM	18	29	0	47	0	0	0	0	0	44	17	61	63	0	10	73	181
04:45 PM	13	24	0	37	0	0	0	0	0	61	12	73	48	0	13	61	171
Total	76	104	0	180	0	0	0	0	0	231	58	289	223	0	50	273	742
05:00 PM	18	36	0	54	0	0	0	0	0	46	14	60	58	0	7	65	179
05:15 PM	13	28	0	41	0	0	0	0	0	40	13	53	51	0	11	62	156
05:30 PM	14	31	0	45	0	0	0	0	0	38	9	47	59	0	24	83	175
05:45 PM	16	27	0	43	0	0	0	0	0	28	2	30	42	0	9	51	124
Total	61	122	0	183	0	0	0	0	0	152	38	190	210	0	51	261	634
Grand Total	137	226	0	363	0	0	0	0	0	383	96	479	433	0	101	534	1376
Apprch %	37.7	62.3	0		0	0	0		0	80	20		81.1	0	18.9		
Total %	10	16.4	0	26.4	0	0	0	0	0	27.8	7	34.8	31.5	0	7.3	38.8	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	19	27	0	46	0	0	0	0	0	**76**	16	**92**	61	0	12	**73**	**211**
04:15 PM	**26**	24	0	**50**	0	0	0	0	0	50	13	63	51	0	**15**	66	179
04:30 PM	18	**29**	0	47	0	0	0	0	0	44	**17**	61	**63**	0	10	73	181
04:45 PM	13	24	0	37	0	0	0	0	0	61	12	73	48	0	13	61	171
Total Volume	76	104	0	180	0	0	0	0	0	231	58	289	223	0	50	273	742
% App. Total	42.2	57.8	0		0	0	0		0	79.9	20.1		81.7	0	18.3		
PHF	.731	.897	.000	.900	.000	.000	.000	.000	.000	.760	.853	.785	.885	.000	.833	.935	.879

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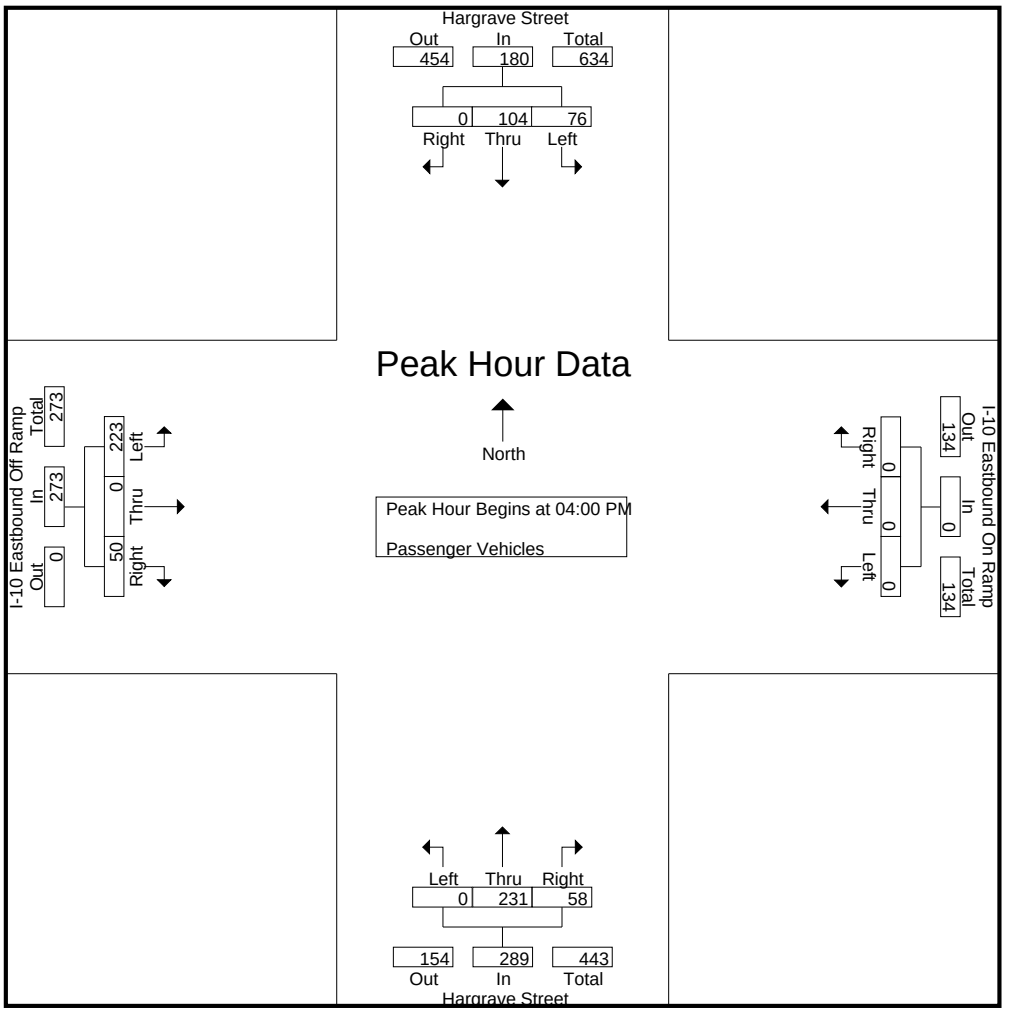

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	19	27	0	46	0	0	0	0	0	**76**	16	**92**	61	0	12	**73**
+15 mins.	**26**	24	0	**50**	0	0	0	0	0	50	13	63	51	0	**15**	66
+30 mins.	18	**29**	0	47	0	0	0	0	0	44	**17**	61	**63**	0	10	73
+45 mins.	13	24	0	37	0	0	0	0	0	61	12	73	48	0	13	61
Total Volume	76	104	0	180	0	0	0	0	0	231	58	289	223	0	50	273
% App. Total	42.2	57.8	0		0	0	0		0	79.9	20.1		81.7	0	18.3	
PHF	.731	.897	.000	.900	.000	.000	.000	.000	.000	.760	.853	.785	.885	.000	.833	.935

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City of Banning
N/S: Hargrave Street
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Weather: Clear

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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	2	0	3	0	0	0	0	0	0	0	0	2	0	0	2	5
04:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	1	1	1	3	5
04:30 PM	0	3	0	3	0	0	0	0	0	1	0	1	1	0	1	2	6
04:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	2	0	0	2	4
Total	1	7	0	8	0	0	0	0	0	3	0	3	6	1	2	9	20
05:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	1	0	1	1	0	2	3	5
Grand Total	1	8	0	9	0	0	0	0	0	4	0	4	7	1	4	12	25
Apprch %	11.1	88.9	0		0	0	0		0	100	0		58.3	8.3	33.3		
Total %	4	32	0	36	0	0	0	0	0	16	0	16	28	4	16	48	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	2	0	**3**	0	0	0	0	0	0	0	0	**2**	0	0	2	5
04:15 PM	0	1	0	1	0	0	0	0	0	**1**	0	**1**	1	**1**	**1**	**3**	5
04:30 PM	0	**3**	0	3	0	0	0	0	0	1	0	1	1	0	1	2	**6**
04:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	2	0	0	2	4
Total Volume	1	7	0	8	0	0	0	0	0	3	0	3	6	1	2	9	20
% App. Total	12.5	87.5	0		0	0	0		0	100	0		66.7	11.1	22.2		
PHF	.250	.583	.000	.667	.000	.000	.000	.000	.000	.750	.000	.750	.750	.250	.500	.750	.833

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City of Banning
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E/W: I-10 Eastbound Ramps
Weather: Clear

File Name : BANHA10EPM
Site Code : 00000000
Start Date : 1/31/2017
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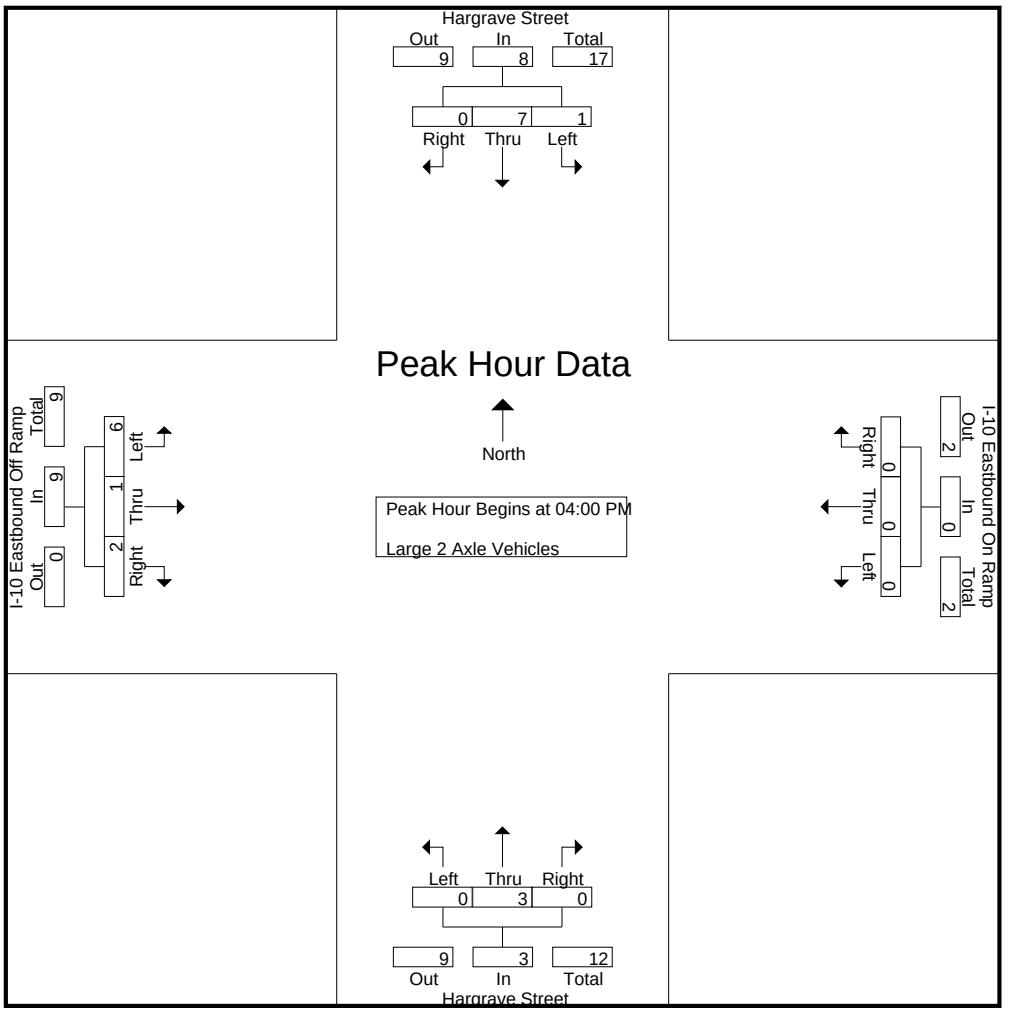

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**1**	2	0	**3**	0	0	0	0	0	0	0	0	**2**	0	0	2
+15 mins.	0	1	0	1	0	0	0	0	0	**1**	0	**1**	1	**1**	**1**	**3**
+30 mins.	0	**3**	0	3	0	0	0	0	0	1	0	1	1	0	1	2
+45 mins.	0	1	0	1	0	0	0	0	0	1	0	1	2	0	0	2
Total Volume	1	7	0	8	0	0	0	0	0	3	0	3	6	1	2	9
% App. Total	12.5	87.5	0		0	0	0		0	100	0		66.7	11.1	22.2	
PHF	.250	.583	.000	.667	.000	.000	.000	.000	.000	.750	.000	.750	.750	.250	.500	.750

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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	2	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2	2	4
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
Grand Total	1	3	0	4	0	0	0	0	0	0	0	0	0	0	3	3	7
Apprch %	25	75	0		0	0	0		0	0	0		0	0	100		
Total %	14.3	42.9	0	57.1	0	0	0	0	0	0	0	0	0	0	42.9	42.9	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	**2**	**2**	**3**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2	2	4
% App. Total	50	50	0		0	0	0		0	0	0		0	0	100		
PHF	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.333

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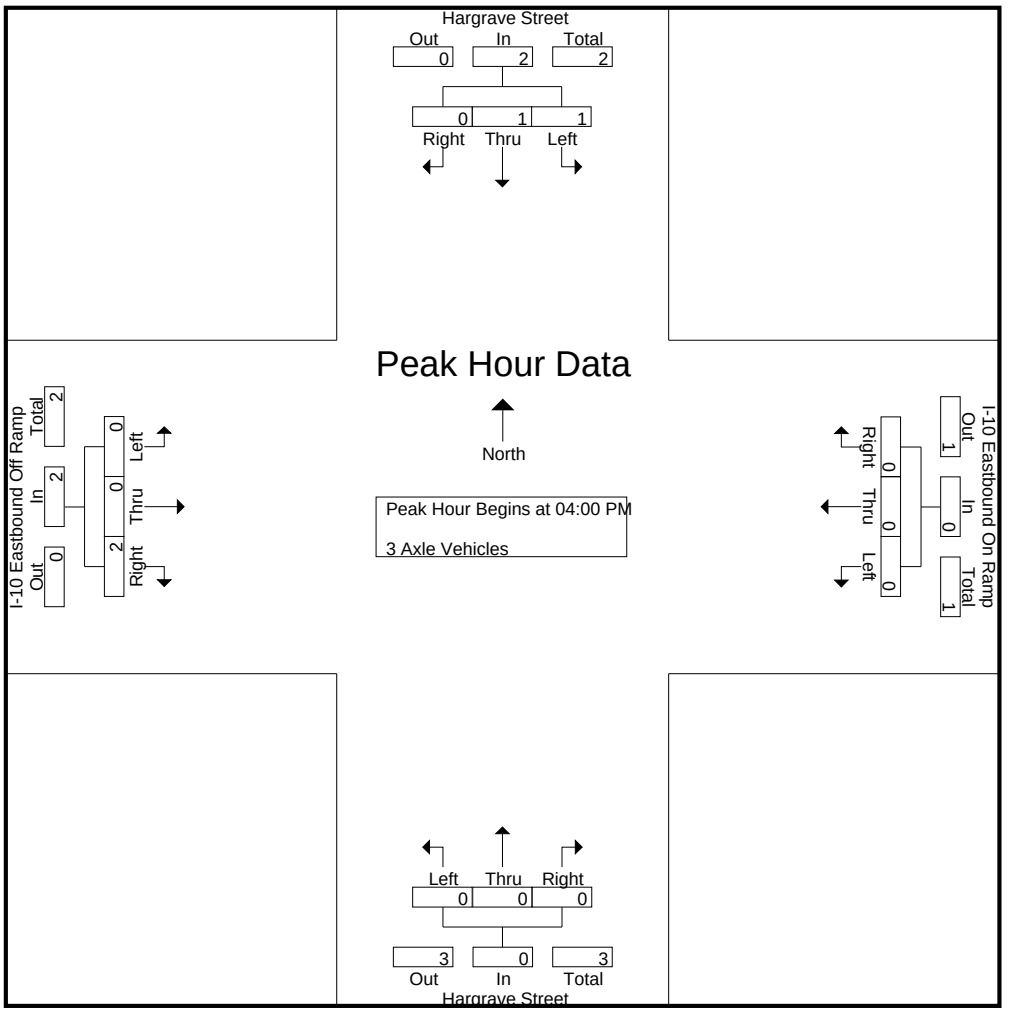

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	**2**	**2**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2	2
% App. Total	50	50	0		0	0	0		0	0	0		0	0	100	
PHF	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250

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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	1	1	2	0	2	0	2	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	3
Grand Total	1	0	0	1	0	0	0	0	0	1	1	2	1	4	0	5	8
Apprch %	100	0	0		0	0	0		0	50	50		20	80	0		
Total %	12.5	0	0	12.5	0	0	0	0	0	12.5	12.5	25	12.5	50	0	62.5	

	Hargrave Street Southbound				I-10 Eastbound On Ramp Westbound				Hargrave Street Northbound				I-10 Eastbound Off Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
04:15 PM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1	**2**
04:30 PM	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	1	1	2	0	2	0	2	5
% App. Total	100	0	0		0	0	0		0	50	50		0	100	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.250	.000	.500	.000	.500	.625

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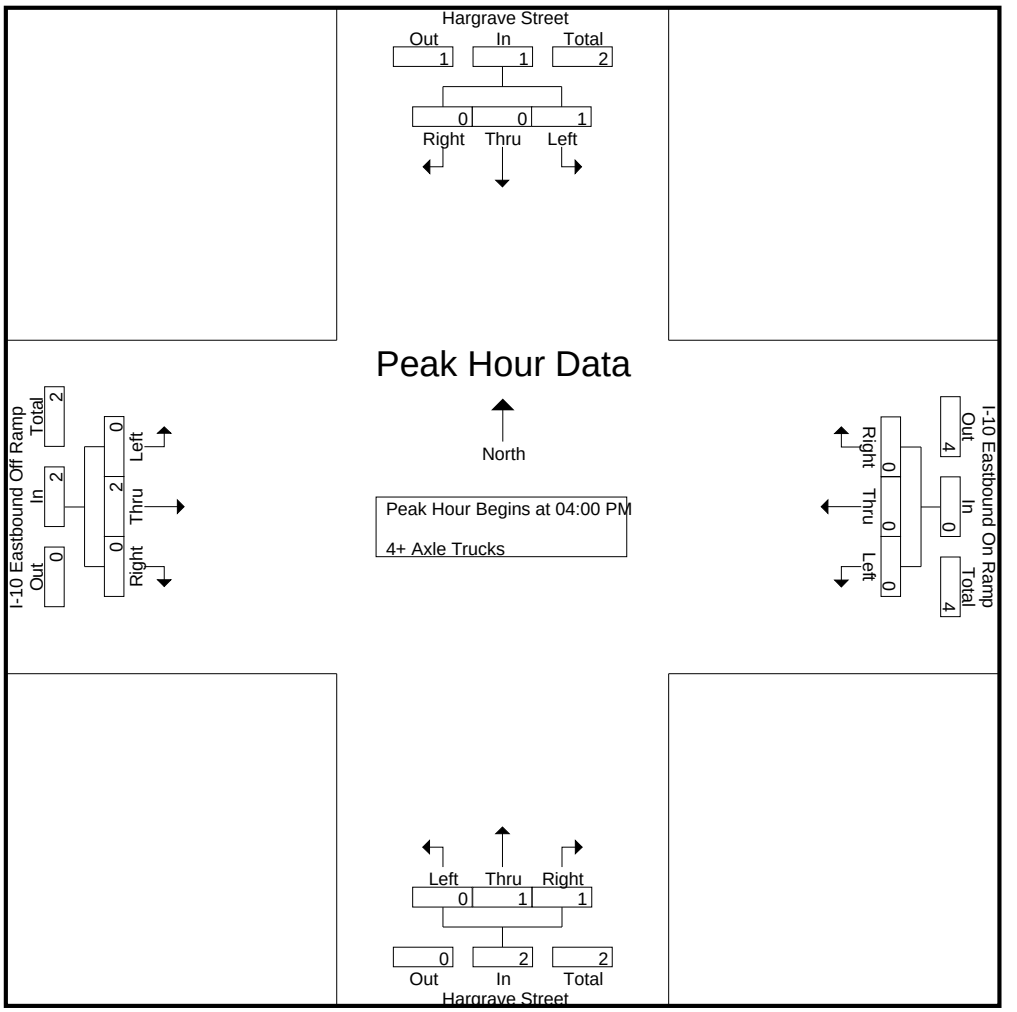

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	1	1	2	0	2	0	2
% App. Total	100	0	0		0	0	0		0	50	50		0	100	0	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.250	.000	.500	.000	.500

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City of Banning
N/S: Hargrave Street
E/W: Lincoln Street
Weather: Clear

File Name : BANHALIAM
Site Code : 00000000
Start Date : 1/31/2017
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	27	13	43	0	1	9	10	2	17	0	19	17	2	9	28	100
07:15 AM	4	22	41	67	0	2	6	8	5	24	0	29	12	3	9	24	128
07:30 AM	8	31	30	69	0	1	5	6	1	45	0	46	41	7	5	53	174
07:45 AM	5	23	6	34	0	3	6	9	4	20	0	24	14	7	4	25	92
Total	20	103	90	213	0	7	26	33	12	106	0	118	84	19	27	130	494
08:00 AM	5	16	13	34	0	1	8	9	5	22	0	27	13	6	7	26	96
08:15 AM	7	16	14	37	0	2	3	5	3	17	0	20	18	1	5	24	86
08:30 AM	6	20	15	41	0	4	7	11	3	20	1	24	11	3	0	14	90
08:45 AM	8	19	19	46	0	6	15	21	8	28	0	36	10	4	8	22	125
Total	26	71	61	158	0	13	33	46	19	87	1	107	52	14	20	86	397
Grand Total	46	174	151	371	0	20	59	79	31	193	1	225	136	33	47	216	891
Apprch %	12.4	46.9	40.7		0	25.3	74.7		13.8	85.8	0.4		63	15.3	21.8		
Total %	5.2	19.5	16.9	41.6	0	2.2	6.6	8.9	3.5	21.7	0.1	25.3	15.3	3.7	5.3	24.2	
Passenger Vehicles	40	166	140	346	0	19	54	73	31	184	1	216	129	33	44	206	841
% Passenger Vehicles	87	95.4	92.7	93.3	0	95	91.5	92.4	100	95.3	100	96	94.9	100	93.6	95.4	94.4
Large 2 Axle Vehicles	3	6	11	20	0	1	3	4	0	8	0	8	5	0	3	8	40
% Large 2 Axle Vehicles	6.5	3.4	7.3	5.4	0	5	5.1	5.1	0	4.1	0	3.6	3.7	0	6.4	3.7	4.5
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% 3 Axle Vehicles	0	0.6	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.1
4+ Axle Trucks	3	1	0	4	0	0	2	2	0	1	0	1	2	0	0	2	9
% 4+ Axle Trucks	6.5	0.6	0	1.1	0	0	3.4	2.5	0	0.5	0	0.4	1.5	0	0	0.9	1

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	27	13	43	0	1	**9**	**10**	2	17	0	19	17	2	**9**	28	100
07:15 AM	4	22	**41**	67	0	2	6	8	**5**	24	0	29	12	3	9	24	128
07:30 AM	**8**	**31**	30	**69**	0	1	5	6	1	**45**	0	**46**	**41**	**7**	5	**53**	**174**
07:45 AM	5	23	6	34	0	**3**	6	9	4	20	0	24	14	7	4	25	92
Total Volume	20	103	90	213	0	7	26	33	12	106	0	118	84	19	27	130	494
% App. Total	9.4	48.4	42.3		0	21.2	78.8		10.2	89.8	0		64.6	14.6	20.8		
PHF	.625	.831	.549	.772	.000	.583	.722	.825	.600	.589	.000	.641	.512	.679	.750	.613	.710

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Site Code : 00000000
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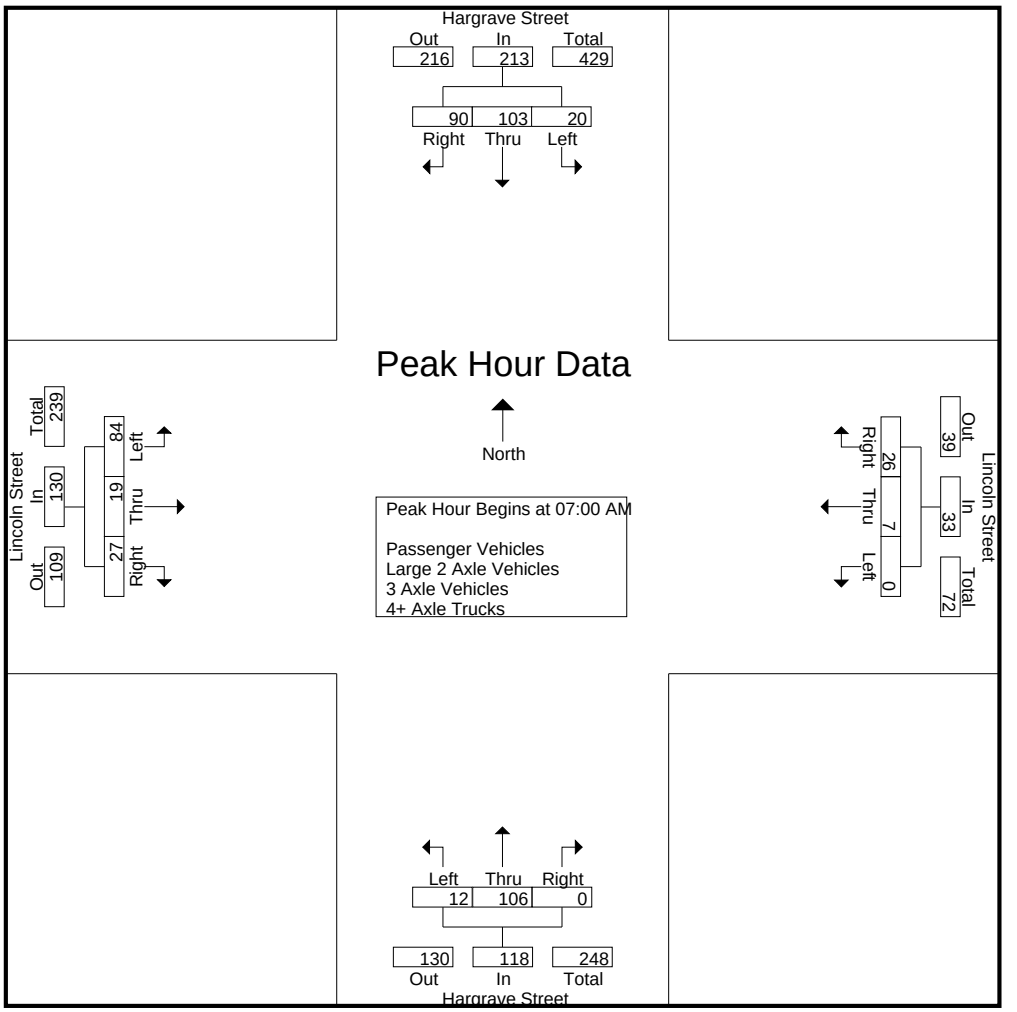

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				08:00 AM				07:15 AM				07:00 AM			
+0 mins.	3	27	13	43	0	1	8	9	**5**	24	0	29	17	2	**9**	28
+15 mins.	4	22	**41**	67	0	2	3	5	1	**45**	0	**46**	12	3	9	24
+30 mins.	**8**	**31**	30	**69**	0	4	7	11	4	20	0	24	**41**	**7**	5	**53**
+45 mins.	5	23	6	34	0	**6**	**15**	**21**	5	22	0	27	14	7	4	25
Total Volume	20	103	90	213	0	13	33	46	15	111	0	126	84	19	27	130
% App. Total	9.4	48.4	42.3		0	28.3	71.7		11.9	88.1	0		64.6	14.6	20.8	
PHF	.625	.831	.549	.772	.000	.542	.550	.548	.750	.617	.000	.685	.512	.679	.750	.613

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Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	26	11	40	0	1	9	10	2	17	0	19	16	2	7	25	94
07:15 AM	4	21	39	64	0	2	5	7	5	22	0	27	12	3	9	24	122
07:30 AM	8	29	30	67	0	1	5	6	1	44	0	45	39	7	5	51	169
07:45 AM	5	23	6	34	0	3	5	8	4	19	0	23	14	7	4	25	90
Total	20	99	86	205	0	7	24	31	12	102	0	114	81	19	25	125	475
08:00 AM	2	16	13	31	0	1	7	8	5	22	0	27	11	6	7	24	90
08:15 AM	7	15	13	35	0	2	3	5	3	15	0	18	17	1	4	22	80
08:30 AM	4	20	14	38	0	4	7	11	3	19	1	23	10	3	0	13	85
08:45 AM	7	16	14	37	0	5	13	18	8	26	0	34	10	4	8	22	111
Total	20	67	54	141	0	12	30	42	19	82	1	102	48	14	19	81	366
Grand Total	40	166	140	346	0	19	54	73	31	184	1	216	129	33	44	206	841
Apprch %	11.6	48	40.5		0	26	74		14.4	85.2	0.5		62.6	16	21.4		
Total %	4.8	19.7	16.6	41.1	0	2.3	6.4	8.7	3.7	21.9	0.1	25.7	15.3	3.9	5.2	24.5	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	26	11	40	0	1	**9**	**10**	2	17	0	19	16	2	7	25	94
07:15 AM	4	21	**39**	64	0	2	5	7	**5**	22	0	27	12	3	**9**	24	122
07:30 AM	**8**	**29**	30	**67**	0	1	5	6	1	**44**	0	**45**	**39**	**7**	5	**51**	**169**
07:45 AM	5	23	6	34	0	**3**	5	8	4	19	0	23	14	7	4	25	90
Total Volume	20	99	86	205	0	7	24	31	12	102	0	114	81	19	25	125	475
% App. Total	9.8	48.3	42		0	22.6	77.4		10.5	89.5	0		64.8	15.2	20		
PHF	.625	.853	.551	.765	.000	.583	.667	.775	.600	.580	.000	.633	.519	.679	.694	.613	.703

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City of Banning
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Weather: Clear

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Site Code : 00000000
Start Date : 1/31/2017
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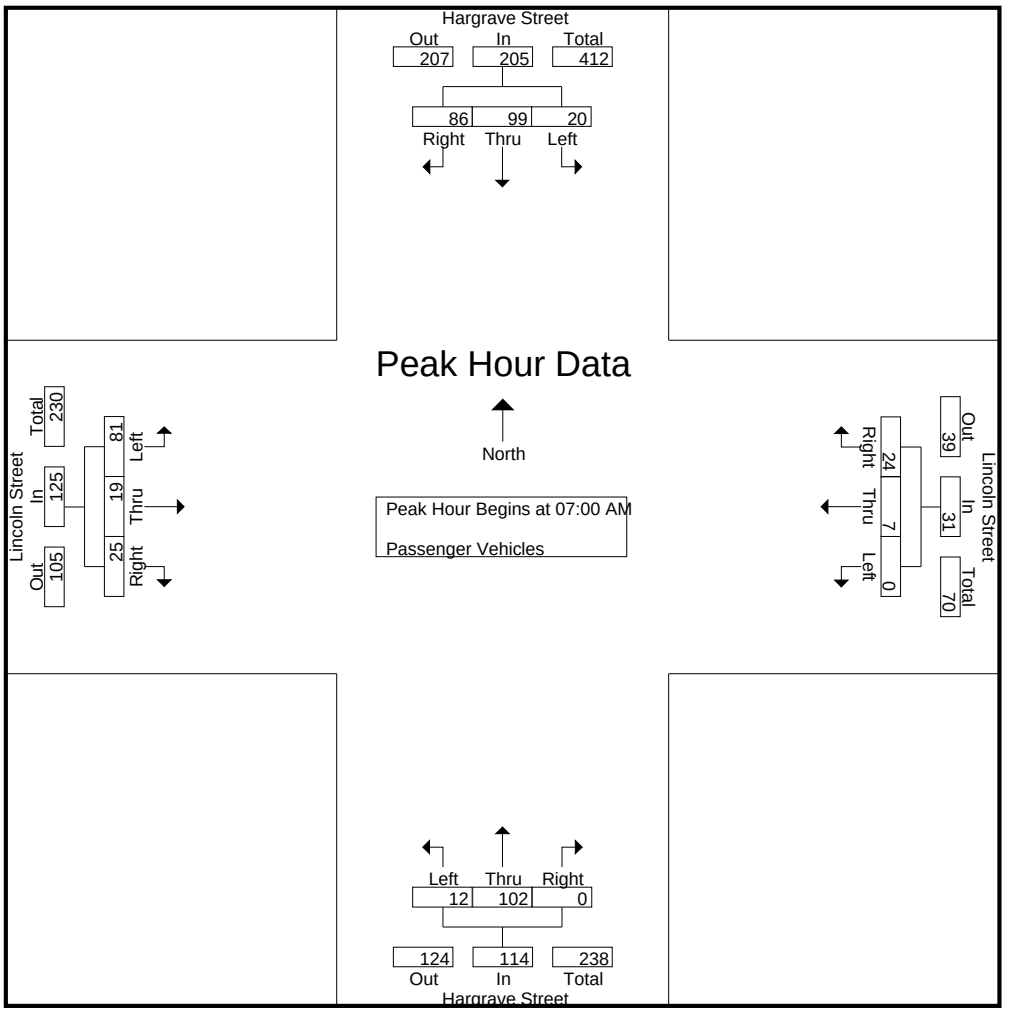

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	3	26	11	40	0	1	**9**	**10**	2	17	0	19	16	2	7	25
+15 mins.	4	21	**39**	64	0	2	5	7	**5**	22	0	27	12	3	**9**	24
+30 mins.	**8**	**29**	30	**67**	0	1	5	6	1	**44**	0	**45**	**39**	**7**	5	**51**
+45 mins.	5	23	6	34	0	**3**	5	8	4	19	0	23	14	7	4	25
Total Volume	20	99	86	205	0	7	24	31	12	102	0	114	81	19	25	125
% App. Total	9.8	48.3	42		0	22.6	77.4		10.5	89.5	0		64.8	15.2	20	
PHF	.625	.853	.551	.765	.000	.583	.667	.775	.600	.580	.000	.633	.519	.679	.694	.613

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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	2	3	0	0	0	0	0	0	0	0	0	0	2	2	5
07:15 AM	0	1	2	3	0	0	1	1	0	2	0	2	0	0	0	0	6
07:30 AM	0	2	0	2	0	0	0	0	0	1	0	1	2	0	0	2	5
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	4	4	8	0	0	1	1	0	3	0	3	2	0	2	4	16
08:00 AM	2	0	0	2	0	0	1	1	0	0	0	0	1	0	0	1	4
08:15 AM	0	1	1	2	0	0	0	0	0	2	0	2	1	0	1	2	6
08:30 AM	0	0	1	1	0	0	0	0	0	1	0	1	1	0	0	1	3
08:45 AM	1	1	5	7	0	1	1	2	0	2	0	2	0	0	0	0	11
Total	3	2	7	12	0	1	2	3	0	5	0	5	3	0	1	4	24
Grand Total	3	6	11	20	0	1	3	4	0	8	0	8	5	0	3	8	40
Apprch %	15	30	55		0	25	75		0	100	0		62.5	0	37.5		
Total %	7.5	15	27.5	50	0	2.5	7.5	10	0	20	0	20	12.5	0	7.5	20	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	1	**2**	**3**	0	0	0	0	0	0	0	0	0	0	**2**	**2**	5
07:15 AM	0	1	2	3	0	0	**1**	**1**	0	**2**	0	**2**	0	0	0	0	**6**
07:30 AM	0	**2**	0	2	0	0	0	0	0	1	0	1	**2**	0	0	2	5
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	4	4	8	0	0	1	1	0	3	0	3	2	0	2	4	16
% App. Total	0	50	50		0	0	100		0	100	0		50	0	50		
PHF	.000	.500	.500	.667	.000	.000	.250	.250	.000	.375	.000	.375	.250	.000	.250	.500	.667

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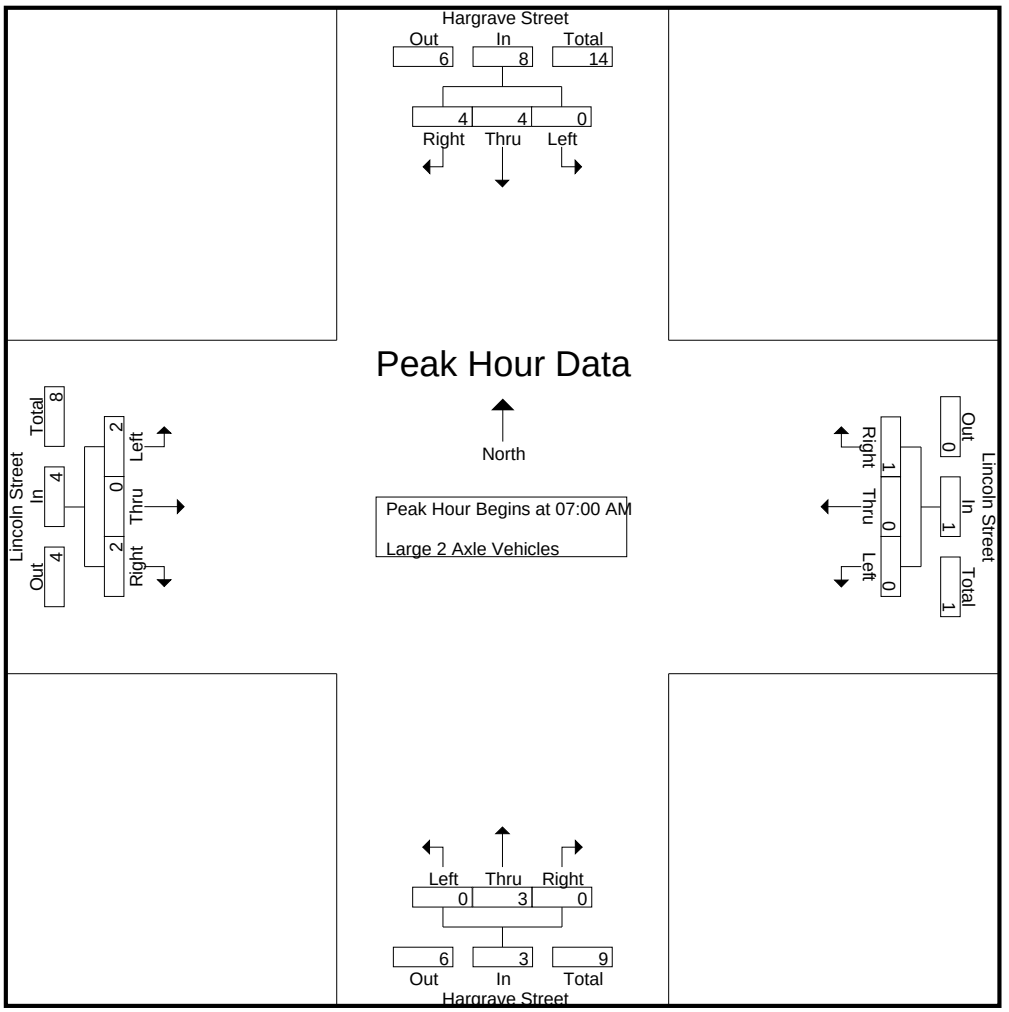

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	1	**2**	**3**	0	0	0	0	0	0	0	0	0	0	**2**	**2**
+15 mins.	0	1	2	3	0	0	**1**	**1**	0	**2**	0	**2**	0	0	0	0
+30 mins.	0	**2**	0	2	0	0	0	0	0	1	0	1	**2**	0	0	2
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	4	4	8	0	0	1	1	0	3	0	3	2	0	2	4
% App. Total	0	50	50		0	0	100		0	100	0		50	0	50	
PHF	.000	.500	.500	.667	.000	.000	.250	.250	.000	.375	.000	.375	.250	.000	.250	.500

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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0		
Total %	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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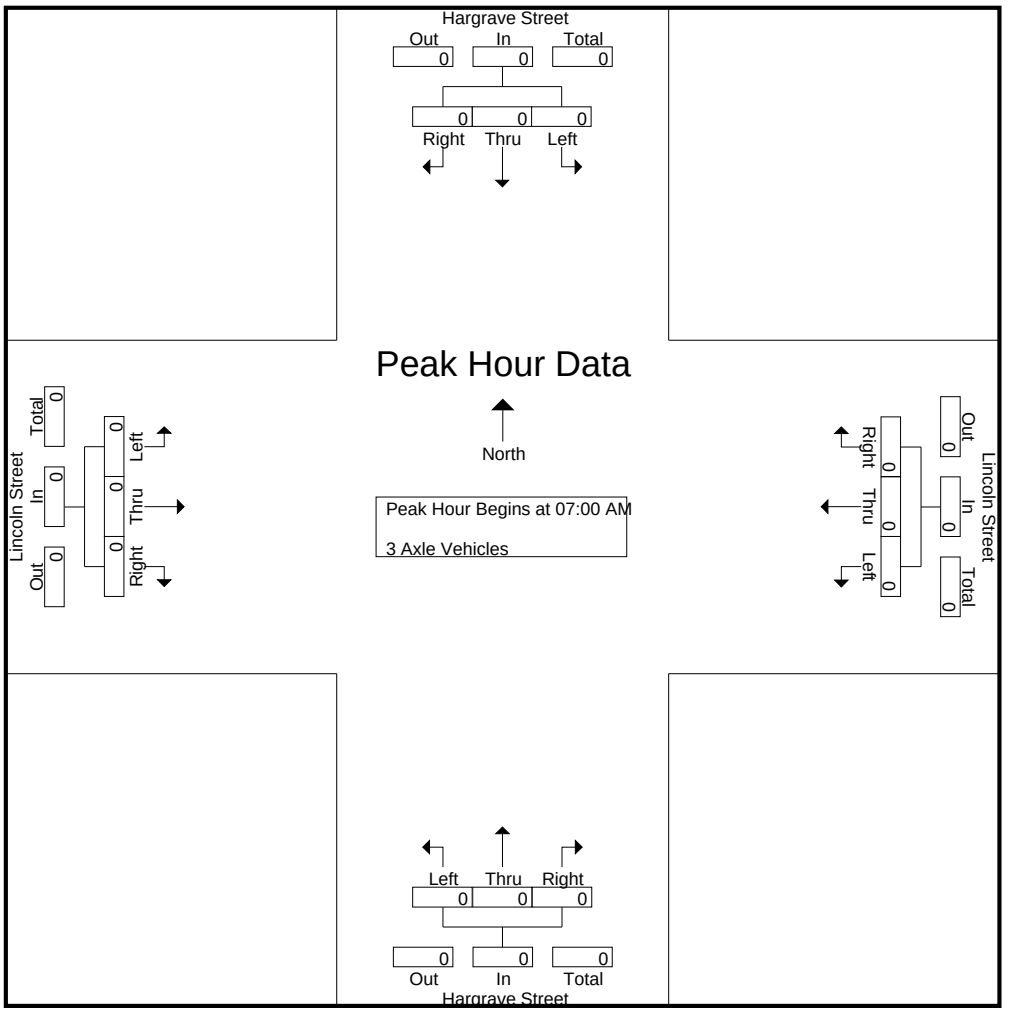

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	2
Total	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	1	3
08:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:45 AM	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
Total	3	1	0	4	0	0	1	1	0	0	0	0	1	0	0	1	6
Grand Total	3	1	0	4	0	0	2	2	0	1	0	1	2	0	0	2	9
Apprch %	75	25	0		0	0	100		0	100	0		100	0	0		
Total %	33.3	11.1	0	44.4	0	0	22.2	22.2	0	11.1	0	11.1	22.2	0	0	22.2	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	**1**	**1**	0	**1**	0	**1**	0	0	0	0	**2**
Total Volume	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	1	3
% App. Total	0	0	0		0	0	100		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.250	.000	.250	.250	.000	.000	.250	.375

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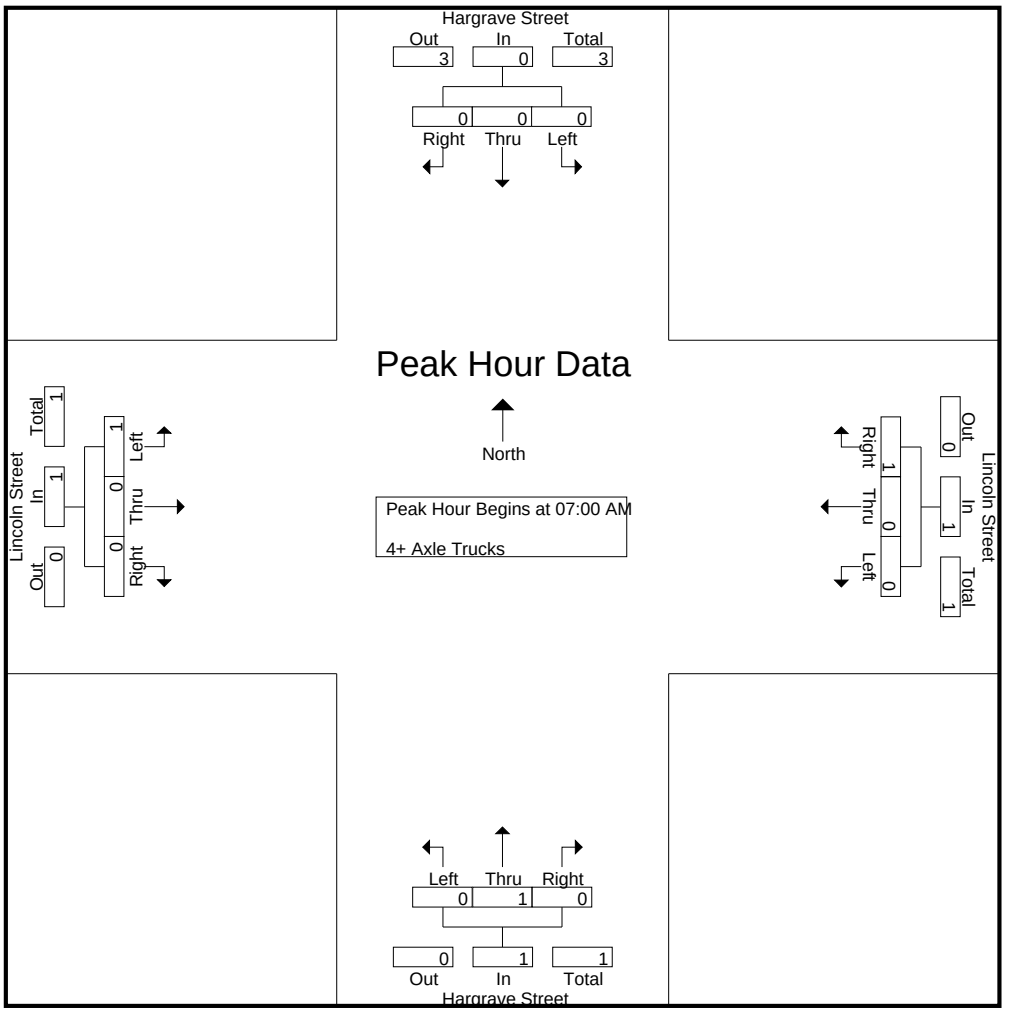

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	**1**	**1**	0	**1**	0	**1**	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	1
% App. Total	0	0	0		0	0	100		0	100	0		100	0	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.250	.000	.250	.250	.000	.000	.250

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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	7	16	17	40	0	7	13	20	6	53	1	60	13	5	5	23	143
04:15 PM	6	19	14	39	0	3	4	7	5	39	0	44	16	6	4	26	116
04:30 PM	6	20	13	39	0	9	10	19	11	31	0	42	19	7	9	35	135
04:45 PM	9	20	15	44	0	2	12	14	10	55	0	65	12	1	17	30	153
Total	28	75	59	162	0	21	39	60	32	178	1	211	60	19	35	114	547
05:00 PM	5	23	13	41	0	5	7	12	7	33	1	41	12	3	5	20	114
05:15 PM	6	23	9	38	0	3	7	10	0	31	0	31	13	7	8	28	107
05:30 PM	4	34	17	55	0	2	3	5	3	24	0	27	17	3	17	37	124
05:45 PM	6	21	10	37	0	5	7	12	6	16	0	22	11	3	11	25	96
Total	21	101	49	171	0	15	24	39	16	104	1	121	53	16	41	110	441
Grand Total	49	176	108	333	0	36	63	99	48	282	2	332	113	35	76	224	988
Apprch %	14.7	52.9	32.4		0	36.4	63.6		14.5	84.9	0.6		50.4	15.6	33.9		
Total %	5	17.8	10.9	33.7	0	3.6	6.4	10	4.9	28.5	0.2	33.6	11.4	3.5	7.7	22.7	
Passenger Vehicles	45	171	102	318	0	34	62	96	48	281	2	331	111	33	73	217	962
% Passenger Vehicles	91.8	97.2	94.4	95.5	0	94.4	98.4	97	100	99.6	100	99.7	98.2	94.3	96.1	96.9	97.4
Large 2 Axle Vehicles	4	1	6	11	0	2	0	2	0	1	0	1	1	1	1	3	17
% Large 2 Axle Vehicles	8.2	0.6	5.6	3.3	0	5.6	0	2	0	0.4	0	0.3	0.9	2.9	1.3	1.3	1.7
3 Axle Vehicles	0	4	0	4	0	0	0	0	0	0	0	0	0	1	2	3	7
% 3 Axle Vehicles	0	2.3	0	1.2	0	0	0	0	0	0	0	0	0	2.9	2.6	1.3	0.7
4+ Axle Trucks	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
% 4+ Axle Trucks	0	0	0	0	0	0	1.6	1	0	0	0	0	0.9	0	0	0.4	0.2

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	7	16	**17**	40	0	7	**13**	**20**	6	53	**1**	60	13	5	5	23	143
04:15 PM	6	19	14	39	0	3	4	7	5	39	0	44	16	6	4	26	116
04:30 PM	6	**20**	13	39	0	**9**	10	19	**11**	31	0	42	**19**	**7**	9	**35**	135
04:45 PM	**9**	20	15	**44**	0	2	12	14	10	**55**	0	**65**	12	1	**17**	30	**153**
Total Volume	28	75	59	162	0	21	39	60	32	178	1	211	60	19	35	114	547
% App. Total	17.3	46.3	36.4		0	35	65		15.2	84.4	0.5		52.6	16.7	30.7		
PHF	.778	.938	.868	.920	.000	.583	.750	.750	.727	.809	.250	.812	.789	.679	.515	.814	.894

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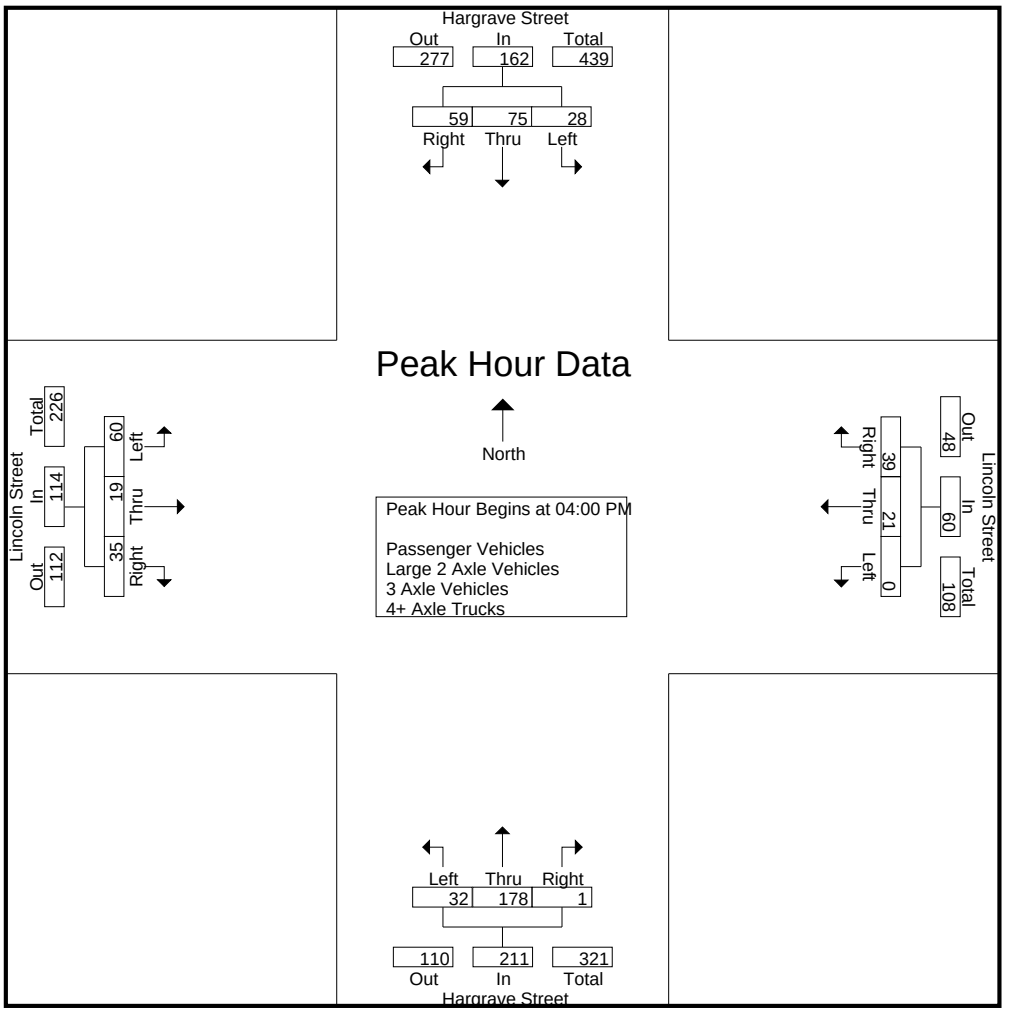

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:00 PM				04:45 PM			
+0 mins.	**9**	20	15	44	0	7	**13**	**20**	6	53	**1**	60	12	1	**17**	30
+15 mins.	5	23	13	41	0	3	4	7	5	39	0	44	12	3	5	20
+30 mins.	6	23	9	38	0	**9**	10	19	**11**	31	0	42	13	**7**	8	28
+45 mins.	4	**34**	**17**	**55**	0	2	12	14	10	**55**	0	**65**	**17**	3	17	**37**
Total Volume	24	100	54	178	0	21	39	60	32	178	1	211	54	14	47	115
% App. Total	13.5	56.2	30.3		0	35	65		15.2	84.4	0.5		47	12.2	40.9	
PHF	.667	.735	.794	.809	.000	.583	.750	.750	.727	.809	.250	.812	.794	.500	.691	.777

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(951) 268-6268

City of Banning
N/S: Hargrave Street
E/W: Lincoln Street
Weather: Clear

File Name : BANHALIPM
Site Code : 00000000
Start Date : 1/31/2017
Page No : 1

Groups Printed- Passenger Vehicles

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	7	15	16	38	0	7	13	20	6	53	1	60	13	4	5	22	140
04:15 PM	5	19	13	37	0	3	4	7	5	39	0	44	15	6	4	25	113
04:30 PM	5	20	11	36	0	8	9	17	11	31	0	42	18	7	8	33	128
04:45 PM	9	20	13	42	0	2	12	14	10	55	0	65	12	1	15	28	149
Total	26	74	53	153	0	20	38	58	32	178	1	211	58	18	32	108	530
05:00 PM	5	21	13	39	0	5	7	12	7	32	1	40	12	3	5	20	111
05:15 PM	4	23	9	36	0	3	7	10	0	31	0	31	13	6	8	27	104
05:30 PM	4	32	17	53	0	2	3	5	3	24	0	27	17	3	17	37	122
05:45 PM	6	21	10	37	0	4	7	11	6	16	0	22	11	3	11	25	95
Total	19	97	49	165	0	14	24	38	16	103	1	120	53	15	41	109	432
Grand Total	45	171	102	318	0	34	62	96	48	281	2	331	111	33	73	217	962
Apprch %	14.2	53.8	32.1		0	35.4	64.6		14.5	84.9	0.6		51.2	15.2	33.6		
Total %	4.7	17.8	10.6	33.1	0	3.5	6.4	10	5	29.2	0.2	34.4	11.5	3.4	7.6	22.6	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	7	15	**16**	38	0	7	**13**	**20**	6	53	**1**	60	13	4	5	22	140
04:15 PM	5	19	13	37	0	3	4	7	5	39	0	44	15	6	4	25	113
04:30 PM	5	**20**	11	36	0	**8**	9	17	**11**	31	0	42	**18**	**7**	8	**33**	128
04:45 PM	**9**	20	13	**42**	0	2	12	14	10	**55**	0	**65**	12	1	**15**	28	**149**
Total Volume	26	74	53	153	0	20	38	58	32	178	1	211	58	18	32	108	530
% App. Total	17	48.4	34.6		0	34.5	65.5		15.2	84.4	0.5		53.7	16.7	29.6		
PHF	.722	.925	.828	.911	.000	.625	.731	.725	.727	.809	.250	.812	.806	.643	.533	.818	.889

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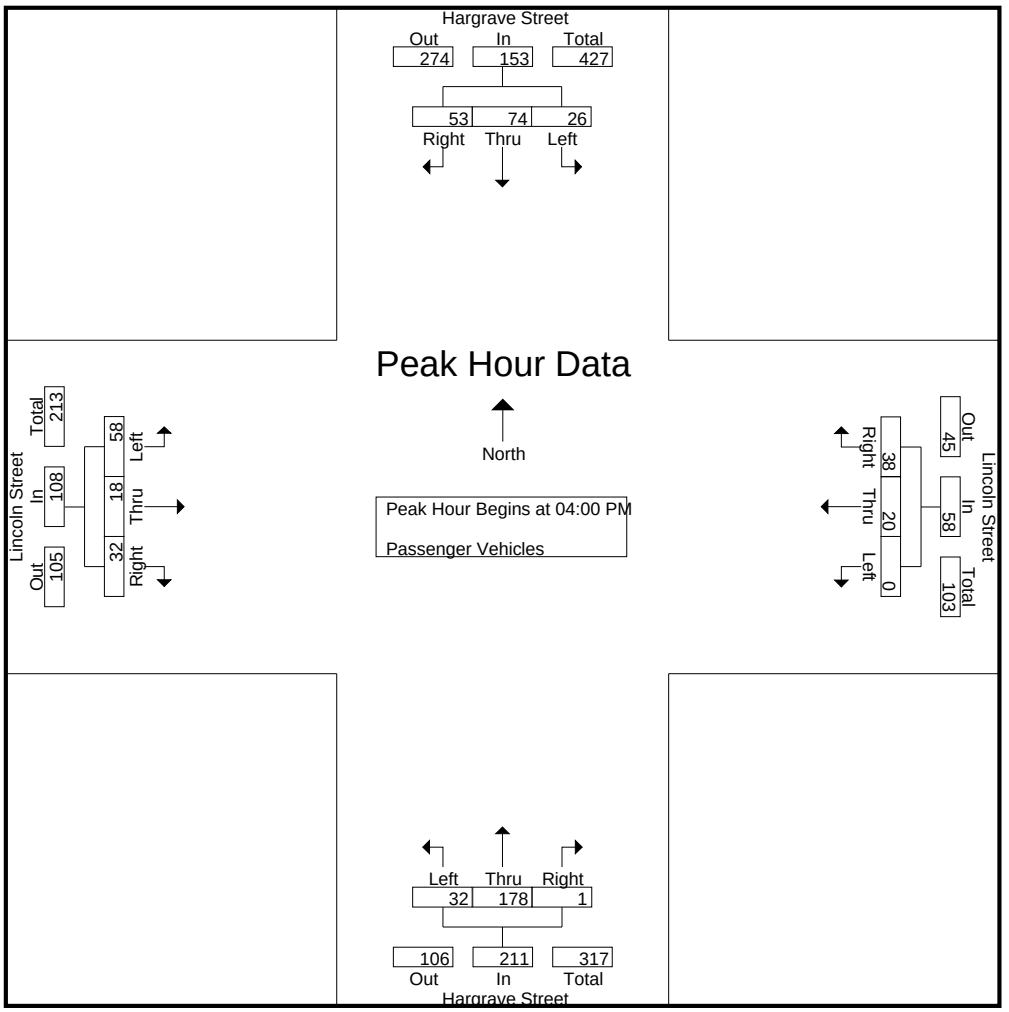

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	7	15	**16**	38	0	7	**13**	**20**	6	53	**1**	60	13	4	5	22
+15 mins.	5	19	13	37	0	3	4	7	5	39	0	44	15	6	4	25
+30 mins.	5	**20**	11	36	0	**8**	9	17	**11**	31	0	42	**18**	**7**	8	**33**
+45 mins.	**9**	20	13	**42**	0	2	12	14	10	**55**	0	**65**	12	1	**15**	28
Total Volume	26	74	53	153	0	20	38	58	32	178	1	211	58	18	32	108
% App. Total	17	48.4	34.6		0	34.5	65.5		15.2	84.4	0.5		53.7	16.7	29.6	
PHF	.722	.925	.828	.911	.000	.625	.731	.725	.727	.809	.250	.812	.806	.643	.533	.818

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Groups Printed- Large 2 Axle Vehicles

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
04:15 PM	1	0	1	2	0	0	0	0	0	0	0	0	1	0	0	1	3
04:30 PM	1	0	2	3	0	1	0	1	0	0	0	0	0	0	0	0	4
04:45 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	1	1	3
Total	2	0	6	8	0	1	0	1	0	0	0	0	1	1	1	3	12
05:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:15 PM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	2	1	0	3	0	1	0	1	0	1	0	1	0	0	0	0	5
Grand Total	4	1	6	11	0	2	0	2	0	1	0	1	1	1	1	3	17
Apprch %	36.4	9.1	54.5		0	100	0		0	100	0		33.3	33.3	33.3		
Total %	23.5	5.9	35.3	64.7	0	11.8	0	11.8	0	5.9	0	5.9	5.9	5.9	5.9	17.6	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	**1**	0	**1**	2
04:15 PM	**1**	0	1	2	0	0	0	0	0	0	0	0	**1**	0	0	1	3
04:30 PM	1	0	**2**	**3**	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**4**
04:45 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	**1**	1	3
Total Volume	2	0	6	8	0	1	0	1	0	0	0	0	1	1	1	3	12
% App. Total	25	0	75		0	100	0		0	0	0		33.3	33.3	33.3		
PHF	.500	.000	.750	.667	.000	.250	.000	.250	.000	.000	.000	.000	.250	.250	.250	.750	.750

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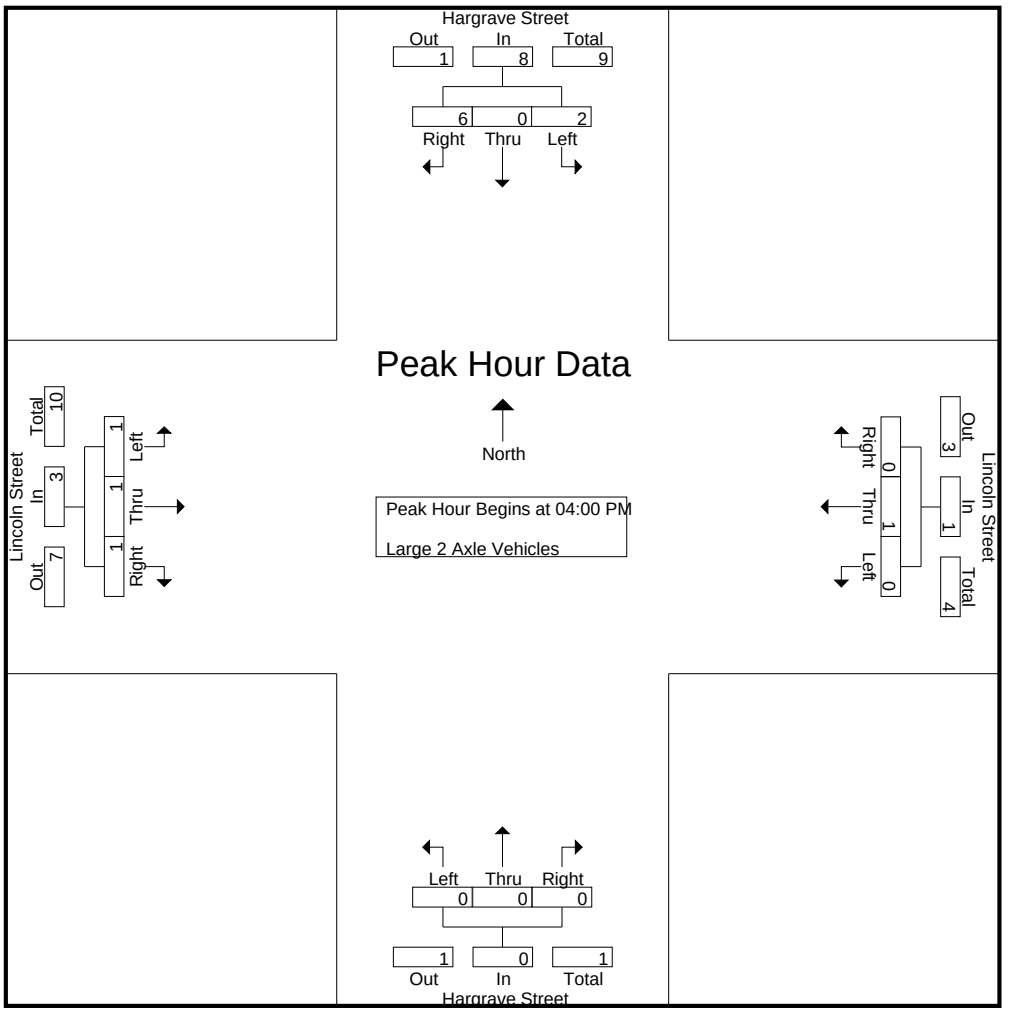

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	**1**	0	1	2	0	0	0	0	0	0	0	0	**1**	0	0	1
+30 mins.	1	0	**2**	**3**	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+45 mins.	0	0	2	2	0	0	0	0	0	0	0	0	0	0	**1**	1
Total Volume	2	0	6	8	0	1	0	1	0	0	0	0	1	1	1	3
% App. Total	25	0	75		0	100	0		0	0	0		33.3	33.3	33.3	
PHF	.500	.000	.750	.667	.000	.250	.000	.250	.000	.000	.000	.000	.250	.250	.250	.750

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Groups Printed- 3 Axle Vehicles

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	2	3
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	3	0	0	0	0	0	0	0	0	0	1	0	1	4
Grand Total	0	4	0	4	0	0	0	0	0	0	0	0	0	1	2	3	7
Apprch %	0	100	0		0	0	0		0	0	0		0	33.3	66.7		
Total %	0	57.1	0	57.1	0	0	0	0	0	0	0	0	0	14.3	28.6	42.9	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	2	3
% App. Total	0	100	0		0	0	0		0	0	0		0	0	100		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.500	.750

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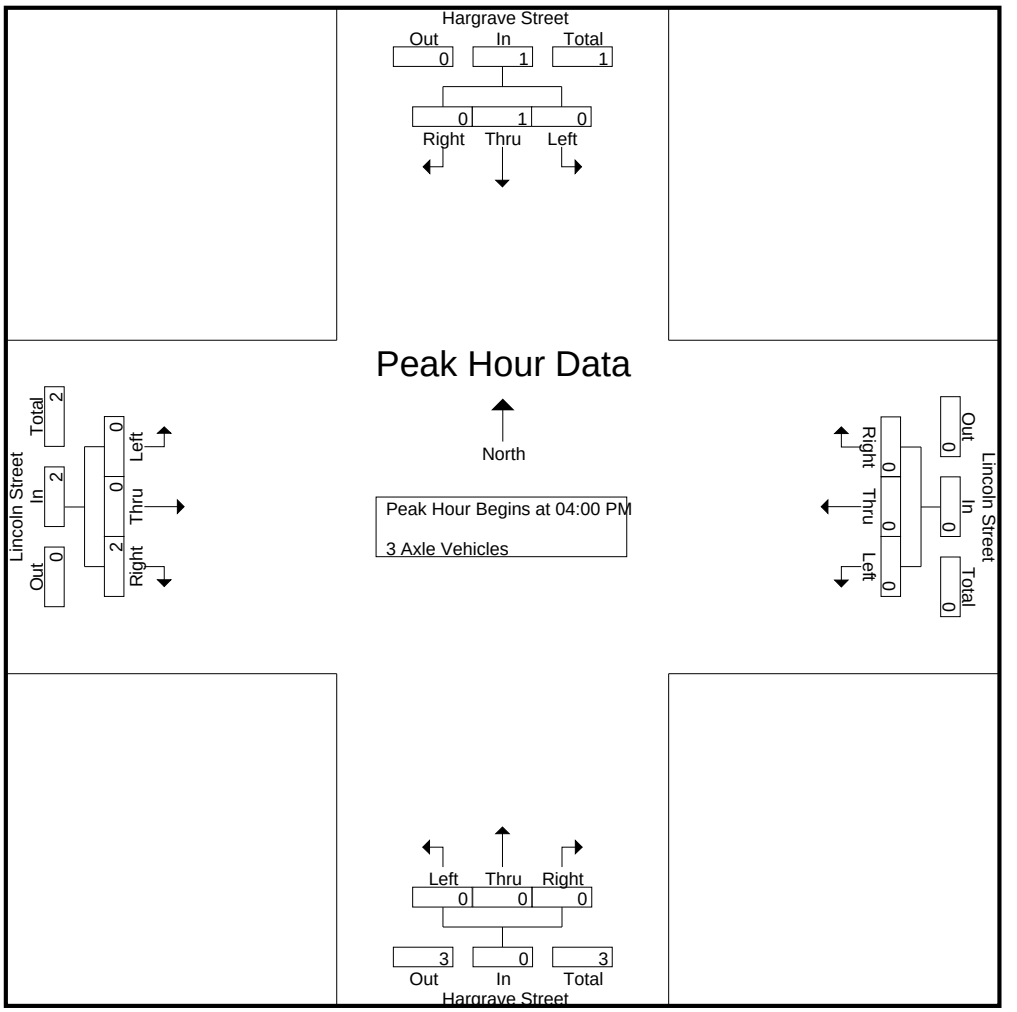

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	2
% App. Total	0	100	0		0	0	0		0	0	0		0	0	100	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.500

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Groups Printed- 4+ Axle Trucks

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
Apprch %	0	0	0		0	0	100		0	0	0		100	0	0		
Total %	0	0	0	0	0	0	50	50	0	0	0	0	50	0	0	50	

	Hargrave Street Southbound				Lincoln Street Westbound				Hargrave Street Northbound				Lincoln Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**	0	0	**1**	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
% App. Total	0	0	0		0	0	100		0	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250	.000	.000	.250	.250

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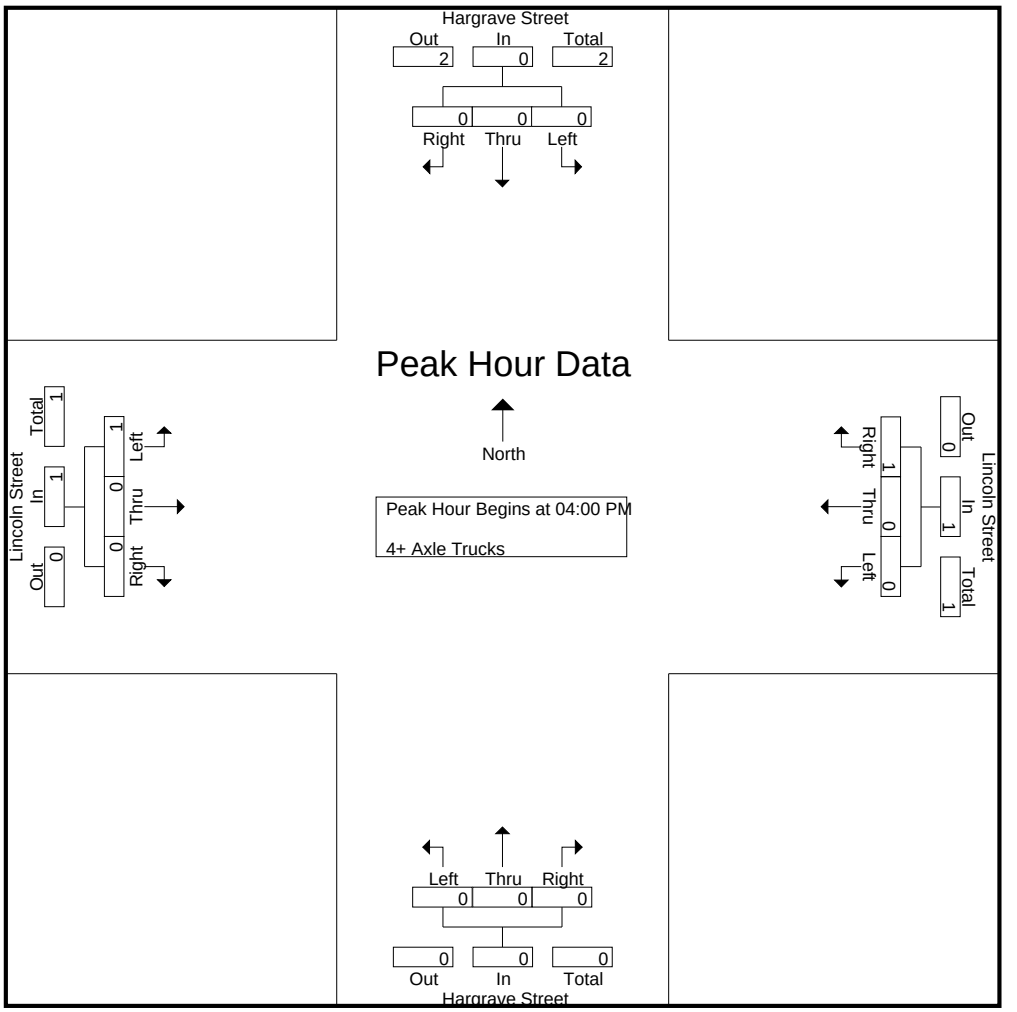


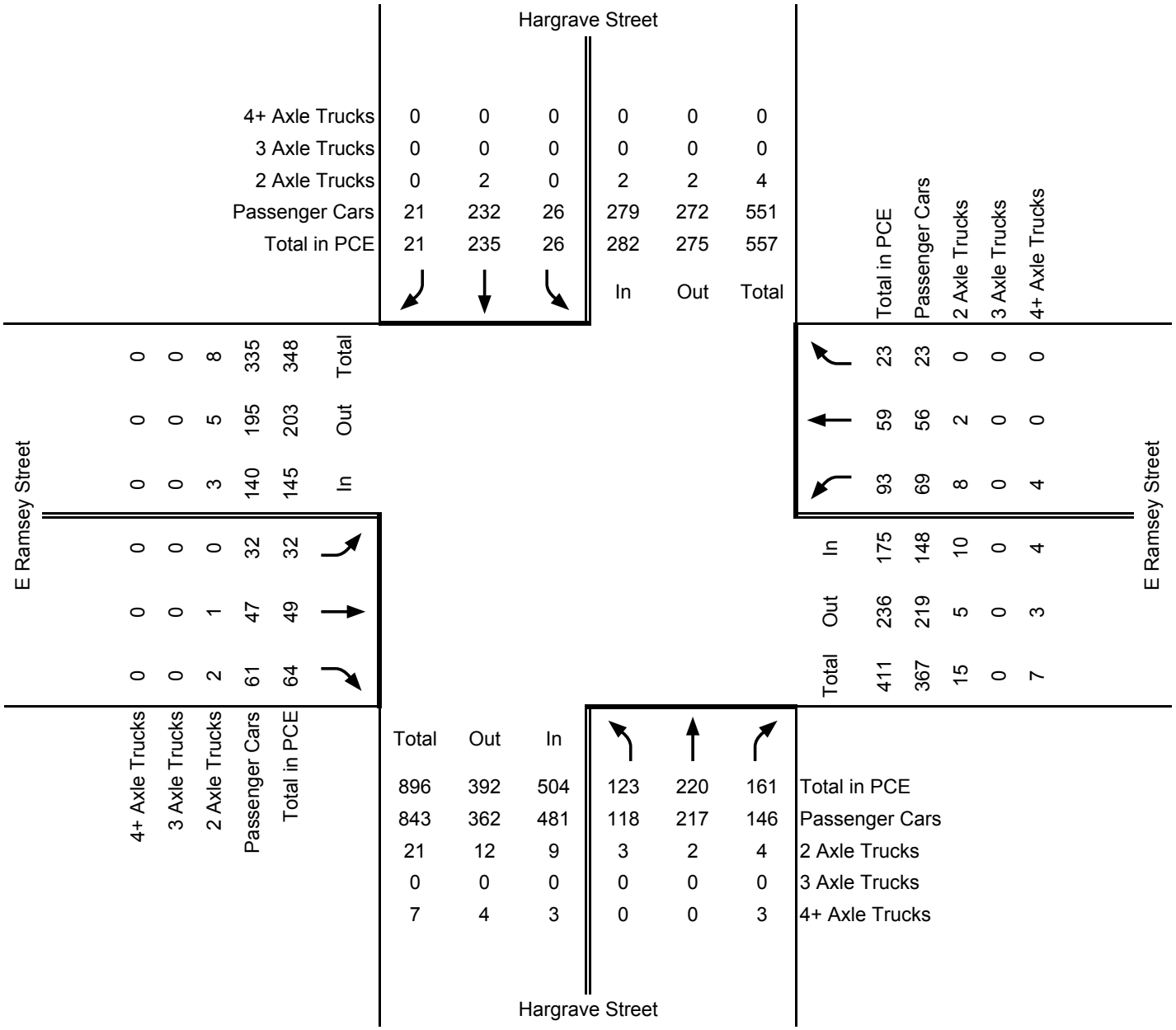
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**1**	0	0	**1**
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1
% App. Total	0	0	0		0	0	100		0	0	0		100	0	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250	.000	.000	.250

Passenger Car Equivalent (PCE) Worksheets

1. Hargrave Street / E Ramsey Street

Count Date: 1/31/2017
Peak Hour: 7:30-8:30 AM
PHF: 0.890



PCE Factors

Passenger Cars = 1 PCE

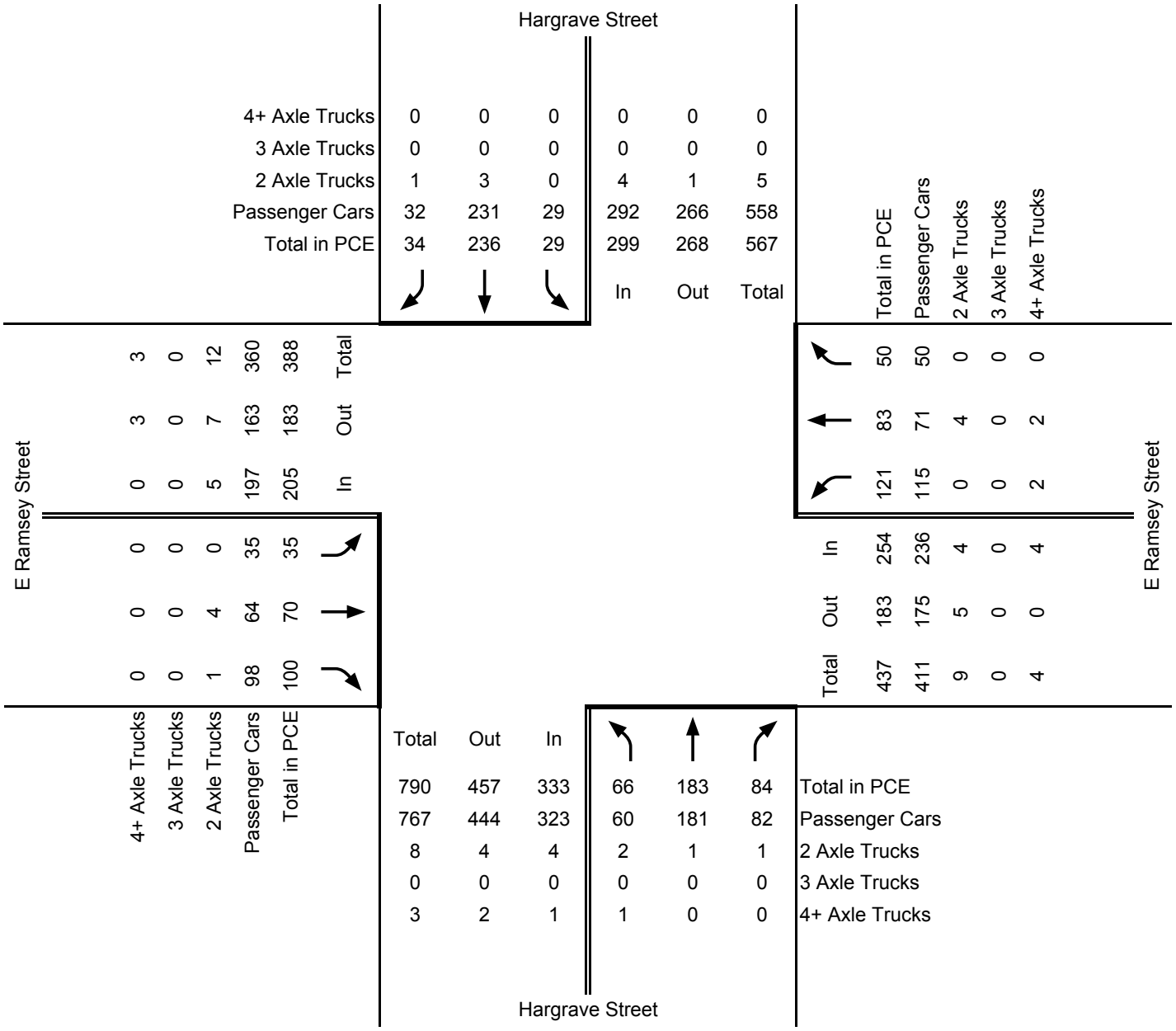
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

1. Hargrave Street / E Ramsey Street

Count Date: 1/31/2017
Peak Hour: 4:30-5:30 PM
PHF: 0.869



PCE Factors

Passenger Cars = 1 PCE

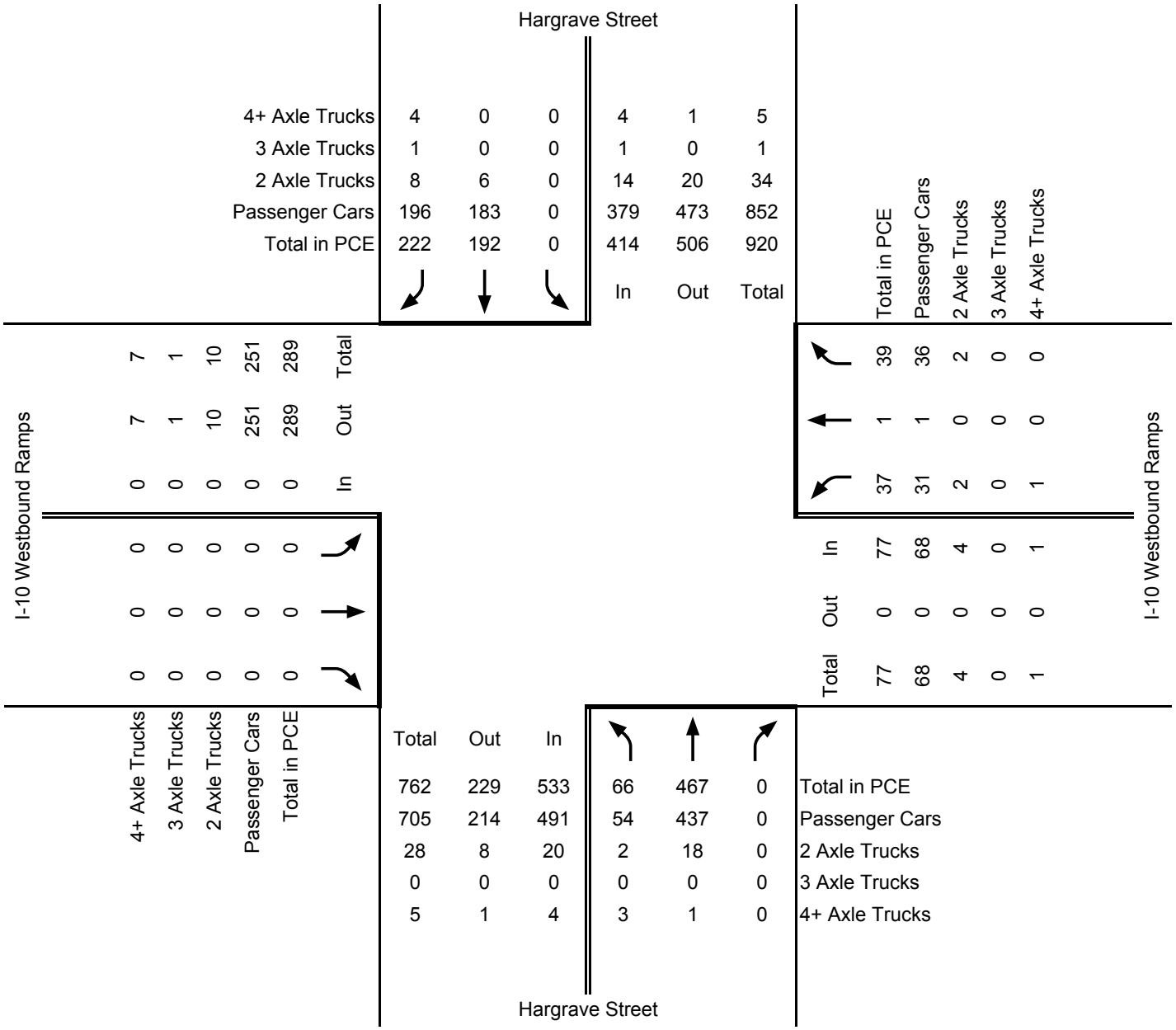
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

2. Hargrave Street / I-10 Westbound Ramps

Count Date: 1/31/2017
Peak Hour: 7:15-8:15 AM
PHF: 0.844



PCE Factors

Passenger Cars = 1 PCE

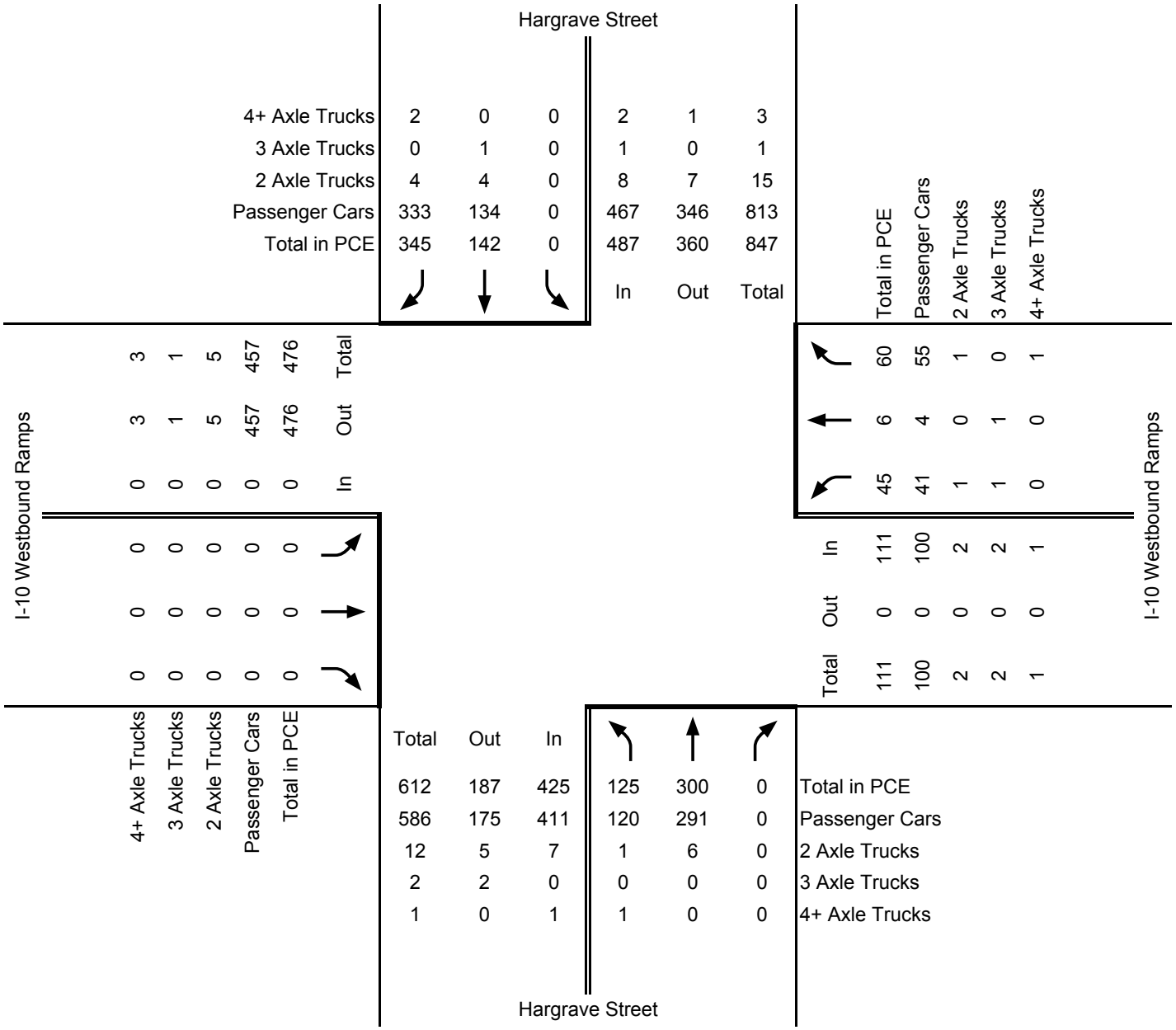
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

2. Hargrave Street / I-10 Westbound Ramps

Count Date: 1/31/2017
Peak Hour: 4:30-5:30 PM
PHF: 0.876



PCE Factors

Passenger Cars = 1 PCE

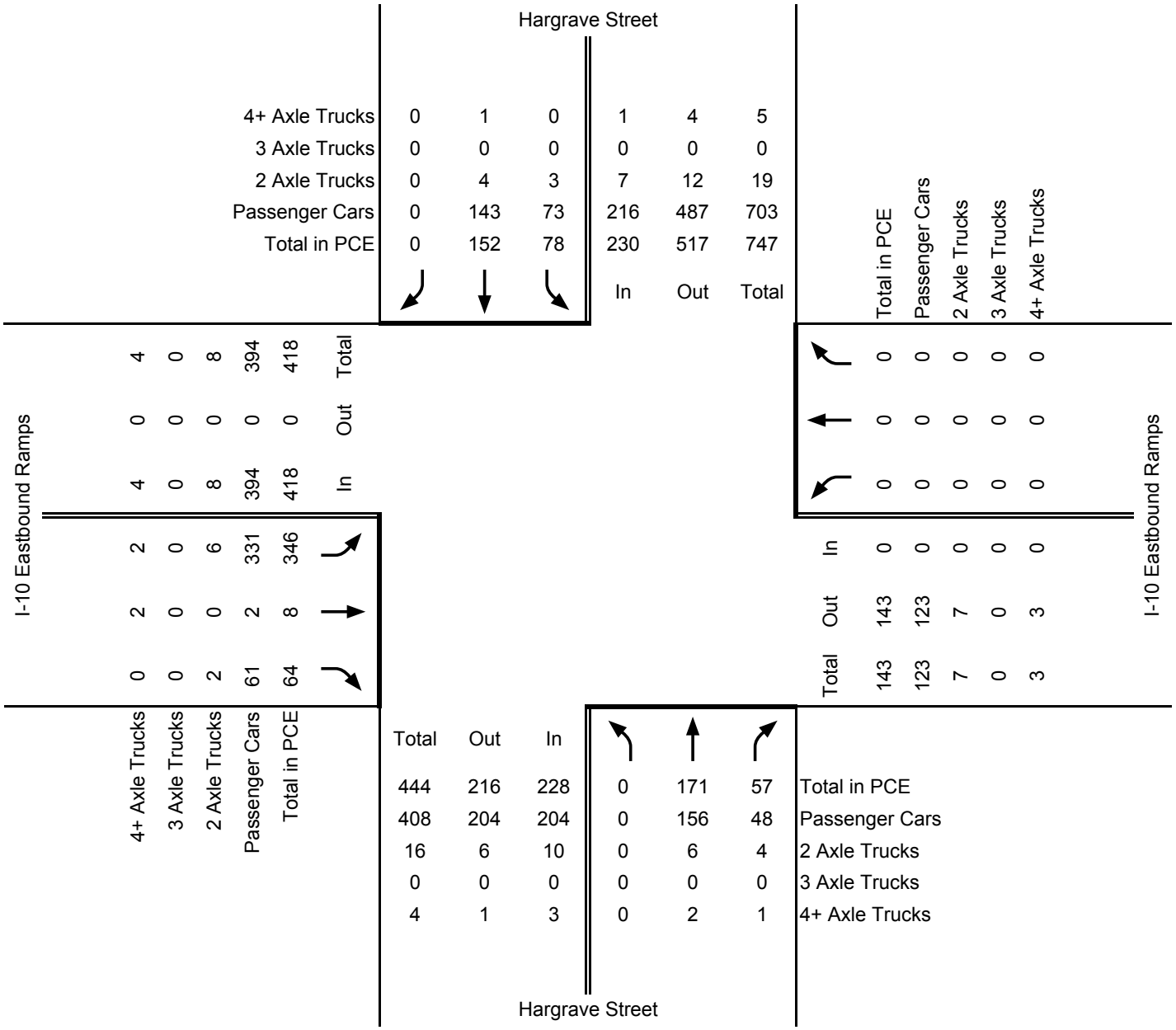
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

3. Hargrave Street / I-10 Eastbound Ramps

Count Date: 1/31/2017
Peak Hour: 7:15-8:15 AM
PHF: 0.776



PCE Factors

Passenger Cars = 1 PCE

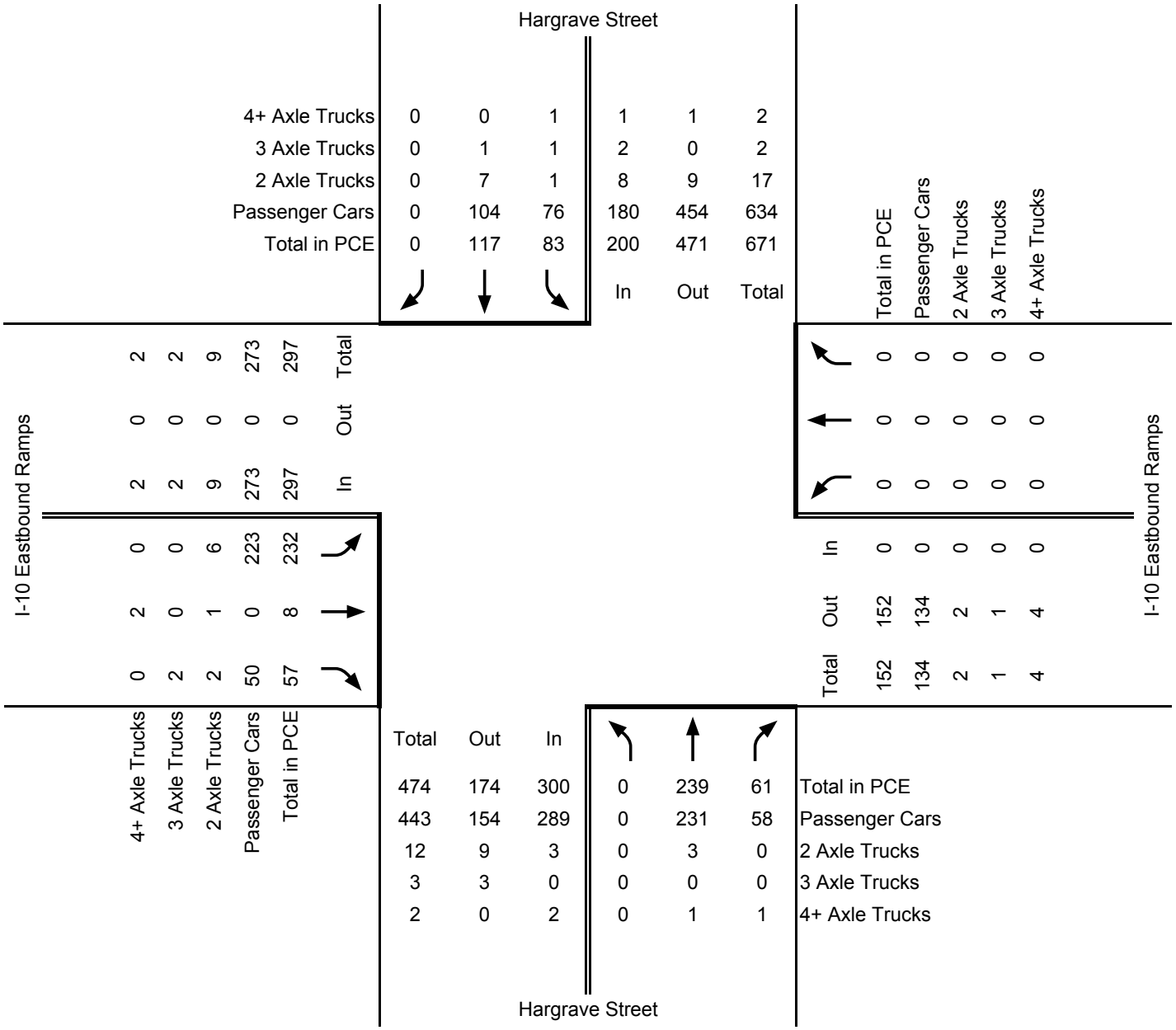
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

3. Hargrave Street / I-10 Eastbound Ramps

Count Date: 1/31/2017
Peak Hour: 4:00-5:00 PM
PHF: 0.876



PCE Factors

Passenger Cars = 1 PCE

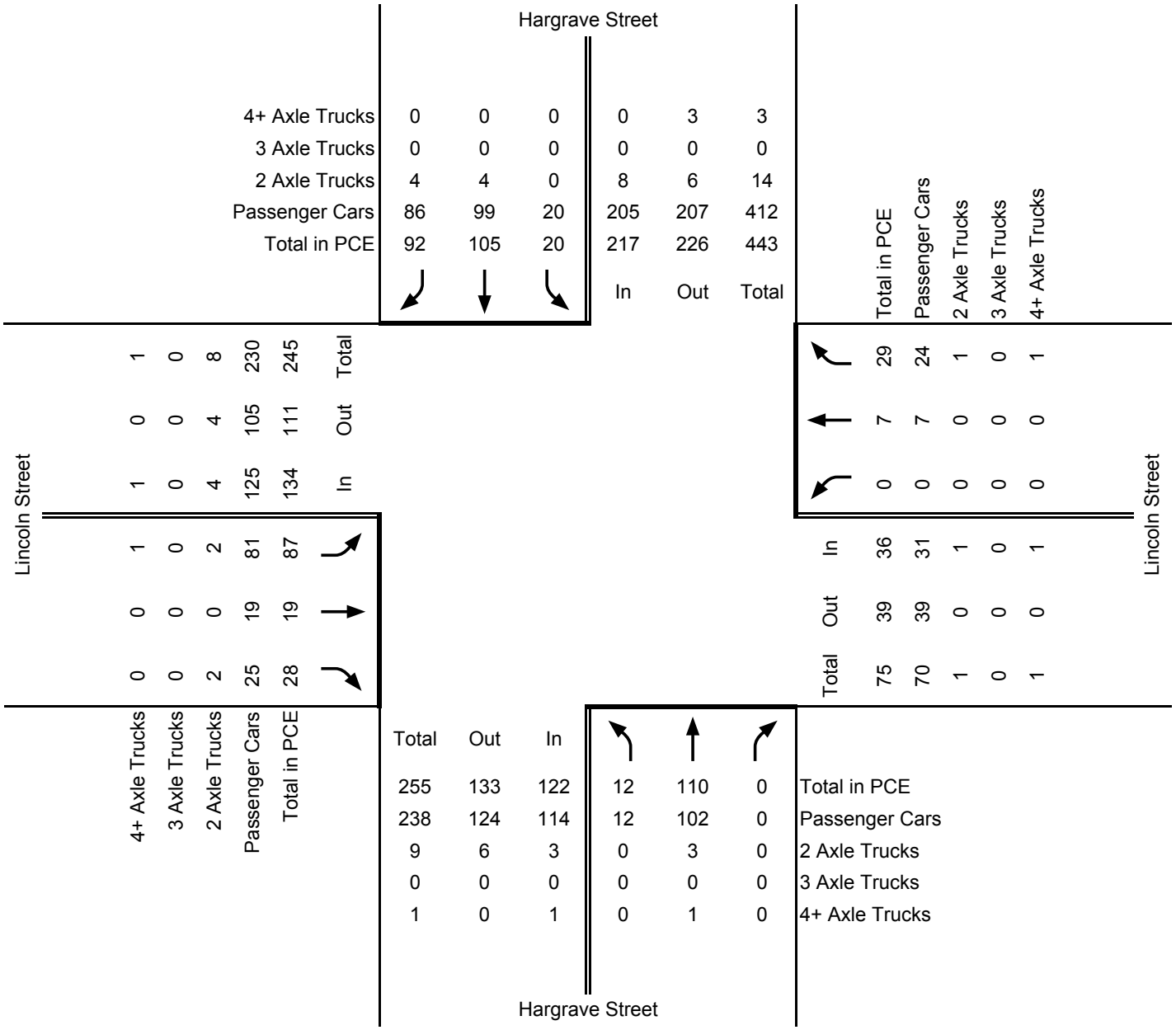
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

4. Hargrave Street / Lincoln Street

Count Date: 1/31/2017
Peak Hour: 7:00-8:00 AM
PHF: 0.710



PCE Factors

Passenger Cars = 1 PCE

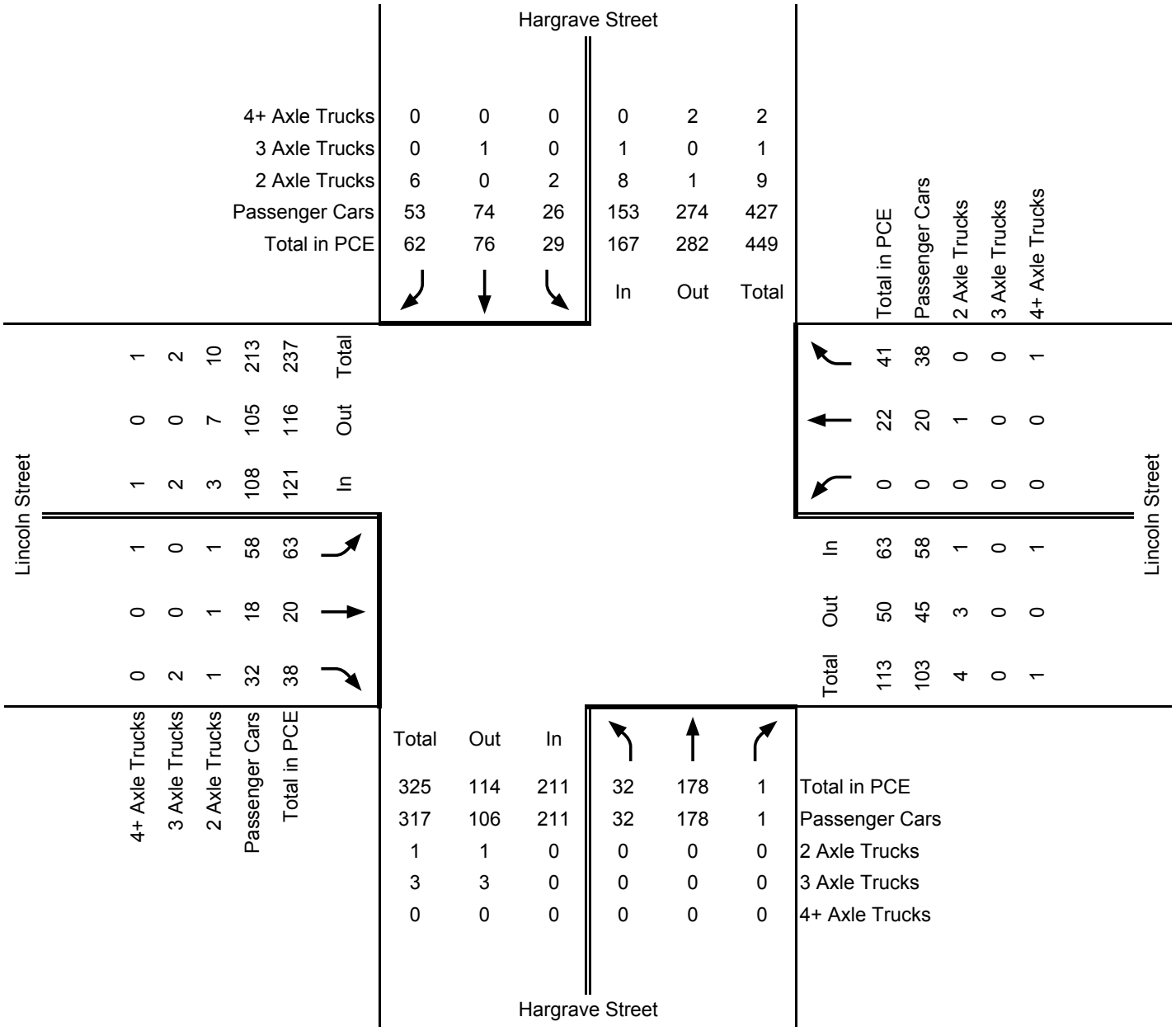
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

4. Hargrave Street / Lincoln Street

Count Date: 1/31/2017
Peak Hour: 4:00-5:00 PM
PHF: 0.894



PCE Factors

Passenger Cars = 1 PCE

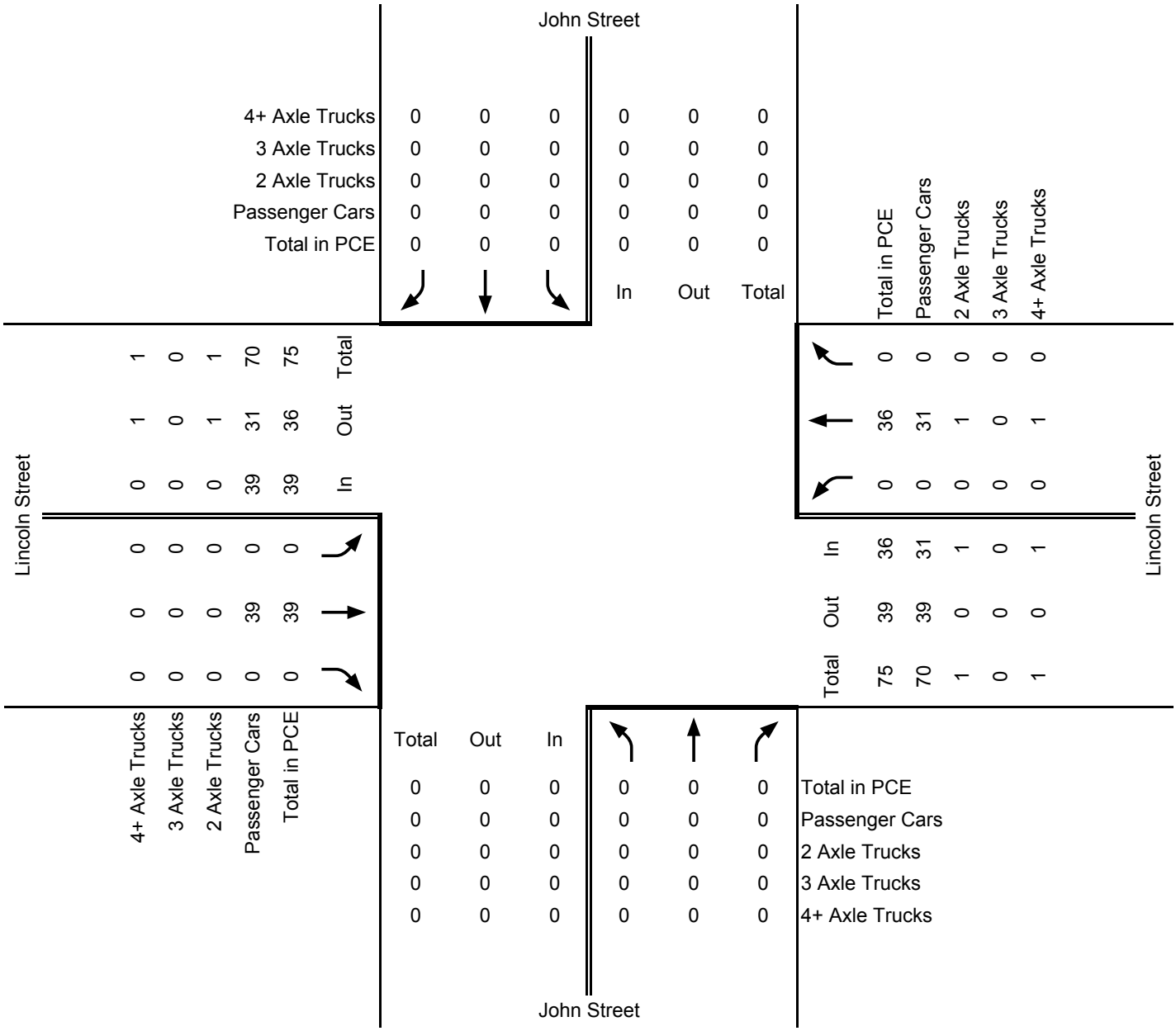
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

5. John Street / Lincoln Street

Count Date: 1/31/2017
Peak Hour: 7:00-8:00 AM
PHF: 0.920



PCE Factors

Passenger Cars = 1 PCE

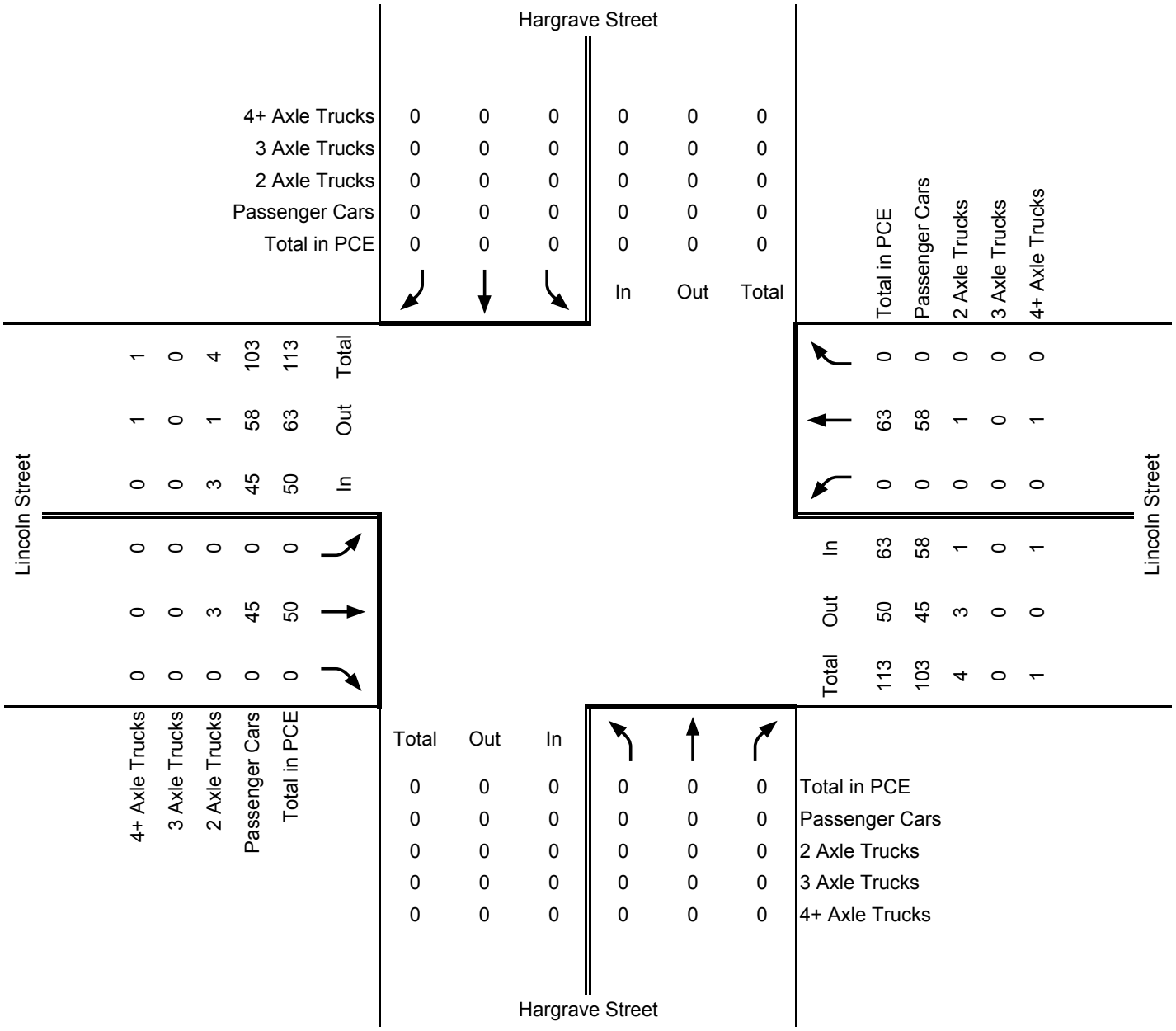
2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

5. Hargrave Street / Lincoln Street

Count Date: 1/31/2017
Peak Hour: 4:00-5:00 PM
PHF: 0.894



PCE Factors

Passenger Cars = 1 PCE

2 Axle Trucks = 1.5 PCE

3 Axle Trucks = 2 PCE

4+ Axle Trucks = 3 PCE

APPENDIX D

Signal Warrant Worksheets

Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	533	414	77
2	512	397	74
3	501	389	72
4	426	331	62
5	405	315	59
6	362	282	52
7	336	261	49
8	320	248	46
9	256	199	37
10	240	186	35
11	240	186	35
12	229	178	33
13	208	161	30
14	192	149	28
15	192	149	28
16	187	145	27
17	107	83	15
18	59	46	8
19	53	41	8
20	21	17	3
21	16	12	2
22	16	12	2
23	11	8	2
24	11	8	2

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	947	1	77	No	No	No	No	Yes	Yes	Yes	Yes	No	No
2	2	909	1	74	No	No	No	No	No	Yes	Yes	Yes	No	No
3	2	890	1	72	No	No	No	No	No	Yes	Yes	Yes	No	No
4	2	757	1	62	No	No	No	No	No	Yes	Yes	Yes	No	No
5	2	720	1	59	No	No	No	No	No	No	Yes	Yes	No	No
6	2	644	1	52	No	No	No	No	No	No	Yes	Yes	No	No
7	2	597	1	49	No	No	No	No	No	No	No	Yes	No	No
8	2	568	1	46	No	No	No	No	No	No	No	Yes	No	No
9	2	455	1	37	No	No	No	No	No	No	No	No	No	No
10	2	426	1	35	No	No	No	No	No	No	No	No	No	No
11	2	426	1	35	No	No	No	No	No	No	No	No	No	No
12	2	407	1	33	No	No	No	No	No	No	No	No	No	No
13	2	369	1	30	No	No	No	No	No	No	No	No	No	No
14	2	341	1	28	No	No	No	No	No	No	No	No	No	No
15	2	341	1	28	No	No	No	No	No	No	No	No	No	No
16	2	332	1	27	No	No	No	No	No	No	No	No	No	No
17	2	190	1	15	No	No	No	No	No	No	No	No	No	No
18	2	105	1	8	No	No	No	No	No	No	No	No	No	No
19	2	94	1	8	No	No	No	No	No	No	No	No	No	No
20	2	38	1	3	No	No	No	No	No	No	No	No	No	No
21	2	28	1	2	No	No	No	No	No	No	No	No	No	No
22	2	28	1	2	No	No	No	No	No	No	No	No	No	No
23	2	19	1	2	No	No	No	No	No	No	No	No	No	No
24	2	19	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	1	4	6	8	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	24.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:31
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	77
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1024
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	230	228	418
2	221	219	401
3	216	214	393
4	184	182	334
5	175	173	318
6	156	155	284
7	145	144	263
8	138	137	251
9	110	109	201
10	104	103	188
11	104	103	188
12	99	98	180
13	90	89	163
14	83	82	150
15	83	82	150
16	81	80	146
17	46	46	84
18	25	25	46
19	23	23	42
20	9	9	17
21	7	7	13
22	7	7	13
23	5	5	8
24	5	5	8

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	458	1	418	No	No	Yes	Yes	No	No	No	No	Yes	No
2	2	440	1	401	No	No	Yes	Yes	No	No	No	No	Yes	No
3	2	430	1	393	No	No	Yes	Yes	No	No	No	No	Yes	No
4	2	366	1	334	No	No	No	Yes	No	No	No	No	No	No
5	2	348	1	318	No	No	No	Yes	No	No	No	No	No	No
6	2	311	1	284	No	No	No	No	No	No	No	No	No	No
7	2	289	1	263	No	No	No	No	No	No	No	No	No	No
8	2	275	1	251	No	No	No	No	No	No	No	No	No	No
9	2	219	1	201	No	No	No	No	No	No	No	No	No	No
10	2	207	1	188	No	No	No	No	No	No	No	No	No	No
11	2	207	1	188	No	No	No	No	No	No	No	No	No	No
12	2	197	1	180	No	No	No	No	No	No	No	No	No	No
13	2	179	1	163	No	No	No	No	No	No	No	No	No	No
14	2	165	1	150	No	No	No	No	No	No	No	No	No	No
15	2	165	1	150	No	No	No	No	No	No	No	No	No	No
16	2	161	1	146	No	No	No	No	No	No	No	No	No	No
17	2	92	1	84	No	No	No	No	No	No	No	No	No	No
18	2	50	1	46	No	No	No	No	No	No	No	No	No	No
19	2	46	1	42	No	No	No	No	No	No	No	No	No	No
20	2	18	1	17	No	No	No	No	No	No	No	No	No	No
21	2	14	1	13	No	No	No	No	No	No	No	No	No	No
22	2	14	1	13	No	No	No	No	No	No	No	No	No	No
23	2	10	1	8	No	No	No	No	No	No	No	No	No	No
24	2	10	1	8	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	3	5	0	0	0	0	3	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	213.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	24:45
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	418
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	876
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	122	217	36	134
2	117	208	35	129
3	115	204	34	126
4	98	174	29	107
5	93	165	27	102
6	83	148	24	91
7	77	137	23	84
8	73	130	22	80
9	59	104	17	64
10	55	98	16	60
11	55	98	16	60
12	52	93	15	58
13	48	85	14	52
14	44	78	13	48
15	44	78	13	48
16	43	76	13	47
17	24	43	7	27
18	13	24	4	15
19	12	22	4	13
20	5	9	1	5
21	4	7	1	4
22	4	7	1	4
23	2	4	1	3
24	2	4	1	3

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Version 5.00-00 Banning Industrial TIA Scenario 1: 1 E-AM

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	339	2	170	No	No	No	Yes	No	No	No	No	No	No
2	2	325	2	164	No	No	No	No	No	No	No	No	No	No
3	2	319	2	160	No	No	No	No	No	No	No	No	No	No
4	2	272	2	136	No	No	No	No	No	No	No	No	No	No
5	2	258	2	129	No	No	No	No	No	No	No	No	No	No
6	2	231	2	115	No	No	No	No	No	No	No	No	No	No
7	2	214	2	107	No	No	No	No	No	No	No	No	No	No
8	2	203	2	102	No	No	No	No	No	No	No	No	No	No
9	2	163	2	81	No	No	No	No	No	No	No	No	No	No
10	2	153	2	76	No	No	No	No	No	No	No	No	No	No
11	2	153	2	76	No	No	No	No	No	No	No	No	No	No
12	2	145	2	73	No	No	No	No	No	No	No	No	No	No
13	2	133	2	66	No	No	No	No	No	No	No	No	No	No
14	2	122	2	61	No	No	No	No	No	No	No	No	No	No
15	2	122	2	61	No	No	No	No	No	No	No	No	No	No
16	2	119	2	60	No	No	No	No	No	No	No	No	No	No
17	2	67	2	34	No	No	No	No	No	No	No	No	No	No
18	2	37	2	19	No	No	No	No	No	No	No	No	No	No
19	2	34	2	17	No	No	No	No	No	No	No	No	No	No
20	2	14	2	6	No	No	No	No	No	No	No	No	No	No
21	2	11	2	5	No	No	No	No	No	No	No	No	No	No
22	2	11	2	5	No	No	No	No	No	No	No	No	No	No
23	2	6	2	4	No	No	No	No	No	No	No	No	No	No
24	2	6	2	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	1	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.2	10
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:22
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	36	134
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	509	509
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	36	39	0
2	35	37	0
3	34	37	0
4	29	31	0
5	27	30	0
6	24	27	0
7	23	25	0
8	22	23	0
9	17	19	0
10	16	18	0
11	16	18	0
12	15	17	0
13	14	15	0
14	13	14	0
15	13	14	0
16	13	14	0
17	7	8	0
18	4	4	0
19	4	4	0
20	1	2	0
21	1	1	0
22	1	1	0
23	1	1	0
24	1	1	0

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	75	1	0	No	No	No	No	No	No	No	No	No	No
2	3	72	1	0	No	No	No	No	No	No	No	No	No	No
3	3	71	1	0	No	No	No	No	No	No	No	No	No	No
4	3	60	1	0	No	No	No	No	No	No	No	No	No	No
5	3	57	1	0	No	No	No	No	No	No	No	No	No	No
6	3	51	1	0	No	No	No	No	No	No	No	No	No	No
7	3	48	1	0	No	No	No	No	No	No	No	No	No	No
8	3	45	1	0	No	No	No	No	No	No	No	No	No	No
9	3	36	1	0	No	No	No	No	No	No	No	No	No	No
10	3	34	1	0	No	No	No	No	No	No	No	No	No	No
11	3	34	1	0	No	No	No	No	No	No	No	No	No	No
12	3	32	1	0	No	No	No	No	No	No	No	No	No	No
13	3	29	1	0	No	No	No	No	No	No	No	No	No	No
14	3	27	1	0	No	No	No	No	No	No	No	No	No	No
15	3	27	1	0	No	No	No	No	No	No	No	No	No	No
16	3	27	1	0	No	No	No	No	No	No	No	No	No	No
17	3	15	1	0	No	No	No	No	No	No	No	No	No	No
18	3	8	1	0	No	No	No	No	No	No	No	No	No	No
19	3	8	1	0	No	No	No	No	No	No	No	No	No	No
20	3	3	1	0	No	No	No	No	No	No	No	No	No	No
21	3	2	1	0	No	No	No	No	No	No	No	No	No	No
22	3	2	1	0	No	No	No	No	No	No	No	No	No	No
23	3	2	1	0	No	No	No	No	No	No	No	No	No	No
24	3	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	75
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	425	487	111
2	408	468	107
3	400	458	104
4	340	390	89
5	323	370	84
6	289	331	75
7	268	307	70
8	255	292	67
9	204	234	53
10	191	219	50
11	191	219	50
12	183	209	48
13	166	190	43
14	153	175	40
15	153	175	40
16	149	170	39
17	85	97	22
18	47	54	12
19	43	49	11
20	17	19	4
21	13	15	3
22	13	15	3
23	9	10	2
24	9	10	2

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Version 5.00-00 Banning Industrial TIA Scenario 2: 2 E-PM

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	912	1	111	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
2	2	876	1	107	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
3	2	858	1	104	No	No	No	Yes	No	Yes	Yes	Yes	No	No
4	2	730	1	89	No	No	No	Yes	No	Yes	Yes	Yes	No	No
5	2	693	1	84	No	No	No	Yes	No	No	Yes	Yes	No	No
6	2	620	1	75	No	No	No	No	No	No	No	Yes	No	No
7	2	575	1	70	No	No	No	No	No	No	No	Yes	No	No
8	2	547	1	67	No	No	No	No	No	No	No	Yes	No	No
9	2	438	1	53	No	No	No	No	No	No	No	No	No	No
10	2	410	1	50	No	No	No	No	No	No	No	No	No	No
11	2	410	1	50	No	No	No	No	No	No	No	No	No	No
12	2	392	1	48	No	No	No	No	No	No	No	No	No	No
13	2	356	1	43	No	No	No	No	No	No	No	No	No	No
14	2	328	1	40	No	No	No	No	No	No	No	No	No	No
15	2	328	1	40	No	No	No	No	No	No	No	No	No	No
16	2	319	1	39	No	No	No	No	No	No	No	No	No	No
17	2	182	1	22	No	No	No	No	No	No	No	No	No	No
18	2	101	1	12	No	No	No	No	No	No	No	No	No	No
19	2	92	1	11	No	No	No	No	No	No	No	No	No	No
20	2	36	1	4	No	No	No	No	No	No	No	No	No	No
21	2	28	1	3	No	No	No	No	No	No	No	No	No	No
22	2	28	1	3	No	No	No	No	No	No	No	No	No	No
23	2	19	1	2	No	No	No	No	No	No	No	No	No	No
24	2	19	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	2	5	1	4	5	8	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	23.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:43
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	111
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1023
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	200	300	297
2	192	288	285
3	188	282	279
4	160	240	238
5	152	228	226
6	136	204	202
7	126	189	187
8	120	180	178
9	96	144	143
10	90	135	134
11	90	135	134
12	86	129	128
13	78	117	116
14	72	108	107
15	72	108	107
16	70	105	104
17	40	60	59
18	22	33	33
19	20	30	30
20	8	12	12
21	6	9	9
22	6	9	9
23	4	6	6
24	4	6	6

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	500	1	297	No	Yes	Yes	Yes	No	No	No	No	No	No
2	2	480	1	285	No	Yes	Yes	Yes	No	No	No	No	No	No
3	2	470	1	279	No	No	Yes	Yes	No	No	No	No	No	No
4	2	400	1	238	No	No	No	Yes	No	No	No	No	No	No
5	2	380	1	226	No	No	No	Yes	No	No	No	No	No	No
6	2	340	1	202	No	No	No	Yes	No	No	No	No	No	No
7	2	315	1	187	No	No	No	No	No	No	No	No	No	No
8	2	300	1	178	No	No	No	No	No	No	No	No	No	No
9	2	240	1	143	No	No	No	No	No	No	No	No	No	No
10	2	225	1	134	No	No	No	No	No	No	No	No	No	No
11	2	225	1	134	No	No	No	No	No	No	No	No	No	No
12	2	215	1	128	No	No	No	No	No	No	No	No	No	No
13	2	195	1	116	No	No	No	No	No	No	No	No	No	No
14	2	180	1	107	No	No	No	No	No	No	No	No	No	No
15	2	180	1	107	No	No	No	No	No	No	No	No	No	No
16	2	175	1	104	No	No	No	No	No	No	No	No	No	No
17	2	100	1	59	No	No	No	No	No	No	No	No	No	No
18	2	55	1	33	No	No	No	No	No	No	No	No	No	No
19	2	50	1	30	No	No	No	No	No	No	No	No	No	No
20	2	20	1	12	No	No	No	No	No	No	No	No	No	No
21	2	15	1	9	No	No	No	No	No	No	No	No	No	No
22	2	15	1	9	No	No	No	No	No	No	No	No	No	No
23	2	10	1	6	No	No	No	No	No	No	No	No	No	No
24	2	10	1	6	No	No	No	No	No	No	No	No	No	No
Hours Met					0	2	3	6	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	41.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	3:25
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	297
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	797
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	211	167	63	121
2	203	160	60	116
3	198	157	59	114
4	169	134	50	97
5	160	127	48	92
6	143	114	43	82
7	133	105	40	76
8	127	100	38	73
9	101	80	30	58
10	95	75	28	54
11	95	75	28	54
12	91	72	27	52
13	82	65	25	47
14	76	60	23	44
15	76	60	23	44
16	74	58	22	42
17	42	33	13	24
18	23	18	7	13
19	21	17	6	12
20	8	7	3	5
21	6	5	2	4
22	6	5	2	4
23	4	3	1	2
24	4	3	1	2

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	378	2	184	No	No	No	Yes	No	No	No	No	No	No
2	2	363	2	176	No	No	No	Yes	No	No	No	No	No	No
3	2	355	2	173	No	No	No	Yes	No	No	No	No	No	No
4	2	303	2	147	No	No	No	No	No	No	No	No	No	No
5	2	287	2	140	No	No	No	No	No	No	No	No	No	No
6	2	257	2	125	No	No	No	No	No	No	No	No	No	No
7	2	238	2	116	No	No	No	No	No	No	No	No	No	No
8	2	227	2	111	No	No	No	No	No	No	No	No	No	No
9	2	181	2	88	No	No	No	No	No	No	No	No	No	No
10	2	170	2	82	No	No	No	No	No	No	No	No	No	No
11	2	170	2	82	No	No	No	No	No	No	No	No	No	No
12	2	163	2	79	No	No	No	No	No	No	No	No	No	No
13	2	147	2	72	No	No	No	No	No	No	No	No	No	No
14	2	136	2	67	No	No	No	No	No	No	No	No	No	No
15	2	136	2	67	No	No	No	No	No	No	No	No	No	No
16	2	132	2	64	No	No	No	No	No	No	No	No	No	No
17	2	75	2	37	No	No	No	No	No	No	No	No	No	No
18	2	41	2	20	No	No	No	No	No	No	No	No	No	No
19	2	38	2	18	No	No	No	No	No	No	No	No	No	No
20	2	15	2	8	No	No	No	No	No	No	No	No	No	No
21	2	11	2	6	No	No	No	No	No	No	No	No	No	No
22	2	11	2	6	No	No	No	No	No	No	No	No	No	No
23	2	7	2	3	No	No	No	No	No	No	No	No	No	No
24	2	7	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	3	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.2	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:08	0:18
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	63	121
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	562	562
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	63	50	0
2	60	48	0
3	59	47	0
4	50	40	0
5	48	38	0
6	43	34	0
7	40	32	0
8	38	30	0
9	30	24	0
10	28	23	0
11	28	23	0
12	27	22	0
13	25	20	0
14	23	18	0
15	23	18	0
16	22	18	0
17	13	10	0
18	7	6	0
19	6	5	0
20	3	2	0
21	2	2	0
22	2	2	0
23	1	1	0
24	1	1	0

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	113	1	0	No	No	No	No	No	No	No	No	No	No
2	3	108	1	0	No	No	No	No	No	No	No	No	No	No
3	3	106	1	0	No	No	No	No	No	No	No	No	No	No
4	3	90	1	0	No	No	No	No	No	No	No	No	No	No
5	3	86	1	0	No	No	No	No	No	No	No	No	No	No
6	3	77	1	0	No	No	No	No	No	No	No	No	No	No
7	3	72	1	0	No	No	No	No	No	No	No	No	No	No
8	3	68	1	0	No	No	No	No	No	No	No	No	No	No
9	3	54	1	0	No	No	No	No	No	No	No	No	No	No
10	3	51	1	0	No	No	No	No	No	No	No	No	No	No
11	3	51	1	0	No	No	No	No	No	No	No	No	No	No
12	3	49	1	0	No	No	No	No	No	No	No	No	No	No
13	3	45	1	0	No	No	No	No	No	No	No	No	No	No
14	3	41	1	0	No	No	No	No	No	No	No	No	No	No
15	3	41	1	0	No	No	No	No	No	No	No	No	No	No
16	3	40	1	0	No	No	No	No	No	No	No	No	No	No
17	3	23	1	0	No	No	No	No	No	No	No	No	No	No
18	3	13	1	0	No	No	No	No	No	No	No	No	No	No
19	3	11	1	0	No	No	No	No	No	No	No	No	No	No
20	3	5	1	0	No	No	No	No	No	No	No	No	No	No
21	3	4	1	0	No	No	No	No	No	No	No	No	No	No
22	3	4	1	0	No	No	No	No	No	No	No	No	No	No
23	3	2	1	0	No	No	No	No	No	No	No	No	No	No
24	3	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.8
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	113
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	558	421	123
2	536	404	118
3	525	396	116
4	446	337	98
5	424	320	93
6	379	286	84
7	352	265	77
8	335	253	74
9	268	202	59
10	251	189	55
11	251	189	55
12	240	181	53
13	218	164	48
14	201	152	44
15	201	152	44
16	195	147	43
17	112	84	25
18	61	46	14
19	56	42	12
20	22	17	5
21	17	13	4
22	17	13	4
23	11	8	2
24	11	8	2

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	979	1	123	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
2	2	940	1	118	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
3	2	921	1	116	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
4	2	783	1	98	No	No	No	Yes	No	Yes	Yes	Yes	No	No
5	2	744	1	93	No	No	No	Yes	No	Yes	Yes	Yes	No	No
6	2	665	1	84	No	No	No	Yes	No	No	Yes	Yes	No	No
7	2	617	1	77	No	No	No	No	No	No	No	Yes	No	No
8	2	588	1	74	No	No	No	No	No	No	No	Yes	No	No
9	2	470	1	59	No	No	No	No	No	No	No	No	No	No
10	2	440	1	55	No	No	No	No	No	No	No	No	No	No
11	2	440	1	55	No	No	No	No	No	No	No	No	No	No
12	2	421	1	53	No	No	No	No	No	No	No	No	No	No
13	2	382	1	48	No	No	No	No	No	No	No	No	No	No
14	2	353	1	44	No	No	No	No	No	No	No	No	No	No
15	2	353	1	44	No	No	No	No	No	No	No	No	No	No
16	2	342	1	43	No	No	No	No	No	No	No	No	No	No
17	2	196	1	25	No	No	No	No	No	No	No	No	No	No
18	2	107	1	14	No	No	No	No	No	No	No	No	No	No
19	2	98	1	12	No	No	No	No	No	No	No	No	No	No
20	2	39	1	5	No	No	No	No	No	No	No	No	No	No
21	2	30	1	4	No	No	No	No	No	No	No	No	No	No
22	2	30	1	4	No	No	No	No	No	No	No	No	No	No
23	2	19	1	2	No	No	No	No	No	No	No	No	No	No
24	2	19	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	1	3	6	3	5	6	8	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	54.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:51
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	123
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1102
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	283	273	470
2	272	262	451
3	266	257	442
4	226	218	376
5	215	207	357
6	192	186	320
7	178	172	296
8	170	164	282
9	136	131	226
10	127	123	212
11	127	123	212
12	122	117	202
13	110	106	183
14	102	98	169
15	102	98	169
16	99	96	165
17	57	55	94
18	31	30	52
19	28	27	47
20	11	11	19
21	8	8	14
22	8	8	14
23	6	5	9
24	6	5	9

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	556	1	470	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
2	2	534	1	451	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
3	2	523	1	442	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
4	2	444	1	376	No	No	Yes	Yes	No	No	No	No	Yes	No
5	2	422	1	357	No	No	Yes	Yes	No	No	No	No	No	No
6	2	378	1	320	No	No	No	Yes	No	No	No	No	No	No
7	2	350	1	296	No	No	No	Yes	No	No	No	No	No	No
8	2	334	1	282	No	No	No	No	No	No	No	No	No	No
9	2	267	1	226	No	No	No	No	No	No	No	No	No	No
10	2	250	1	212	No	No	No	No	No	No	No	No	No	No
11	2	250	1	212	No	No	No	No	No	No	No	No	No	No
12	2	239	1	202	No	No	No	No	No	No	No	No	No	No
13	2	216	1	183	No	No	No	No	No	No	No	No	No	No
14	2	200	1	169	No	No	No	No	No	No	No	No	No	No
15	2	200	1	169	No	No	No	No	No	No	No	No	No	No
16	2	195	1	165	No	No	No	No	No	No	No	No	No	No
17	2	112	1	94	No	No	No	No	No	No	No	No	No	No
18	2	61	1	52	No	No	No	No	No	No	No	No	No	No
19	2	55	1	47	No	No	No	No	No	No	No	No	No	No
20	2	22	1	19	No	No	No	No	No	No	No	No	No	No
21	2	16	1	14	No	No	No	No	No	No	No	No	No	No
22	2	16	1	14	No	No	No	No	No	No	No	No	No	No
23	2	11	1	9	No	No	No	No	No	No	No	No	No	No
24	2	11	1	9	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	7	0	0	0	3	4	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	366.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	47:51
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	470
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1026
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	123	322	83	138
2	118	309	80	132
3	116	303	78	130
4	98	258	66	110
5	93	245	63	105
6	84	219	56	94
7	77	203	52	87
8	74	193	50	83
9	59	155	40	66
10	55	145	37	62
11	55	145	37	62
12	53	138	36	59
13	48	126	32	54
14	44	116	30	50
15	44	116	30	50
16	43	113	29	48
17	25	64	17	28
18	14	35	9	15
19	12	32	8	14
20	5	13	3	6
21	4	10	2	4
22	4	10	2	4
23	2	6	2	3
24	2	6	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	445	2	221	No	No	Yes	Yes	No	No	No	No	No	No
2	2	427	2	212	No	No	Yes	Yes	No	No	No	No	No	No
3	2	419	2	208	No	No	No	Yes	No	No	No	No	No	No
4	2	356	2	176	No	No	No	Yes	No	No	No	No	No	No
5	2	338	2	168	No	No	No	Yes	No	No	No	No	No	No
6	2	303	2	150	No	No	No	No	No	No	No	No	No	No
7	2	280	2	139	No	No	No	No	No	No	No	No	No	No
8	2	267	2	133	No	No	No	No	No	No	No	No	No	No
9	2	214	2	106	No	No	No	No	No	No	No	No	No	No
10	2	200	2	99	No	No	No	No	No	No	No	No	No	No
11	2	200	2	99	No	No	No	No	No	No	No	No	No	No
12	2	191	2	95	No	No	No	No	No	No	No	No	No	No
13	2	174	2	86	No	No	No	No	No	No	No	No	No	No
14	2	160	2	80	No	No	No	No	No	No	No	No	No	No
15	2	160	2	80	No	No	No	No	No	No	No	No	No	No
16	2	156	2	77	No	No	No	No	No	No	No	No	No	No
17	2	89	2	45	No	No	No	No	No	No	No	No	No	No
18	2	49	2	24	No	No	No	No	No	No	No	No	No	No
19	2	44	2	22	No	No	No	No	No	No	No	No	No	No
20	2	18	2	9	No	No	No	No	No	No	No	No	No	No
21	2	14	2	6	No	No	No	No	No	No	No	No	No	No
22	2	14	2	6	No	No	No	No	No	No	No	No	No	No
23	2	8	2	5	No	No	No	No	No	No	No	No	No	No
24	2	8	2	5	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	2	5	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.5	11.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:13	0:26
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	83	138
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	666	666
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	36	149	47
2	35	143	45
3	34	140	44
4	29	119	38
5	27	113	36
6	24	101	32
7	23	94	30
8	22	89	28
9	17	72	23
10	16	67	21
11	16	67	21
12	15	64	20
13	14	58	18
14	13	54	17
15	13	54	17
16	13	52	16
17	7	30	9
18	4	16	5
19	4	15	5
20	1	6	2
21	1	4	1
22	1	4	1
23	1	3	1
24	1	3	1

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	185	1	47	No	No	No	No	No	No	No	No	No	No
2	3	178	1	45	No	No	No	No	No	No	No	No	No	No
3	3	174	1	44	No	No	No	No	No	No	No	No	No	No
4	3	148	1	38	No	No	No	No	No	No	No	No	No	No
5	3	140	1	36	No	No	No	No	No	No	No	No	No	No
6	3	125	1	32	No	No	No	No	No	No	No	No	No	No
7	3	117	1	30	No	No	No	No	No	No	No	No	No	No
8	3	111	1	28	No	No	No	No	No	No	No	No	No	No
9	3	89	1	23	No	No	No	No	No	No	No	No	No	No
10	3	83	1	21	No	No	No	No	No	No	No	No	No	No
11	3	83	1	21	No	No	No	No	No	No	No	No	No	No
12	3	79	1	20	No	No	No	No	No	No	No	No	No	No
13	3	72	1	18	No	No	No	No	No	No	No	No	No	No
14	3	67	1	17	No	No	No	No	No	No	No	No	No	No
15	3	67	1	17	No	No	No	No	No	No	No	No	No	No
16	3	65	1	16	No	No	No	No	No	No	No	No	No	No
17	3	37	1	9	No	No	No	No	No	No	No	No	No	No
18	3	20	1	5	No	No	No	No	No	No	No	No	No	No
19	3	19	1	5	No	No	No	No	No	No	No	No	No	No
20	3	7	1	2	No	No	No	No	No	No	No	No	No	No
21	3	5	1	1	No	No	No	No	No	No	No	No	No	No
22	3	5	1	1	No	No	No	No	No	No	No	No	No	No
23	3	4	1	1	No	No	No	No	No	No	No	No	No	No
24	3	4	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	47
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	232
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	492	490	135
2	472	470	130
3	462	461	127
4	394	392	108
5	374	372	103
6	335	333	92
7	310	309	85
8	295	294	81
9	236	235	65
10	221	221	61
11	221	221	61
12	212	211	58
13	192	191	53
14	177	176	49
15	177	176	49
16	172	172	47
17	98	98	27
18	54	54	15
19	49	49	14
20	20	20	5
21	15	15	4
22	15	15	4
23	10	10	3
24	10	10	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	982	1	135	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
2	2	942	1	130	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
3	2	923	1	127	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
4	2	786	1	108	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
5	2	746	1	103	No	No	No	Yes	No	Yes	Yes	Yes	No	No
6	2	668	1	92	No	No	No	Yes	No	No	Yes	Yes	No	No
7	2	619	1	85	No	No	No	Yes	No	No	No	Yes	No	No
8	2	589	1	81	No	No	No	No	No	No	No	Yes	No	No
9	2	471	1	65	No	No	No	No	No	No	No	No	No	No
10	2	442	1	61	No	No	No	No	No	No	No	No	No	No
11	2	442	1	61	No	No	No	No	No	No	No	No	No	No
12	2	423	1	58	No	No	No	No	No	No	No	No	No	No
13	2	383	1	53	No	No	No	No	No	No	No	No	No	No
14	2	353	1	49	No	No	No	No	No	No	No	No	No	No
15	2	353	1	49	No	No	No	No	No	No	No	No	No	No
16	2	344	1	47	No	No	No	No	No	No	No	No	No	No
17	2	196	1	27	No	No	No	No	No	No	No	No	No	No
18	2	108	1	15	No	No	No	No	No	No	No	No	No	No
19	2	98	1	14	No	No	No	No	No	No	No	No	No	No
20	2	40	1	5	No	No	No	No	No	No	No	No	No	No
21	2	30	1	4	No	No	No	No	No	No	No	No	No	No
22	2	30	1	4	No	No	No	No	No	No	No	No	No	No
23	2	20	1	3	No	No	No	No	No	No	No	No	No	No
24	2	20	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	4	7	3	5	6	8	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	52.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:58
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	135
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1117
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	227	421	323
2	218	404	310
3	213	396	304
4	182	337	258
5	173	320	245
6	154	286	220
7	143	265	203
8	136	253	194
9	109	202	155
10	102	189	145
11	102	189	145
12	98	181	139
13	89	164	126
14	82	152	116
15	82	152	116
16	79	147	113
17	45	84	65
18	25	46	36
19	23	42	32
20	9	17	13
21	7	13	10
22	7	13	10
23	5	8	6
24	5	8	6

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	648	1	323	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
2	3	622	1	310	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No
3	3	609	1	304	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No
4	3	519	1	258	No	Yes	Yes	Yes	No	No	No	Yes	No	No
5	3	493	1	245	No	Yes	Yes	Yes	No	No	No	No	No	No
6	3	440	1	220	No	No	Yes	Yes	No	No	No	No	No	No
7	3	408	1	203	No	No	No	Yes	No	No	No	No	No	No
8	3	389	1	194	No	No	No	Yes	No	No	No	No	No	No
9	3	311	1	155	No	No	No	No	No	No	No	No	No	No
10	3	291	1	145	No	No	No	No	No	No	No	No	No	No
11	3	291	1	145	No	No	No	No	No	No	No	No	No	No
12	3	279	1	139	No	No	No	No	No	No	No	No	No	No
13	3	253	1	126	No	No	No	No	No	No	No	No	No	No
14	3	234	1	116	No	No	No	No	No	No	No	No	No	No
15	3	234	1	116	No	No	No	No	No	No	No	No	No	No
16	3	226	1	113	No	No	No	No	No	No	No	No	No	No
17	3	129	1	65	No	No	No	No	No	No	No	No	No	No
18	3	71	1	36	No	No	No	No	No	No	No	No	No	No
19	3	65	1	32	No	No	No	No	No	No	No	No	No	No
20	3	26	1	13	No	No	No	No	No	No	No	No	No	No
21	3	20	1	10	No	No	No	No	No	No	No	No	No	No
22	3	20	1	10	No	No	No	No	No	No	No	No	No	No
23	3	13	1	6	No	No	No	No	No	No	No	No	No	No
24	3	13	1	6	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	8	0	0	1	4	3	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	88.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	7:56
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	323
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	971
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	212	220	189	123
2	204	211	181	118
3	199	207	178	116
4	170	176	151	98
5	161	167	144	93
6	144	150	129	84
7	134	139	119	77
8	127	132	113	74
9	102	106	91	59
10	95	99	85	55
11	95	99	85	55
12	91	95	81	53
13	83	86	74	48
14	76	79	68	44
15	76	79	68	44
16	74	77	66	43
17	42	44	38	25
18	23	24	21	14
19	21	22	19	12
20	8	9	8	5
21	6	7	6	4
22	6	7	6	4
23	4	4	4	2
24	4	4	4	2

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	432	2	312	No	No	Yes	Yes	No	No	No	No	No	No
2	2	415	2	299	No	No	No	Yes	No	No	No	No	No	No
3	2	406	2	294	No	No	No	Yes	No	No	No	No	No	No
4	2	346	2	249	No	No	No	Yes	No	No	No	No	No	No
5	2	328	2	237	No	No	No	No	No	No	No	No	No	No
6	2	294	2	213	No	No	No	No	No	No	No	No	No	No
7	2	273	2	196	No	No	No	No	No	No	No	No	No	No
8	2	259	2	187	No	No	No	No	No	No	No	No	No	No
9	2	208	2	150	No	No	No	No	No	No	No	No	No	No
10	2	194	2	140	No	No	No	No	No	No	No	No	No	No
11	2	194	2	140	No	No	No	No	No	No	No	No	No	No
12	2	186	2	134	No	No	No	No	No	No	No	No	No	No
13	2	169	2	122	No	No	No	No	No	No	No	No	No	No
14	2	155	2	112	No	No	No	No	No	No	No	No	No	No
15	2	155	2	112	No	No	No	No	No	No	No	No	No	No
16	2	151	2	109	No	No	No	No	No	No	No	No	No	No
17	2	86	2	63	No	No	No	No	No	No	No	No	No	No
18	2	47	2	35	No	No	No	No	No	No	No	No	No	No
19	2	43	2	31	No	No	No	No	No	No	No	No	No	No
20	2	17	2	13	No	No	No	No	No	No	No	No	No	No
21	2	13	2	10	No	No	No	No	No	No	No	No	No	No
22	2	13	2	10	No	No	No	No	No	No	No	No	No	No
23	2	8	2	6	No	No	No	No	No	No	No	No	No	No
24	2	8	2	6	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	1	4	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.8	9.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:31	0:20
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	189	123
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	744	744
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	63	106	126
2	60	102	121
3	59	100	118
4	50	85	101
5	48	81	96
6	43	72	86
7	40	67	79
8	38	64	76
9	30	51	60
10	28	48	57
11	28	48	57
12	27	46	54
13	25	41	49
14	23	38	45
15	23	38	45
16	22	37	44
17	13	21	25
18	7	12	14
19	6	11	13
20	3	4	5
21	2	3	4
22	2	3	4
23	1	2	3
24	1	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	169	1	126	No	No	No	No	No	No	No	No	No	No
2	3	162	1	121	No	No	No	No	No	No	No	No	No	No
3	3	159	1	118	No	No	No	No	No	No	No	No	No	No
4	3	135	1	101	No	No	No	No	No	No	No	No	No	No
5	3	129	1	96	No	No	No	No	No	No	No	No	No	No
6	3	115	1	86	No	No	No	No	No	No	No	No	No	No
7	3	107	1	79	No	No	No	No	No	No	No	No	No	No
8	3	102	1	76	No	No	No	No	No	No	No	No	No	No
9	3	81	1	60	No	No	No	No	No	No	No	No	No	No
10	3	76	1	57	No	No	No	No	No	No	No	No	No	No
11	3	76	1	57	No	No	No	No	No	No	No	No	No	No
12	3	73	1	54	No	No	No	No	No	No	No	No	No	No
13	3	66	1	49	No	No	No	No	No	No	No	No	No	No
14	3	61	1	45	No	No	No	No	No	No	No	No	No	No
15	3	61	1	45	No	No	No	No	No	No	No	No	No	No
16	3	59	1	44	No	No	No	No	No	No	No	No	No	No
17	3	34	1	25	No	No	No	No	No	No	No	No	No	No
18	3	19	1	14	No	No	No	No	No	No	No	No	No	No
19	3	17	1	13	No	No	No	No	No	No	No	No	No	No
20	3	7	1	5	No	No	No	No	No	No	No	No	No	No
21	3	5	1	4	No	No	No	No	No	No	No	No	No	No
22	3	5	1	4	No	No	No	No	No	No	No	No	No	No
23	3	3	1	3	No	No	No	No	No	No	No	No	No	No
24	3	3	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	126
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	295
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	568	429	125
2	545	412	120
3	534	403	118
4	454	343	100
5	432	326	95
6	386	292	85
7	358	270	79
8	341	257	75
9	273	206	60
10	256	193	56
11	256	193	56
12	244	184	54
13	222	167	49
14	204	154	45
15	204	154	45
16	199	150	44
17	114	86	25
18	62	47	14
19	57	43	13
20	23	17	5
21	17	13	4
22	17	13	4
23	11	9	3
24	11	9	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	997	1	125	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
2	2	957	1	120	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
3	2	937	1	118	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
4	2	797	1	100	No	No	No	Yes	No	Yes	Yes	Yes	No	No
5	2	758	1	95	No	No	No	Yes	No	Yes	Yes	Yes	No	No
6	2	678	1	85	No	No	No	Yes	No	No	Yes	Yes	No	No
7	2	628	1	79	No	No	No	No	No	No	No	Yes	No	No
8	2	598	1	75	No	No	No	No	No	No	No	Yes	No	No
9	2	479	1	60	No	No	No	No	No	No	No	No	No	No
10	2	449	1	56	No	No	No	No	No	No	No	No	No	No
11	2	449	1	56	No	No	No	No	No	No	No	No	No	No
12	2	428	1	54	No	No	No	No	No	No	No	No	No	No
13	2	389	1	49	No	No	No	No	No	No	No	No	No	No
14	2	358	1	45	No	No	No	No	No	No	No	No	No	No
15	2	358	1	45	No	No	No	No	No	No	No	No	No	No
16	2	349	1	44	No	No	No	No	No	No	No	No	No	No
17	2	200	1	25	No	No	No	No	No	No	No	No	No	No
18	2	109	1	14	No	No	No	No	No	No	No	No	No	No
19	2	100	1	13	No	No	No	No	No	No	No	No	No	No
20	2	40	1	5	No	No	No	No	No	No	No	No	No	No
21	2	30	1	4	No	No	No	No	No	No	No	No	No	No
22	2	30	1	4	No	No	No	No	No	No	No	No	No	No
23	2	20	1	3	No	No	No	No	No	No	No	No	No	No
24	2	20	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	2	3	6	3	5	6	8	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	60.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	2:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	125
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1122
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	288	277	478
2	276	266	459
3	271	260	449
4	230	222	382
5	219	211	363
6	196	188	325
7	181	175	301
8	173	166	287
9	138	133	229
10	130	125	215
11	130	125	215
12	124	119	206
13	112	108	186
14	104	100	172
15	104	100	172
16	101	97	167
17	58	55	96
18	32	30	53
19	29	28	48
20	12	11	19
21	9	8	14
22	9	8	14
23	6	6	10
24	6	6	10

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	565	1	478	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
2	2	542	1	459	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
3	2	531	1	449	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
4	2	452	1	382	No	No	Yes	Yes	No	No	No	No	Yes	No
5	2	430	1	363	No	No	Yes	Yes	No	No	No	No	No	No
6	2	384	1	325	No	No	No	Yes	No	No	No	No	No	No
7	2	356	1	301	No	No	No	Yes	No	No	No	No	No	No
8	2	339	1	287	No	No	No	Yes	No	No	No	No	No	No
9	2	271	1	229	No	No	No	No	No	No	No	No	No	No
10	2	255	1	215	No	No	No	No	No	No	No	No	No	No
11	2	255	1	215	No	No	No	No	No	No	No	No	No	No
12	2	243	1	206	No	No	No	No	No	No	No	No	No	No
13	2	220	1	186	No	No	No	No	No	No	No	No	No	No
14	2	204	1	172	No	No	No	No	No	No	No	No	No	No
15	2	204	1	172	No	No	No	No	No	No	No	No	No	No
16	2	198	1	167	No	No	No	No	No	No	No	No	No	No
17	2	113	1	96	No	No	No	No	No	No	No	No	No	No
18	2	62	1	53	No	No	No	No	No	No	No	No	No	No
19	2	57	1	48	No	No	No	No	No	No	No	No	No	No
20	2	23	1	19	No	No	No	No	No	No	No	No	No	No
21	2	17	1	14	No	No	No	No	No	No	No	No	No	No
22	2	17	1	14	No	No	No	No	No	No	No	No	No	No
23	2	12	1	10	No	No	No	No	No	No	No	No	No	No
24	2	12	1	10	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	8	0	0	0	3	4	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	395.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	52:32
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	478
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1043
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	125	326	84	141
2	120	313	81	135
3	118	306	79	133
4	100	261	67	113
5	95	248	64	107
6	85	222	57	96
7	79	205	53	89
8	75	196	50	85
9	60	156	40	68
10	56	147	38	63
11	56	147	38	63
12	54	140	36	61
13	49	127	33	55
14	45	117	30	51
15	45	117	30	51
16	44	114	29	49
17	25	65	17	28
18	14	36	9	16
19	13	33	8	14
20	5	13	3	6
21	4	10	3	4
22	4	10	3	4
23	3	7	2	3
24	3	7	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	451	2	225	No	No	Yes	Yes	No	No	No	No	No	No
2	2	433	2	216	No	No	Yes	Yes	No	No	No	No	No	No
3	2	424	2	212	No	No	Yes	Yes	No	No	No	No	No	No
4	2	361	2	180	No	No	No	Yes	No	No	No	No	No	No
5	2	343	2	171	No	No	No	Yes	No	No	No	No	No	No
6	2	307	2	153	No	No	No	No	No	No	No	No	No	No
7	2	284	2	142	No	No	No	No	No	No	No	No	No	No
8	2	271	2	135	No	No	No	No	No	No	No	No	No	No
9	2	216	2	108	No	No	No	No	No	No	No	No	No	No
10	2	203	2	101	No	No	No	No	No	No	No	No	No	No
11	2	203	2	101	No	No	No	No	No	No	No	No	No	No
12	2	194	2	97	No	No	No	No	No	No	No	No	No	No
13	2	176	2	88	No	No	No	No	No	No	No	No	No	No
14	2	162	2	81	No	No	No	No	No	No	No	No	No	No
15	2	162	2	81	No	No	No	No	No	No	No	No	No	No
16	2	158	2	78	No	No	No	No	No	No	No	No	No	No
17	2	90	2	45	No	No	No	No	No	No	No	No	No	No
18	2	50	2	25	No	No	No	No	No	No	No	No	No	No
19	2	46	2	22	No	No	No	No	No	No	No	No	No	No
20	2	18	2	9	No	No	No	No	No	No	No	No	No	No
21	2	14	2	7	No	No	No	No	No	No	No	No	No	No
22	2	14	2	7	No	No	No	No	No	No	No	No	No	No
23	2	10	2	5	No	No	No	No	No	No	No	No	No	No
24	2	10	2	5	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	3	5	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.6	11.5
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:13	0:26
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	84	141
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	676	676
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	37	150	47
2	36	144	45
3	35	141	44
4	30	120	38
5	28	114	36
6	25	102	32
7	23	95	30
8	22	90	28
9	18	72	23
10	17	68	21
11	17	68	21
12	16	65	20
13	14	59	18
14	13	54	17
15	13	54	17
16	13	53	16
17	7	30	9
18	4	17	5
19	4	15	5
20	1	6	2
21	1	5	1
22	1	5	1
23	1	3	1
24	1	3	1

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	187	1	47	No	No	No	No	No	No	No	No	No	No
2	3	180	1	45	No	No	No	No	No	No	No	No	No	No
3	3	176	1	44	No	No	No	No	No	No	No	No	No	No
4	3	150	1	38	No	No	No	No	No	No	No	No	No	No
5	3	142	1	36	No	No	No	No	No	No	No	No	No	No
6	3	127	1	32	No	No	No	No	No	No	No	No	No	No
7	3	118	1	30	No	No	No	No	No	No	No	No	No	No
8	3	112	1	28	No	No	No	No	No	No	No	No	No	No
9	3	90	1	23	No	No	No	No	No	No	No	No	No	No
10	3	85	1	21	No	No	No	No	No	No	No	No	No	No
11	3	85	1	21	No	No	No	No	No	No	No	No	No	No
12	3	81	1	20	No	No	No	No	No	No	No	No	No	No
13	3	73	1	18	No	No	No	No	No	No	No	No	No	No
14	3	67	1	17	No	No	No	No	No	No	No	No	No	No
15	3	67	1	17	No	No	No	No	No	No	No	No	No	No
16	3	66	1	16	No	No	No	No	No	No	No	No	No	No
17	3	37	1	9	No	No	No	No	No	No	No	No	No	No
18	3	21	1	5	No	No	No	No	No	No	No	No	No	No
19	3	19	1	5	No	No	No	No	No	No	No	No	No	No
20	3	7	1	2	No	No	No	No	No	No	No	No	No	No
21	3	6	1	1	No	No	No	No	No	No	No	No	No	No
22	3	6	1	1	No	No	No	No	No	No	No	No	No	No
23	3	4	1	1	No	No	No	No	No	No	No	No	No	No
24	3	4	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	47
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	234
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	501	500	137
2	481	480	132
3	471	470	129
4	401	400	110
5	381	380	104
6	341	340	93
7	316	315	86
8	301	300	82
9	240	240	66
10	225	225	62
11	225	225	62
12	215	215	59
13	195	195	53
14	180	180	49
15	180	180	49
16	175	175	48
17	100	100	27
18	55	55	15
19	50	50	14
20	20	20	5
21	15	15	4
22	15	15	4
23	10	10	3
24	10	10	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1001	1	137	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
2	2	961	1	132	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
3	2	941	1	129	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
4	2	801	1	110	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
5	2	761	1	104	No	No	No	Yes	No	Yes	Yes	Yes	No	No
6	2	681	1	93	No	No	No	Yes	No	No	Yes	Yes	No	No
7	2	631	1	86	No	No	No	Yes	No	No	Yes	Yes	No	No
8	2	601	1	82	No	No	No	No	No	No	No	Yes	No	No
9	2	480	1	66	No	No	No	No	No	No	No	No	No	No
10	2	450	1	62	No	No	No	No	No	No	No	No	No	No
11	2	450	1	62	No	No	No	No	No	No	No	No	No	No
12	2	430	1	59	No	No	No	No	No	No	No	No	No	No
13	2	390	1	53	No	No	No	No	No	No	No	No	No	No
14	2	360	1	49	No	No	No	No	No	No	No	No	No	No
15	2	360	1	49	No	No	No	No	No	No	No	No	No	No
16	2	350	1	48	No	No	No	No	No	No	No	No	No	No
17	2	200	1	27	No	No	No	No	No	No	No	No	No	No
18	2	110	1	15	No	No	No	No	No	No	No	No	No	No
19	2	100	1	14	No	No	No	No	No	No	No	No	No	No
20	2	40	1	5	No	No	No	No	No	No	No	No	No	No
21	2	30	1	4	No	No	No	No	No	No	No	No	No	No
22	2	30	1	4	No	No	No	No	No	No	No	No	No	No
23	2	20	1	3	No	No	No	No	No	No	No	No	No	No
24	2	20	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	4	7	3	5	7	8	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	58.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	2:13
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	137
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1138
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	231	427	329
2	222	410	316
3	217	401	309
4	185	342	263
5	176	325	250
6	157	290	224
7	146	269	207
8	139	256	197
9	111	205	158
10	104	192	148
11	104	192	148
12	99	184	141
13	90	167	128
14	83	154	118
15	83	154	118
16	81	149	115
17	46	85	66
18	25	47	36
19	23	43	33
20	9	17	13
21	7	13	10
22	7	13	10
23	5	9	7
24	5	9	7

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	658	1	329	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
2	2	632	1	316	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
3	2	618	1	309	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No
4	2	527	1	263	No	Yes	Yes	Yes	No	No	No	Yes	No	No
5	2	501	1	250	No	Yes	Yes	Yes	No	No	No	No	No	No
6	2	447	1	224	No	No	Yes	Yes	No	No	No	No	No	No
7	2	415	1	207	No	No	No	Yes	No	No	No	No	No	No
8	2	395	1	197	No	No	No	Yes	No	No	No	No	No	No
9	2	316	1	158	No	No	No	No	No	No	No	No	No	No
10	2	296	1	148	No	No	No	No	No	No	No	No	No	No
11	2	296	1	148	No	No	No	No	No	No	No	No	No	No
12	2	283	1	141	No	No	No	No	No	No	No	No	No	No
13	2	257	1	128	No	No	No	No	No	No	No	No	No	No
14	2	237	1	118	No	No	No	No	No	No	No	No	No	No
15	2	237	1	118	No	No	No	No	No	No	No	No	No	No
16	2	230	1	115	No	No	No	No	No	No	No	No	No	No
17	2	131	1	66	No	No	No	No	No	No	No	No	No	No
18	2	72	1	36	No	No	No	No	No	No	No	No	No	No
19	2	66	1	33	No	No	No	No	No	No	No	No	No	No
20	2	26	1	13	No	No	No	No	No	No	No	No	No	No
21	2	20	1	10	No	No	No	No	No	No	No	No	No	No
22	2	20	1	10	No	No	No	No	No	No	No	No	No	No
23	2	14	1	7	No	No	No	No	No	No	No	No	No	No
24	2	14	1	7	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	8	0	0	2	4	3	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	104.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	9:34
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	329
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	987
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	217	224	190	125
2	208	215	182	120
3	204	211	179	118
4	174	179	152	100
5	165	170	144	95
6	148	152	129	85
7	137	141	120	79
8	130	134	114	75
9	104	108	91	60
10	98	101	86	56
11	98	101	86	56
12	93	96	82	54
13	85	87	74	49
14	78	81	68	45
15	78	81	68	45
16	76	78	67	44
17	43	45	38	25
18	24	25	21	14
19	22	22	19	13
20	9	9	8	5
21	7	7	6	4
22	7	7	6	4
23	4	4	4	3
24	4	4	4	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	441	2	315	No	No	Yes	Yes	No	No	No	No	No	No
2	2	423	2	302	No	No	Yes	Yes	No	No	No	No	No	No
3	2	415	2	297	No	No	No	Yes	No	No	No	No	No	No
4	2	353	2	252	No	No	No	Yes	No	No	No	No	No	No
5	2	335	2	239	No	No	No	No	No	No	No	No	No	No
6	2	300	2	214	No	No	No	No	No	No	No	No	No	No
7	2	278	2	199	No	No	No	No	No	No	No	No	No	No
8	2	264	2	189	No	No	No	No	No	No	No	No	No	No
9	2	212	2	151	No	No	No	No	No	No	No	No	No	No
10	2	199	2	142	No	No	No	No	No	No	No	No	No	No
11	2	199	2	142	No	No	No	No	No	No	No	No	No	No
12	2	189	2	136	No	No	No	No	No	No	No	No	No	No
13	2	172	2	123	No	No	No	No	No	No	No	No	No	No
14	2	159	2	113	No	No	No	No	No	No	No	No	No	No
15	2	159	2	113	No	No	No	No	No	No	No	No	No	No
16	2	154	2	111	No	No	No	No	No	No	No	No	No	No
17	2	88	2	63	No	No	No	No	No	No	No	No	No	No
18	2	49	2	35	No	No	No	No	No	No	No	No	No	No
19	2	44	2	32	No	No	No	No	No	No	No	No	No	No
20	2	18	2	13	No	No	No	No	No	No	No	No	No	No
21	2	14	2	10	No	No	No	No	No	No	No	No	No	No
22	2	14	2	10	No	No	No	No	No	No	No	No	No	No
23	2	8	2	7	No	No	No	No	No	No	No	No	No	No
24	2	8	2	7	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	2	4	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.9	9.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:31	0:20
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	190	125
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	756	756
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	64	107	126
2	61	103	121
3	60	101	118
4	51	86	101
5	49	81	96
6	44	73	86
7	40	67	79
8	38	64	76
9	31	51	60
10	29	48	57
11	29	48	57
12	28	46	54
13	25	42	49
14	23	39	45
15	23	39	45
16	22	37	44
17	13	21	25
18	7	12	14
19	6	11	13
20	3	4	5
21	2	3	4
22	2	3	4
23	1	2	3
24	1	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	171	1	126	No	No	No	No	No	No	No	No	No	No
2	3	164	1	121	No	No	No	No	No	No	No	No	No	No
3	3	161	1	118	No	No	No	No	No	No	No	No	No	No
4	3	137	1	101	No	No	No	No	No	No	No	No	No	No
5	3	130	1	96	No	No	No	No	No	No	No	No	No	No
6	3	117	1	86	No	No	No	No	No	No	No	No	No	No
7	3	107	1	79	No	No	No	No	No	No	No	No	No	No
8	3	102	1	76	No	No	No	No	No	No	No	No	No	No
9	3	82	1	60	No	No	No	No	No	No	No	No	No	No
10	3	77	1	57	No	No	No	No	No	No	No	No	No	No
11	3	77	1	57	No	No	No	No	No	No	No	No	No	No
12	3	74	1	54	No	No	No	No	No	No	No	No	No	No
13	3	67	1	49	No	No	No	No	No	No	No	No	No	No
14	3	62	1	45	No	No	No	No	No	No	No	No	No	No
15	3	62	1	45	No	No	No	No	No	No	No	No	No	No
16	3	59	1	44	No	No	No	No	No	No	No	No	No	No
17	3	34	1	25	No	No	No	No	No	No	No	No	No	No
18	3	19	1	14	No	No	No	No	No	No	No	No	No	No
19	3	17	1	13	No	No	No	No	No	No	No	No	No	No
20	3	7	1	5	No	No	No	No	No	No	No	No	No	No
21	3	5	1	4	No	No	No	No	No	No	No	No	No	No
22	3	5	1	4	No	No	No	No	No	No	No	No	No	No
23	3	3	1	3	No	No	No	No	No	No	No	No	No	No
24	3	3	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	126
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	297
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	604	486	159
2	580	467	153
3	568	457	149
4	483	389	127
5	459	369	121
6	411	330	108
7	381	306	100
8	362	292	95
9	290	233	76
10	272	219	72
11	272	219	72
12	260	209	68
13	236	190	62
14	217	175	57
15	217	175	57
16	211	170	56
17	121	97	32
18	66	53	17
19	60	49	16
20	24	19	6
21	18	15	5
22	18	15	5
23	12	10	3
24	12	10	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1090	1	159	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	2	1047	1	153	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	2	1025	1	149	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	2	872	1	127	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
5	2	828	1	121	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
6	2	741	1	108	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No
7	2	687	1	100	No	No	No	Yes	No	No	Yes	Yes	No	No
8	2	654	1	95	No	No	No	Yes	No	No	Yes	Yes	No	No
9	2	523	1	76	No	No	No	No	No	No	No	Yes	No	No
10	2	491	1	72	No	No	No	No	No	No	No	No	No	No
11	2	491	1	72	No	No	No	No	No	No	No	No	No	No
12	2	469	1	68	No	No	No	No	No	No	No	No	No	No
13	2	426	1	62	No	No	No	No	No	No	No	No	No	No
14	2	392	1	57	No	No	No	No	No	No	No	No	No	No
15	2	392	1	57	No	No	No	No	No	No	No	No	No	No
16	2	381	1	56	No	No	No	No	No	No	No	No	No	No
17	2	218	1	32	No	No	No	No	No	No	No	No	No	No
18	2	119	1	17	No	No	No	No	No	No	No	No	No	No
19	2	109	1	16	No	No	No	No	No	No	No	No	No	No
20	2	43	1	6	No	No	No	No	No	No	No	No	No	No
21	2	33	1	5	No	No	No	No	No	No	No	No	No	No
22	2	33	1	5	No	No	No	No	No	No	No	No	No	No
23	2	22	1	3	No	No	No	No	No	No	No	No	No	No
24	2	22	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					2	5	6	8	3	6	8	9	3	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	134.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	5:55
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	159
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1249
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	333	312	506
2	320	300	486
3	313	293	476
4	266	250	405
5	253	237	385
6	226	212	344
7	210	197	319
8	200	187	304
9	160	150	243
10	150	140	228
11	150	140	228
12	143	134	218
13	130	122	197
14	120	112	182
15	120	112	182
16	117	109	177
17	67	62	101
18	37	34	56
19	33	31	51
20	13	12	20
21	10	9	15
22	10	9	15
23	7	6	10
24	7	6	10

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	645	1	506	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
2	2	620	1	486	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
3	2	606	1	476	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
4	2	516	1	405	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
5	2	490	1	385	No	Yes	Yes	Yes	No	No	No	No	Yes	No
6	2	438	1	344	No	No	Yes	Yes	No	No	No	No	No	No
7	2	407	1	319	No	No	No	Yes	No	No	No	No	No	No
8	2	387	1	304	No	No	No	Yes	No	No	No	No	No	No
9	2	310	1	243	No	No	No	No	No	No	No	No	No	No
10	2	290	1	228	No	No	No	No	No	No	No	No	No	No
11	2	290	1	228	No	No	No	No	No	No	No	No	No	No
12	2	277	1	218	No	No	No	No	No	No	No	No	No	No
13	2	252	1	197	No	No	No	No	No	No	No	No	No	No
14	2	232	1	182	No	No	No	No	No	No	No	No	No	No
15	2	232	1	182	No	No	No	No	No	No	No	No	No	No
16	2	226	1	177	No	No	No	No	No	No	No	No	No	No
17	2	129	1	101	No	No	No	No	No	No	No	No	No	No
18	2	71	1	56	No	No	No	No	No	No	No	No	No	No
19	2	64	1	51	No	No	No	No	No	No	No	No	No	No
20	2	25	1	20	No	No	No	No	No	No	No	No	No	No
21	2	19	1	15	No	No	No	No	No	No	No	No	No	No
22	2	19	1	15	No	No	No	No	No	No	No	No	No	No
23	2	13	1	10	No	No	No	No	No	No	No	No	No	No
24	2	13	1	10	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	8	0	0	1	4	5	3

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	640.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	90:01
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	506
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1151
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	143	352	84	158
2	137	338	81	152
3	134	331	79	149
4	114	282	67	126
5	109	268	64	120
6	97	239	57	107
7	90	222	53	100
8	86	211	50	95
9	69	169	40	76
10	64	158	38	71
11	64	158	38	71
12	61	151	36	68
13	56	137	33	62
14	51	127	30	57
15	51	127	30	57
16	50	123	29	55
17	29	70	17	32
18	16	39	9	17
19	14	35	8	16
20	6	14	3	6
21	4	11	3	5
22	4	11	3	5
23	3	7	2	3
24	3	7	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	495	2	242	No	Yes	Yes	Yes	No	No	No	No	No	No
2	2	475	2	233	No	No	Yes	Yes	No	No	No	No	No	No
3	2	465	2	228	No	No	Yes	Yes	No	No	No	No	No	No
4	2	396	2	193	No	No	No	Yes	No	No	No	No	No	No
5	2	377	2	184	No	No	No	Yes	No	No	No	No	No	No
6	2	336	2	164	No	No	No	Yes	No	No	No	No	No	No
7	2	312	2	153	No	No	No	No	No	No	No	No	No	No
8	2	297	2	145	No	No	No	No	No	No	No	No	No	No
9	2	238	2	116	No	No	No	No	No	No	No	No	No	No
10	2	222	2	109	No	No	No	No	No	No	No	No	No	No
11	2	222	2	109	No	No	No	No	No	No	No	No	No	No
12	2	212	2	104	No	No	No	No	No	No	No	No	No	No
13	2	193	2	95	No	No	No	No	No	No	No	No	No	No
14	2	178	2	87	No	No	No	No	No	No	No	No	No	No
15	2	178	2	87	No	No	No	No	No	No	No	No	No	No
16	2	173	2	84	No	No	No	No	No	No	No	No	No	No
17	2	99	2	49	No	No	No	No	No	No	No	No	No	No
18	2	55	2	26	No	No	No	No	No	No	No	No	No	No
19	2	49	2	24	No	No	No	No	No	No	No	No	No	No
20	2	20	2	9	No	No	No	No	No	No	No	No	No	No
21	2	15	2	8	No	No	No	No	No	No	No	No	No	No
22	2	15	2	8	No	No	No	No	No	No	No	No	No	No
23	2	10	2	5	No	No	No	No	No	No	No	No	No	No
24	2	10	2	5	No	No	No	No	No	No	No	No	No	No
Hours Met					0	1	3	6	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.1	12.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:14	0:33
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	84	158
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	737	737
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	37	150	47
2	36	144	45
3	35	141	44
4	30	120	38
5	28	114	36
6	25	102	32
7	23	95	30
8	22	90	28
9	18	72	23
10	17	68	21
11	17	68	21
12	16	65	20
13	14	59	18
14	13	54	17
15	13	54	17
16	13	53	16
17	7	30	9
18	4	17	5
19	4	15	5
20	1	6	2
21	1	5	1
22	1	5	1
23	1	3	1
24	1	3	1

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	187	1	47	No	No	No	No	No	No	No	No	No	No
2	3	180	1	45	No	No	No	No	No	No	No	No	No	No
3	3	176	1	44	No	No	No	No	No	No	No	No	No	No
4	3	150	1	38	No	No	No	No	No	No	No	No	No	No
5	3	142	1	36	No	No	No	No	No	No	No	No	No	No
6	3	127	1	32	No	No	No	No	No	No	No	No	No	No
7	3	118	1	30	No	No	No	No	No	No	No	No	No	No
8	3	112	1	28	No	No	No	No	No	No	No	No	No	No
9	3	90	1	23	No	No	No	No	No	No	No	No	No	No
10	3	85	1	21	No	No	No	No	No	No	No	No	No	No
11	3	85	1	21	No	No	No	No	No	No	No	No	No	No
12	3	81	1	20	No	No	No	No	No	No	No	No	No	No
13	3	73	1	18	No	No	No	No	No	No	No	No	No	No
14	3	67	1	17	No	No	No	No	No	No	No	No	No	No
15	3	67	1	17	No	No	No	No	No	No	No	No	No	No
16	3	66	1	16	No	No	No	No	No	No	No	No	No	No
17	3	37	1	9	No	No	No	No	No	No	No	No	No	No
18	3	21	1	5	No	No	No	No	No	No	No	No	No	No
19	3	19	1	5	No	No	No	No	No	No	No	No	No	No
20	3	7	1	2	No	No	No	No	No	No	No	No	No	No
21	3	6	1	1	No	No	No	No	No	No	No	No	No	No
22	3	6	1	1	No	No	No	No	No	No	No	No	No	No
23	3	4	1	1	No	No	No	No	No	No	No	No	No	No
24	3	4	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	47
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	234
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	564	554	179
2	541	532	172
3	530	521	168
4	451	443	143
5	429	421	136
6	384	377	122
7	355	349	113
8	338	332	107
9	271	266	86
10	254	249	81
11	254	249	81
12	243	238	77
13	220	216	70
14	203	199	64
15	203	199	64
16	197	194	63
17	113	111	36
18	62	61	20
19	56	55	18
20	23	22	7
21	17	17	5
22	17	17	5
23	11	11	4
24	11	11	4

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1118	1	179	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
2	2	1073	1	172	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	2	1051	1	168	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	2	894	1	143	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
5	2	850	1	136	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
6	2	761	1	122	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
7	2	704	1	113	No	No	Yes	Yes	No	No	Yes	Yes	No	No
8	2	670	1	107	No	No	Yes	Yes	No	No	Yes	Yes	No	No
9	2	537	1	86	No	No	No	Yes	No	No	No	Yes	No	No
10	2	503	1	81	No	No	No	No	No	No	No	No	No	No
11	2	503	1	81	No	No	No	No	No	No	No	No	No	No
12	2	481	1	77	No	No	No	No	No	No	No	No	No	No
13	2	436	1	70	No	No	No	No	No	No	No	No	No	No
14	2	402	1	64	No	No	No	No	No	No	No	No	No	No
15	2	402	1	64	No	No	No	No	No	No	No	No	No	No
16	2	391	1	63	No	No	No	No	No	No	No	No	No	No
17	2	224	1	36	No	No	No	No	No	No	No	No	No	No
18	2	123	1	20	No	No	No	No	No	No	No	No	No	No
19	2	111	1	18	No	No	No	No	No	No	No	No	No	No
20	2	45	1	7	No	No	No	No	No	No	No	No	No	No
21	2	34	1	5	No	No	No	No	No	No	No	No	No	No
22	2	34	1	5	No	No	No	No	No	No	No	No	No	No
23	2	22	1	4	No	No	No	No	No	No	No	No	No	No
24	2	22	1	4	No	No	No	No	No	No	No	No	No	No
Hours Met					3	6	8	9	3	6	8	9	3	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	180.9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	8:59
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	179
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1297
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	268	460	391
2	257	442	375
3	252	432	368
4	214	368	313
5	204	350	297
6	182	313	266
7	169	290	246
8	161	276	235
9	129	221	188
10	121	207	176
11	121	207	176
12	115	198	168
13	105	179	152
14	96	166	141
15	96	166	141
16	94	161	137
17	54	92	78
18	29	51	43
19	27	46	39
20	11	18	16
21	8	14	12
22	8	14	12
23	5	9	8
24	5	9	8

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	728	1	391	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
2	2	699	1	375	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
3	2	684	1	368	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
4	2	582	1	313	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
5	2	554	1	297	No	Yes	Yes	Yes	No	No	No	Yes	No	No
6	2	495	1	266	No	Yes	Yes	Yes	No	No	No	No	No	No
7	2	459	1	246	No	No	Yes	Yes	No	No	No	No	No	No
8	2	437	1	235	No	No	Yes	Yes	No	No	No	No	No	No
9	2	350	1	188	No	No	No	Yes	No	No	No	No	No	No
10	2	328	1	176	No	No	No	No	No	No	No	No	No	No
11	2	328	1	176	No	No	No	No	No	No	No	No	No	No
12	2	313	1	168	No	No	No	No	No	No	No	No	No	No
13	2	284	1	152	No	No	No	No	No	No	No	No	No	No
14	2	262	1	141	No	No	No	No	No	No	No	No	No	No
15	2	262	1	141	No	No	No	No	No	No	No	No	No	No
16	2	255	1	137	No	No	No	No	No	No	No	No	No	No
17	2	146	1	78	No	No	No	No	No	No	No	No	No	No
18	2	80	1	43	No	No	No	No	No	No	No	No	No	No
19	2	73	1	39	No	No	No	No	No	No	No	No	No	No
20	2	29	1	16	No	No	No	No	No	No	No	No	No	No
21	2	22	1	12	No	No	No	No	No	No	No	No	No	No
22	2	22	1	12	No	No	No	No	No	No	No	No	No	No
23	2	14	1	8	No	No	No	No	No	No	No	No	No	No
24	2	14	1	8	No	No	No	No	No	No	No	No	No	No
Hours Met					3	6	8	9	0	1	3	5	4	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	258
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	28:01
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	391
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1119
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	237	266	190	138
2	228	255	182	132
3	223	250	179	130
4	190	213	152	110
5	180	202	144	105
6	161	181	129	94
7	149	168	120	87
8	142	160	114	83
9	114	128	91	66
10	107	120	86	62
11	107	120	86	62
12	102	114	82	59
13	92	104	74	54
14	85	96	68	50
15	85	96	68	50
16	83	93	67	48
17	47	53	38	28
18	26	29	21	15
19	24	27	19	14
20	9	11	8	6
21	7	8	6	4
22	7	8	6	4
23	5	5	4	3
24	5	5	4	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	503	2	328	No	Yes	Yes	Yes	No	No	No	No	No	No
2	2	483	2	314	No	Yes	Yes	Yes	No	No	No	No	No	No
3	2	473	2	309	No	No	Yes	Yes	No	No	No	No	No	No
4	2	403	2	262	No	No	No	Yes	No	No	No	No	No	No
5	2	382	2	249	No	No	No	Yes	No	No	No	No	No	No
6	2	342	2	223	No	No	No	Yes	No	No	No	No	No	No
7	2	317	2	207	No	No	No	No	No	No	No	No	No	No
8	2	302	2	197	No	No	No	No	No	No	No	No	No	No
9	2	242	2	157	No	No	No	No	No	No	No	No	No	No
10	2	227	2	148	No	No	No	No	No	No	No	No	No	No
11	2	227	2	148	No	No	No	No	No	No	No	No	No	No
12	2	216	2	141	No	No	No	No	No	No	No	No	No	No
13	2	196	2	128	No	No	No	No	No	No	No	No	No	No
14	2	181	2	118	No	No	No	No	No	No	No	No	No	No
15	2	181	2	118	No	No	No	No	No	No	No	No	No	No
16	2	176	2	115	No	No	No	No	No	No	No	No	No	No
17	2	100	2	66	No	No	No	No	No	No	No	No	No	No
18	2	55	2	36	No	No	No	No	No	No	No	No	No	No
19	2	51	2	33	No	No	No	No	No	No	No	No	No	No
20	2	20	2	14	No	No	No	No	No	No	No	No	No	No
21	2	15	2	10	No	No	No	No	No	No	No	No	No	No
22	2	15	2	10	No	No	No	No	No	No	No	No	No	No
23	2	10	2	7	No	No	No	No	No	No	No	No	No	No
24	2	10	2	7	No	No	No	No	No	No	No	No	No	No
Hours Met					0	2	3	6	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.5	10.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:33	0:24
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	190	138
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	831	831
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	64	107	126
2	61	103	121
3	60	101	118
4	51	86	101
5	49	81	96
6	44	73	86
7	40	67	79
8	38	64	76
9	31	51	60
10	29	48	57
11	29	48	57
12	28	46	54
13	25	42	49
14	23	39	45
15	23	39	45
16	22	37	44
17	13	21	25
18	7	12	14
19	6	11	13
20	3	4	5
21	2	3	4
22	2	3	4
23	1	2	3
24	1	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	171	1	126	No	No	No	No	No	No	No	No	No	No
2	3	164	1	121	No	No	No	No	No	No	No	No	No	No
3	3	161	1	118	No	No	No	No	No	No	No	No	No	No
4	3	137	1	101	No	No	No	No	No	No	No	No	No	No
5	3	130	1	96	No	No	No	No	No	No	No	No	No	No
6	3	117	1	86	No	No	No	No	No	No	No	No	No	No
7	3	107	1	79	No	No	No	No	No	No	No	No	No	No
8	3	102	1	76	No	No	No	No	No	No	No	No	No	No
9	3	82	1	60	No	No	No	No	No	No	No	No	No	No
10	3	77	1	57	No	No	No	No	No	No	No	No	No	No
11	3	77	1	57	No	No	No	No	No	No	No	No	No	No
12	3	74	1	54	No	No	No	No	No	No	No	No	No	No
13	3	67	1	49	No	No	No	No	No	No	No	No	No	No
14	3	62	1	45	No	No	No	No	No	No	No	No	No	No
15	3	62	1	45	No	No	No	No	No	No	No	No	No	No
16	3	59	1	44	No	No	No	No	No	No	No	No	No	No
17	3	34	1	25	No	No	No	No	No	No	No	No	No	No
18	3	19	1	14	No	No	No	No	No	No	No	No	No	No
19	3	17	1	13	No	No	No	No	No	No	No	No	No	No
20	3	7	1	5	No	No	No	No	No	No	No	No	No	No
21	3	5	1	4	No	No	No	No	No	No	No	No	No	No
22	3	5	1	4	No	No	No	No	No	No	No	No	No	No
23	3	3	1	3	No	No	No	No	No	No	No	No	No	No
24	3	3	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	126
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	297
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	80%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	716	598	200
2	687	574	192
3	673	562	188
4	573	478	160
5	544	454	152
6	487	407	136
7	451	377	126
8	430	359	120
9	344	287	96
10	322	269	90
11	322	269	90
12	308	257	86
13	279	233	78
14	258	215	72
15	258	215	72
16	251	209	70
17	143	120	40
18	79	66	22
19	72	60	20
20	29	24	8
21	21	18	6
22	21	18	6
23	14	12	4
24	14	12	4

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1314	1	200	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	1261	1	192	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
3	2	1235	1	188	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
4	2	1051	1	160	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	2	998	1	152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	2	894	1	136	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
7	2	828	1	126	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
8	2	789	1	120	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
9	2	631	1	96	No	No	No	Yes	No	No	Yes	Yes	No	No
10	2	591	1	90	No	No	No	Yes	No	No	No	Yes	No	No
11	2	591	1	90	No	No	No	Yes	No	No	No	Yes	No	No
12	2	565	1	86	No	No	No	Yes	No	No	No	Yes	No	No
13	2	512	1	78	No	No	No	No	No	No	No	Yes	No	No
14	2	473	1	72	No	No	No	No	No	No	No	No	No	No
15	2	473	1	72	No	No	No	No	No	No	No	No	No	No
16	2	460	1	70	No	No	No	No	No	No	No	No	No	No
17	2	263	1	40	No	No	No	No	No	No	No	No	No	No
18	2	145	1	22	No	No	No	No	No	No	No	No	No	No
19	2	132	1	20	No	No	No	No	No	No	No	No	No	No
20	2	53	1	8	No	No	No	No	No	No	No	No	No	No
21	2	39	1	6	No	No	No	No	No	No	No	No	No	No
22	2	39	1	6	No	No	No	No	No	No	No	No	No	No
23	2	26	1	4	No	No	No	No	No	No	No	No	No	No
24	2	26	1	4	No	No	No	No	No	No	No	No	No	No
Hours Met					5	8	8	12	5	8	9	13	5	1

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	310.8
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	17:15
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	200
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1514
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	422	408	595
2	405	392	571
3	397	384	559
4	338	326	476
5	321	310	452
6	287	277	405
7	266	257	375
8	253	245	357
9	203	196	286
10	190	184	268
11	190	184	268
12	181	175	256
13	165	159	232
14	152	147	214
15	152	147	214
16	148	143	208
17	84	82	119
18	46	45	65
19	42	41	60
20	17	16	24
21	13	12	18
22	13	12	18
23	8	8	12
24	8	8	12

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	830	1	595	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
2	2	797	1	571	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
3	2	781	1	559	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
4	2	664	1	476	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
5	2	631	1	452	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
6	2	564	1	405	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
7	2	523	1	375	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
8	2	498	1	357	No	Yes	Yes	Yes	No	No	No	No	Yes	No
9	2	399	1	286	No	No	No	Yes	No	No	No	No	No	No
10	2	374	1	268	No	No	No	Yes	No	No	No	No	No	No
11	2	374	1	268	No	No	No	Yes	No	No	No	No	No	No
12	2	356	1	256	No	No	No	Yes	No	No	No	No	No	No
13	2	324	1	232	No	No	No	No	No	No	No	No	No	No
14	2	299	1	214	No	No	No	No	No	No	No	No	No	No
15	2	299	1	214	No	No	No	No	No	No	No	No	No	No
16	2	291	1	208	No	No	No	No	No	No	No	No	No	No
17	2	166	1	119	No	No	No	No	No	No	No	No	No	No
18	2	91	1	65	No	No	No	No	No	No	No	No	No	No
19	2	83	1	60	No	No	No	No	No	No	No	No	No	No
20	2	33	1	24	No	No	No	No	No	No	No	No	No	No
21	2	25	1	18	No	No	No	No	No	No	No	No	No	No
22	2	25	1	18	No	No	No	No	No	No	No	No	No	No
23	2	16	1	12	No	No	No	No	No	No	No	No	No	No
24	2	16	1	12	No	No	No	No	No	No	No	No	No	No
Hours Met					5	8	8	12	0	3	5	7	8	5

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	793.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	131:09
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	595
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1425
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	193	414	92	209
2	185	397	88	201
3	181	389	86	196
4	154	331	74	167
5	147	315	70	159
6	131	282	63	142
7	122	261	58	132
8	116	248	55	125
9	93	199	44	100
10	87	186	41	94
11	87	186	41	94
12	83	178	40	90
13	75	161	36	82
14	69	149	33	75
15	69	149	33	75
16	68	145	32	73
17	39	83	18	42
18	21	46	10	23
19	19	41	9	21
20	8	17	4	8
21	6	12	3	6
22	6	12	3	6
23	4	8	2	4
24	4	8	2	4

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	607	2	301	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
2	2	582	2	289	No	Yes	Yes	Yes	No	No	No	Yes	No	No
3	2	570	2	282	No	Yes	Yes	Yes	No	No	No	Yes	No	No
4	2	485	2	241	No	Yes	Yes	Yes	No	No	No	No	No	No
5	2	462	2	229	No	No	Yes	Yes	No	No	No	No	No	No
6	2	413	2	205	No	No	No	Yes	No	No	No	No	No	No
7	2	383	2	190	No	No	No	Yes	No	No	No	No	No	No
8	2	364	2	180	No	No	No	Yes	No	No	No	No	No	No
9	2	292	2	144	No	No	No	No	No	No	No	No	No	No
10	2	273	2	135	No	No	No	No	No	No	No	No	No	No
11	2	273	2	135	No	No	No	No	No	No	No	No	No	No
12	2	261	2	130	No	No	No	No	No	No	No	No	No	No
13	2	236	2	118	No	No	No	No	No	No	No	No	No	No
14	2	218	2	108	No	No	No	No	No	No	No	No	No	No
15	2	218	2	108	No	No	No	No	No	No	No	No	No	No
16	2	213	2	105	No	No	No	No	No	No	No	No	No	No
17	2	122	2	60	No	No	No	No	No	No	No	No	No	No
18	2	67	2	33	No	No	No	No	No	No	No	No	No	No
19	2	60	2	30	No	No	No	No	No	No	No	No	No	No
20	2	25	2	12	No	No	No	No	No	No	No	No	No	No
21	2	18	2	9	No	No	No	No	No	No	No	No	No	No
22	2	18	2	9	No	No	No	No	No	No	No	No	No	No
23	2	12	2	6	No	No	No	No	No	No	No	No	No	No
24	2	12	2	6	No	No	No	No	No	No	No	No	No	No
Hours Met					1	4	5	8	0	0	0	3	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.6	12.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:14	0:42
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	92	209
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	908	908
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	44	158	47
2	42	152	45
3	41	149	44
4	35	126	38
5	33	120	36
6	30	107	32
7	28	100	30
8	26	95	28
9	21	76	23
10	20	71	21
11	20	71	21
12	19	68	20
13	17	62	18
14	16	57	17
15	16	57	17
16	15	55	16
17	9	32	9
18	5	17	5
19	4	16	5
20	2	6	2
21	1	5	1
22	1	5	1
23	1	3	1
24	1	3	1

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	202	1	47	No	No	No	No	No	No	No	No	No	No
2	3	194	1	45	No	No	No	No	No	No	No	No	No	No
3	3	190	1	44	No	No	No	No	No	No	No	No	No	No
4	3	161	1	38	No	No	No	No	No	No	No	No	No	No
5	3	153	1	36	No	No	No	No	No	No	No	No	No	No
6	3	137	1	32	No	No	No	No	No	No	No	No	No	No
7	3	128	1	30	No	No	No	No	No	No	No	No	No	No
8	3	121	1	28	No	No	No	No	No	No	No	No	No	No
9	3	97	1	23	No	No	No	No	No	No	No	No	No	No
10	3	91	1	21	No	No	No	No	No	No	No	No	No	No
11	3	91	1	21	No	No	No	No	No	No	No	No	No	No
12	3	87	1	20	No	No	No	No	No	No	No	No	No	No
13	3	79	1	18	No	No	No	No	No	No	No	No	No	No
14	3	73	1	17	No	No	No	No	No	No	No	No	No	No
15	3	73	1	17	No	No	No	No	No	No	No	No	No	No
16	3	70	1	16	No	No	No	No	No	No	No	No	No	No
17	3	41	1	9	No	No	No	No	No	No	No	No	No	No
18	3	22	1	5	No	No	No	No	No	No	No	No	No	No
19	3	20	1	5	No	No	No	No	No	No	No	No	No	No
20	3	8	1	2	No	No	No	No	No	No	No	No	No	No
21	3	6	1	1	No	No	No	No	No	No	No	No	No	No
22	3	6	1	1	No	No	No	No	No	No	No	No	No	No
23	3	4	1	1	No	No	No	No	No	No	No	No	No	No
24	3	4	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	47
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	249
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Signal Warrants Report For Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	E
1	653	674	284
2	627	647	273
3	614	634	267
4	522	539	227
5	496	512	216
6	444	458	193
7	411	425	179
8	392	404	170
9	313	324	136
10	294	303	128
11	294	303	128
12	281	290	122
13	255	263	111
14	235	243	102
15	235	243	102
16	229	236	99
17	131	135	57
18	72	74	31
19	65	67	28
20	26	27	11
21	20	20	9
22	20	20	9
23	13	13	6
24	13	13	6

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1327	1	284	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	1274	1	273	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	1248	1	267	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2	1061	1	227	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	2	1008	1	216	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	2	902	1	193	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
7	2	836	1	179	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
8	2	796	1	170	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
9	2	637	1	136	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
10	2	597	1	128	No	Yes	Yes	Yes	No	No	No	Yes	No	No
11	2	597	1	128	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	2	571	1	122	No	Yes	Yes	Yes	No	No	No	Yes	No	No
13	2	518	1	111	No	No	Yes	Yes	No	No	No	Yes	No	No
14	2	478	1	102	No	No	No	Yes	No	No	No	No	No	No
15	2	478	1	102	No	No	No	Yes	No	No	No	No	No	No
16	2	465	1	99	No	No	No	Yes	No	No	No	No	No	No
17	2	266	1	57	No	No	No	No	No	No	No	No	No	No
18	2	146	1	31	No	No	No	No	No	No	No	No	No	No
19	2	132	1	28	No	No	No	No	No	No	No	No	No	No
20	2	53	1	11	No	No	No	No	No	No	No	No	No	No
21	2	40	1	9	No	No	No	No	No	No	No	No	No	No
22	2	40	1	9	No	No	No	No	No	No	No	No	No	No
23	2	26	1	6	No	No	No	No	No	No	No	No	No	No
24	2	26	1	6	No	No	No	No	No	No	No	No	No	No
Hours Met					8	12	13	16	6	8	9	13	6	3

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	748.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	59:01
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	284
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1611
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	382	558	453
2	367	536	435
3	359	525	426
4	306	446	362
5	290	424	344
6	260	379	308
7	241	352	285
8	229	335	272
9	183	268	217
10	172	251	204
11	172	251	204
12	164	240	195
13	149	218	177
14	138	201	163
15	138	201	163
16	134	195	159
17	76	112	91
18	42	61	50
19	38	56	45
20	15	22	18
21	11	17	14
22	11	17	14
23	8	11	9
24	8	11	9

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	940	1	453	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	903	1	435	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	884	1	426	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
4	2	752	1	362	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
5	2	714	1	344	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
6	2	639	1	308	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
7	2	593	1	285	No	Yes	Yes	Yes	No	No	No	Yes	No	No
8	2	564	1	272	No	Yes	Yes	Yes	No	No	No	Yes	No	No
9	2	451	1	217	No	No	Yes	Yes	No	No	No	No	No	No
10	2	423	1	204	No	No	Yes	Yes	No	No	No	No	No	No
11	2	423	1	204	No	No	Yes	Yes	No	No	No	No	No	No
12	2	404	1	195	No	No	No	Yes	No	No	No	No	No	No
13	2	367	1	177	No	No	No	Yes	No	No	No	No	No	No
14	2	339	1	163	No	No	No	Yes	No	No	No	No	No	No
15	2	339	1	163	No	No	No	Yes	No	No	No	No	No	No
16	2	329	1	159	No	No	No	No	No	No	No	No	No	No
17	2	188	1	91	No	No	No	No	No	No	No	No	No	No
18	2	103	1	50	No	No	No	No	No	No	No	No	No	No
19	2	94	1	45	No	No	No	No	No	No	No	No	No	No
20	2	37	1	18	No	No	No	No	No	No	No	No	No	No
21	2	28	1	14	No	No	No	No	No	No	No	No	No	No
22	2	28	1	14	No	No	No	No	No	No	No	No	No	No
23	2	19	1	9	No	No	No	No	No	No	No	No	No	No
24	2	19	1	9	No	No	No	No	No	No	No	No	No	No
Hours Met					6	8	11	15	2	4	6	8	6	3

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	631
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	79:24
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	453
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1393
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

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Signal Warrants Report For Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	298	354	203	182
2	286	340	195	175
3	280	333	191	171
4	238	283	162	146
5	226	269	154	138
6	203	241	138	124
7	188	223	128	115
8	179	212	122	109
9	143	170	97	87
10	134	159	91	82
11	134	159	91	82
12	128	152	87	78
13	116	138	79	71
14	107	127	73	66
15	107	127	73	66
16	104	124	71	64
17	60	71	41	36
18	33	39	22	20
19	30	35	20	18
20	12	14	8	7
21	9	11	6	5
22	9	11	6	5
23	6	7	4	4
24	6	7	4	4

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	652	2	385	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
2	2	626	2	370	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
3	2	613	2	362	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
4	2	521	2	308	No	Yes	Yes	Yes	No	No	No	Yes	No	No
5	2	495	2	292	No	Yes	Yes	Yes	No	No	No	No	No	No
6	2	444	2	262	No	No	Yes	Yes	No	No	No	No	No	No
7	2	411	2	243	No	No	No	Yes	No	No	No	No	No	No
8	2	391	2	231	No	No	No	Yes	No	No	No	No	No	No
9	2	313	2	184	No	No	No	No	No	No	No	No	No	No
10	2	293	2	173	No	No	No	No	No	No	No	No	No	No
11	2	293	2	173	No	No	No	No	No	No	No	No	No	No
12	2	280	2	165	No	No	No	No	No	No	No	No	No	No
13	2	254	2	150	No	No	No	No	No	No	No	No	No	No
14	2	234	2	139	No	No	No	No	No	No	No	No	No	No
15	2	234	2	139	No	No	No	No	No	No	No	No	No	No
16	2	228	2	135	No	No	No	No	No	No	No	No	No	No
17	2	131	2	77	No	No	No	No	No	No	No	No	No	No
18	2	72	2	42	No	No	No	No	No	No	No	No	No	No
19	2	65	2	38	No	No	No	No	No	No	No	No	No	No
20	2	26	2	15	No	No	No	No	No	No	No	No	No	No
21	2	20	2	11	No	No	No	No	No	No	No	No	No	No
22	2	20	2	11	No	No	No	No	No	No	No	No	No	No
23	2	13	2	8	No	No	No	No	No	No	No	No	No	No
24	2	13	2	8	No	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	8	0	0	1	4	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.4	13
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:41	0:39
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	203	182
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1037	1037
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

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Signal Warrants Report For Intersection 5: John Street (NS) / Lincoln Street (EW)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	77	118	126
2	74	113	121
3	72	111	118
4	62	94	101
5	59	90	96
6	52	80	86
7	49	74	79
8	46	71	76
9	37	57	60
10	35	53	57
11	35	53	57
12	33	51	54
13	30	46	49
14	28	42	45
15	28	42	45
16	27	41	44
17	15	24	25
18	8	13	14
19	8	12	13
20	3	5	5
21	2	4	4
22	2	4	4
23	2	2	3
24	2	2	3

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Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	195	1	126	No	No	No	No	No	No	No	No	No	No
2	3	187	1	121	No	No	No	No	No	No	No	No	No	No
3	3	183	1	118	No	No	No	No	No	No	No	No	No	No
4	3	156	1	101	No	No	No	No	No	No	No	No	No	No
5	3	149	1	96	No	No	No	No	No	No	No	No	No	No
6	3	132	1	86	No	No	No	No	No	No	No	No	No	No
7	3	123	1	79	No	No	No	No	No	No	No	No	No	No
8	3	117	1	76	No	No	No	No	No	No	No	No	No	No
9	3	94	1	60	No	No	No	No	No	No	No	No	No	No
10	3	88	1	57	No	No	No	No	No	No	No	No	No	No
11	3	88	1	57	No	No	No	No	No	No	No	No	No	No
12	3	84	1	54	No	No	No	No	No	No	No	No	No	No
13	3	76	1	49	No	No	No	No	No	No	No	No	No	No
14	3	70	1	45	No	No	No	No	No	No	No	No	No	No
15	3	70	1	45	No	No	No	No	No	No	No	No	No	No
16	3	68	1	44	No	No	No	No	No	No	No	No	No	No
17	3	39	1	25	No	No	No	No	No	No	No	No	No	No
18	3	21	1	14	No	No	No	No	No	No	No	No	No	No
19	3	20	1	13	No	No	No	No	No	No	No	No	No	No
20	3	8	1	5	No	No	No	No	No	No	No	No	No	No
21	3	6	1	4	No	No	No	No	No	No	No	No	No	No
22	3	6	1	4	No	No	No	No	No	No	No	No	No	No
23	3	4	1	3	No	No	No	No	No	No	No	No	No	No
24	3	4	1	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	126
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	321
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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APPENDIX E

Existing (2017)
Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.286

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	123	220	161	26	235	21	32	49	64	93	59	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	220	161	26	235	21	32	49	64	93	59	23
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	62	45	7	66	6	9	14	18	26	17	6
Total Analysis Volume [veh/h]	138	247	181	29	264	24	36	55	72	104	66	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	66	0	0	66	0	13	22	0	27	36	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	62	62	62	62	62	9	18	18	23	32	32
g / C, Green / Cycle	0.54	0.54	0.54	0.54	0.54	0.08	0.16	0.16	0.20	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.12	0.13	0.11	0.03	0.15	0.02	0.03	0.04	0.06	0.03	0.02
s, saturation flow rate [veh/h]	1108	1900	1615	1151	1872	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	548	1024	871	584	1010	142	297	253	362	529	449
d1, Uniform Delay [s]	20.75	14.04	13.75	17.66	14.43	49.84	42.13	42.82	39.04	31.03	30.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.10	0.56	0.54	0.16	0.71	4.28	1.37	2.81	1.99	0.49	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.24	0.21	0.05	0.29	0.25	0.18	0.28	0.29	0.12	0.06
d, Delay for Lane Group [s/veh]	21.85	14.60	14.30	17.82	15.14	54.12	43.50	45.63	41.04	31.52	30.69
Lane Group LOS	C	B	B	B	B	D	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.54	3.52	2.54	0.46	4.23	1.14	1.48	2.01	2.70	1.45	0.56
50th-Percentile Queue Length [ft]	63.58	87.99	63.60	11.51	105.70	28.60	36.89	50.26	67.55	36.26	14.09
95th-Percentile Queue Length [veh]	4.58	6.34	4.58	0.83	7.60	2.06	2.66	3.62	4.86	2.61	1.01
95th-Percentile Queue Length [ft]	114.44	158.38	114.49	20.71	190.01	51.47	66.41	90.48	121.59	65.27	25.37

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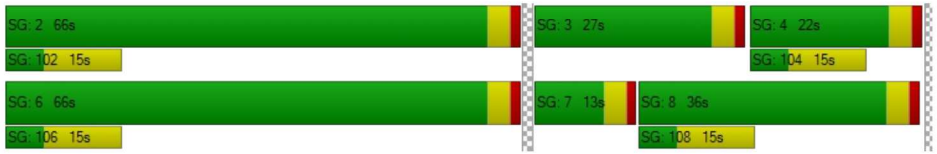
Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.85	14.60	14.30	17.82	15.14	15.14	54.12	43.50	45.63	41.04	31.52	30.69
Movement LOS	C	B	B	B	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	16.27			15.39			46.79			36.46		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	23.23											
Intersection LOS	C											
Intersection V/C	0.286											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	32.7
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	138	0	0	57	66	0	0	0	11	0	12
Total Analysis Volume [veh/h]	78	553	0	0	227	263	0	0	0	44	1	46
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.01	0.09
d_M, Delay for Movement [s/veh]	8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.68	32.75	17.97
Movement LOS	A	A			A	A				D	D	C
95th-Percentile Queue Length [veh]	3.91	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39
95th-Percentile Queue Length [ft]	97.78	97.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.71	34.71	34.71
d_A, Approach Delay [s/veh]	1.06			0.00			0.00			24.28		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	2.37											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	214.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	55	19	25	49	0	111	3	21	0	0	0
Total Analysis Volume [veh/h]	0	220	74	101	196	0	446	10	82	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.25	0.03	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.06	0.00	0.00	214.06	214.64	208.19	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.90	0.90	0.00	26.17	26.17	26.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	22.52	22.52	0.00	654.15	654.15	654.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.74			213.18			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	102.31											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	12	110	0	20	105	92	87	19	28	0	7	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	110	0	20	105	92	87	19	28	0	7	29
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	39	0	7	37	32	31	7	10	0	2	10
Total Analysis Volume [veh/h]	17	155	0	28	148	130	123	27	39	0	10	41
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	730	796	704	742
Degree of Utilization, x	0.24	0.38	0.27	0.07

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.91	1.82	1.08	0.22
95th-Percentile Queue Length [ft]	22.81	45.51	27.08	5.52
Approach Delay [s/veh]	9.44	10.32	9.98	8.21
Approach LOS	A	B	A	A
Intersection Delay [s/veh]	9.87			
Intersection LOS	A			

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Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.350

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	183	84	29	236	34	35	70	100	121	83	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	183	84	29	236	34	35	70	100	121	83	50
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	53	24	8	68	10	10	20	29	35	24	14
Total Analysis Volume [veh/h]	76	211	97	33	272	39	40	81	115	139	96	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	61	0	0	61	0	13	29	0	30	46	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	57	57	57	9	25	25	26	42	42
g / C, Green / Cycle	0.48	0.48	0.48	0.48	0.48	0.08	0.21	0.21	0.22	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.07	0.11	0.06	0.03	0.17	0.02	0.04	0.07	0.08	0.05	0.04
s, saturation flow rate [veh/h]	1085	1900	1615	1189	1859	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	443	903	767	527	883	136	396	336	392	665	565
d1, Uniform Delay [s]	27.02	18.60	17.59	22.76	19.86	52.50	39.28	40.49	39.88	26.70	26.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.84	0.61	0.34	0.23	1.10	5.45	1.17	2.75	2.50	0.46	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.23	0.13	0.06	0.35	0.29	0.20	0.34	0.35	0.14	0.10
d, Delay for Lane Group [s/veh]	27.86	19.21	17.93	22.98	20.96	57.95	40.44	43.24	42.38	27.16	26.66
Lane Group LOS	C	B	B	C	C	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.63	3.62	1.58	0.62	5.73	1.35	2.12	3.17	3.77	1.98	1.19
50th-Percentile Queue Length [ft]	40.76	90.54	39.52	15.56	143.24	33.72	52.92	79.19	94.24	49.58	29.68
95th-Percentile Queue Length [veh]	2.93	6.52	2.85	1.12	9.66	2.43	3.81	5.70	6.79	3.57	2.14
95th-Percentile Queue Length [ft]	73.37	162.97	71.13	28.01	241.38	60.69	95.26	142.54	169.63	89.25	53.42

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.86	19.21	17.93	22.98	20.96	20.96	57.95	40.44	43.24	42.38	27.16	26.66
Movement LOS	C	B	B	C	C	C	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	20.60			21.16			44.77			34.28		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.48											
Intersection LOS	C											
Intersection V/C	0.350											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	35.1
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	86	0	0	41	98	0	0	0	13	2	17
Total Analysis Volume [veh/h]	143	342	0	0	162	394	0	0	0	51	7	68
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.04	0.10
d_M, Delay for Movement [s/veh]	9.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.49	35.12	17.43
Movement LOS	A	A			A	A				D	E	C
95th-Percentile Queue Length [veh]	2.60	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	1.84	1.84
95th-Percentile Queue Length [ft]	64.91	64.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	46.05	46.05
d_A, Approach Delay [s/veh]	2.68			0.00			0.00			23.70		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	3.67											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	43.2
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	17	24	33	0	66	2	16	0	0	0
Total Analysis Volume [veh/h]	0	273	70	95	134	0	265	9	65	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	0.72	0.03	0.07	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.18	0.00	0.00	42.64	43.20	36.83	0.00	0.00	0.00
Movement LOS		A	A	A	A		E	E	E			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.68	0.68	0.00	7.38	7.38	7.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	17.11	17.11	0.00	184.54	184.54	184.54	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.39			41.54			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	16.31											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.306

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	32	178	1	29	76	62	63	20	38	0	22	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	178	1	29	76	62	63	20	38	0	22	41
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	50	0	8	21	17	18	6	11	0	6	11
Total Analysis Volume [veh/h]	36	199	1	32	85	69	70	22	43	0	25	46
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	771	796	734	765
Degree of Utilization, x	0.31	0.23	0.18	0.09

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.30	0.90	0.67	0.31
95th-Percentile Queue Length [ft]	32.46	22.60	16.76	7.64
Approach Delay [s/veh]	9.72	8.90	9.01	8.18
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.15			
Intersection LOS	A			

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Existing plus Project (2017)
Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.289

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	123	220	161	26	235	21	32	49	64	93	59	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	2	0	0	5	0	0	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	222	161	26	240	21	32	49	66	93	59	23
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	62	45	7	67	6	9	14	19	26	17	6
Total Analysis Volume [veh/h]	139	249	181	29	270	24	36	55	74	104	66	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	69	0	0	69	0	13	23	0	28	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65	65	65	9	19	19	24	34	34
g / C, Green / Cycle	0.54	0.54	0.54	0.54	0.54	0.08	0.16	0.16	0.20	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.11	0.03	0.16	0.02	0.03	0.05	0.06	0.03	0.02
s, saturation flow rate [veh/h]	1102	1900	1615	1149	1873	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	545	1029	875	584	1015	136	301	256	362	538	458
d1, Uniform Delay [s]	21.56	14.51	14.20	18.22	14.95	52.38	43.77	44.55	40.74	31.93	31.32
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.13	0.56	0.54	0.16	0.72	4.72	1.33	2.84	1.99	0.47	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.24	0.21	0.05	0.29	0.27	0.18	0.29	0.29	0.12	0.06
d, Delay for Lane Group [s/veh]	22.69	15.06	14.73	18.39	15.67	57.10	45.11	47.39	42.73	32.39	31.56
Lane Group LOS	C	B	B	B	B	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.68	3.71	2.66	0.48	4.53	1.20	1.54	2.15	2.82	1.51	0.59
50th-Percentile Queue Length [ft]	67.07	92.77	66.42	12.00	113.14	30.11	38.43	53.85	70.61	37.65	14.63
95th-Percentile Queue Length [veh]	4.83	6.68	4.78	0.86	8.01	2.17	2.77	3.88	5.08	2.71	1.05
95th-Percentile Queue Length [ft]	120.73	166.98	119.55	21.60	200.36	54.21	69.17	96.93	127.11	67.77	26.33

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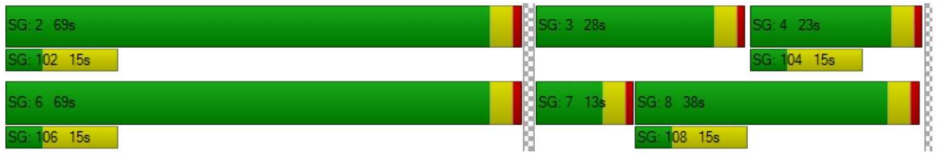
Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.69	15.06	14.73	18.39	15.67	15.67	57.10	45.11	47.39	42.73	32.39	31.56
Movement LOS	C	B	B	B	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	16.82			15.92			48.75			37.77		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	24.07											
Intersection LOS	C											
Intersection V/C	0.289											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	61.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	470	0	0	199	222	0	0	0	83	1	39
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	139	0	0	59	66	0	0	0	25	0	12
Total Analysis Volume [veh/h]	104	557	0	0	236	263	0	0	0	98	1	46
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.01	0.09
d_M, Delay for Movement [s/veh]	8.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.37	61.67	43.93
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	4.41	4.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	4.42	4.42
95th-Percentile Queue Length [ft]	110.23	110.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	110.50	110.50	110.50
d_A, Approach Delay [s/veh]	1.37			0.00			0.00			54.49		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	6.75											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	369.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	196	77	78	205	0	346	8	116	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	63	25	25	66	0	111	3	37	0	0	0
Total Analysis Volume [veh/h]	0	253	100	101	264	0	446	10	149	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.50	0.04	0.19	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.23	0.00	0.00	368.47	369.10	360.95	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.27	1.27	0.00	37.90	37.90	37.90	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	31.75	31.75	0.00	947.47	947.47	947.47	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.28			366.63			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	168.29											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.629

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	12	110	0	20	105	92	87	19	28	0	7	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	105	0	0	0	4	0	1	1	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	110	1	125	105	92	87	23	28	1	8	74
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	39	0	44	37	32	31	8	10	0	3	26
Total Analysis Volume [veh/h]	17	155	1	176	148	130	123	32	39	1	11	104
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	655	722	626	668
Degree of Utilization, x	0.26	0.63	0.31	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.06	4.48	1.32	0.62
95th-Percentile Queue Length [ft]	26.44	112.02	32.91	15.62
Approach Delay [s/veh]	10.45	16.04	11.32	9.52
Approach LOS	B	C	B	A
Intersection Delay [s/veh]	13.22			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	39	36	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	110	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	47	110	39	36	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	30	11	10	0
Total Analysis Volume [veh/h]	0	51	120	42	39	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.93	8.65	7.46	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.15	0.25	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.87	3.87	6.14	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.65		5.53		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.30					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.352

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	183	84	29	236	34	35	70	100	121	83	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	5	0	0	2	0	0	0	1	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	188	84	29	238	34	35	70	101	121	83	50
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	54	24	8	68	10	10	20	29	35	24	14
Total Analysis Volume [veh/h]	78	216	97	33	274	39	40	81	116	139	96	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	61	0	0	61	0	13	29	0	30	46	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	57	57	57	9	25	25	26	42	42
g / C, Green / Cycle	0.48	0.48	0.48	0.48	0.48	0.08	0.21	0.21	0.22	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.07	0.11	0.06	0.03	0.17	0.02	0.04	0.07	0.08	0.05	0.04
s, saturation flow rate [veh/h]	1083	1900	1615	1184	1859	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	441	903	767	523	883	136	396	336	392	665	565
d1, Uniform Delay [s]	27.14	18.66	17.59	22.89	19.89	52.50	39.28	40.51	39.88	26.70	26.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	0.63	0.34	0.23	1.11	5.45	1.17	2.79	2.50	0.46	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.24	0.13	0.06	0.35	0.29	0.20	0.34	0.35	0.14	0.10
d, Delay for Lane Group [s/veh]	28.02	19.29	17.93	23.12	21.00	57.95	40.44	43.30	42.38	27.16	26.66
Lane Group LOS	C	B	B	C	C	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.68	3.72	1.58	0.62	5.77	1.35	2.12	3.20	3.77	1.98	1.19
50th-Percentile Queue Length [ft]	42.00	92.97	39.52	15.62	144.36	33.72	52.92	79.95	94.24	49.58	29.68
95th-Percentile Queue Length [veh]	3.02	6.69	2.85	1.12	9.72	2.43	3.81	5.76	6.79	3.57	2.14
95th-Percentile Queue Length [ft]	75.60	167.35	71.13	28.12	242.88	60.69	95.26	143.92	169.63	89.25	53.42

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.02	19.29	17.93	23.12	21.00	21.00	57.95	40.44	43.30	42.38	27.16	26.66
Movement LOS	C	B	B	C	C	C	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	20.69			21.20			44.80			34.28		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.48											
Intersection LOS	C											
Intersection V/C	0.352											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	67.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	307	0	0	145	345	0	0	0	69	6	60
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	88	0	0	41	98	0	0	0	20	2	17
Total Analysis Volume [veh/h]	211	350	0	0	166	394	0	0	0	79	7	68
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-00 Banning Industrial TIA Scenario 4: 4 EP-PM

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.06	0.10
d_M, Delay for Movement [s/veh]	9.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.10	67.42	41.47
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	3.45	3.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.54	4.54	4.54
95th-Percentile Queue Length [ft]	86.26	86.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	113.52	113.52	113.52
d_A, Approach Delay [s/veh]	3.55			0.00			0.00			52.72		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	7.93											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	91.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	306	115	83	144	0	232	8	83	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	87	33	24	41	0	66	2	24	0	0	0
Total Analysis Volume [veh/h]	0	349	131	95	164	0	265	9	95	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-00 Banning Industrial TIA Scenario 4: 4 EP-PM

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.89	0.03	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.61	0.00	0.00	90.62	91.48	82.67	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.28	0.00	0.00	12.33	12.33	12.33	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	7.12	0.00	0.00	308.16	308.16	308.16	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.16			88.60			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	30.24											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	32	178	1	29	76	62	63	20	38	0	22	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	53	0	0	0	2	0	1	4	121
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	178	2	82	76	62	63	22	38	1	26	162
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	50	1	23	21	17	18	6	11	0	7	45
Total Analysis Volume [veh/h]	36	199	2	92	85	69	70	25	43	1	29	181
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	690	706	664	736
Degree of Utilization, x	0.34	0.35	0.21	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.53	1.56	0.78	1.18
95th-Percentile Queue Length [ft]	38.25	39.01	19.46	29.62
Approach Delay [s/veh]	10.93	10.79	9.84	9.85
Approach LOS	B	B	A	A
Intersection Delay [s/veh]	10.44			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	50	63	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	56	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	126	56	50	63	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	34	15	14	17	0
Total Analysis Volume [veh/h]	0	137	61	54	68	0
Pedestrian Volume [ped/h]	0		0		0	

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Version 5.00-00 Banning Industrial TIA Scenario 4: 4 EP-PM

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.57	9.17	7.42	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.47	0.47	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	11.84	11.84	3.08	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.17		3.94		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.34					
Intersection LOS	B					

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Existing plus Project (2017)
with Improvements
Level of Service Calculations

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	470	0	0	199	222	0	0	0	83	1	39
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	139	0	0	59	66	0	0	0	25	0	12
Total Analysis Volume [veh/h]	104	557	0	0	236	263	0	0	0	98	1	46
Pedestrian Volume [ped/h]	0			0			0			0		

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Version 5.00-03 Banning Industrial TIA Scenario 17: 17 EP-AM-mit

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	816	847		578
Degree of Utilization, x	0.81	0.59		0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.81	3.94		0.99
95th-Percentile Queue Length [ft]	220.34	98.42		24.66
Approach Delay [s/veh]	23.33	13.14	0.00	11.30
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	18.10			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	23.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.906

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	196	77	78	205	0	346	8	116	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	63	25	25	66	0	111	3	37	0	0	0
Total Analysis Volume [veh/h]	0	253	100	101	264	0	446	10	149	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-03 Banning Industrial TIA Scenario 17: 17 EP-AM-mit

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	881	840	668	
Degree of Utilization, x	0.40	0.43	0.91	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.95	2.22	11.66	
95th-Percentile Queue Length [ft]	48.71	55.54	291.38	
Approach Delay [s/veh]	9.79	10.54	38.74	0.00
Approach LOS	A	B	E	A
Intersection Delay [s/veh]	23.24			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	307	0	0	145	345	0	0	0	69	6	60
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	88	0	0	41	98	0	0	0	20	2	17
Total Analysis Volume [veh/h]	211	350	0	0	166	394	0	0	0	79	7	68
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	801	889		599
Degree of Utilization, x	0.70	0.63		0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.86	4.59		1.02
95th-Percentile Queue Length [ft]	146.52	114.86		25.48
Approach Delay [s/veh]	17.27	13.68	0.00	11.07
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	14.95			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	306	115	83	144	0	232	8	83	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	87	33	24	41	0	66	2	24	0	0	0
Total Analysis Volume [veh/h]	0	349	131	95	164	0	265	9	95	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	900	816	665	
Degree of Utilization, x	0.53	0.32	0.56	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.22	1.37	3.42	
95th-Percentile Queue Length [ft]	80.62	34.20	85.62	
Approach Delay [s/veh]	11.46	9.45	14.96	0.00
Approach LOS	B	A	B	A
Intersection Delay [s/veh]	12.16			
Intersection LOS	B			

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Existing plus Ambient Growth plus Project (2019) Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.295

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	123	220	161	26	235	21	32	49	64	93	59	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	2	0	0	5	0	0	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	126	226	164	27	245	21	33	50	67	95	60	23
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	63	46	8	69	6	9	14	19	27	17	6
Total Analysis Volume [veh/h]	142	254	184	30	275	24	37	56	75	107	67	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	69	0	0	69	0	14	23	0	28	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65	65	65	10	19	19	24	33	33
g / C, Green / Cycle	0.54	0.54	0.54	0.54	0.54	0.08	0.16	0.16	0.20	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.11	0.03	0.16	0.02	0.03	0.05	0.06	0.04	0.02
s, saturation flow rate [veh/h]	1097	1900	1615	1143	1873	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	541	1029	875	579	1015	151	301	256	362	523	444
d1, Uniform Delay [s]	21.77	14.55	14.22	18.35	15.00	51.47	43.79	44.57	40.81	32.69	32.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.18	0.57	0.55	0.17	0.74	3.84	1.36	2.90	2.07	0.51	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.25	0.21	0.05	0.29	0.25	0.19	0.29	0.30	0.13	0.06
d, Delay for Lane Group [s/veh]	22.95	15.12	14.77	18.52	15.74	55.31	45.16	47.47	42.89	33.20	32.31
Lane Group LOS	C	B	B	B	B	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.76	3.80	2.71	0.50	4.62	1.21	1.57	2.19	2.91	1.55	0.59
50th-Percentile Queue Length [ft]	69.07	94.93	67.67	12.47	115.44	30.15	39.16	54.64	72.83	38.79	14.84
95th-Percentile Queue Length [veh]	4.97	6.84	4.87	0.90	8.14	2.17	2.82	3.93	5.24	2.79	1.07
95th-Percentile Queue Length [ft]	124.33	170.88	121.80	22.45	203.55	54.27	70.49	98.34	131.09	69.82	26.71

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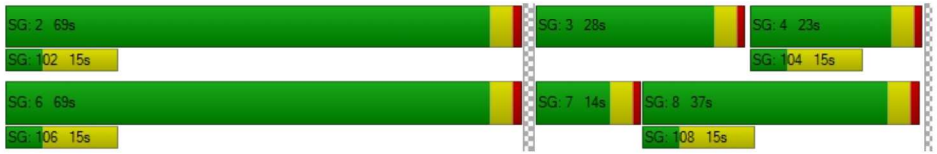
Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.95	15.12	14.77	18.52	15.74	15.74	55.31	45.16	47.47	42.89	33.20	32.31
Movement LOS	C	B	B	B	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	16.93			15.99			48.43			38.27		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	24.17											
Intersection LOS	C											
Intersection V/C	0.295											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	68.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	479	0	0	203	226	0	0	0	84	1	40
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	142	0	0	60	67	0	0	0	25	0	12
Total Analysis Volume [veh/h]	105	568	0	0	241	268	0	0	0	100	1	47
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.01	0.09
d_M, Delay for Movement [s/veh]	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.66	68.06	49.52
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	4.69	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.83	4.83	4.83
95th-Percentile Queue Length [ft]	117.14	117.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	120.67	120.67	120.67
d_A, Approach Delay [s/veh]	1.36			0.00			0.00			60.55		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	7.43											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	398.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	199	78	80	208	0	353	8	117	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	64	25	26	67	0	114	3	38	0	0	0
Total Analysis Volume [veh/h]	0	256	101	103	268	0	455	10	151	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.56	0.04	0.19	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.24	0.00	0.00	397.62	398.24	389.88	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.31	1.31	0.00	39.90	39.90	39.90	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	32.65	32.65	0.00	997.56	997.56	997.56	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.29			395.73			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	182.01											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	12	110	0	20	105	92	87	19	28	0	7	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	105	0	0	0	4	0	1	1	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	112	1	125	107	94	89	23	29	1	8	75
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	39	0	44	38	33	31	8	10	0	3	26
Total Analysis Volume [veh/h]	17	158	1	176	151	132	125	32	41	1	11	106
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	651	718	623	663
Degree of Utilization, x	0.27	0.64	0.32	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.09	4.65	1.37	0.64
95th-Percentile Queue Length [ft]	27.30	116.26	34.13	16.09
Approach Delay [s/veh]	10.57	16.46	11.46	9.60
Approach LOS	B	C	B	A
Intersection Delay [s/veh]	13.48			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	39	36	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	110	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	47	110	40	37	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	30	11	10	0
Total Analysis Volume [veh/h]	0	51	120	43	40	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.95	8.65	7.46	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.15	0.25	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.87	3.87	6.14	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.65		5.49		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.26					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.360

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	183	84	29	236	34	35	70	100	121	83	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	5	0	0	2	0	0	0	1	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	192	86	30	243	35	36	71	103	123	85	51
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	55	25	9	70	10	10	20	30	35	24	15
Total Analysis Volume [veh/h]	79	221	99	35	280	40	41	82	119	142	98	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	61	0	0	61	0	13	29	0	30	46	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	57	57	57	9	25	25	26	42	42
g / C, Green / Cycle	0.48	0.48	0.48	0.48	0.48	0.08	0.21	0.21	0.22	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.07	0.12	0.06	0.03	0.17	0.02	0.04	0.07	0.08	0.05	0.04
s, saturation flow rate [veh/h]	1076	1900	1615	1178	1859	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	436	903	767	519	883	136	396	336	392	665	565
d1, Uniform Delay [s]	27.43	18.71	17.62	23.07	19.98	52.53	39.30	40.60	39.95	26.73	26.31
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.91	0.65	0.35	0.25	1.15	5.64	1.18	2.90	2.58	0.47	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.24	0.13	0.07	0.36	0.30	0.21	0.35	0.36	0.15	0.10
d, Delay for Lane Group [s/veh]	28.34	19.36	17.96	23.32	21.13	58.17	40.48	43.49	42.54	27.20	26.68
Lane Group LOS	C	B	B	C	C	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.71	3.82	1.62	0.67	5.93	1.39	2.14	3.29	3.86	2.03	1.21
50th-Percentile Queue Length [ft]	42.85	95.43	40.39	16.66	148.31	34.63	53.61	82.26	96.51	50.68	30.21
95th-Percentile Queue Length [veh]	3.09	6.87	2.91	1.20	9.93	2.49	3.86	5.92	6.95	3.65	2.18
95th-Percentile Queue Length [ft]	77.13	171.77	72.70	29.99	248.18	62.33	96.50	148.07	173.72	91.22	54.38

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.34	19.36	17.96	23.32	21.13	21.13	58.17	40.48	43.49	42.54	27.20	26.68
Movement LOS	C	B	B	C	C	C	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	20.79			21.35			44.96			34.38		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.60											
Intersection LOS	C											
Intersection V/C	0.360											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	74.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.063

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	313	0	0	148	352	0	0	0	70	6	61
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	89	0	0	42	100	0	0	0	20	2	17
Total Analysis Volume [veh/h]	215	357	0	0	169	402	0	0	0	80	7	70
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.06	0.10
d_M, Delay for Movement [s/veh]	9.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.58	74.33	46.91
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.96	4.96	4.96
95th-Percentile Queue Length [ft]	91.49	91.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.04	124.04	124.04
d_A, Approach Delay [s/veh]	3.58			0.00			0.00			58.67		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	8.66											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	107.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	311	116	85	146	0	237	8	84	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	89	33	24	42	0	68	2	24	0	0	0
Total Analysis Volume [veh/h]	0	355	132	97	167	0	271	9	96	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.93	0.03	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.64	0.00	0.00	106.81	107.70	98.50	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.95	0.95	0.00	13.63	13.63	13.63	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	23.85	23.85	0.00	340.65	340.65	340.65	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.17			104.71			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	35.68											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.356

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	32	178	1	29	76	62	63	20	38	0	22	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	53	0	0	0	2	0	1	4	121
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	182	2	83	78	63	64	22	39	1	26	163
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	51	1	23	22	18	18	6	11	0	7	46
Total Analysis Volume [veh/h]	37	204	2	93	87	70	72	25	44	1	29	182
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	686	702	659	730
Degree of Utilization, x	0.35	0.36	0.21	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.60	1.61	0.81	1.21
95th-Percentile Queue Length [ft]	40.00	40.31	20.17	30.15
Approach Delay [s/veh]	11.10	10.93	9.95	9.94
Approach LOS	B	B	A	A
Intersection Delay [s/veh]	10.57			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	50	63	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	56	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	126	56	51	64	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	34	15	14	17	0
Total Analysis Volume [veh/h]	0	137	61	55	70	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.60	9.18	7.43	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.48	0.48	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	11.88	11.88	3.08	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.18		3.91		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.30					
Intersection LOS	B					

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Existing plus Ambient Growth plus Project (2019) with Improvements
Level of Service Calculations

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.827

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	479	0	0	203	226	0	0	0	84	1	40
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	142	0	0	60	67	0	0	0	25	0	12
Total Analysis Volume [veh/h]	105	568	0	0	241	268	0	0	0	100	1	47
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	813	845		574
Degree of Utilization, x	0.83	0.60		0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.37	4.14		1.02
95th-Percentile Queue Length [ft]	234.28	103.43		25.56
Approach Delay [s/veh]	24.76	13.50	0.00	11.44
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	18.97			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	24.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.927

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	199	78	80	208	0	353	8	117	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	64	25	26	67	0	114	3	38	0	0	0
Total Analysis Volume [veh/h]	0	256	101	103	268	0	455	10	151	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	879	839	665	
Degree of Utilization, x	0.41	0.44	0.93	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.99	2.29	12.45	
95th-Percentile Queue Length [ft]	49.73	57.19	311.34	
Approach Delay [s/veh]	9.86	10.64	42.22	0.00
Approach LOS	A	B	E	A
Intersection Delay [s/veh]	24.91			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.716

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	313	0	0	148	352	0	0	0	70	6	61
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	89	0	0	42	100	0	0	0	20	2	17
Total Analysis Volume [veh/h]	215	357	0	0	169	402	0	0	0	80	7	70
Pedestrian Volume [ped/h]	0			0			0			0		

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Version 5.00-03 Banning Industrial TIA Scenario 20: 20 EAP-PM-mit

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	799	887		595
Degree of Utilization, x	0.72	0.64		0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.20	4.84		1.05
95th-Percentile Queue Length [ft]	154.98	120.99		26.37
Approach Delay [s/veh]	17.99	14.11	0.00	11.20
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	15.46			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.568

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	311	116	85	146	0	237	8	84	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	89	33	24	42	0	68	2	24	0	0	0
Total Analysis Volume [veh/h]	0	355	132	97	167	0	271	9	96	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	899	814	661	
Degree of Utilization, x	0.54	0.32	0.57	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.33	1.41	3.59	
95th-Percentile Queue Length [ft]	83.22	35.24	89.75	
Approach Delay [s/veh]	11.63	9.52	15.36	0.00
Approach LOS	B	A	C	A
Intersection Delay [s/veh]	12.38			
Intersection LOS	B			

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Existing plus Ambient Growth plus Cumulative Projects plus Project (2019) Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	23.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.334

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	123	220	161	26	235	21	32	49	64	93	59	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	32	0	0	53	1	1	0	11	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	256	164	27	293	22	34	50	76	95	60	23
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	72	46	8	82	6	10	14	21	27	17	6
Total Analysis Volume [veh/h]	161	288	184	30	329	25	38	56	85	107	67	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	71	0	0	71	0	14	23	0	26	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	67	67	67	67	67	10	19	19	22	31	31
g / C, Green / Cycle	0.56	0.56	0.56	0.56	0.56	0.08	0.16	0.16	0.18	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.15	0.15	0.11	0.03	0.19	0.02	0.03	0.05	0.06	0.04	0.02
s, saturation flow rate [veh/h]	1043	1900	1615	1108	1877	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	518	1061	902	573	1048	151	301	256	332	491	417
d1, Uniform Delay [s]	22.33	13.80	13.21	17.80	14.43	51.50	43.79	44.87	42.53	34.21	33.54
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	0.63	0.51	0.17	0.87	3.97	1.36	3.47	2.56	0.58	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.27	0.20	0.05	0.34	0.25	0.19	0.33	0.32	0.14	0.06
d, Delay for Lane Group [s/veh]	23.89	14.43	13.72	17.97	15.30	55.47	45.16	48.33	45.09	34.79	33.83
Lane Group LOS	C	B	B	B	B	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	3.24	4.20	2.59	0.49	5.42	1.24	1.57	2.50	3.00	1.60	0.61
50th-Percentile Queue Length [ft]	80.88	105.11	64.66	12.27	135.48	31.01	39.16	62.61	75.10	39.89	15.26
95th-Percentile Queue Length [veh]	5.82	7.57	4.66	0.88	9.24	2.23	2.82	4.51	5.41	2.87	1.10
95th-Percentile Queue Length [ft]	145.59	189.18	116.38	22.09	230.93	55.82	70.49	112.70	135.18	71.80	27.46

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.89	14.43	13.72	17.97	15.30	15.30	55.47	45.16	48.33	45.09	34.79	33.83
Movement LOS	C	B	B	B	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	16.63			15.51			48.85			40.18		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	23.83											
Intersection LOS	C											
Intersection V/C	0.334											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	145.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	37	27	0	0	0	61	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	507	0	0	233	253	0	0	0	99	1	59
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	150	0	0	69	75	0	0	0	29	0	17
Total Analysis Volume [veh/h]	115	601	0	0	276	300	0	0	0	117	1	70
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.01	0.14
d_M, Delay for Movement [s/veh]	9.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.97	145.18	121.36
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	6.29	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.97	8.97	8.97
95th-Percentile Queue Length [ft]	157.18	157.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	224.24	224.24	224.24
d_A, Approach Delay [s/veh]	1.45			0.00			0.00			134.31		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	17.76											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	643.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	42	25	73	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	212	100	105	228	0	376	8	122	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	32	34	73	0	121	3	39	0	0	0
Total Analysis Volume [veh/h]	0	273	130	135	294	0	485	10	157	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.12	0.00	0.00	2.08	0.05	0.21	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.49	0.00	0.00	643.06	643.92	632.42	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.71	1.71	0.00	51.36	51.36	51.36	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	42.82	42.82	0.00	1284.01	1284.01	1284.01	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.67			640.51			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	282.18											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	12	110	0	20	105	92	87	19	28	0	7	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	1	105	14	12	17	4	0	1	1	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	130	1	125	121	106	106	23	29	1	8	75
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	46	0	44	43	37	37	8	10	0	3	26
Total Analysis Volume [veh/h]	17	183	1	176	170	149	149	32	41	1	11	106
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	627	696	596	627
Degree of Utilization, x	0.32	0.71	0.37	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.38	5.99	1.72	0.69
95th-Percentile Queue Length [ft]	34.54	149.68	42.90	17.19
Approach Delay [s/veh]	11.44	19.92	12.57	10.06
Approach LOS	B	C	B	B
Intersection Delay [s/veh]	15.58			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	39	36	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	110	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	47	110	40	37	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	30	11	10	0
Total Analysis Volume [veh/h]	0	51	120	43	40	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.95	8.65	7.46	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.15	0.25	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.87	3.87	6.14	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.65		5.49		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.26					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	183	84	29	236	34	35	70	100	121	83	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	60	0	0	47	0	0	0	10	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	247	86	30	288	35	36	71	112	123	85	51
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	71	25	9	83	10	10	20	32	35	24	15
Total Analysis Volume [veh/h]	94	284	99	35	331	40	41	82	129	142	98	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	64	0	0	64	0	13	28	0	28	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	60	60	60	9	24	24	24	39	39
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.50	0.08	0.20	0.20	0.20	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.09	0.15	0.06	0.03	0.20	0.02	0.04	0.08	0.08	0.05	0.04
s, saturation flow rate [veh/h]	1027	1900	1615	1113	1865	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	429	950	808	500	932	136	380	323	362	618	525
d1, Uniform Delay [s]	27.12	17.64	15.98	22.64	18.73	52.53	40.13	41.73	41.67	28.82	28.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.17	0.81	0.31	0.27	1.27	5.64	1.30	3.66	3.17	0.55	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.30	0.12	0.07	0.40	0.30	0.22	0.40	0.39	0.16	0.11
d, Delay for Lane Group [s/veh]	28.30	18.44	16.29	22.91	20.00	58.17	41.43	45.39	44.84	29.37	28.81
Lane Group LOS	C	B	B	C	B	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.05	4.81	1.52	0.66	6.71	1.39	2.18	3.66	3.98	2.12	1.26
50th-Percentile Queue Length [ft]	51.29	120.37	38.08	16.54	167.81	34.63	54.38	91.56	99.60	53.03	31.61
95th-Percentile Queue Length [veh]	3.69	8.41	2.74	1.19	10.96	2.49	3.92	6.59	7.17	3.82	2.28
95th-Percentile Queue Length [ft]	92.33	210.33	68.55	29.77	274.04	62.33	97.88	164.80	179.27	95.45	56.90

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.30	18.44	16.29	22.91	20.00	20.00	58.17	41.43	45.39	44.84	29.37	28.81
Movement LOS	C	B	B	C	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	19.94			20.25			46.18			36.61		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	28.11											
Intersection LOS	C											
Intersection V/C	0.397											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	203.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	21	36	0	0	0	43	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	358	0	0	166	388	0	0	0	89	6	84
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	102	0	0	47	111	0	0	0	25	2	24
Total Analysis Volume [veh/h]	235	409	0	0	189	443	0	0	0	102	7	96
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.08	0.15
d_M, Delay for Movement [s/veh]	9.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	193.72	203.50	165.66
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	5.38	5.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	11.00	11.00
95th-Percentile Queue Length [ft]	134.39	134.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	274.98	274.98	274.98
d_A, Approach Delay [s/veh]	3.63			0.00			0.00			180.91		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	26.62											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	261.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	66	16	48	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	332	128	101	167	0	279	8	104	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	37	29	48	0	80	2	30	0	0	0
Total Analysis Volume [veh/h]	0	379	146	115	191	0	318	9	119	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.11	0.00	0.00	1.29	0.04	0.14	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.84	0.00	0.00	260.75	261.75	250.39	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.21	1.21	0.00	24.50	24.50	24.50	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	30.37	30.37	0.00	612.53	612.53	612.53	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.32			258.01			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	90.91											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.433

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	32	178	1	29	76	62	63	20	38	0	22	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	1	53	25	17	13	2	0	1	4	121
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	202	2	83	103	80	77	22	39	1	26	163
Peak Hour Factor	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940	0.8940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	56	1	23	29	22	22	6	11	0	7	46
Total Analysis Volume [veh/h]	37	226	2	93	115	89	86	25	44	1	29	182
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	663	686	627	693
Degree of Utilization, x	0.40	0.43	0.25	0.31

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.92	2.19	0.97	1.30
95th-Percentile Queue Length [ft]	48.05	54.78	24.22	32.39
Approach Delay [s/veh]	11.99	12.19	10.61	10.48
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	11.48			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	50	63	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	56	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	126	56	51	64	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	34	15	14	17	0
Total Analysis Volume [veh/h]	0	137	61	55	70	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.60	9.18	7.43	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.48	0.48	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	11.88	11.88	3.08	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.18		3.91		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.30					
Intersection LOS	B					

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Existing plus Ambient Growth plus Cumulative Projects plus Project (2019) with Improvements Level of Service Calculations

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	23.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.895

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	37	27	0	0	0	61	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	507	0	0	233	253	0	0	0	99	1	59
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	150	0	0	69	75	0	0	0	29	0	17
Total Analysis Volume [veh/h]	115	601	0	0	276	300	0	0	0	117	1	70
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	800	834		559
Degree of Utilization, x	0.89	0.69		0.34

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	11.95	5.70		1.48
95th-Percentile Queue Length [ft]	298.63	142.45		36.91
Approach Delay [s/veh]	32.52	16.38	0.00	12.69
Approach LOS	D	C	A	B
Intersection Delay [s/veh]	23.72			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	34.6
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.020

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	42	25	73	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	212	100	105	228	0	376	8	122	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	32	34	73	0	121	3	39	0	0	0
Total Analysis Volume [veh/h]	0	273	130	135	294	0	485	10	157	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	872	829	652	
Degree of Utilization, x	0.46	0.52	1.02	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.48	3.03	16.48	
95th-Percentile Queue Length [ft]	61.90	75.86	411.89	
Approach Delay [s/veh]	10.63	11.91	64.32	0.00
Approach LOS	B	B	F	A
Intersection Delay [s/veh]	34.59			
Intersection LOS	D			

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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	19.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.818

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	21	36	0	0	0	43	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	358	0	0	166	388	0	0	0	89	6	84
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	102	0	0	47	111	0	0	0	25	2	24
Total Analysis Volume [veh/h]	235	409	0	0	189	443	0	0	0	102	7	96
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	788	868		571
Degree of Utilization, x	0.82	0.73		0.36

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.97	6.57		1.62
95th-Percentile Queue Length [ft]	224.20	164.16		40.55
Approach Delay [s/veh]	24.54	17.38	0.00	12.79
Approach LOS	C	C	A	B
Intersection Delay [s/veh]	19.86			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.694

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	66	16	48	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	332	128	101	167	0	279	8	104	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	37	29	48	0	80	2	30	0	0	0
Total Analysis Volume [veh/h]	0	379	146	115	191	0	318	9	119	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	891	807	642	
Degree of Utilization, x	0.59	0.38	0.69	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.97	1.78	5.55	
95th-Percentile Queue Length [ft]	99.20	44.53	138.74	
Approach Delay [s/veh]	12.69	10.16	20.31	0.00
Approach LOS	B	B	C	A
Intersection Delay [s/veh]	14.74			
Intersection LOS	B			

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Existing Plus Ambient Growth plus Cumulative Projects plus Project (2040) Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	24.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	123	220	161	26	235	21	32	49	64	93	59	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	41	0	0	78	1	1	0	11	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	169	312	198	32	367	27	40	60	90	114	73	28
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	85	54	9	100	7	11	16	24	31	20	8
Total Analysis Volume [veh/h]	184	339	215	35	399	29	43	65	98	124	79	30
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	71	0	0	71	0	14	23	0	26	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	67	67	67	67	67	10	19	19	22	31	31
g / C, Green / Cycle	0.56	0.56	0.56	0.56	0.56	0.08	0.16	0.16	0.18	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.19	0.18	0.13	0.03	0.23	0.02	0.03	0.06	0.07	0.04	0.02
s, saturation flow rate [veh/h]	975	1900	1615	1058	1878	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	461	1061	902	532	1048	151	301	256	332	491	417
d1, Uniform Delay [s]	25.64	14.25	13.50	19.06	15.16	51.64	44.01	45.25	42.96	34.44	33.63
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.57	0.79	0.62	0.24	1.18	4.69	1.64	4.31	3.20	0.70	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.32	0.24	0.07	0.41	0.29	0.22	0.38	0.37	0.16	0.07
d, Delay for Lane Group [s/veh]	28.21	15.04	14.13	19.30	16.34	56.34	45.65	49.56	46.16	35.14	33.96
Lane Group LOS	C	B	B	B	B	E	D	D	D	D	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	4.13	5.12	3.09	0.60	6.91	1.42	1.83	2.93	3.54	1.90	0.71
50th-Percentile Queue Length [ft]	103.15	127.97	77.31	14.99	172.65	35.39	45.78	73.30	88.38	47.39	17.66
95th-Percentile Queue Length [veh]	7.43	8.83	5.57	1.08	11.22	2.55	3.30	5.28	6.36	3.41	1.27
95th-Percentile Queue Length [ft]	185.67	220.73	139.15	26.98	280.40	63.69	82.41	131.94	159.08	85.31	31.78

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.21	15.04	14.13	19.30	16.34	16.34	56.34	45.65	49.56	46.16	35.14	33.96
Movement LOS	C	B	B	B	B	B	E	D	D	D	D	C
d_A, Approach Delay [s/veh]	18.06			16.56			49.74			40.85		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	24.85											
Intersection LOS	C											
Intersection V/C	0.397											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	325.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	62	27	0	0	0	77	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	605	0	0	298	300	0	0	0	123	1	76
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	164	0	0	81	82	0	0	0	33	0	21
Total Analysis Volume [veh/h]	121	658	0	0	324	326	0	0	0	134	1	83
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.01	0.18
d_M, Delay for Movement [s/veh]	9.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	321.16	325.33	293.79
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	9.60	9.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.60	14.60	14.60
95th-Percentile Queue Length [ft]	239.90	239.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	365.08	365.08	365.08
d_A, Approach Delay [s/veh]	1.45			0.00			0.00			310.76		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	41.82											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	797.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.059

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	90	50	89	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	248	160	146	276	0	449	10	136	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	43	40	75	0	122	3	37	0	0	0
Total Analysis Volume [veh/h]	0	270	174	159	300	0	488	11	148	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.14	0.00	0.00	2.41	0.06	0.20	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.72	0.00	0.00	796.48	797.93	783.53	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	2.01	2.01	0.00	54.98	54.98	54.98	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	50.33	50.33	0.00	1374.42	1374.42	1374.42	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.02			793.54			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	332.14											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	12	110	0	20	105	92	87	19	28	0	7	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	42	1	105	22	20	41	4	0	1	1	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	177	1	130	151	133	148	27	34	1	10	81
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	48	0	35	41	36	40	7	9	0	3	22
Total Analysis Volume [veh/h]	16	192	1	141	164	145	161	29	37	1	11	88
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	644	706	612	642
Degree of Utilization, x	0.32	0.64	0.37	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.41	4.61	1.71	0.55
95th-Percentile Queue Length [ft]	35.14	115.25	42.70	13.74
Approach Delay [s/veh]	11.26	16.62	12.31	9.64
Approach LOS	B	C	B	A
Intersection Delay [s/veh]	13.78			
Intersection LOS	B			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	39	36	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.23	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	110	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	47	110	48	44	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	30	13	12	0
Total Analysis Volume [veh/h]	0	51	120	52	48	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.09	8.69	7.48	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.16	0.16	0.25	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.92	3.92	6.19	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.69		5.22		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.95					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 1: Hargrave Street (NS) / E Ramsey Street (EW)

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	183	84	29	236	34	35	70	100	121	83	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	88	0	0	65	0	0	0	10	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	313	103	36	355	42	43	86	133	149	102	62
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	85	28	10	96	11	12	23	36	40	28	17
Total Analysis Volume [veh/h]	104	340	112	39	386	46	47	93	145	162	111	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	64	0	0	64	0	13	28	0	28	43	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	60	60	60	9	24	24	24	39	39
g / C, Green / Cycle	0.50	0.50	0.50	0.50	0.50	0.08	0.20	0.20	0.20	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.11	0.18	0.07	0.04	0.23	0.03	0.05	0.09	0.09	0.06	0.04
s, saturation flow rate [veh/h]	971	1900	1615	1057	1865	1810	1900	1615	1810	1900	1615
c, Capacity [veh/h]	383	950	808	456	932	136	380	323	362	618	525
d1, Uniform Delay [s]	29.93	18.27	16.12	24.39	19.52	52.71	40.38	42.19	42.18	29.03	28.52
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.74	1.05	0.36	0.37	1.65	6.87	1.53	4.46	3.97	0.64	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.36	0.14	0.09	0.46	0.35	0.24	0.45	0.45	0.18	0.13
d, Delay for Lane Group [s/veh]	31.67	19.32	16.48	24.75	21.18	59.57	41.90	46.65	46.14	29.67	29.02
Lane Group LOS	C	B	B	C	C	E	D	D	D	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.44	5.99	1.74	0.77	8.18	1.61	2.49	4.19	4.63	2.42	1.44
50th-Percentile Queue Length [ft]	61.01	149.63	43.48	19.36	204.44	40.19	62.17	104.72	115.76	60.55	36.11
95th-Percentile Queue Length [veh]	4.39	10.00	3.13	1.39	12.87	2.89	4.48	7.54	8.16	4.36	2.60
95th-Percentile Queue Length [ft]	109.82	249.93	78.26	34.85	321.69	72.34	111.91	188.49	203.99	108.98	64.99

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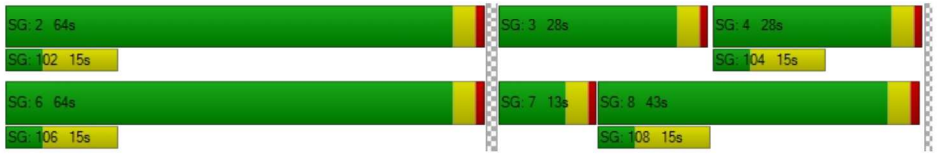
Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.67	19.32	16.48	24.75	21.18	21.18	59.57	41.90	46.65	46.14	29.67	29.02
Movement LOS	C	B	B	C	C	C	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	21.06			21.47			47.23			37.39		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.05											
Intersection LOS	C											
Intersection V/C	0.457											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	781.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	39	36	0	0	0	97	0	51
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	421	0	0	214	460	0	0	0	152	7	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	114	0	0	58	125	0	0	0	41	2	34
Total Analysis Volume [veh/h]	252	458	0	0	233	500	0	0	0	165	8	136
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free		Free		Stop		Stop	
Flared Lane	No		No		No		No	
Storage Area [veh]	0		0		0		0	
Two-Stage Gap Acceptance	No		No		No		No	
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.12	0.14	0.22
d_M, Delay for Movement [s/veh]	10.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	765.67	781.67	725.26
Movement LOS	B	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	8.82	8.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.33	27.33	27.33
95th-Percentile Queue Length [ft]	220.46	220.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	683.28	683.28	683.28
d_A, Approach Delay [s/veh]	3.80			0.00			0.00			748.30		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	133.52											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	636.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.069

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	101	34	102	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	382	176	136	246	0	327	10	116	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	104	48	37	67	0	89	3	32	0	0	0
Total Analysis Volume [veh/h]	0	415	191	148	267	0	355	11	126	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane	No			No			No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance	No			No			No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.15	0.00	0.00	2.06	0.07	0.16	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	9.32	0.00	0.00	635.13	636.70	618.88	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	2.13	2.13	0.00	39.34	39.34	39.34	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	53.30	53.30	0.00	983.59	983.59	983.59	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.32			631.00			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	206.10											
Intersection LOS	F											

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Intersection Level Of Service Report
Intersection 4: Hargrave Street (NS) / Lincoln Street (EW)

Control Type:	All-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.612

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	32	178	1	29	76	62	63	20	38	0	22	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	1	53	52	44	31	2	0	1	4	121
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	257	2	89	145	120	108	27	47	1	31	171
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	70	1	24	39	33	29	7	13	0	8	46
Total Analysis Volume [veh/h]	42	279	2	97	158	130	117	29	51	1	34	186
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	600	629	557	604
Degree of Utilization, x	0.54	0.61	0.35	0.37

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.20	4.17	1.59	1.67
95th-Percentile Queue Length [ft]	79.95	104.15	39.64	41.86
Approach Delay [s/veh]	15.76	17.33	12.96	12.37
Approach LOS	C	C	B	B
Intersection Delay [s/veh]	15.14			
Intersection LOS	C			

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Intersection Level Of Service Report
Intersection 5: John Street (NS) / Lincoln Street (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	50	63	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.23	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	126	56	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	126	56	62	77	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	34	15	17	21	0
Total Analysis Volume [veh/h]	0	137	61	67	84	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.80	9.27	7.46	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.48	0.48	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	12.12	12.12	3.12	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.27		3.55		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.94					
Intersection LOS	B					

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Existing Plus Ambient Growth
plus Cumulative Projects plus Project (2040)
with Improvements
Level of Service Calculations

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	34.8
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.992

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	62	27	0	0	0	77	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	605	0	0	298	300	0	0	0	123	1	76
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	164	0	0	81	82	0	0	0	33	0	21
Total Analysis Volume [veh/h]	121	658	0	0	324	326	0	0	0	134	1	83
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	786	817		536
Degree of Utilization, x	0.99	0.80		0.41

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	16.69	8.35		1.96
95th-Percentile Queue Length [ft]	417.16	208.76		49.03
Approach Delay [s/veh]	50.96	22.21	0.00	14.25
Approach LOS	F	C	A	B
Intersection Delay [s/veh]	34.76			
Intersection LOS	D			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.881

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	90	50	89	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	248	160	146	276	0	449	10	136	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	43	40	75	0	122	3	37	0	0	0
Total Analysis Volume [veh/h]	0	270	174	159	300	0	488	11	148	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	11	0	11	11	0	0	38	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Lane Group Calculations

Lane Group	C	L	C	C	
C, Cycle Length [s]	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	17	7	17	24	
g / C, Green / Cycle	0.28	0.12	0.28	0.41	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.09	0.16	0.37	
s, saturation flow rate [veh/h]	1777	1810	1900	1762	
c, Capacity [veh/h]	494	211	528	716	
d1, Uniform Delay [s]	18.14	24.58	16.06	16.77	
k, delay calibration	0.50	0.11	0.50	0.20	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	21.89	5.37	4.39	7.91	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.90	0.75	0.57	0.90	
d, Delay for Lane Group [s/veh]	40.03	29.95	20.44	24.68	
Lane Group LOS	D	C	C	C	
Critical Lane Group	Yes	Yes	No	Yes	
50th-Percentile Queue Length [veh]	7.52	2.29	3.41	8.77	
50th-Percentile Queue Length [ft]	188.04	57.15	85.32	219.28	
95th-Percentile Queue Length [veh]	12.02	4.12	6.14	13.63	
95th-Percentile Queue Length [ft]	300.48	102.88	153.57	340.70	

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	40.03	40.03	29.95	20.44	0.00	24.68	24.68	24.68	0.00	0.00	0.00
Movement LOS		D	D	C	C		C	C	C			
d_A, Approach Delay [s/veh]		40.03			23.74			24.68			0.00	
Approach LOS		D			C			C			A	
d_I, Intersection Delay [s/veh]	28.80											
Intersection LOS	C											
Intersection V/C	0.881											

Sequence

Ring 1	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	30.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.923

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	39	36	0	0	0	97	0	51
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	421	0	0	214	460	0	0	0	152	7	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	114	0	0	58	125	0	0	0	41	2	34
Total Analysis Volume [veh/h]	252	458	0	0	233	500	0	0	0	165	8	136
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	769	849		541
Degree of Utilization, x	0.92	0.86		0.57

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	13.02	10.86		3.56
95th-Percentile Queue Length [ft]	325.52	271.49		89.10
Approach Delay [s/veh]	37.68	27.47	0.00	18.17
Approach LOS	E	D	A	C
Intersection Delay [s/veh]	29.97			
Intersection LOS	D			

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Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.873

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	101	34	102	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	382	176	136	246	0	327	10	116	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	104	48	37	67	0	89	3	32	0	0	0
Total Analysis Volume [veh/h]	0	415	191	148	267	0	355	11	126	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	13	0	11	24	0	0	36	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

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Lane Group Calculations

Lane Group	C	L	C	C	
C, Cycle Length [s]	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	22	6	33	19	
g / C, Green / Cycle	0.37	0.11	0.55	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.34	0.08	0.14	0.28	
s, saturation flow rate [veh/h]	1800	1810	1900	1757	
c, Capacity [veh/h]	670	196	1040	562	
d1, Uniform Delay [s]	14.16	24.96	4.06	19.34	
k, delay calibration	0.50	0.11	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	17.88	5.78	0.60	4.52	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.90	0.75	0.26	0.88	
d, Delay for Lane Group [s/veh]	32.04	30.74	4.65	23.86	
Lane Group LOS	C	C	A	C	
Critical Lane Group	Yes	Yes	No	Yes	
50th-Percentile Queue Length [veh]	8.36	2.17	0.98	6.50	
50th-Percentile Queue Length [ft]	208.95	54.15	24.53	162.59	
95th-Percentile Queue Length [veh]	13.10	3.90	1.77	10.69	
95th-Percentile Queue Length [ft]	327.49	97.47	44.15	267.15	

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	32.04	32.04	30.74	4.65	0.00	23.86	23.86	23.86	0.00	0.00	0.00
Movement LOS		C	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	32.04			13.96			23.86			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	24.42											
Intersection LOS	C											
Intersection V/C	0.873											

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Existing Conditions
Queuing Analysis

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	32.7
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	138	0	0	57	66	0	0	0	11	0	12
Total Analysis Volume [veh/h]	78	553	0	0	227	263	0	0	0	44	1	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.01	0.09
d_M, Delay for Movement [s/veh]	8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.68	32.75	17.97
Movement LOS	A	A			A	A				D	D	C
95th-Percentile Queue Length [veh]	3.91	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39
95th-Percentile Queue Length [ft]	97.78	97.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.71	34.71	34.71
d_A, Approach Delay [s/veh]	1.06			0.00			0.00			24.28		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	2.37											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	214.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	55	19	25	49	0	111	3	21	0	0	0
Total Analysis Volume [veh/h]	0	220	74	101	196	0	446	10	82	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.25	0.03	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.06	0.00	0.00	214.06	214.64	208.19	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.90	0.90	0.00	26.17	26.17	26.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	22.52	22.52	0.00	654.15	654.15	654.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]		0.00			2.74			213.18			0.00	
Approach LOS		A			A			F			A	
d_I, Intersection Delay [s/veh]	102.31											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	35.1
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	86	0	0	41	98	0	0	0	13	2	17
Total Analysis Volume [veh/h]	143	342	0	0	162	394	0	0	0	51	7	68
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.04	0.10
d_M, Delay for Movement [s/veh]	9.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.49	35.12	17.43
Movement LOS	A	A			A	A				D	E	C
95th-Percentile Queue Length [veh]	2.60	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	1.84	1.84
95th-Percentile Queue Length [ft]	64.91	64.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	46.05	46.05
d_A, Approach Delay [s/veh]	2.68			0.00			0.00			23.70		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	3.67											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	43.2
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	17	24	33	0	66	2	16	0	0	0
Total Analysis Volume [veh/h]	0	273	70	95	134	0	265	9	65	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	0.72	0.03	0.07	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.18	0.00	0.00	42.64	43.20	36.83	0.00	0.00	0.00
Movement LOS		A	A	A	A		E	E	E			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.68	0.68	0.00	7.38	7.38	7.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	17.11	17.11	0.00	184.54	184.54	184.54	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.39			41.54			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	16.31											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	61.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	470	0	0	199	222	0	0	0	83	1	39
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	139	0	0	59	66	0	0	0	25	0	12
Total Analysis Volume [veh/h]	104	557	0	0	236	263	0	0	0	98	1	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.01	0.09
d_M, Delay for Movement [s/veh]	8.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.37	61.67	43.93
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	4.41	4.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	4.42	4.42
95th-Percentile Queue Length [ft]	110.23	110.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	110.50	110.50	110.50
d_A, Approach Delay [s/veh]	1.37			0.00			0.00			54.49		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	6.75											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	369.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	196	77	78	205	0	346	8	116	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	63	25	25	66	0	111	3	37	0	0	0
Total Analysis Volume [veh/h]	0	253	100	101	264	0	446	10	149	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.50	0.04	0.19	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.23	0.00	0.00	368.47	369.10	360.95	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.27	1.27	0.00	37.90	37.90	37.90	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	31.75	31.75	0.00	947.47	947.47	947.47	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.28			366.63			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	168.29											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	67.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	307	0	0	145	345	0	0	0	69	6	60
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	88	0	0	41	98	0	0	0	20	2	17
Total Analysis Volume [veh/h]	211	350	0	0	166	394	0	0	0	79	7	68
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.06	0.10
d_M, Delay for Movement [s/veh]	9.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.10	67.42	41.47
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	3.45	3.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.54	4.54	4.54
95th-Percentile Queue Length [ft]	86.26	86.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	113.52	113.52	113.52
d_A, Approach Delay [s/veh]	3.55			0.00			0.00			52.72		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	7.93											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	91.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	306	115	83	144	0	232	8	83	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	87	33	24	41	0	66	2	24	0	0	0
Total Analysis Volume [veh/h]	0	349	131	95	164	0	265	9	95	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.89	0.03	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.61	0.00	0.00	90.62	91.48	82.67	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.28	0.00	0.00	12.33	12.33	12.33	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	7.12	0.00	0.00	308.16	308.16	308.16	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.16			88.60			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	30.24											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	470	0	0	199	222	0	0	0	83	1	39
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	139	0	0	59	66	0	0	0	25	0	12
Total Analysis Volume [veh/h]	104	557	0	0	236	263	0	0	0	98	1	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	816	847		578
Degree of Utilization, x	0.81	0.59		0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.81	3.94		0.99
95th-Percentile Queue Length [ft]	220.34	98.42		24.66
Approach Delay [s/veh]	23.33	13.14	0.00	11.30
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	18.10			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	23.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.906

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	196	77	78	205	0	346	8	116	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	63	25	25	66	0	111	3	37	0	0	0
Total Analysis Volume [veh/h]	0	253	100	101	264	0	446	10	149	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	881	840	668	
Degree of Utilization, x	0.40	0.43	0.91	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.95	2.22	11.66	
95th-Percentile Queue Length [ft]	48.71	55.54	291.38	
Approach Delay [s/veh]	9.79	10.54	38.74	0.00
Approach LOS	A	B	E	A
Intersection Delay [s/veh]	23.24			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	307	0	0	145	345	0	0	0	69	6	60
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	88	0	0	41	98	0	0	0	20	2	17
Total Analysis Volume [veh/h]	211	350	0	0	166	394	0	0	0	79	7	68
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	801	889		599
Degree of Utilization, x	0.70	0.63		0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.86	4.59		1.02
95th-Percentile Queue Length [ft]	146.52	114.86		25.48
Approach Delay [s/veh]	17.27	13.68	0.00	11.07
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	14.95			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	306	115	83	144	0	232	8	83	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	87	33	24	41	0	66	2	24	0	0	0
Total Analysis Volume [veh/h]	0	349	131	95	164	0	265	9	95	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	900	816	665	
Degree of Utilization, x	0.53	0.32	0.56	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.22	1.37	3.42	
95th-Percentile Queue Length [ft]	80.62	34.20	85.62	
Approach Delay [s/veh]	11.46	9.45	14.96	0.00
Approach LOS	B	A	B	A
Intersection Delay [s/veh]	12.16			
Intersection LOS	B			

Existing Plus Ambient Conditions Queuing Analysis

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	34.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	476	0	0	196	226	0	0	0	38	1	40
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	141	0	0	58	67	0	0	0	11	0	12
Total Analysis Volume [veh/h]	79	564	0	0	232	268	0	0	0	45	1	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.01	0.09
d_M, Delay for Movement [s/veh]	8.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.06	34.20	18.75
Movement LOS	A	A			A	A				D	D	C
95th-Percentile Queue Length [veh]	4.15	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	1.49
95th-Percentile Queue Length [ft]	103.76	103.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.23	37.23	37.23
d_A, Approach Delay [s/veh]	1.06			0.00			0.00			25.36		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	2.46											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	238.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	174	58	80	155	0	353	8	65	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	56	19	26	50	0	114	3	21	0	0	0
Total Analysis Volume [veh/h]	0	224	75	103	200	0	455	10	84	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.30	0.03	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.07	0.00	0.00	238.01	238.58	231.94	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.93	0.93	0.00	28.10	28.10	28.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	23.23	23.23	0.00	702.61	702.61	702.61	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.74			237.09			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	113.81											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	37.2
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	128	306	0	0	145	352	0	0	0	46	6	61
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	87	0	0	41	100	0	0	0	13	2	17
Total Analysis Volume [veh/h]	146	349	0	0	166	402	0	0	0	53	7	70
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.05	0.10
d_M, Delay for Movement [s/veh]	9.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.27	37.16	18.54
Movement LOS	A	A			A	A				D	E	C
95th-Percentile Queue Length [veh]	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	2.03	2.03
95th-Percentile Queue Length [ft]	68.60	68.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.63	50.63	50.63
d_A, Approach Delay [s/veh]	2.70			0.00			0.00			25.14		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	3.86											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	48.2
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	244	62	85	119	0	237	8	58	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	70	18	24	34	0	68	2	17	0	0	0
Total Analysis Volume [veh/h]	0	279	71	97	136	0	271	9	66	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	0.75	0.03	0.07	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.21	0.00	0.00	47.60	48.16	41.59	0.00	0.00	0.00
Movement LOS		A	A	A	A		E	E	E			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.70	0.70	0.00	8.10	8.10	8.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	17.60	17.60	0.00	202.45	202.45	202.45	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.42			46.47			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	18.16											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	68.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	479	0	0	203	226	0	0	0	84	1	40
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	142	0	0	60	67	0	0	0	25	0	12
Total Analysis Volume [veh/h]	105	568	0	0	241	268	0	0	0	100	1	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.01	0.09
d_M, Delay for Movement [s/veh]	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.66	68.06	49.52
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	4.69	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.83	4.83	4.83
95th-Percentile Queue Length [ft]	117.14	117.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	120.67	120.67	120.67
d_A, Approach Delay [s/veh]	1.36			0.00			0.00			60.55		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	7.43											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	398.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	199	78	80	208	0	353	8	117	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	64	25	26	67	0	114	3	38	0	0	0
Total Analysis Volume [veh/h]	0	256	101	103	268	0	455	10	151	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	1.56	0.04	0.19	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.24	0.00	0.00	397.62	398.24	389.88	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.31	1.31	0.00	39.90	39.90	39.90	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	32.65	32.65	0.00	997.56	997.56	997.56	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.29			395.73			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	182.01											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	74.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.063

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	313	0	0	148	352	0	0	0	70	6	61
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	89	0	0	42	100	0	0	0	20	2	17
Total Analysis Volume [veh/h]	215	357	0	0	169	402	0	0	0	80	7	70
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.06	0.10
d_M, Delay for Movement [s/veh]	9.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.58	74.33	46.91
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.96	4.96	4.96
95th-Percentile Queue Length [ft]	91.49	91.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.04	124.04	124.04
d_A, Approach Delay [s/veh]	3.58			0.00			0.00			58.67		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	8.66											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	107.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	311	116	85	146	0	237	8	84	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	89	33	24	42	0	68	2	24	0	0	0
Total Analysis Volume [veh/h]	0	355	132	97	167	0	271	9	96	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.93	0.03	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.64	0.00	0.00	106.81	107.70	98.50	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.95	0.95	0.00	13.63	13.63	13.63	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	23.85	23.85	0.00	340.65	340.65	340.65	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.17			104.71			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	35.68											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.827

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	0	0	7	0	0	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	479	0	0	203	226	0	0	0	84	1	40
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	142	0	0	60	67	0	0	0	25	0	12
Total Analysis Volume [veh/h]	105	568	0	0	241	268	0	0	0	100	1	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	813	845		574
Degree of Utilization, x	0.83	0.60		0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.37	4.14		1.02
95th-Percentile Queue Length [ft]	234.28	103.43		25.56
Approach Delay [s/veh]	24.76	13.50	0.00	11.44
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	18.97			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	24.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.927

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	20	0	53	0	0	0	52	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	199	78	80	208	0	353	8	117	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	64	25	26	67	0	114	3	38	0	0	0
Total Analysis Volume [veh/h]	0	256	101	103	268	0	455	10	151	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	879	839	665	
Degree of Utilization, x	0.41	0.44	0.93	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.99	2.29	12.45	
95th-Percentile Queue Length [ft]	49.73	57.19	311.34	
Approach Delay [s/veh]	9.86	10.64	42.22	0.00
Approach LOS	A	B	E	A
Intersection Delay [s/veh]	24.91			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.716

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	7	0	0	3	0	0	0	0	24	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	313	0	0	148	352	0	0	0	70	6	61
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	89	0	0	42	100	0	0	0	20	2	17
Total Analysis Volume [veh/h]	215	357	0	0	169	402	0	0	0	80	7	70
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	799	887		595
Degree of Utilization, x	0.72	0.64		0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.20	4.84		1.05
95th-Percentile Queue Length [ft]	154.98	120.99		26.37
Approach Delay [s/veh]	17.99	14.11	0.00	11.20
Approach LOS	C	B	A	B
Intersection Delay [s/veh]	15.46			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.568

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	54	0	27	0	0	0	26	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	311	116	85	146	0	237	8	84	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	89	33	24	42	0	68	2	24	0	0	0
Total Analysis Volume [veh/h]	0	355	132	97	167	0	271	9	96	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	899	814	661	
Degree of Utilization, x	0.54	0.32	0.57	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.33	1.41	3.59	
95th-Percentile Queue Length [ft]	83.22	35.24	89.75	
Approach Delay [s/veh]	11.63	9.52	15.36	0.00
Approach LOS	B	A	C	A
Intersection Delay [s/veh]	12.38			
Intersection LOS	B			

Existing Plus Ambient Plus Cumulative Conditions Queuing Analysis

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	50.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	28	0	0	30	27	0	0	0	15	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	504	0	0	226	253	0	0	0	53	1	59
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	149	0	0	67	75	0	0	0	16	0	17
Total Analysis Volume [veh/h]	89	597	0	0	268	300	0	0	0	63	1	70
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.01	0.14
d_M, Delay for Movement [s/veh]	8.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.70	50.51	30.59
Movement LOS	A	A			A	A				E	F	D
95th-Percentile Queue Length [veh]	5.53	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	3.17	3.17
95th-Percentile Queue Length [ft]	138.15	138.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.34	79.34	79.34
d_A, Approach Delay [s/veh]	1.15			0.00			0.00			38.78		
Approach LOS	A			A			A			E		
d_I, Intersection Delay [s/veh]	4.31											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	435.8
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	22	25	20	0	23	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	187	80	105	175	0	376	8	70	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	60	26	34	56	0	121	3	23	0	0	0
Total Analysis Volume [veh/h]	0	241	104	135	226	0	485	10	90	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.11	0.00	0.00	1.73	0.04	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.30	0.00	0.00	435.04	435.80	426.62	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.24	1.24	0.00	39.66	39.66	39.66	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	30.97	30.97	0.00	991.55	991.55	991.55	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.10			433.76			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	197.42											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	64.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	45	0	0	18	36	0	0	0	19	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	351	0	0	163	388	0	0	0	65	6	84
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	100	0	0	47	111	0	0	0	19	2	24
Total Analysis Volume [veh/h]	167	401	0	0	186	443	0	0	0	74	7	96
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.06	0.15
d_M, Delay for Movement [s/veh]	9.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.78	64.61	39.00
Movement LOS	A	A			A	A				F	F	E
95th-Percentile Queue Length [veh]	3.99	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.76	4.76	4.76
95th-Percentile Queue Length [ft]	99.81	99.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	119.03	119.03	119.03
d_A, Approach Delay [s/veh]	2.80			0.00			0.00			47.87		
Approach LOS	A			A			A			E		
d_I, Intersection Delay [s/veh]	7.32											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	132.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	21	12	16	21	0	42	0	20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	265	74	101	140	0	279	8	78	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	76	21	29	40	0	80	2	22	0	0	0
Total Analysis Volume [veh/h]	0	303	84	115	160	0	318	9	89	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.10	0.00	0.00	1.03	0.03	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.37	0.00	0.00	131.80	132.39	124.23	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.90	0.90	0.00	16.47	16.47	16.47	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	22.55	22.55	0.00	411.83	411.83	411.83	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.50			130.19			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	51.13											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	145.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	37	27	0	0	0	61	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	507	0	0	233	253	0	0	0	99	1	59
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	150	0	0	69	75	0	0	0	29	0	17
Total Analysis Volume [veh/h]	115	601	0	0	276	300	0	0	0	117	1	70
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.01	0.14
d_M, Delay for Movement [s/veh]	9.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.97	145.18	121.36
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	6.29	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.97	8.97	8.97
95th-Percentile Queue Length [ft]	157.18	157.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	224.24	224.24	224.24
d_A, Approach Delay [s/veh]	1.45			0.00			0.00			134.31		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	17.76											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	643.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	42	25	73	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	212	100	105	228	0	376	8	122	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	32	34	73	0	121	3	39	0	0	0
Total Analysis Volume [veh/h]	0	273	130	135	294	0	485	10	157	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.12	0.00	0.00	2.08	0.05	0.21	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.49	0.00	0.00	643.06	643.92	632.42	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.71	1.71	0.00	51.36	51.36	51.36	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	42.82	42.82	0.00	1284.01	1284.01	1284.01	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.67			640.51			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	282.18											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	203.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	21	36	0	0	0	43	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	358	0	0	166	388	0	0	0	89	6	84
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	102	0	0	47	111	0	0	0	25	2	24
Total Analysis Volume [veh/h]	235	409	0	0	189	443	0	0	0	102	7	96
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.08	0.15
d_M, Delay for Movement [s/veh]	9.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	193.72	203.50	165.66
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	5.38	5.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	11.00	11.00
95th-Percentile Queue Length [ft]	134.39	134.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	274.98	274.98	274.98
d_A, Approach Delay [s/veh]	3.63			0.00			0.00			180.91		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	26.62											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	261.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	66	16	48	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	332	128	101	167	0	279	8	104	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	37	29	48	0	80	2	30	0	0	0
Total Analysis Volume [veh/h]	0	379	146	115	191	0	318	9	119	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.11	0.00	0.00	1.29	0.04	0.14	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.84	0.00	0.00	260.75	261.75	250.39	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.21	1.21	0.00	24.50	24.50	24.50	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	30.37	30.37	0.00	612.53	612.53	612.53	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.32			258.01			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	90.91											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	23.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.895

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	37	27	0	0	0	61	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	507	0	0	233	253	0	0	0	99	1	59
Peak Hour Factor	0.8440	0.8440	0.9200	0.9200	0.8440	0.8440	0.9200	0.9200	0.9200	0.8440	0.8440	0.8440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	150	0	0	69	75	0	0	0	29	0	17
Total Analysis Volume [veh/h]	115	601	0	0	276	300	0	0	0	117	1	70
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	800	834		559
Degree of Utilization, x	0.89	0.69		0.34

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	11.95	5.70		1.48
95th-Percentile Queue Length [ft]	298.63	142.45		36.91
Approach Delay [s/veh]	32.52	16.38	0.00	12.69
Approach LOS	D	C	A	B
Intersection Delay [s/veh]	23.72			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	34.6
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.020

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	42	25	73	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	212	100	105	228	0	376	8	122	0	0	0
Peak Hour Factor	0.9200	0.7760	0.7700	0.7760	0.7760	0.9200	0.7760	0.7760	0.7760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	32	34	73	0	121	3	39	0	0	0
Total Analysis Volume [veh/h]	0	273	130	135	294	0	485	10	157	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	872	829	652	
Degree of Utilization, x	0.46	0.52	1.02	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.48	3.03	16.48	
95th-Percentile Queue Length [ft]	61.90	75.86	411.89	
Approach Delay [s/veh]	10.63	11.91	64.32	0.00
Approach LOS	B	B	F	A
Intersection Delay [s/veh]	34.59			
Intersection LOS	D			

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	19.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.818

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	21	36	0	0	0	43	0	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	358	0	0	166	388	0	0	0	89	6	84
Peak Hour Factor	0.8760	0.8760	0.9200	0.9200	0.8760	0.8760	0.9200	0.9200	0.9200	0.8760	0.8760	0.8760
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	102	0	0	47	111	0	0	0	25	2	24
Total Analysis Volume [veh/h]	235	409	0	0	189	443	0	0	0	102	7	96
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	788	868		571
Degree of Utilization, x	0.82	0.73		0.36

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	8.97	6.57		1.62
95th-Percentile Queue Length [ft]	224.20	164.16		40.55
Approach Delay [s/veh]	24.54	17.38	0.00	12.79
Approach LOS	C	C	A	B
Intersection Delay [s/veh]	19.86			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.694

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	66	16	48	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	332	128	101	167	0	279	8	104	0	0	0
Peak Hour Factor	0.9200	0.8760	0.8760	0.8760	0.8760	0.9200	0.8760	0.8760	0.8760	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	95	37	29	48	0	80	2	30	0	0	0
Total Analysis Volume [veh/h]	0	379	146	115	191	0	318	9	119	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	891	807	642	
Degree of Utilization, x	0.59	0.38	0.69	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.97	1.78	5.55	
95th-Percentile Queue Length [ft]	99.20	44.53	138.74	
Approach Delay [s/veh]	12.69	10.16	20.31	0.00
Approach LOS	B	B	C	A
Intersection Delay [s/veh]	14.74			
Intersection LOS	B			

Year 2040 Scenarios
Queuing Analysis

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	108.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	28	0	0	55	27	0	0	0	31	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	602	0	0	291	300	0	0	0	77	1	76
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	164	0	0	79	82	0	0	0	21	0	21
Total Analysis Volume [veh/h]	97	654	0	0	316	326	0	0	0	84	1	83
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.01	0.18
d_M, Delay for Movement [s/veh]	9.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	105.04	108.62	81.99
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	8.39	8.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	6.88	6.88
95th-Percentile Queue Length [ft]	209.85	209.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	172.06	172.06	172.06
d_A, Approach Delay [s/veh]	1.19			0.00			0.00			93.67		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	10.65											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	590.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	70	50	36	0	23	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	223	140	146	223	0	449	10	84	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	61	38	40	61	0	122	3	23	0	0	0
Total Analysis Volume [veh/h]	0	242	152	159	242	0	488	11	91	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.14	0.00	0.00	2.05	0.05	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.54	0.00	0.00	589.16	590.41	578.54	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.53	1.53	0.00	45.30	45.30	45.30	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	38.23	38.23	0.00	1132.38	1132.38	1132.38	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.39			587.55			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	251.27											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	364.8
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.097

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	45	0	0	36	36	0	0	0	73	0	51
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	172	414	0	0	211	460	0	0	0	128	7	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	113	0	0	57	125	0	0	0	35	2	34
Total Analysis Volume [veh/h]	187	450	0	0	229	500	0	0	0	139	8	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.28	0.10	0.22
d_M, Delay for Movement [s/veh]	10.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	354.10	364.77	326.82
Movement LOS	B	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	6.41	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.88	18.88	18.88
95th-Percentile Queue Length [ft]	160.17	160.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	471.90	471.90	471.90
d_A, Approach Delay [s/veh]	2.98			0.00			0.00			341.29		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	59.72											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	421.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.054

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	21	47	34	75	0	42	0	20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	315	122	136	219	0	327	10	90	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	86	33	37	60	0	89	3	24	0	0	0
Total Analysis Volume [veh/h]	0	342	133	148	238	0	355	11	98	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.13	0.00	0.00	1.65	0.05	0.12	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.79	0.00	0.00	420.56	421.47	408.33	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	1.60	1.60	0.00	31.66	31.66	31.66	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	39.96	39.96	0.00	791.49	791.49	791.49	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.37			418.00			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	147.36											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	325.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	62	27	0	0	0	77	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	605	0	0	298	300	0	0	0	123	1	76
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	164	0	0	81	82	0	0	0	33	0	21
Total Analysis Volume [veh/h]	121	658	0	0	324	326	0	0	0	134	1	83
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.01	0.18
d_M, Delay for Movement [s/veh]	9.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	321.16	325.33	293.79
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	9.60	9.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.60	14.60	14.60
95th-Percentile Queue Length [ft]	239.90	239.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	365.08	365.08	365.08
d_A, Approach Delay [s/veh]	1.45			0.00			0.00			310.76		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	41.82											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	797.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.059

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	90	50	89	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	248	160	146	276	0	449	10	136	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	43	40	75	0	122	3	37	0	0	0
Total Analysis Volume [veh/h]	0	270	174	159	300	0	488	11	148	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.14	0.00	0.00	2.41	0.06	0.20	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.72	0.00	0.00	796.48	797.93	783.53	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	2.01	2.01	0.00	54.98	54.98	54.98	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	50.33	50.33	0.00	1374.42	1374.42	1374.42	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.02			793.54			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	332.14											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	781.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	39	36	0	0	0	97	0	51
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	421	0	0	214	460	0	0	0	152	7	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	114	0	0	58	125	0	0	0	41	2	34
Total Analysis Volume [veh/h]	252	458	0	0	233	500	0	0	0	165	8	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.12	0.14	0.22
d_M, Delay for Movement [s/veh]	10.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	765.67	781.67	725.26
Movement LOS	B	A			A	A				F	F	F
95th-Percentile Queue Length [veh]	8.82	8.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.33	27.33	27.33
95th-Percentile Queue Length [ft]	220.46	220.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	683.28	683.28	683.28
d_A, Approach Delay [s/veh]	3.80			0.00			0.00			748.30		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	133.52											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Two-way stop	Delay (sec / veh):	636.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.069

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	101	34	102	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	382	176	136	246	0	327	10	116	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	104	48	37	67	0	89	3	32	0	0	0
Total Analysis Volume [veh/h]	0	415	191	148	267	0	355	11	126	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.15	0.00	0.00	2.06	0.07	0.16	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	9.32	0.00	0.00	635.13	636.70	618.88	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	2.13	2.13	0.00	39.34	39.34	39.34	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	53.30	53.30	0.00	983.59	983.59	983.59	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			3.32			631.00			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	206.10											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	34.8
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.992

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	467	0	0	192	222	0	0	0	37	1	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	31	0	0	62	27	0	0	0	77	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	605	0	0	298	300	0	0	0	123	1	76
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	164	0	0	81	82	0	0	0	33	0	21
Total Analysis Volume [veh/h]	121	658	0	0	324	326	0	0	0	134	1	83
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	786	817		536
Degree of Utilization, x	0.99	0.80		0.41

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	16.69	8.35		1.96
95th-Percentile Queue Length [ft]	417.16	208.76		49.03
Approach Delay [s/veh]	50.96	22.21	0.00	14.25
Approach LOS	F	C	A	B
Intersection Delay [s/veh]	34.76			
Intersection LOS	D			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.881

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	0	171	57	78	152	0	346	8	64	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	38	90	50	89	0	23	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	248	160	146	276	0	449	10	136	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	43	40	75	0	122	3	37	0	0	0
Total Analysis Volume [veh/h]	0	270	174	159	300	0	488	11	148	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	11	0	11	11	0	0	38	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	
C, Cycle Length [s]	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	17	7	17	24	
g / C, Green / Cycle	0.28	0.12	0.28	0.41	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.09	0.16	0.37	
s, saturation flow rate [veh/h]	1777	1810	1900	1762	
c, Capacity [veh/h]	494	211	528	716	
d1, Uniform Delay [s]	18.14	24.58	16.06	16.77	
k, delay calibration	0.50	0.11	0.50	0.20	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	21.89	5.37	4.39	7.91	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.90	0.75	0.57	0.90	
d, Delay for Lane Group [s/veh]	40.03	29.95	20.44	24.68	
Lane Group LOS	D	C	C	C	
Critical Lane Group	Yes	Yes	No	Yes	
50th-Percentile Queue Length [veh]	7.52	2.29	3.41	8.77	
50th-Percentile Queue Length [ft]	188.04	57.15	85.32	219.28	
95th-Percentile Queue Length [veh]	12.02	4.12	6.14	13.63	
95th-Percentile Queue Length [ft]	300.48	102.88	153.57	340.70	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	40.03	40.03	29.95	20.44	0.00	24.68	24.68	24.68	0.00	0.00	0.00
Movement LOS		D	D	C	C		C	C	C			
d_A, Approach Delay [s/veh]	40.03			23.74			24.68			0.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	28.80											
Intersection LOS	C											
Intersection V/C	0.881											

Sequence

Ring 1	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Hargrave Street (NS) / I-10 Westbound Ramps (EW)

Control Type:	All-way stop	Delay (sec / veh):	30.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.923

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	125	300	0	0	142	345	0	0	0	45	6	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.23	1.23	1.00	1.00	1.23	1.23	1.00	1.00	1.00	1.23	1.23	1.23
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	52	0	0	39	36	0	0	0	97	0	51
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	421	0	0	214	460	0	0	0	152	7	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	114	0	0	58	125	0	0	0	41	2	34
Total Analysis Volume [veh/h]	252	458	0	0	233	500	0	0	0	165	8	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	769	849		541
Degree of Utilization, x	0.92	0.86		0.57

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	13.02	10.86		3.56
95th-Percentile Queue Length [ft]	325.52	271.49		89.10
Approach Delay [s/veh]	37.68	27.47	0.00	18.17
Approach LOS	E	D	A	C
Intersection Delay [s/veh]	29.97			
Intersection LOS	D			

Intersection Level Of Service Report
Intersection 3: Hargrave Street (NS) / I-10 Eastbound Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.873

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		30.00			30.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	0	239	61	83	117	0	232	8	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.23	1.23	1.23	1.23	1.00	1.23	1.23	1.23	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	88	101	34	102	0	42	0	46	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	382	176	136	246	0	327	10	116	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	104	48	37	67	0	89	3	32	0	0	0
Total Analysis Volume [veh/h]	0	415	191	148	267	0	355	11	126	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	13	0	11	24	0	0	36	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	C	
C, Cycle Length [s]	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	22	6	33	19	
g / C, Green / Cycle	0.37	0.11	0.55	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.34	0.08	0.14	0.28	
s, saturation flow rate [veh/h]	1800	1810	1900	1757	
c, Capacity [veh/h]	670	196	1040	562	
d1, Uniform Delay [s]	14.16	24.96	4.06	19.34	
k, delay calibration	0.50	0.11	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	17.88	5.78	0.60	4.52	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

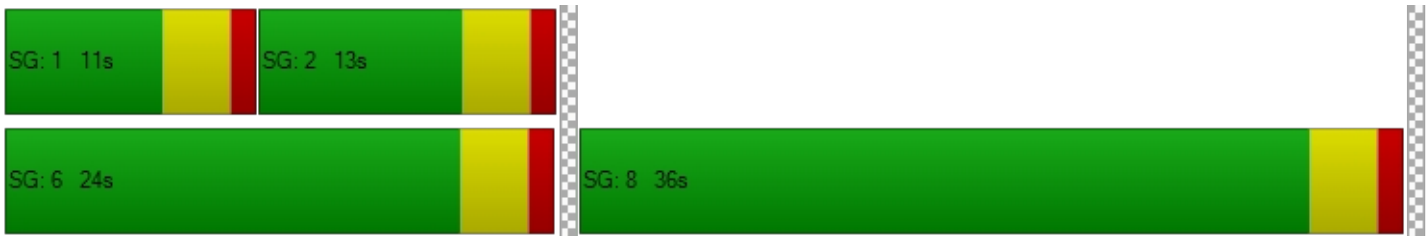
X, volume / capacity	0.90	0.75	0.26	0.88	
d, Delay for Lane Group [s/veh]	32.04	30.74	4.65	23.86	
Lane Group LOS	C	C	A	C	
Critical Lane Group	Yes	Yes	No	Yes	
50th-Percentile Queue Length [veh]	8.36	2.17	0.98	6.50	
50th-Percentile Queue Length [ft]	208.95	54.15	24.53	162.59	
95th-Percentile Queue Length [veh]	13.10	3.90	1.77	10.69	
95th-Percentile Queue Length [ft]	327.49	97.47	44.15	267.15	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	32.04	32.04	30.74	4.65	0.00	23.86	23.86	23.86	0.00	0.00	0.00
Movement LOS		C	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	32.04			13.96			23.86			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	24.42											
Intersection LOS	C											
Intersection V/C	0.873											

Sequence

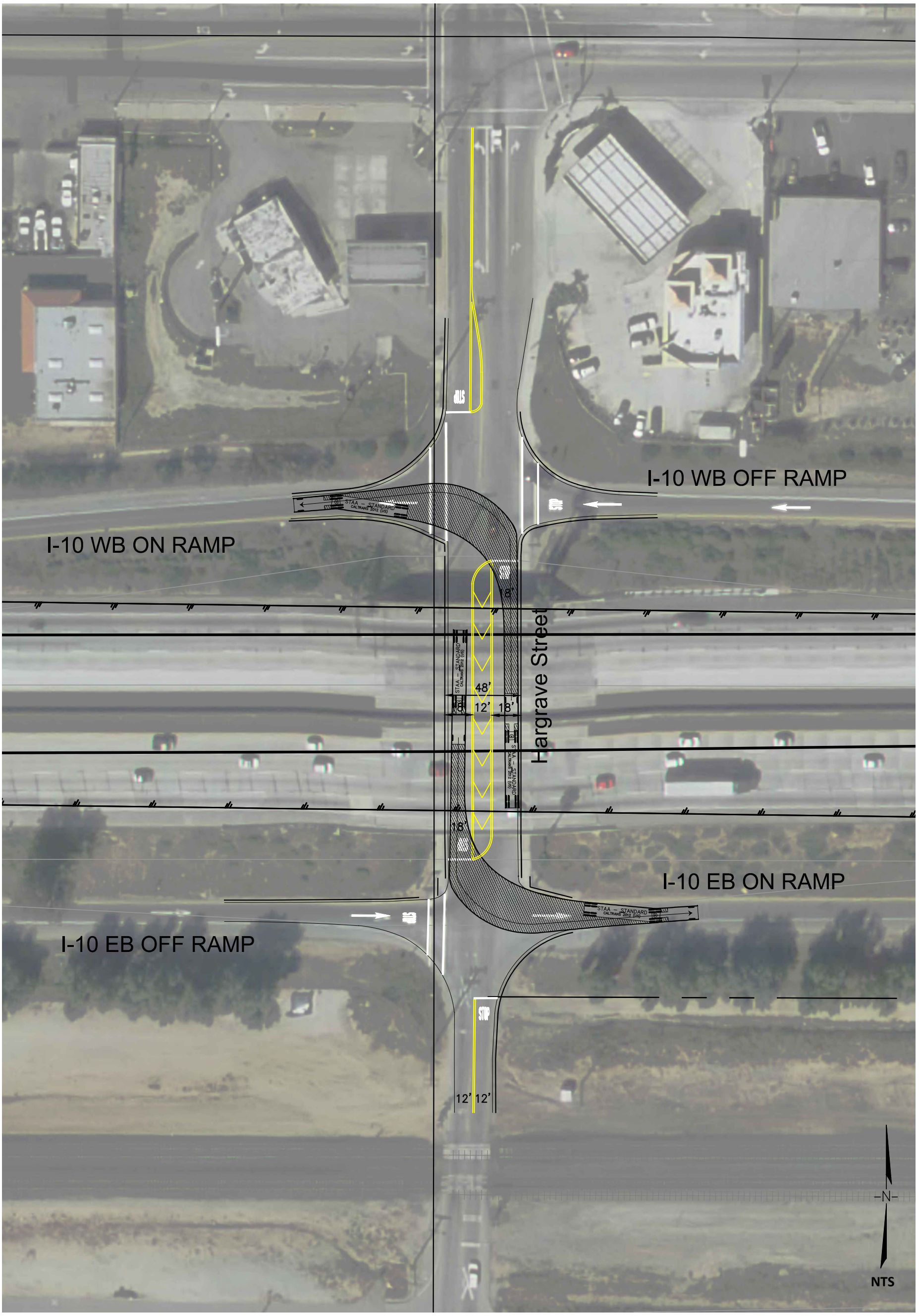
Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX F

Conceptual Striping Exhibits
Existing through EACP Conditions

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
WB LEFT @ I-10 WB OFF-RAMP & EB LEFT @ I-10 EB OFF-RAMP
EXISTING CONDITIONS THROUGH EACP CONDITIONS

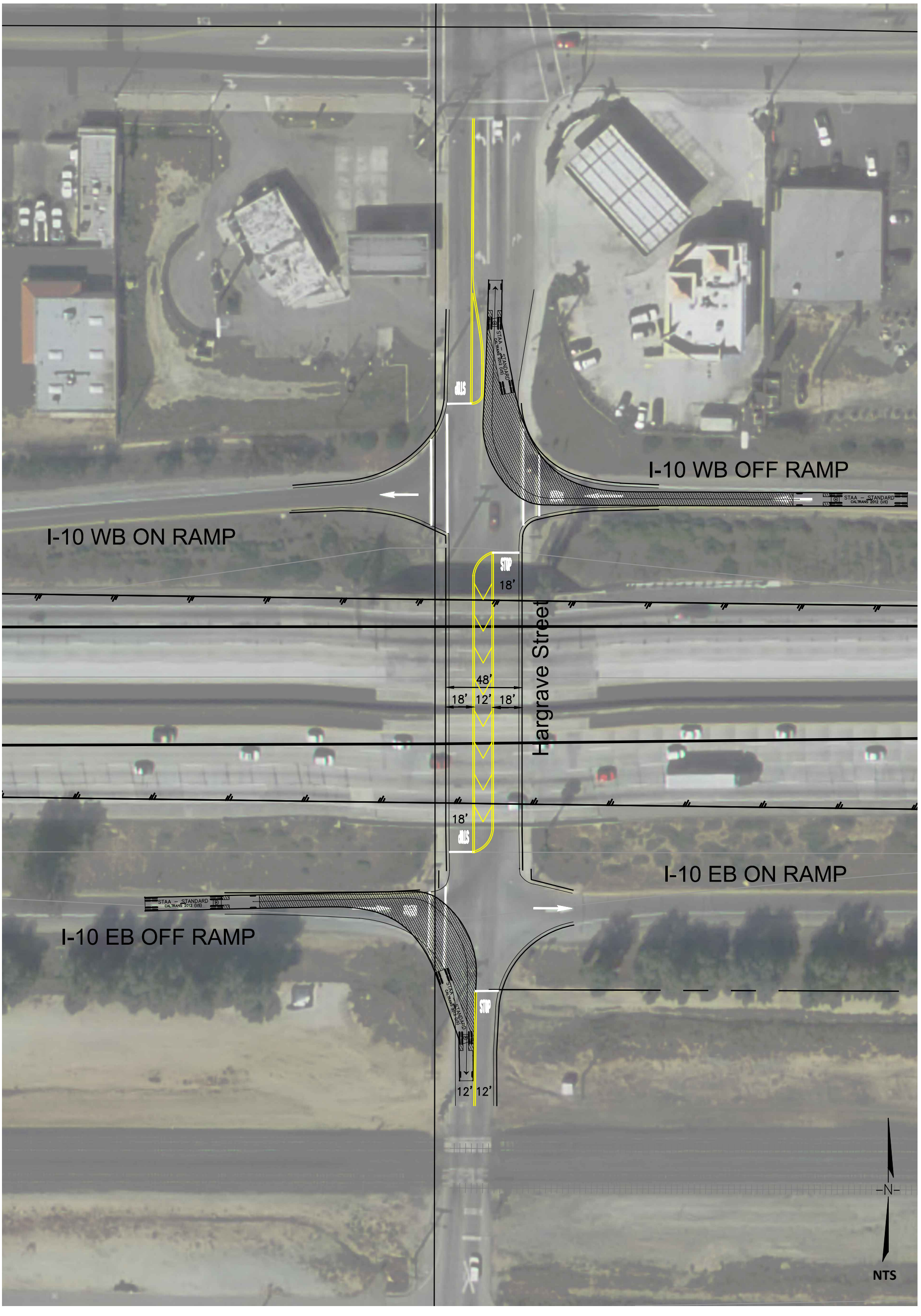


ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O. 15-0233

SHEET 1 OF 4 SHEETS

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
WB RIGHT @ I-10 WB OFF-RAMP & EB RIGHT @ I-10 EB OFF-RAMP
EXISTING CONDITIONS THROUGH EACP CONDITIONS



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

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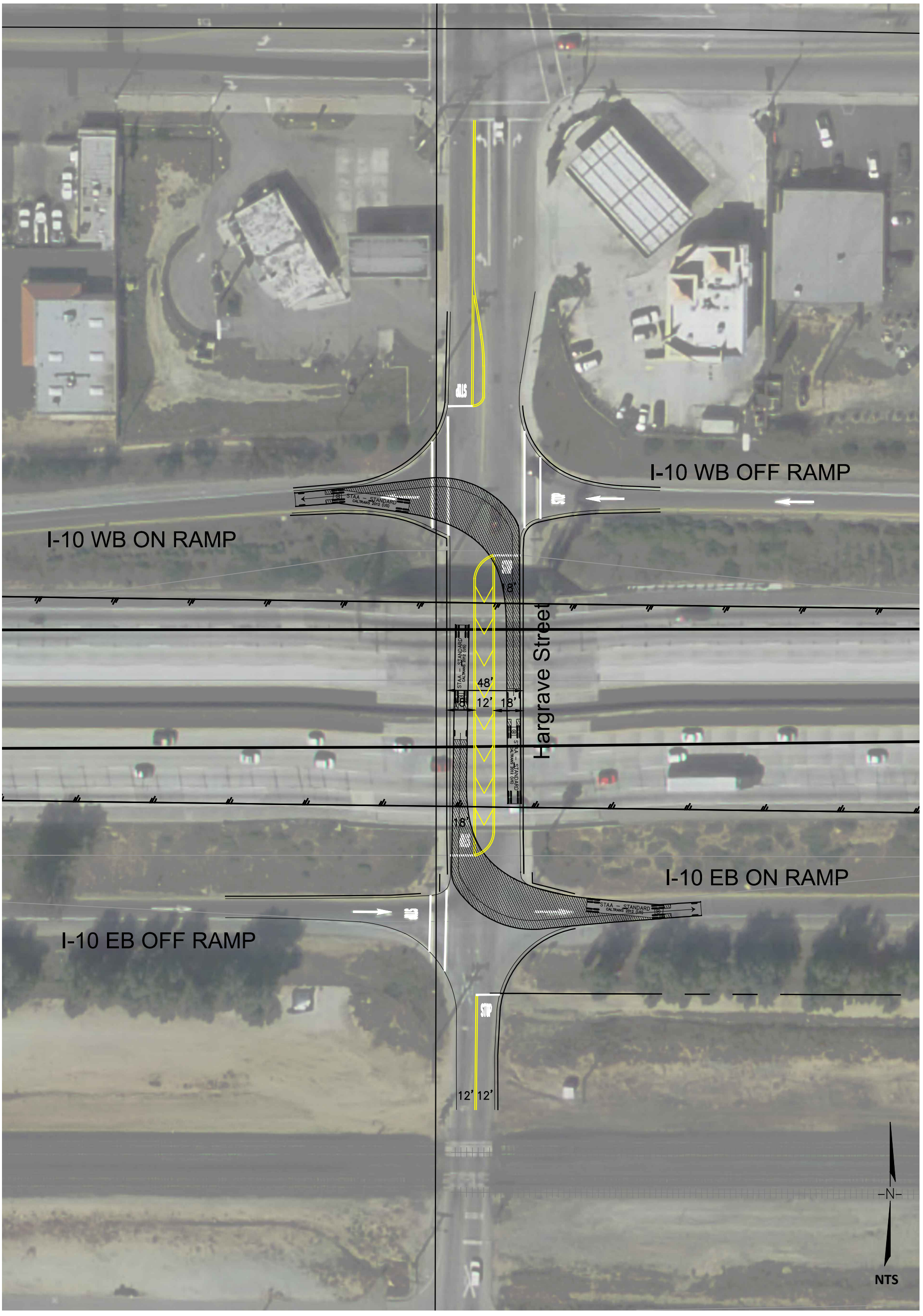
SHEET 2 OF 4 SHEETS

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
NB LEFT @ I-10 WB ON-RAMP & SB LEFT @ I-10 EB ON-RAMP
EXISTING CONDITIONS THROUGH EACP CONDITIONS



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

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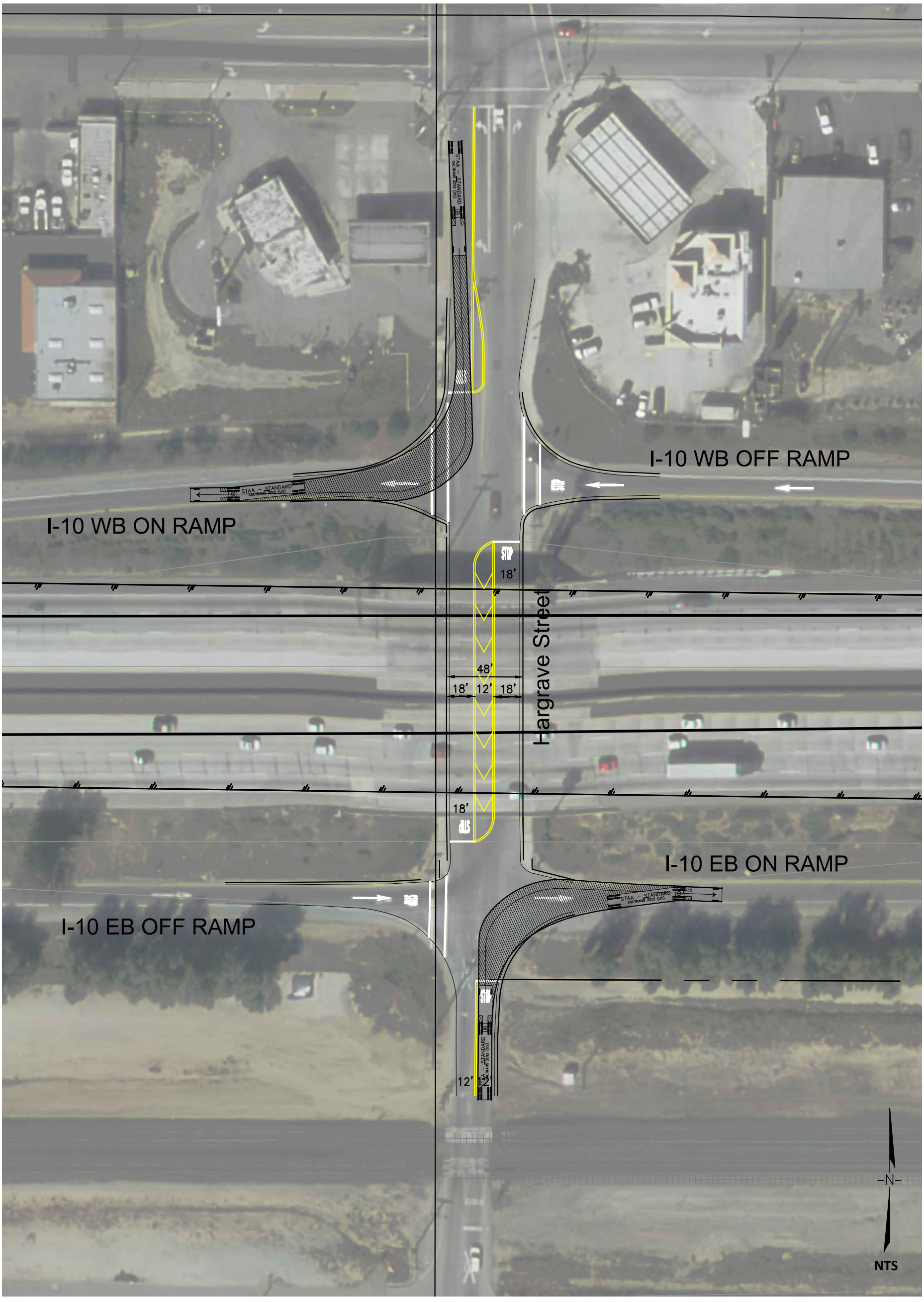
SHEET 3 OF 4 SHEETS

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
SB RIGHT @ I-10 WB ON-RAMP & NB RIGHT @ I-10 EB ON-RAMP
EXISTING CONDITIONS THROUGH EACP CONDITIONS



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

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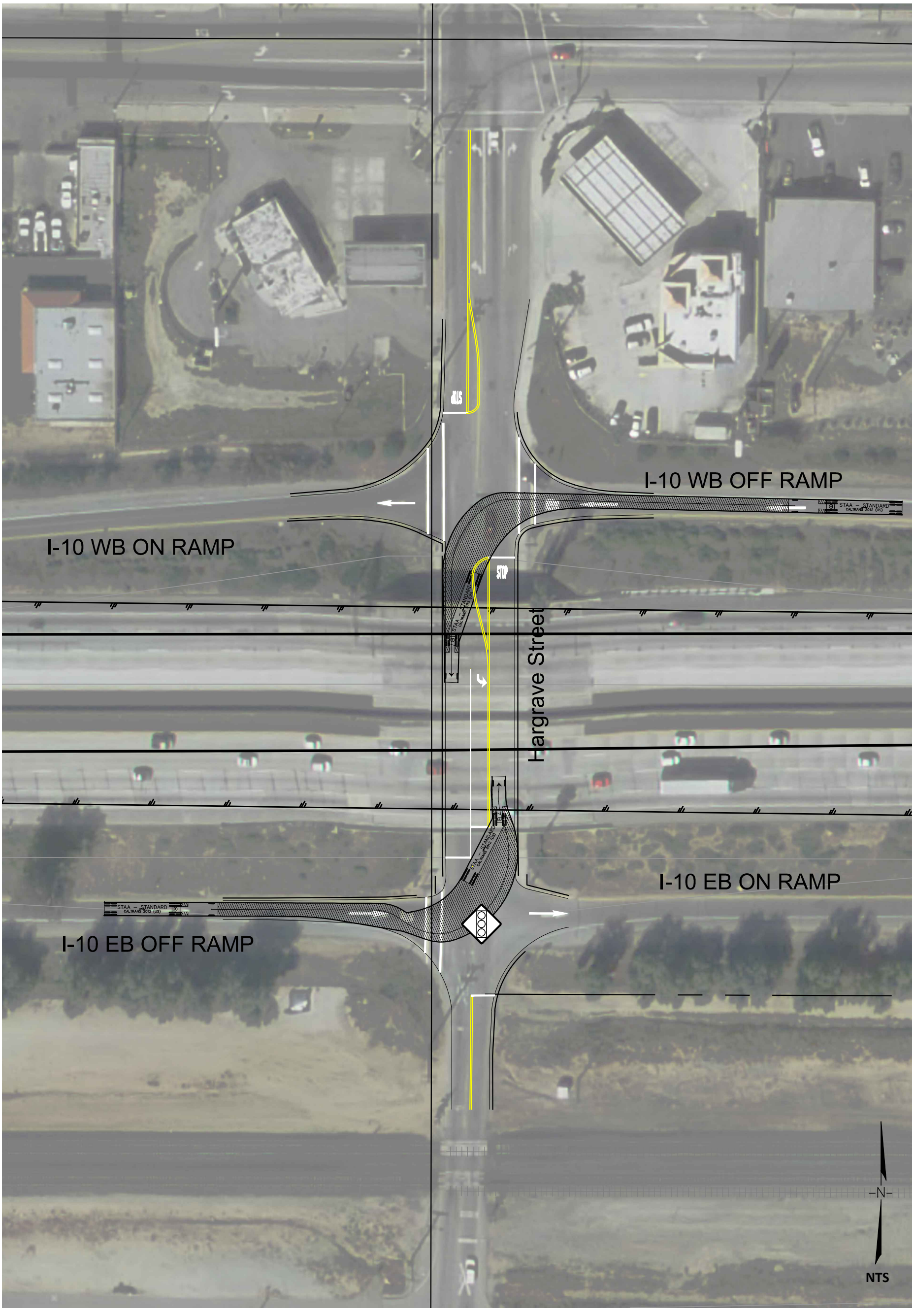
SHEET 4 OF 4 SHEETS

Conceptual Striping Exhibits
Year 2040 Conditions

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
WB LEFT @ I-10 WB OFF-RAMP & EB LEFT @ I-10 EB OFF-RAMP
2040 CONDITIONS

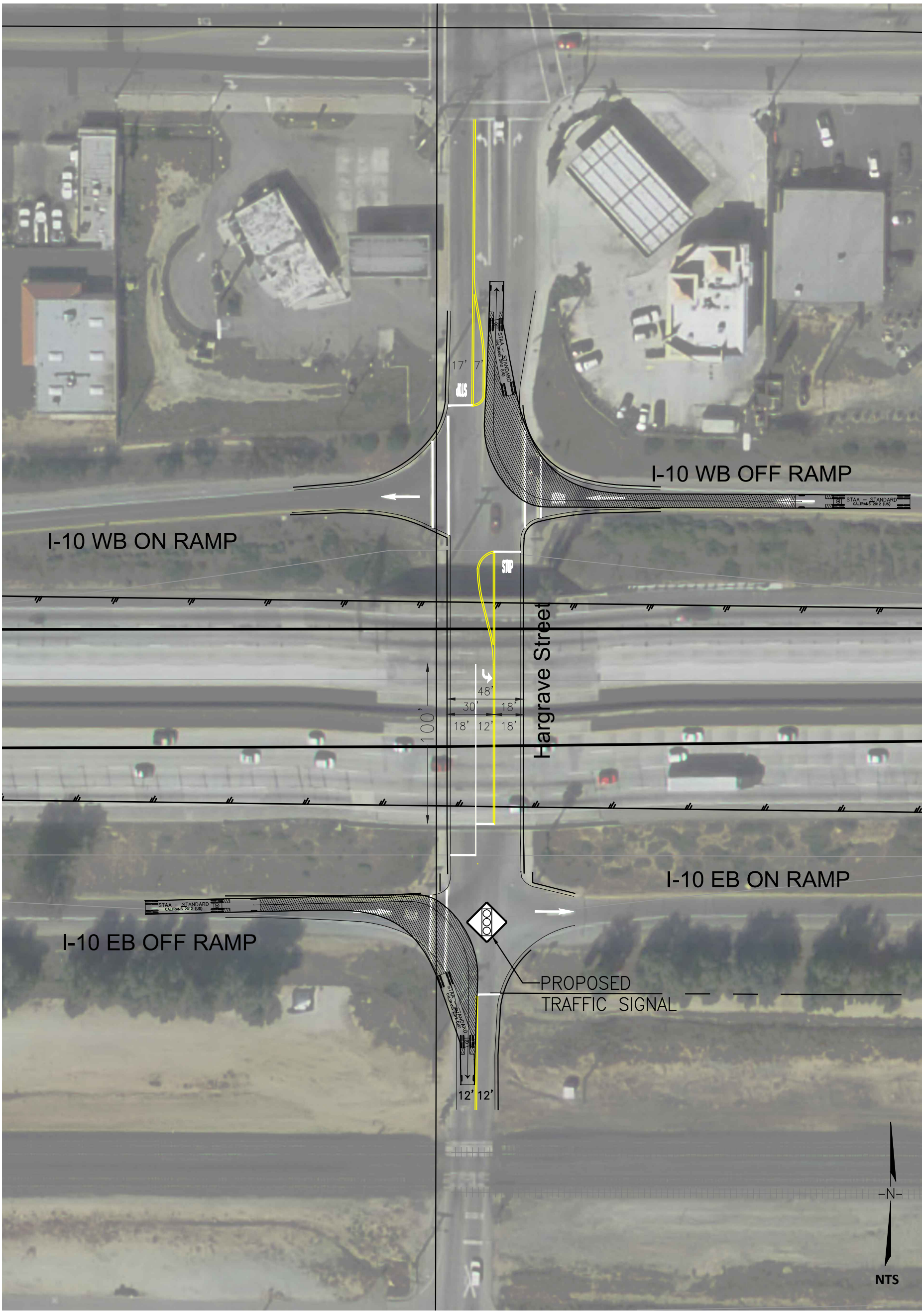


ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

W.O. 15-0233

SHEET 1 OF 4 SHEETS

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
WB RIGHT @ I-10 WB OFF-RAMP & EB RIGHT @ I-10 EB OFF-RAMP
2040 CONDITIONS



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

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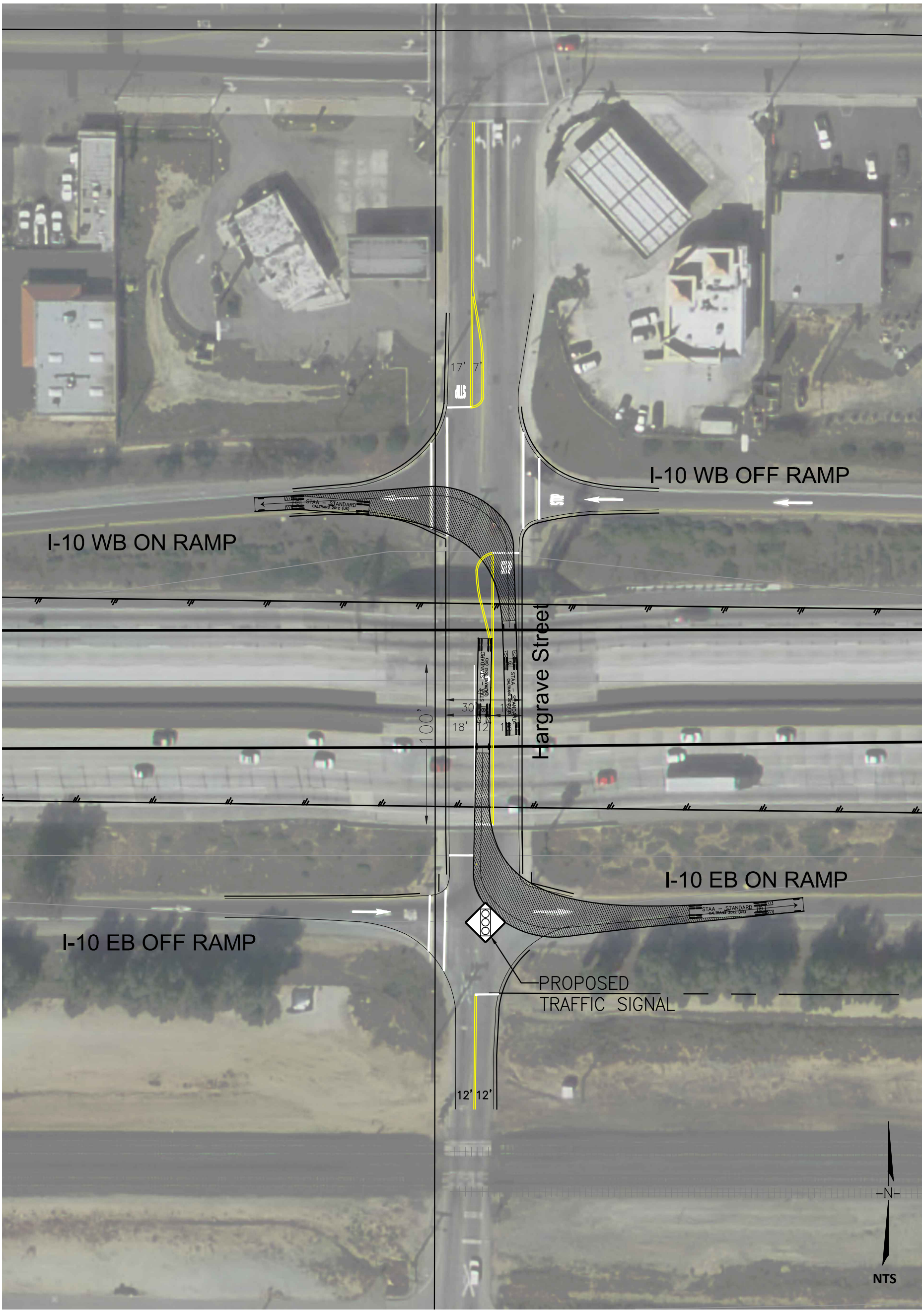
SHEET 2 OF 4 SHEETS

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
NB LEFT @ I-10 WB ON-RAMP & SB LEFT @ I-10 EB ON-RAMP
2040 CONDITIONS



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

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SHEET 3 OF 4 SHEETS

CONCEPTUAL STRIPING EXHIBITS AT HARGRAVE STREET IN THE CITY OF BANNING
SB RIGHT @ I-10 WB ON-RAMP & NB RIGHT @ I-10 EB ON-RAMP
2040 CONDITIONS



ALBERT A. WEBB ASSOCIATES
ENGINEERING CONSULTANTS
3788 McCRAY STREET
RIVERSIDE CA. 92506
PH. (951) 686-1070
FAX (951) 788-1256

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SHEET 4 OF 4 SHEETS

Appendix O

Table 1 – Total Construction-Related Fuel Consumption

Banning Distribution Center

Fuel	Consumption	
Diesel		
On-Road Construction Trips[1]	119,356	Gallons
Off-Road Construction Equipment[2]	67,476	Gallons
Diesel Total	**186,832**	**Gallons**
Gasoline		
On-Road Construction Trips[1]	198,436	Gallons
Off-Road Construction Equipment[3]	-	Gallons
Gasoline Total	**198,436**	**Gallons**

Notes:

1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod for construction in 2019 and fleet-average fuel consumption in gallons per mile from EMFAC2014 web based data for SCAQMD's jurisdiction. See Table 2 for calculation details.
2. Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (HP)-hour, based on SCAQMD CEQA Air Quality Handbook, Table A9-3E.
3. All emissions from off-road construction equipment were assumed to be diesel.

Table 2 – On-Road Construction Trip Estimates

Banning Distribution Center

Trip Type	Trips	Trip length	Vehicle Miles Traveled (VMT)	Fuel Efficiency	Annual Fuel Usage[1]	
	(trips)	(miles)	(miles)	(mpg)	(Fuel)	(gallon)
Worker[2,3]	321,016	14.7	4,718,935	23.2	Gasoline	198,436
Vendor[4]	119,704	6.9	825,958	7.3	Diesel	118,707
Hauling - Offsite [5,6]	188	20	3,760	5.8	Diesel	649
Hauling - Site Prep[5,7]	1,288	11.5	14,812	5.8	Diesel	2,557

Notes:

1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod output (DEIR Appendix B) for all years of construction and fleet-average fuel consumption in gallons per mile from EMFAC2014 web based data for 2019 in the South Coast Air Quality Management District (SCAQMD) to ensure a conservative analysis.
2. Worker trips were assumed to be 100% gasoline powered vehicles.
3. Per CalEEMod, worker Trips were assumed to be 50% LDA, 25% LDT1, and 25% LDT2.
4. Vendor trips were assumed to be 50% MHDT and 50% HHDT, split evenly between the MHDT and HHDT construction categories.
5. Per CalEEMod, hauling trips were assumed to be 100% HHDT.
6. Trips from off-site infastructure hauling trips.
6. Trips from site preperation debris hauling. Hauling Distance was assumed per Landfill at 11.5 miles from Project site.

Table 3 – Annual Energy Consumption from Operation

Banning Distribution Center

Fuel Type	Energy Consumption	Units	Natural Gas	Units
Electricity				
Building[1]	1,482,500	kWh/year	**2,030,000**	kBTU/yr
Water[2]	151,333	kWh/year		
Total Electricity	**1,633,833**	kWh/year		
Mobile[3]				
Gasoline	**714,550**	gallons/year		
Diesel	**1,554,697**	gallons/year		

Notes:

1. Building electricity use from CalEEMod output (DEIR Appendix B) based on 2016 Title 24 and includes mitigation for high efficiency lighting.
2. Calculated based on the CalEEMod SCAQMD energy intensity of 0.0111 kWhr per gallon for supply, distribution, and treatment of water and the Project's annual water consumption. Indoor water use will be reduced by 20% per CalGreen building code.
3. Mobile source fuel use based on annual vehicle miles traveled (VMT) from CalEEMod output for operational year 2020 and fleet-average fuel consumption in gallons per mile from EMFAC2014 web based data for the South Coast Air Quality Management District.