Water Quality Assessment Report
State Route 86 (SR-86)/Avenue 50 New Interchange Project

Western view of the project at the SR-86/Avenue 50 Interchange

City of Coachella

Riverside County

08-RIV-86-R19.2/R21.6

Project EA: 08-0C9700

Project ID: 0814000144

June 2018

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STATE OF CALIFORNIA

Department of Transportation

Prepared By: _____ Date: 6/12/18

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Executive Summary

This report evaluates how the proposed State Route 86 (SR-86)/Avenue 50 New Interchange Project (proposed project), sponsored by the City of Coachella, in cooperation with the California Department of Transportation (Caltrans) District 8 and Coachella Valley Association of Governments, may affect the water quality of adjacent surface and ground water resources and their beneficial uses. The proposed project will improve public safety and mobility on SR-86 and Avenue 50. The proposed project drains to the Coachella Valley Stormwater Channel/Whitewater River. Coachella Valley Stormwater Channel is impaired for Dichlorodiphenyltrichloroethane (DDT), Dieldrin, Indicator Bacteria, Total Ammonia, Polychlorinated biphenyls (PCB), Toxaphene, and Toxicity on the 2016 303(d) List of impaired water bodies, and has a Total Maximum Daily Load (TMDL) established for Bacterial Indicators. During the construction phase of the proposed project, temporary erosion and sediment control measures will be implemented to retain soil and sediment. In addition, devices that will address the post-construction Targeted Design Constituents from the proposed project will be evaluated to mitigate impacts from the proposed project on downstream water bodies.

This report assesses the potential impacts that the proposed project may have on the water quality of nearby receiving water bodies. It evaluates the development of the proposed project; specifically, how it addresses water quality standards, how it complies with National Pollutant Discharge Elimination System (NPDES) permit compliance for redevelopment in Caltrans right of way (Order No. 2012-0011-DWQ, as amended by Orders WQ 2014-0006-EXEC, WQ 2014-0077-DWQ, and WQ 2015-0036-EXEC), and in the City of Coachella's jurisdiction (Order No. R7-2013-0011). In addition, the proposed project will be evaluated for its compliance with the State Water Resources Control Board (SWRCB) NPDES Construction General Permit (CGP) (Order No. 2009-0009-DWQ, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ). No agency coordination regarding any regulatory permits (i.e., Section 401, 404, or 1600) that the proposed project may require has occurred. The investigations and research on their applicability are ongoing, and this document will be updated as more information is available.

A Stormwater Pollution Prevention Plan (SWPPP) will be required, and the SWPPP will be implemented during construction of the proposed project. The construction SWPPP identifies specific best management practices (BMPs) that will be implemented during the proposed project's construction. They will be implemented to meet the Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) requirements as stipulated in the CGP.

The proposed project will increase the impervious area at the proposed project site by approximately 21 acres in Alternative 7 and approximately 22 acres in Alternative 8, which will increase the amount of runoff from SR-86 and Avenue 50 within the proposed project limits. As described in Caltrans' Stormwater Management Plan (SWMP) and Project Planning and Design Guide, the proposed project will be required to incorporate a combination of Structural and Non-Structural Source Control BMPs (as applicable and feasible) into proposed project plans through conditions of approval or building/grading permit conditions in accordance with Section 4.2.1 of the SWMP. With the implementation of avoidance and minimization measures, the proposed project's construction, design, and facility operation will attempt to mitigate the increase in impervious area and resulting increase in peak flow and volume to the maximum extent practicable.

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1 Introduction

The City of Coachella (City), in cooperation with the California Department of Transportation (Caltrans) District 8 and Coachella Valley Association of Governments (CVAG), proposes the construction of a new interchange at State Route 86 (SR-86) and Avenue 50, approximately 1.1 miles north of the existing Avenue 52 intersection and 1.95 miles south of the existing Dillon Road interchange. The California Department of Transportation (Caltrans, or Department) is the lead agency under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA).

1.1 Project Description

The proposed project would convert a portion of SR-86 from existing expressway to freeway with a new overcrossing structure and access ramps, which would accommodate traffic for existing and planned development in the area. It would also improve safety and traffic operations by improving level of service (LOS) at the SR-86/Dillon Road interchange and the SR-86/Avenue 52 intersection. The proposed improvements include realignment and widening of Avenue 50 from the existing two-lane roadway to a six-lane major arterial, and realignment of Tyler Street on both the east and west side of SR-86. The project would also improve public safety and mobility by constructing another new bridge spanning over Coachella Valley Stormwater Channel (CVSC), replacing the existing low water crossing, and eliminating flood-related hazards during inclement weather events.

The proposed project includes two alternatives, Alternative 7 and Alternative 8, which are essentially the same except for the configuration of the southbound SR-86 on-ramp and off-ramp. Alternative 8 includes a southbound Loop On-Ramp whereas Alternative 7 does not. The Caltrans *Project Planning and Design Guide* (2017) makes distinctions between the areas of Replaced Impervious Surfaces (RIS), Net New Impervious (NNI) Areas, New Impervious Surfaces (NIS), Post Construction Treatment Areas (PCTA), and Additional Treated Areas (ATA). These areas are related because the NIS is the addition of NNI and RIS, and PCTA is the addition of NIS and ATA. It defines RIS, NNI, NIS, PCTA, and ATA as the following:

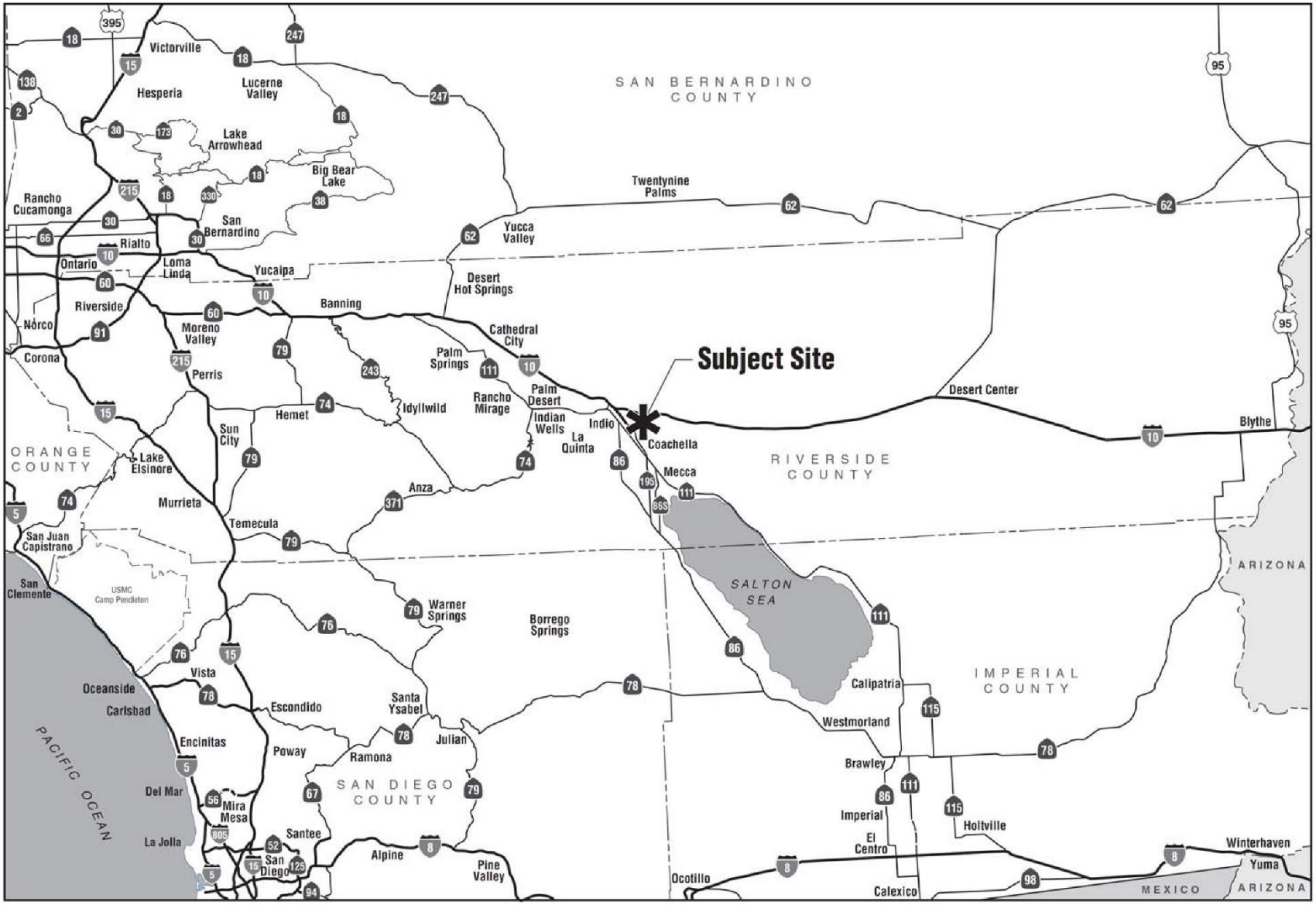
- RIS – The area of underlying soil or pervious subgrade exposed during construction.
- NNI – The post-project impervious area minus the pre-project impervious area.
- NIS – The addition of the NNI and the RIS.
- PCTA – The impervious area required to be treated by the project.
- ATA – The area determined by evaluating two conditions: 1) If an existing Treatment BMP is removed or modified by the project, or if any portion of its contributing drainage area cannot continue to be treated by the existing Treatment BMP, then that impervious area and pervious area shall, at a minimum, be treated by the project, excluding any RIS within the existing Treatment BMPs CDA and 2) Where the NNI for the project is greater than 50 percent of the total post-project impervious area, then the entire impervious area shall be treated.

The approximate acreage of PCTA surface, which only includes the area required to be treated because of the proposed project's alternatives, is shown by alternative in Table 1 below.

Table 1: Estimated Disturbed Soil Area and PCTA Surface Area for Both Alternatives

Alternative Number	Estimated Disturbed Soil Area (acres)	Estimated NNI (acres)	Estimated RIS (acres)	Estimated NIS (acres)	Estimated ATA		Estimated PCTA (acres)
					Condition #1 (acres)	Condition #2 (acres)	
7	42	21.3	4.6	25.9	0	41.6	41.6
8	40	20.7	4.6	25.3	0	40.2	40.2

Exhibit 1 shows the regional vicinity of the proposed project, and Exhibit 2 shows the project vicinity of the proposed project. Exhibits 3 and 4 show the site plans for Alternatives 7 and 8, respectively.



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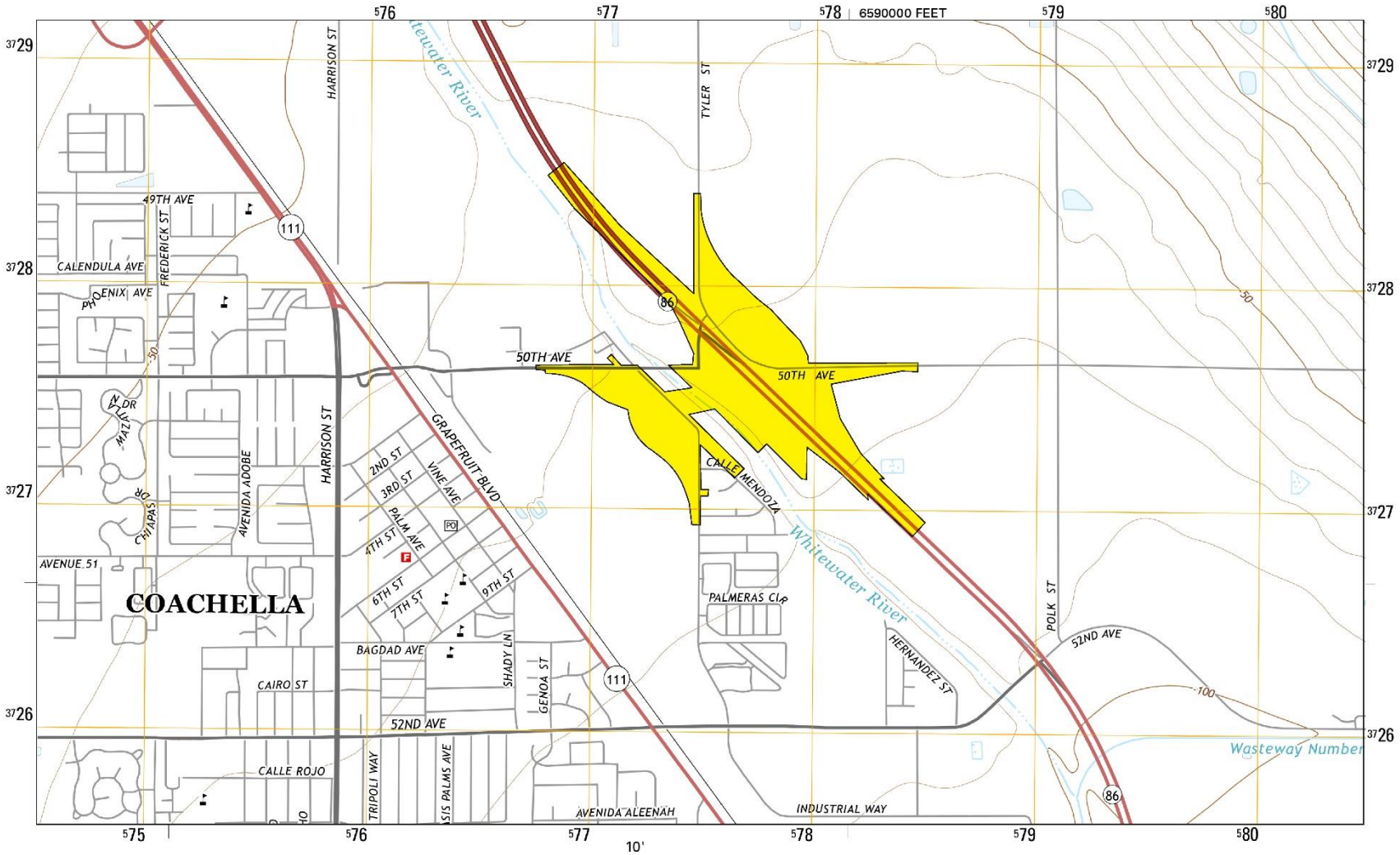
SR-86/ AVENUE 50 NEW INTERCHANGE PROJECT

Regional Vicinity

Exhibit 1



Source: USGS Indio, CA Quadrangle, 2016.

Project Design Footprint

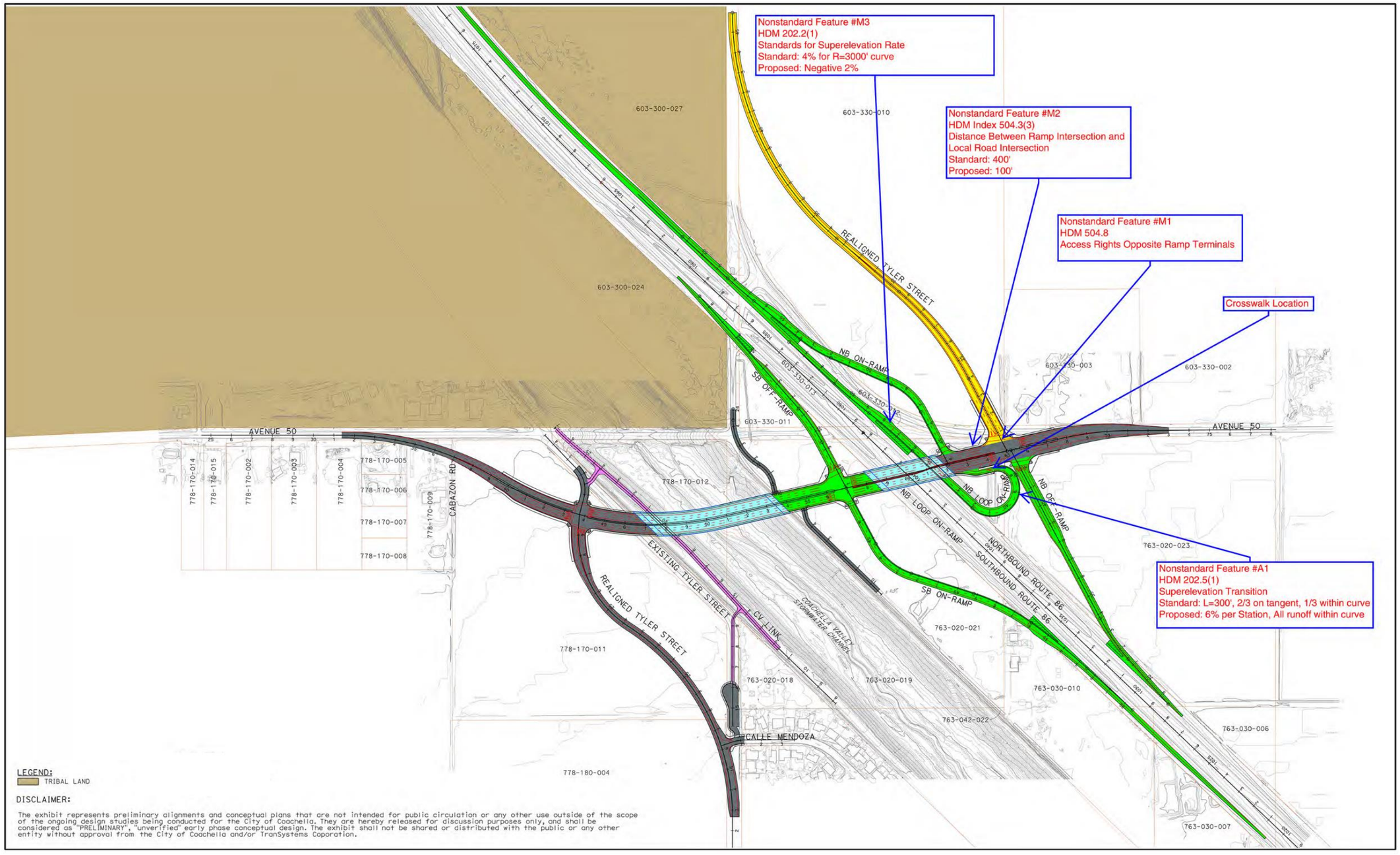
0 2000'
APPROXIMATE

03/30/18 JN159814 task 08 MAS

SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

Project Vicinity

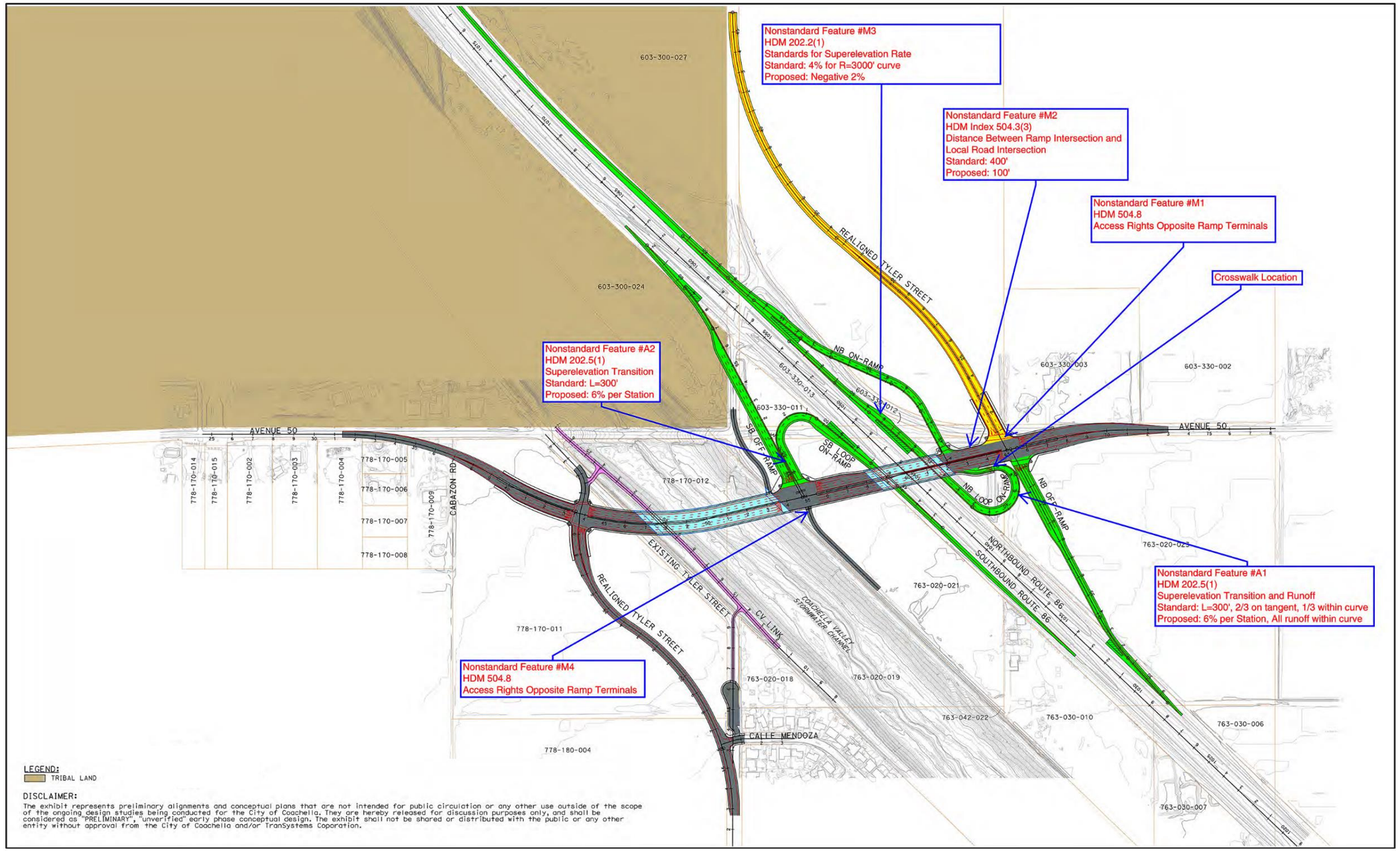
Exhibit 2



SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

Site Plan – Alternative 7

Exhibit 3



SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

Site Plan – Alternative 8

Exhibit 4

1.2 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollution Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the physical setting of the project area, and the regulatory framework with respect to water quality. It also provides data on surface water and groundwater resources within the project area and the water quality of these waters, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed project, and recommends avoidance and/or minimization measures for potentially adverse impacts. Both alternatives include different components, so they will both be evaluated in this assessment.

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2 Regulatory Setting

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

USACE issues two types of 404 permits: Standard and General permits. For General permits, there are two types: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are also two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and on whether permit approval is in the public interest. The 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and they allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have less effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and

compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

2.2 State Laws and Requirements

2.2.1 Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use, and they vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

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State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water." The SWRCB has identified the Department as an owner/operator of an MS4 pursuant to federal regulations. The Department's MS4 permit (Order No. 2012-0011-DWQ) covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit contains three basic requirements:

- The Department must comply with the requirements of the CGP (see below);
- The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
- The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and

practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2012-0006-DWQ), adopted on July 17, 2012, became effective on July 17, 2012. The permit regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows. Appendix A contains the results of the risk assessment performed for the proposed project.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.3 Regional and Local Requirements

The proposed project will extend beyond the Caltrans right of way into the City of Coachella. The municipal permit requirements for the Whitewater River Region state that roads are not considered a priority project unless they include parking, and that a permittee may require that a roadway project prepare and comply with the Water Quality Management Plan requirements (including the Low Impact Development (LID)/Site Design BMP requirements). Based on the information currently available, the proposed project is not required to comply with regional or local requirements because it does not include parking.

2.3.1 Antidegradation Policy

The SWRCB adopted an antidegradation policy (SWRCB Resolution No. 68-16) per the CWA (40 CFR 131.12), which requires that existing high quality waters are maintained unless "allowing some degradation is consistent with the maximum benefit to the people of the state, and that the degradation would not unreasonably affect existing or potential beneficial use" (Basin Plan, 2017). The federal and state policies require that the existing instream uses and the level of water quality necessary for protection of the uses is maintained and protected. A reduction in water quality is permitted only if the reduction is necessary to accommodate important economic or social development.

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3 Affected Environment

3.1 Introduction

The Affected Environment Analysis is a description of the environmental characteristics within the proposed project boundary, such as geography, topography, receiving water bodies, groundwater conditions, precipitation and climate, flood plain classification, erosion potential, biological, water quality standards, beneficial uses, and available existing water quality data.

3.2 General Setting

The proposed project is located on the SR-86, about 2.6 miles south of the SR-86/I-10 intersection, in Riverside County. It is situated in the Coachella Valley south of the Little San Bernardino Mountains, Indio Hills, and Mecca Hills, and north of the Santa Rosa Mountains. The proposed project is located within the jurisdictions of the City of Coachella Valley and Caltrans District 8, and crosses the Whitewater River.

3.2.1 Population and Land Use

The estimated population of the City of Coachella Valley is 44,953 (U.S. Census Bureau, 2016). The land use within the boundaries of the SR-86 right of way is Transportation. The areas that surround the proposed project are designated as shown in the city's General Plan maps (City of Coachella Valley, 2015), and they include the following:

- General Neighborhood
- Low Density Residential
- Neighborhood Center
- Open Space
- Suburban Neighborhood
- Suburban Retail District
- Tribal Land
- Urban Employment Center
- Urban Neighborhood

Within the proposed project boundary, there are no wildlife refuges or ecological reserves.

3.2.2 Topography

The existing topography within the proposed project area along the SR-86 gently slopes from its northern extent to its southern extent, and the eastern and western extents toward the SR-86 and the Coachella Valley Stormwater Channel/Whitewater River at the center of the proposed project. At the northern extent of the proposed project, an elevation of approximately 50 feet below mean sea level (msl) at about 1,800 feet south of the SR-86/Dillon Road intersection (Google Earth). The proposed project's southern extent has an elevation of approximately 89 feet below msl at the intersection of SR-86 with Avenue 52 (Google Earth). The eastern extent is 67 feet below msl at about 2,800 feet east of SR-86, and the western extent is 80 feet below msl at about 2,000 feet west of SR-86. Within the proposed project area, the only existing steep slopes are the channel walls and within the Coachella Valley Stormwater Channel/Whitewater River.

3.2.3 Hydrology

Regional Hydrology

The proposed project is located in the Whitewater River Watershed, and the Coachella Hydrologic Area (719.47), which is approximately 1,500 square miles (Caltrans Water Quality Planning Tool and California Department of Water Resources). The Whitewater River Watershed is bound by the southeastern area of the San Bernardino Mountains (southeast of San Gorgonio Mountain), San Jacinto Mountains, the Santa Rosa Mountains, the Chocolate Mountains, the Mecca Hills, the Cottonwood Mountains, and the Orocopia Mountains. Runoff from these mountains drains through a network of surface streams and collects on the Coachella Valley floor and flows southeast via the Coachella Valley Stormwater Channel/Whitewater River toward the Salton Sea. The Salton Sea is a lake that has no outlet and does not discharge to the ocean. Exhibit 5 shows the proposed project and its location in the watershed. Exhibit 6 shows the proposed project's location in the Hydrologic Sub Area. The proposed project's Alternative 7 has the largest increase in new impervious area of approximately 42 acres, which is less than 0.00004% of the Whitewater River Watershed. Alternative 8 will result in an increase in new impervious area of approximately 40 acres.

Local Hydrology

When stormwater falls on the existing road and highway system within the proposed project area, it sheet flows towards roadside ditches and gullies. Within the Caltrans right of way, Caltrans standard drains and culverts convey the runoff from roadside ditches. Underground pipes direct this flow directly to the local county flood control drainage network. Ultimately, the stormwater that falls within the proposed project boundary will be discharged into the Coachella Valley Stormwater Channel/Whitewater River.

Precipitation and Climate

The average annual precipitation near the proposed project is about 3.7 inches (DesertWeather.com Data), which was measured at a station located approximately 16 miles north from the proposed project in the City of Thousand Palms. Overall, the desert climate in the region typically has long summers with intense thunderstorms, and brief, rainy winters. Most rainfall occurs in the region during winter and early spring. The average annual high temperature is 88 degrees Fahrenheit and the average low temperature is 64 degrees Fahrenheit (DesertWeather.com Data).

Surface Streams

Stormwater that falls within the proposed project boundary discharges into roadside ditches and gullies and primarily infiltrates or evaporates. If extensive runoff occurs, it will discharge into the Coachella Valley Stormwater Channel/Whitewater River. Water from the Coachella Valley Stormwater Channel/Whitewater River flows south 15 miles and into the Salton Sea.

Flood Plains

The Federal Emergency Management Agency (FEMA) has classified a majority of the proposed project area as Zone X except for the area within the Coachella Valley Stormwater Channel/Whitewater River, which is classified as Zone A. Zone X (shaded) depicts areas of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods,

areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile. Zone X (unshaded) depicts areas of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone A means that no base flood elevations have been determined (FEMA 2009). Exhibit 7 shows the FEMA floodplain designations in relation to the proposed project.

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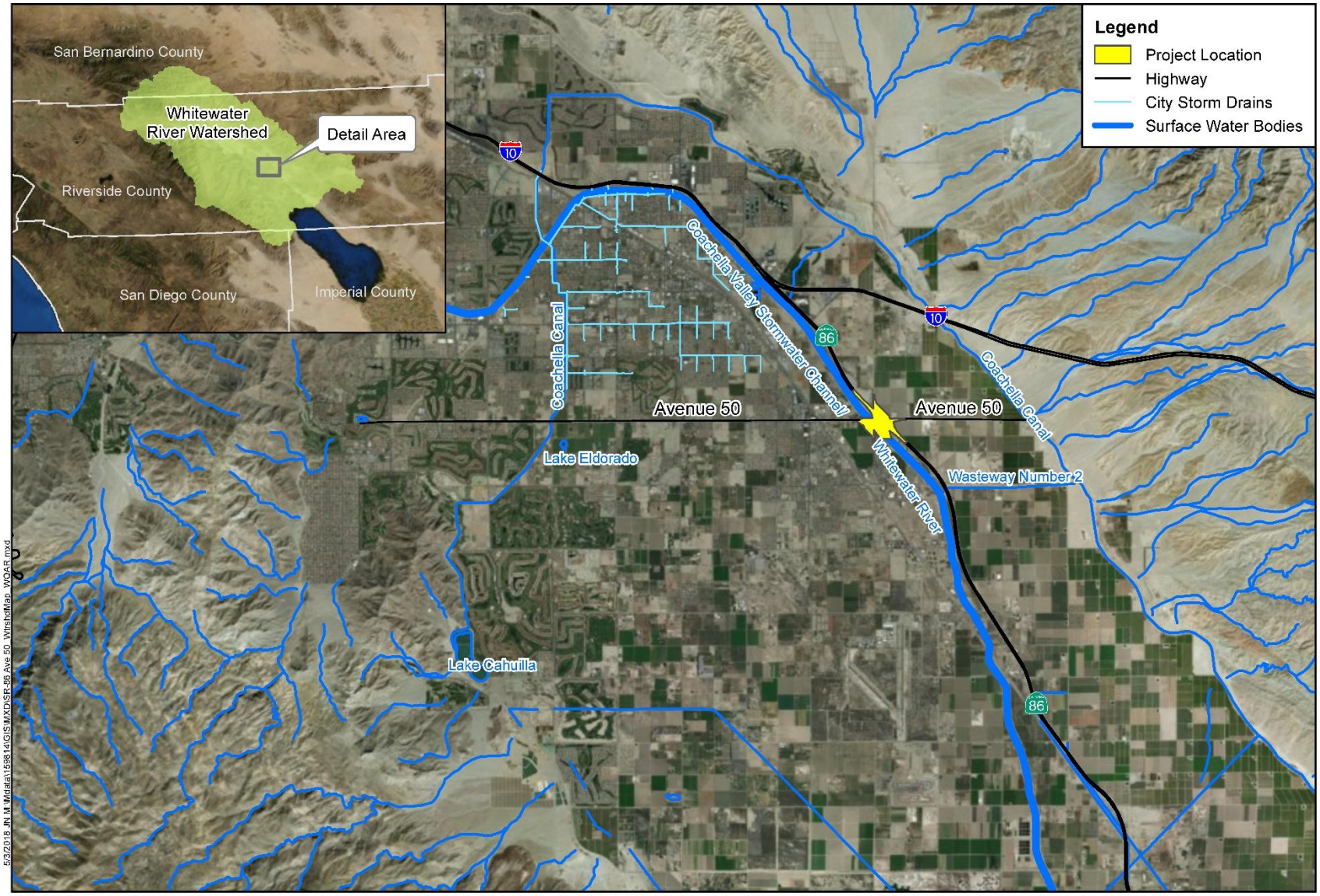

SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

Project Watershed and Surface Waterbodies Map

Source: ESRI, State of California GIS data, Riverside Flood Control District

Exhibit 5

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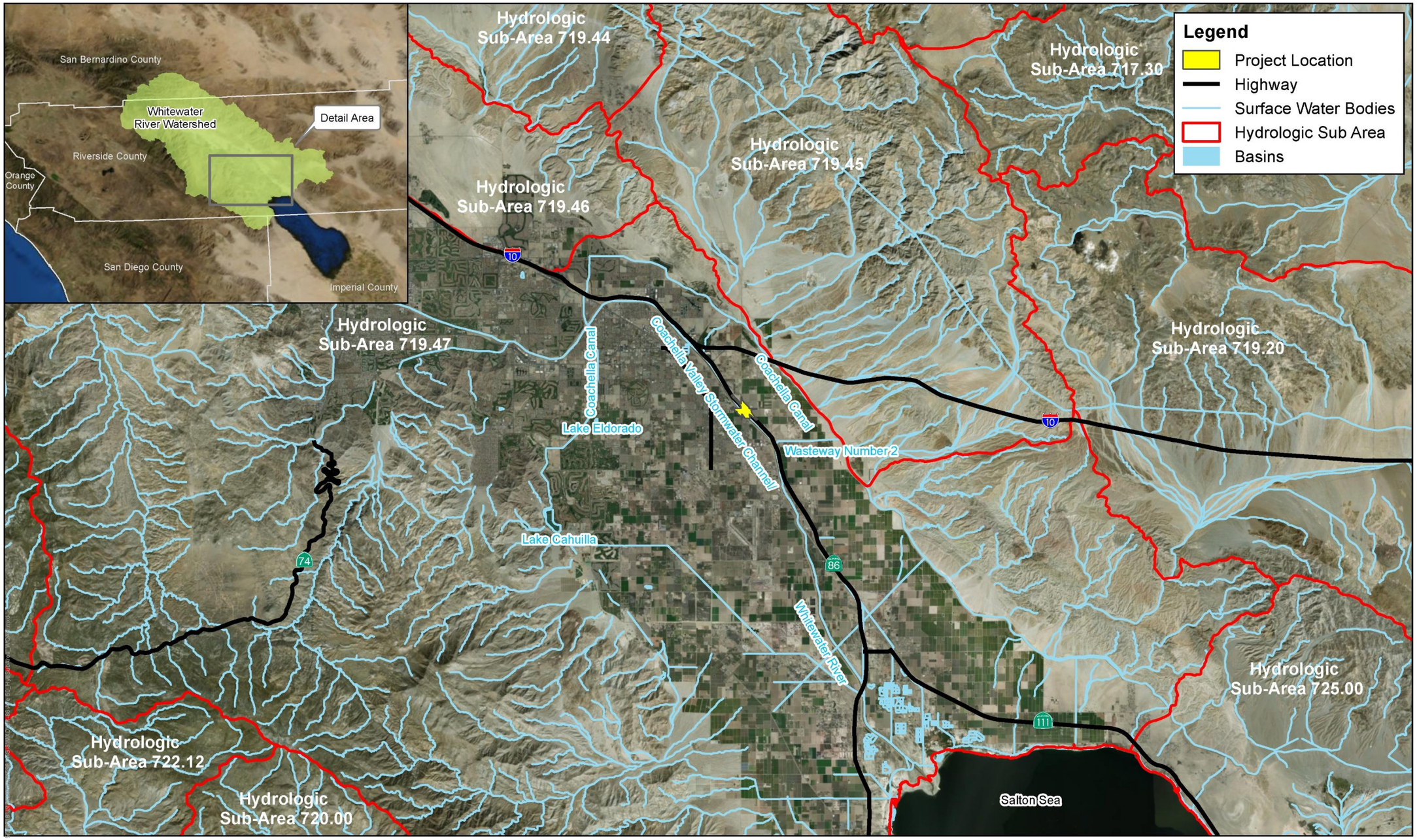

Source: ESRI, State of California GIS data, Riverside Flood Control District

SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

Hydrologic Sub-Area Map

Exhibit 6

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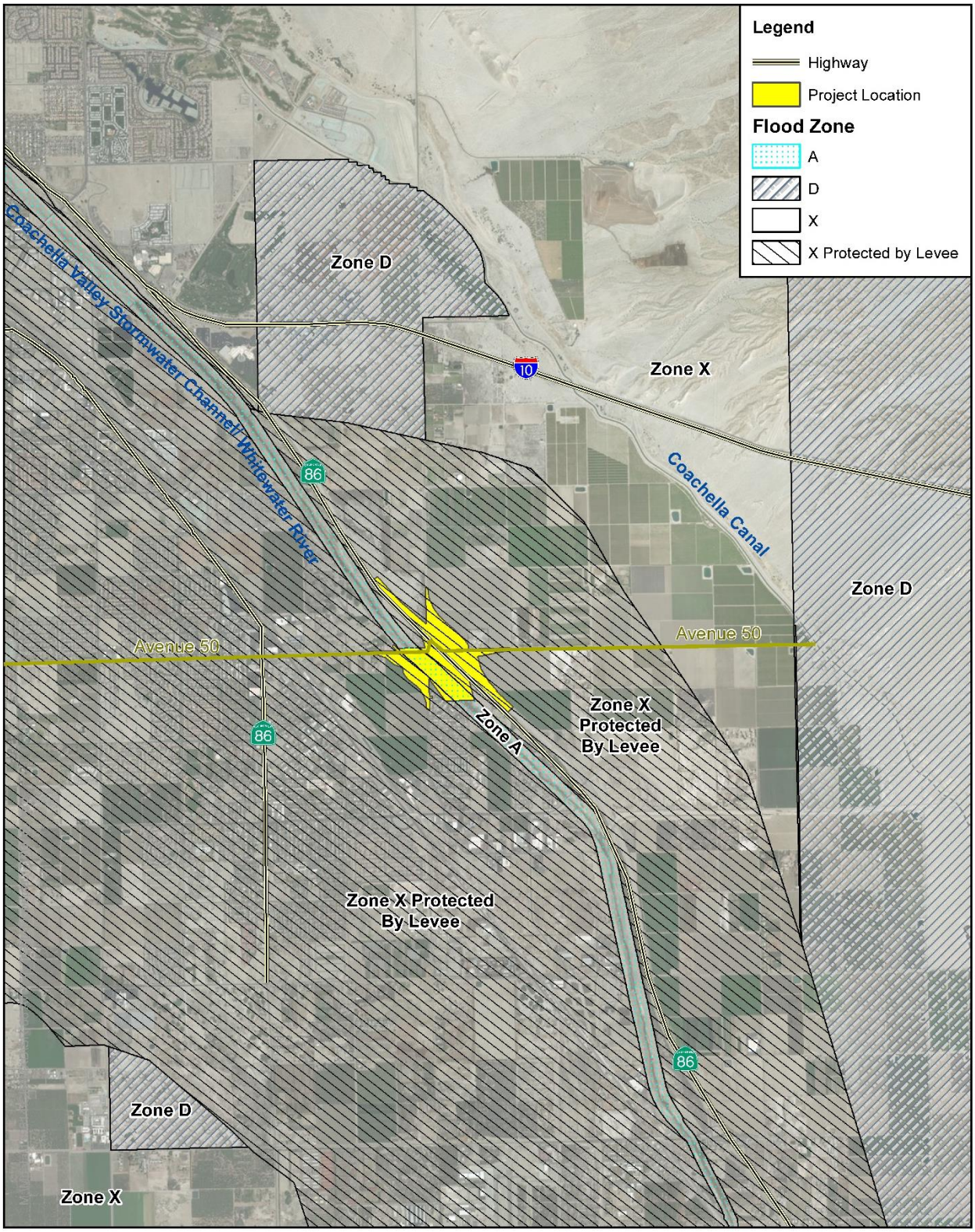

SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

FEMA Flood Zone Map

Source: ESRI, Caltrans, FEMA

Exhibit 7

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Municipal Supply

The Caltrans 2018-2019 District 8 Work Plan indicates that there are no high risk areas (highway locations where spills or other releases from District-owned right of way, roadways, or facilities may discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities) are located within the proposed project area.

Groundwater Hydrology

The Indio Subbasin within the Coachella Valley Groundwater Basin covers approximately 525 square miles (approximately 336,000 acres), and it is bounded by the Indio Hills, the San Jacinto Mountains, and the Santa Rosa Mountains (California Department of Water Resources, 2004). Per the California Department of Water Resources Water Data Library, the nearest groundwater well with current groundwater level and quality data is located approximately a mile northeast of the proposed project at the intersection of Tyler Street and Avenue 48. The depth to groundwater at Well Number 337001N1161639W001 in October 2017 was approximately 23 feet. According to California's Groundwater Bulletin 118, groundwater in the Indio Subbasin of the Coachella Valley Groundwater Basin typically has high levels of calcium bicarbonate with a total dissolved solids concentration of 300 milligrams per liter (mg/L) (California Department of Water Resources, 2004).

A geotechnical study of the groundwater hydrology within the proposed project area will be conducted during the design phase and a more accurate depth to groundwater will be determined at that time. Exhibit 8 identifies the location of the groundwater well in relation to the proposed project and its location in the Indio Subbasin.

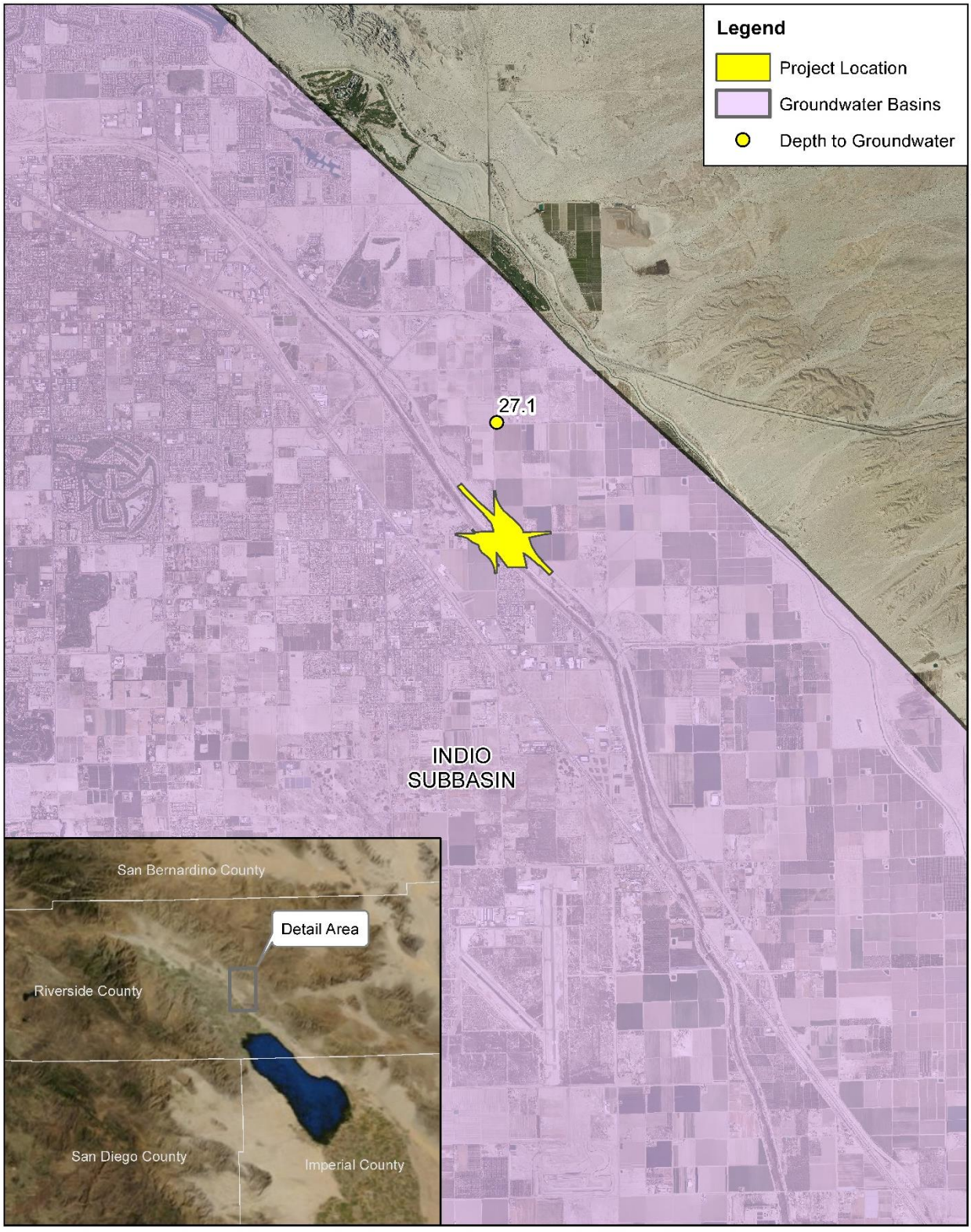
3.2.4 Geology/Soils

Soil Erosion Potential

The Soil Erodibility Factor (Kf) within the project limits is 0.37 according to the data available in the Caltrans Water Quality Planning Tool. However, this is a planning level tool, so a detailed site-specific survey is still required for design level analysis. The soil-erodibility factor K represents:

- Susceptibility of soil or surface material to erosion;
- Transportability of the sediment; and
- The amount and rate of runoff given a particular rainfall input, as measured under a standard condition.

Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Refer to the SWRCB's website (http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/constpermits/guidance/k_factor_map.pdf) for the source of the data. The soils within the proposed project area are moderately susceptible to erosion.



SR-86/AVENUE 50 NEW INTERCHANGE PROJECT

Groundwater Basins

Source: ESRI, SWRCB, Groundwater Information Center Interactive Map Application

Exhibit 8

3.2.5 Biological Communities

Aquatic Habitat

The Coachella Valley Stormwater Channel/Whitewater River is the only aquatic resource within the Biological Study Area (BSA) which is characterized by perennial flows, with surrounding areas comprised of earthen material and a combination of native and non-native vegetation. The Coachella Valley Stormwater Channel/Whitewater River receives flows from connected subsurface evacuation channels throughout the valley. All waters are conveyed south to the Salton Sea. Vegetation within the Coachella Valley Stormwater Channel/Whitewater River consisted of tamarisk (*Tamarix ramosissima*), cattail (*Typha domingensis*), common reed (*Phragmites australis*), and black willow (*Salix gooddingii*) within the bed of the channel. Along the banks, big saltbush (*Atriplex lentiformis*), sea purslane (*Sesuvium verrucosum*), arrowweed (*Pluchea sericea*), salt heliotrope (*Heliotropium curassavicum*), and saltgrass (*Distichlis spicata*) were documented. Based on the review of aerial photography and onsite conditions, it appears that portions of the Coachella Valley Stormwater Channel/Whitewater River are maintained for flood control purposes.

Special Status Species

The California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) records searches identified twelve (12) special status plant species and twenty (20) special status animal species as having the potential to occur within the Indio USGS 7.5-minute quadrangle. No natural communities of special concern were identified. In addition, the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) database search identified six (6) federally listed species that have the potential to occur within the BSA; three (3) of the species in the IPaC results overlap with the results of the CNDDB and CNPS results, for a total of thirty-five (35) species between the CNDDB, CNPS, and IPaC.

No special status plant species were observed within the BSA during the habitat assessment and are presumed to be absent based on habitat requirements for specific species, availability and quality of habitats needed by special status plant species, and known distributions. However, four (4) special status animal species were identified within the BSA during the habitat assessment: Cooper's hawk (*Accipiter cooperii*), burrowing owl (*Athene cunicularia*), black-tailed gnatcatcher (*Polioptila melanura*), and American badger (*Taxidea taxus*). Based on the results of the field survey, it was determined that the habitats within and adjacent to the BSA have a low potential to support summer tanager (*Piranga rubra*), vermillion flycatcher (*Pyrocephalus rubinus*), Crissal thrasher (*Toxostoma crissale*), Le Conte's thrasher (*Toxostoma lecontei*), least Bell's vireo (*Vireo bellii pusillus*), and yellow-headed blackbird (*Xanthocephalus xanthocephalus*). All other special status animal species are not expected to occur within the BSA and are presumed absent based on habitat requirements for specific species, availability and quality of habitats needed by special status animal species, and known distributions.

Stream/Riparian Habitats

Within the BSA, the Coachella Valley Stormwater Channel/Whitewater River supports stream/riparian habitats. Vegetation within the Coachella Valley Stormwater Channel/Whitewater River consisted of tamarisk, cattail, common reed, and black willow within the bed of the channel. Along the banks big saltbush, sea purslane, arrowweed, salt heliotrope, and saltgrass were documented. Based on the review of aerial photography and onsite conditions,

it appears that portions of the Coachella Valley Stormwater Channel/Whitewater River are maintained for flood control purposes. The riparian habitat associated with the Coachella Valley Stormwater Channel/Whitewater River has the potential to support local north to south (and vice versa) wildlife movement within the channel.

Wetlands

An area must exhibit all three wetland parameters described in the U.S. Army Corps of Engineers (USACE) Arid West Regional Supplement to be considered a jurisdictional wetland. Based on the results of the field investigation conducted for the Delineation of State and Federal Jurisdictional Waters Report (Michael Baker International, April 2018), prepared under separate cover, the bottom portion of the Coachella Valley Stormwater Channel/Whitewater River was determined to support approximately 0.54 acres of wetland waters.

Fish Passage

Fish passage within the BSA has been eliminated from the channelization of the Coachella Valley Stormwater Channel/Whitewater River.

3.3 Water Quality Objectives/standards and Beneficial Uses

3.3.1 Surface Water Quality Objectives/standards and Beneficial Uses

As required by the Porter-Cologne Act, the Colorado River Basin RWQCB has developed water quality objectives for waters within its jurisdiction to protect the beneficial uses of those waters and has published them in the Basin Plan. The Basin Plan also established implementation programs to achieve these water quality objectives and requires monitoring to evaluate the effectiveness of these programs. Water quality objectives must comply with the state antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are reasonably affected. The Basin Plan identifies narrative surface water quality objectives for surface waterbodies and numeric water quality objectives for surface water bodies in the Colorado River Basin RWQCB. The Basin Plan identifies the following surface water narrative objectives:

Table 2: Surface Water Narrative Objectives

Constituent Name	Narrative Objective
Aesthetic Qualities	All waters shall be free from substances attributable to wastewater of domestic or industrial origin or other discharges which adversely affect beneficial uses not limited to: • Settling to form objectionable deposits; • Floating as debris, scum, grease, oil, wax, or other matter that may cause nuisances; and • Producing objectionable color, odor, taste, or turbidity.
Tainting Substances	Water shall be free of unnatural materials which individually or in combination produce undesirable flavors in the edible portions of aquatic organisms.
Toxicity	All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or indigenous aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, 96-hour bioassay or bioassays of appropriate duration or other appropriate methods as specified by the Colorado River Basin RWQCB. Effluent limits based upon bioassays of effluent will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances will be encouraged. The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or other control water which is consistent with the requirements for "experimental water" as described in Standards Methods for the Examination of Water and Wastewater, 18th Edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay. As described in Chapter 6 of the Basin Plan, the Colorado River Basin RWQCB will conduct toxic monitoring of the appropriate surface waters to gather baseline data as time and resources allow.
Temperature	The natural receiving water temperature of surface waters shall not be altered by discharges of wastewater unless it can be demonstrated to the satisfaction of the Colorado River Basin RWQCB that such alteration in temperature does not adversely affect beneficial uses.
pH	Since the regional waters are somewhat alkaline, pH shall range from 6.0-9.0. Discharges shall not cause any changes in pH detrimental to beneficial water uses.
Dissolved Oxygen	The dissolved oxygen concentration shall not be reduced below the following minimum levels at any time: Waters designated: WARM……5.0 mg/l COLD……8.0 mg/l WARM and COLD……...8.0 mg/l
Suspended Solids and Settleable Solids	Discharges of wastes or wastewater shall not contain suspended or settleable solids in concentrations which increase the turbidity of receiving waters, unless it can be demonstrated to the satisfaction of the Colorado River Basin RWQCB that such alteration in turbidity does not adversely affect beneficial uses.

<table>
<tr><th>Constituent Name</th><th>Narrative Objective</th></tr>
<tr><td>Total Dissolved Solids</td><td>Discharges of wastes or wastewater shall not increase the total dissolved solids content of receiving waters, unless it can be demonstrated to the satisfaction of the Regional Board that such an increase in total dissolved solids does not adversely affect beneficial uses of receiving waters.

Additionally, any discharge, excepting discharges from agricultural sources, shall not cause concentration of total dissolved solids (TDS) in surface waters to exceed the following limits:

TDS (mg/L)
<table><tr><th></th><th>Annual Average</th><th>Maximum</th></tr><tr><td>New River</td><td>4,000</td><td>4,500</td></tr><tr><td>Alamo River</td><td>4,000</td><td>4,500</td></tr><tr><td>Imperial Valley Drains</td><td>4,000</td><td>4,500</td></tr><tr><td>Coachella Valley Drains</td><td>2,000</td><td>2,500</td></tr><tr><td>Palo Verde Valley Drains</td><td>2,000</td><td>2,500</td></tr></table></td></tr>
<tr><td>Bacteria</td><td>In waters designated for water contact recreation (REC I) or noncontact water recreation (REC II), the following bacterial objectives apply. Although the objectives are expressed as fecal coliforms, E. coli, and enterococci bacteria, they address pathogenic microorganisms in general (e.g., bacteria, viruses, and fungi).

Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of the indicated bacterial densities should not exceed one or the other of the following:

<table><tr><th></th><th>REC I</th><th>REC II</th></tr><tr><td>E. coli</td><td>126 per 100 ml</td><td>630 per 100 ml</td></tr><tr><td>enterococci</td><td>33 per 100 ml</td><td>165 per 100 ml</td></tr></table>nor shall any sample exceed the following maximum allowables:

<table><tr><th></th><th>REC I</th><th>REC II</th></tr><tr><td>E. coli</td><td>400 per 100 ml</td><td>2,000 per 100 ml</td></tr><tr><td>enterococci</td><td>100 per 100 ml</td><td>500 per 100 ml</td></tr></table>except that for the Colorado River, the following maximum allowables shall apply:

<table><tr><th></th><th>REC I</th><th>REC II</th></tr><tr><td>E. coli</td><td>235 per 100 ml</td><td>1,175 per 100 ml</td></tr><tr><td>enterococci</td><td>61 per 100 ml</td><td>305 per 100 ml</td></tr></table>In addition to the objectives above, in waters designated for water contact recreation (REC I), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN per 100 ml.</td></tr>
<tr><td>Biostimulatory Substances</td><td>Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. Nitrate and phosphate limitations will be placed on industrial discharges to New and Alamo Rivers and irrigation basins on a case-by-case basis, taking into consideration the beneficial uses of these streams.</td></tr>
<tr><td>Sediment</td><td>The suspended sediment load and suspended sediment discharge rate to surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.</td></tr>
</table>

Constituent Name	Narrative Objective
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.
Radioactivity	Radionuclides shall not be present in waters in concentrations which are deleterious to human, plant, animal or aquatic life or that result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal or aquatic life. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in Tables 64442 and 64443 of Sections 64442 and 64443, respectively, of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan. This incorporation by reference is prospective, including future revisions to the incorporated provisions as the revisions take effect. Constituent — Maximum Contaminant Level, pCi/L Combined Radium-226 and Radium-228……..5 Gross Alpha Particle activity (excluding Radon and Uranium)…….15 Tritium……...20,000* Strontium-90……8** Beta / photon emitters……..4 MREM*** Uranium……..20 * Equivalent to 4 millirem / year dose to total body ** Equivalent to 4 millirem / year dose to bone marrow *** 4 millirem / year annual dose equivalent to the total body or any internal organ
Chemical Constituents	No individual chemical or combination of chemicals shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in hazardous chemical concentrations found in bottom sediments or aquatic life. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64444-A of Section 64444 (Organic Chemicals), and Table 64678-A of Section 64678 (Determination of Exceedances of Lead and Copper Action Levels). This incorporation is prospective, including future revisions to the incorporated provisions as the revisions take effect. The Colorado River Basin RWQCB acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To protect all beneficial uses, the Colorado River Basin RWQCB may apply limits more stringent than MCLs. Maximum Contaminant Levels (MCLs) for Organic and Inorganic Chemicals Inorganic Chemical Constituents: — MCL, mg/L Arsenic……..0.01 Barium……1.0 Cadmium……0.005 Chromium……0.05 Fluoride……..2.0 Lead……...0.015* Mercury……...0.002 Nitrate (as NO_3)……..45.0

Constituent Name	Narrative Objective
	Nitrate + Nitrite (sum of nitrogen)……10.0 Selenium……0.05 Silver……0.10 Organic Chemical Constituents: MCL, mg/L (a) Chlorinated Hydrocarbons Endrin……0.002 Lindane……0.0002 Methoxychlor……0.03 Toxaphene……0.003 (b) Chlorophenoxys 2,4-D……0.07 2,4,5-TP Silvex……0.05 * Limit given is "Action Level". USEPA's Lead and Copper Rule requires drinking water systems to monitor for lead from customer taps. If ten percent of the homes tested have lead levels greater than the action level of 15 ppb, the system must increase monitoring, undertake additional efforts to control corrosion, and inform the public. For each monitoring period, a system (or the state) must calculate the lead level at the 90th percentile of homes monitored.
Pesticide Wastes	The discharge of pesticidal wastes from pesticide manufacturing processing or cleaning operations to any surface water is prohibited.

Source: Colorado River Basin Regional Water Quality Control Board, *Water Quality Control Plan, Colorado River Basin-Region 7*, August 2017.

The Basin Plan has identified numeric surface water objectives for the Salton Sea and Coachella Valley Stormwater Channel/Whitewater River. The objective constituents for these water bodies include total dissolved solids (salinity), selenium, and E. coli. Groundwater quality objectives are described in the next section.

Beneficial Uses

The beneficial uses of water are defined in the Colorado River Basin RWQCB's Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include drinking water supplies, swimming, industrial and agricultural water supply, and the support of freshwater and marine habitats and their organisms. Beneficial uses are identified for the nearest named water bodies that the proposed project discharges to, Coachella Valley Stormwater Channel/Whitewater River, and includes the following:

- **Freshwater Replenishment (FRSH)** waters are used for natural or artificial maintenance of surface water quantity or quality.
- **Water Contact Recreation (RECI)** waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
- **Non-contact Water Recreation (RECII)** waters are used for recreational activities involving proximity to water, but not normally involving contact with water where

ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing and aesthetic enjoyment in conjunction with the above activities.

- **Warm Freshwater Habitat (WARM)** waters support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Wildlife Habitat (WILD)** waters support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Rare, Threatened, or Endangered Species (RARE)** waters include the uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

3.3.2 Groundwater Quality Objectives/standards and Beneficial Uses

Groundwater Quality Objectives

The groundwater quality objectives for the Colorado River Basin RWQCB's jurisdiction are designated in the Basin Plan, as shown in the following table:

Table 3: Groundwater Numeric Objectives

Constituent Name	Narrative Objective
Taste and Odors	Ground waters for use as domestic or municipal supply shall not contain taste or odor-producing substances in concentrations that adversely affect beneficial uses as a result of human activity.
Bacteriological Quality	In ground waters designated for use as domestic or municipal supply (MUN), the concentration of coliform organisms shall not exceed the limits specified in Section 64426.1 of Title 22 of the California Code of Regulations.
Chemical and Physical Quality	Ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64444-A of Section 64444 (Organic Chemicals), and Table 64678-A of Section 64678 (Determination of Exceedances of Lead and Copper Action Levels). This incorporation is prospective, including future revisions to the incorporated provisions as the revisions take effect. The Colorado River Basin RWQCB acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To protect all beneficial uses, the Regional Board may apply limits more stringent than MCLs.
Brines	Discharges of water softener regeneration brines, other mineralized wastes, and toxic wastes to disposal facilities which ultimately discharge in areas where such wastes can percolate to ground waters usable for domestic and municipal purposes are prohibited.

Constituent Name	Narrative Objective
Radioactivity	Ground waters designated for use as domestic or municipal supply (MUN) shall not contain radioactive material in excess of the maximum contaminant levels (MCLs) specified in Tables 64442 and 64443 of Sections 64442 and 64443, respectively, of Title 22 of the California Code of Regulations (CCR), which are incorporated by reference into the Basin Plan. This incorporation by reference is prospective, including future revisions to the incorporated provisions as the revisions take effect.
Ground Water Overdraft	A number of ground water basins in the Colorado River Basin Region are in overdraft, and in some areas there have been indications of possible increase of mineral content of the ground water. Investigative studies will be conducted to develop ground water objectives and implementation plans for the following ground water basins: • Indio Subarea of the Whitewater Hydrologic Unit • Warren Subunit of the Joshua Tree Hydrologic Unit • Twentynine Palms Subunit of the Dale Hydrologic Unit • Borrego Subarea of the Anza-Borrego Hydrologic Unit • Lucerne Hydrologic Unit • Terwilliger Subarea of the Anza-Borrego Hydrologic Unit • Ocotillo Subunit of the Anza-Borrego Hydrologic Unit

Source: Colorado River Basin Regional Water Quality Control Board, *Water Quality Control Plan, Colorado River Basin-Region 7*, August 2017.

Beneficial Uses

The Basin Plan also identifies beneficial uses for groundwater in the Coachella hydrologic Subunit (which is in the Whitewater hydrologic unit area of the Coachella Valley Planning Area), which is where the proposed project is located. The beneficial uses are the following:

- **Municipal and Domestic Supply (MUN)** waters are used for community, military, municipal or individual water supply systems including, but are not limited to, drinking water supply.
- **Industrial Service Supply (IND)** waters are used for industrial activities that do not depend primarily on water quality including, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection and oil well repressurization.
- **Agricultural Supply (AGR)** waters are used for farming, horticulture or ranching including, but are not limited to, irrigation, stock watering, or support of vegetation for range grazing.

3.4 Existing Water Quality

3.4.1 Regional Water Quality

The Riverside County Flood Control and Water Conservation District and associated Whitewater River Watershed NPDES stormwater permittees monitor the water quality of the Whitewater River Watershed. One of their monitoring stations, 719CVS884, is located at the Avenue 52 Bridge over the Coachella Valley Stormwater Channel/Whitewater River, and downstream of the

proposed project. Exhibit 9 shows the location of this monitoring station. Appendix B shows the monitoring data for this station that was available in the publicly available monitoring reports for fiscal year 2015-2016 and fiscal year 2016-2017 (Riverside County Flood Control District, 2017 and 2018, respectively).

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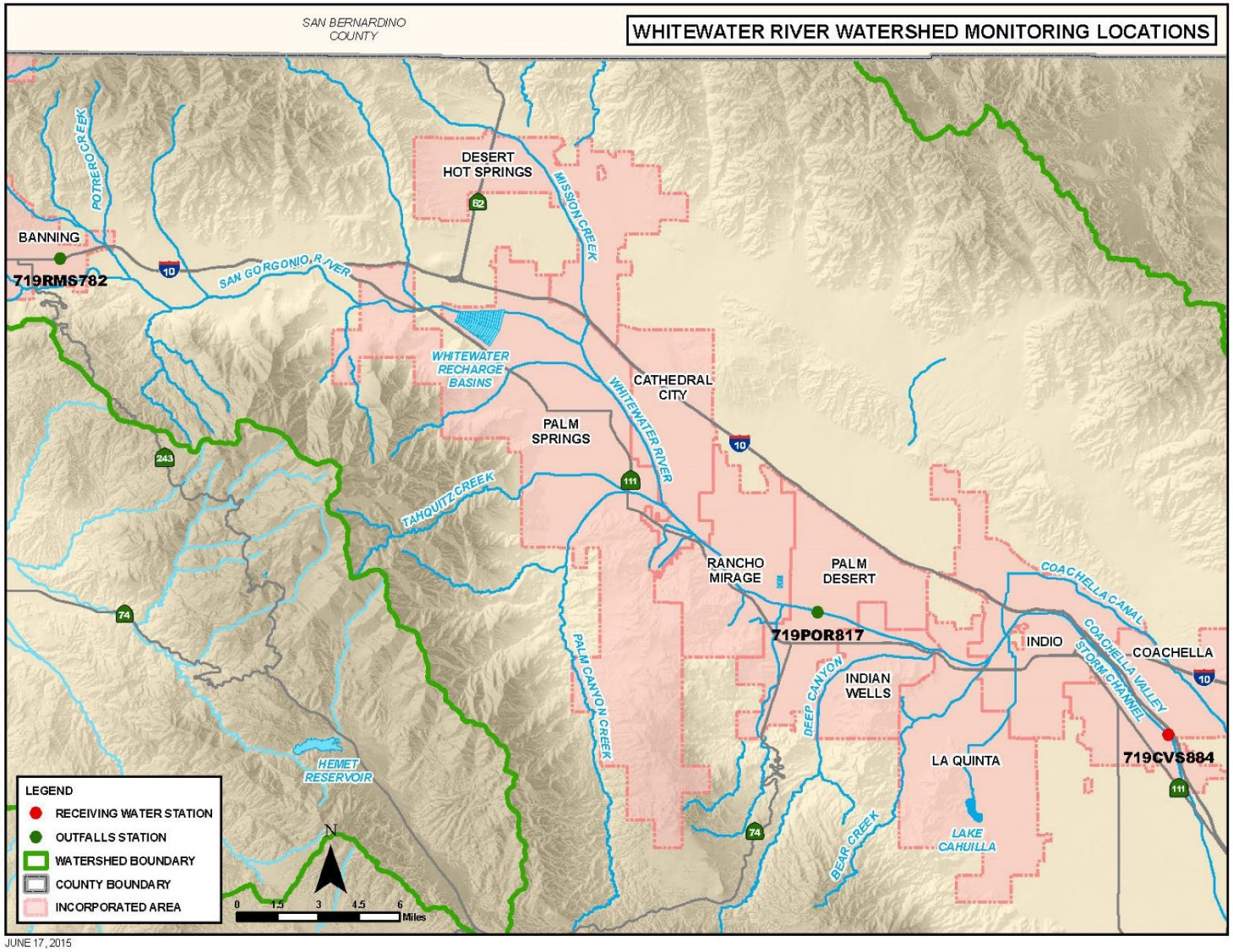

Source: Riverside County Flood Control District, *Whitewater River Region Monitoring Annual Report Monitoring Year 2015-2016*, March 2017

Exhibit 9: Location of Whitewater River Monitoring Site

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3.4.2 List of Impaired Waters

The flow path from the proposed project to the Salton Sea was used to determine what water bodies could potentially be impacted by the proposed project. Precipitation that falls within the proposed project boundary will ultimately discharge into the Coachella Valley Stormwater Channel/Whitewater River and the Salton Sea. Both water bodies are listed on the 2016 303(d)/305(b) Integrated List as impaired. The Coachella Valley Stormwater Channel has a TMDL for bacterial indicators that has been established. Table 4 below shows the water bodies that could potentially be impacted by the proposed project in their order of contact from the proposed project enroute to the Salton Sea.

Table 4: Summary of 303(d) Listed Constituents and TMDL Constituents[1]

Water Body Name	303(d) List Constituent	TMDL Constituent
Coachella Valley Stormwater Channel	Dichlorodiphenyltrichloroethane (DDT) Dieldrin Indicator Bacteria Nitrogen, ammonia (Total Ammonia) Polychlorinated biphenyls (PCB) Toxaphene Toxicity	Bacterial Indicators
Salton Sea	Arsenic Chloride Chlorpyrifos DDT Enterococcus Low Dissolved Oxygen Nitrogen, Ammonia (Total Ammonia) Nutrients Salinity Toxicity	None

3.4.3 Areas of Special Biological Significance (ASBS)

The proposed project does not discharge directly or indirectly to an ASBS.

[1] State Water Resources Control Board, *2014-2016 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)* website: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml, April 6, 2018.

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4 Environmental Consequences

4.1 Introduction

This chapter discusses the potential environmental effects related to water quality with implementation of the proposed project, as well as the procedures and practices that will be applied to reduce those effects. The proposed project's Alternatives 7 and 8 will realign and widen Avenue 50 at its intersection with SR-86, and construct a new bridge over the Coachella Valley Stormwater Channel/Whitewater River. The existing storm drain system will be maintained wherever possible, but the hydrologic analysis that will be performed will confirm the capacities and storm drain systems necessary to meet current standards. Post-Construction BMPs will be evaluated for the proposed project to address the Targeted Design Constituents where feasible. The results will be documented in the SWDR prepared for each Plans, Specifications and Estimate (PS&E) phase.

4.2 Potential Impacts to Water Quality

When the proposed project is constructed and maintained after construction, it is anticipated that construction activities and the installation of new impervious surfaces will affect downstream water bodies. The construction of the proposed project and the increase in runoff associated with the increase in impervious area will potentially cause or contribute to an alteration of water quality and the beneficial uses of downstream water bodies. A hydrologic and hydraulic analysis are conducted during all phases (Project Initiation Documents (PID), Project Approval and Environmental Document (PA/ED), and PS&E) to confirm that the existing and proposed drainage facilities are sized appropriately. The Hydromodification Study will be conducted if there are changes to flow rate/volume in the threshold drainage area per Caltrans Hydromodification Requirements Guidance. The results will be documented in the SWDR prepared at each PS&E phase. The following sections summarize the results of the proposed project evaluation.

4.2.1 Anticipated changes to the Physical/Chemical Characteristics of the Aquatic Environment

Substrate

Constructing the proposed project is anticipated to change the streambed sediment of the Coachella Valley Stormwater Channel/Whitewater River. This receiving waterbody is a soft bottom, natural channel that stays natural until it confluences with the Salton Sea. Any slopes within the proposed project area will be stabilized with temporary pollution control materials during the construction phase. Slope stabilization measures such as sediment controls, erosion controls, and vegetation installation will be implemented once the proposed project is completed to meet the Construction General Permit project closeout requirements.

Currents, Circulation or Drainage Patterns

The proposed project will not change the existing drainage patterns. The primary concentration of flow will remain in the local storm drain, and outlet into Coachella Valley Stormwater Channel/Whitewater River during and after construction. A small differential increase in the channel hydraulics will occur, but discharge flows and volumes are not anticipated to increase

when compared to the existing condition. The addition of new impervious area from Alternative 7 (42 acres, or 0.07 square miles) or Alternative 8 (40 acres, or 0.06 square miles) is anticipated to increase these metrics marginally at the individual on-site pipes. The hydrologic analysis performed during the final design phase will confirm the capacities and storm drain systems necessary to meet current standards.

Suspended Particulates (Turbidity)

Due to the construction and maintenance of the proposed project, sediment is likely to occur, particularly while the proposed project is constructed. The turbidity in downstream water bodies may increase due to the additional impervious area from expanding the interchanges, building the bridge, ramps, and intersections. In addition, while the roadways are demolished and new structures are built, sediment will be exposed.

Oil, Grease and Chemical Pollutants

Since the proposed project involves the realignment and widening of Avenue 50 at its intersection with SR-86, and constructing a new bridge, oil, grease, metals, and chemical pollutants may impair downstream water bodies. The proposed project also includes vegetated areas, and therefore may also be a source of pesticides.

Temperature, Oxygen, Depletion and Other Parameters

The proposed project includes vegetated areas that may require the application of fertilizers to encourage the establishment of vegetation. Therefore, the nutrients in the fertilizers may cause oxygen depletion and a rise in temperature.

Flood Control Functions

The proposed project will not cause a change to the existing flood control functions. The concentration of flow from the proposed project will sheet flow or remain in surface gutters/storm drains, and discharge directly to Coachella Valley Stormwater Channel/Whitewater River and ultimately the Salton Sea. Regionally, the area is rural, partially developed, and participating in the National Flood Insurance Program. Permanent flood control impacts are anticipated because of the proposed improvements, including bridge piers in the Coachella Valley Stormwater Channel and bridge abutment scour protection at the channel banks. In addition, the channel will be widened to accommodate these improvements.

Erosion and Accretion Patterns

It is not anticipated that the proposed project will cause a change to erosion and accretion patterns. The proposed slopes will be stabilized with temporary pollution control materials during the construction phase, and slope stabilization measures such as sediment controls, erosion controls, and vegetation installation will be implemented once the proposed project is complete to meet the Construction General Permit project closeout requirements. All existing and proposed storm drain outfalls will be evaluated to determine if they need outfall protection.

Aquifer Recharge/Groundwater

No aquifer recharge basins are within the proposed project's area of potential effect. It is not anticipated that groundwater beneath the proposed project area will be encountered within 10 feet below ground surface.

Baseflow

Baseflow is the result of groundwater entering mountain and desert washes that cross many geologic strata. The proposed project does not have a baseflow condition, and the Riverside County Flood Control and Water Conservation District's Hydrology Manual states, "Base flow is a minor factor in developing flood hydrographs for relatively rare flood events in western Riverside County. For this reason base flow can generally be neglected" (April 1978). No baseflow changes are anticipated because of the proposed project.

Climate Change

The proposed project includes improving public safety by replacing the existing Avenue 50 low water crossing of the Coachella Valley Stormwater Channel with a new bridge, allowing uninterrupted travel and emergency access into and out of Coachella when flooding and debris flows occur. The proposed project is located in the Whitewater River Watershed (Caltrans Water Quality Planning Tool and California Department of Water Resources). Runoff from the surrounding mountains drains through a network of surface streams that collect on the Coachella Valley floor and flows southeast via the Coachella Valley Stormwater Channel /Whitewater River. Within the Caltrans right of way, Caltrans standard drains and culverts convey the runoff from roadside ditches; stormwater that falls within the proposed project boundary will ultimately discharge into the Coachella Valley Stormwater Channel.

The Federal Emergency Management Agency has classified most of the proposed project area as Zone X, an area of moderate flood hazard, usually between the limits of the 100-year and 500-year floods, protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than one square mile. However, the area within the Coachella Valley Stormwater Channel /Whitewater River is classified as Zone A, meaning that no base flood elevations have been established (FEMA, 2009).

The average annual precipitation near the proposed project is about 3.7 inches, as measured at a station located approximately 16 miles north of the proposed project (DesertWeather.com, 2018). Most rainfall occurs in the region during winter and early spring. Caltrans Hydraulics analysts found that rainfall in the area is expected to decrease under future climate change scenarios, indicating that the proposed bridge as designed would continue to function effectively throughout its design life (2070).

As a result of climate change, the Coachella area is expected to increase its average temperatures between 2.5° Fahrenheit (F) and 7.5° F (City of Coachella, 2015). In addition, annual precipitation rates in Coachella are projected to remain about the same over the next century, with minor fluctuations around three inches per year (City of Coachella, 2015). Seasonal rainfall is also projected to decrease in March and April (City of Coachella, 2015). If these projected phenomena occur, the projected drought conditions could result in an increase in demand, whereas the proposed decrease in rainfall could result in a decline in the quality and quantity of freshwater available (City of Coachella, 2015).

4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

Special Aquatic Sites

Based on the results of the Delineation of State and Federal Jurisdictional Waters report (Michael Baker International, April 2018), minimal impacts to wetlands, the only special aquatic site within the BSA, will occur from implementation of the proposed project. Approximately 0.21 acres of temporary impacts to USACE jurisdictional wetlands will occur from development of the proposed project.

Habitat for Fish and Other Aquatic Organisms

Flows within the Coachella Valley Stormwater Channel/Whitewater River are perennial and provide a limited amount of habitat for fish species. Surface water ranging from one to four feet in depth was observed within the active channel of the Coachella Valley Stormwater Channel/Whitewater River.

Fish Passage (Beneficial Uses)

No fish were observed within the BSA during the habitat assessment. Since the Coachella Valley Stormwater Channel/Whitewater River is fed by urban runoff from surrounding residential and agricultural land uses, any fish that have the potential to occur within the BSA are likely to be exotic (e.g., mosquitofish [*Gambusia affinis*]). Native fish are presumed absent from the BSA.

Wildlife Habitat

Two natural plant communities were observed within the BSA, namely arrowweed scrub and saltbush scrub. In addition, there were three human-modified areas observed within the BSA, including agriculture, disturbed, and developed. These plant communities and human-modified areas are described in further detail below.

Arrowweed Scrub

The arrowweed scrub plant community encompasses approximately 7.2 acres of the BSA. This plant community is located within the active channel of the Coachella Valley Stormwater Channel/Whitewater River throughout the BSA. Plant species occurring within this plant community include arrowweed, salt heliotrope, sea purslane, salt grass, pigweed (*Aramanthus albus*), common reed, fringed willowherb (*Epilobium ciliatum*), jimsonweed (*Datura wrightii*), tree tobacco (*Nicotiana glauca*), Bermuda grass (*Cynodon dactylon*), five hook bassia (*Bassia hyssopifolia*), bulrush (*Schoenoplectus acutus*), and cattail. Isolated stands of black willow and tamarisk also occur.

Saltbush Scrub

The saltbush scrub plant community encompasses approximately 75.5 acres of the BSA. This plant community is located on the northeastern portion of the BSA east of the Coachella Valley Stormwater Channel/Whitewater River and west of SR-86, north of Avenue 50. Plant species occurring within this plant community include big saltbush, white bursage (*Ambrosia dumosa*), burrowbrush (*Ambrosia salsola*), smoke tree (*Psorothamnus spinosus*), desert thorn (*Lycium brevipes*), leaved cambess (*Oligomeris linifolia*), and bush seepweed (*Suaeda nigra*). In addition, isolated stands of honey

mesquite (*Prosopis glandulosa*), catclaw (*Senegalia greggii*), and tamarisk occur in this plant community adjacent to Avenue 50 and SR-86.

Agriculture

Agriculture land uses encompass approximately 141 acres of the BSA. Agricultural land is located south of Avenue 50 and west of Tyler Street within the southern portion of the BSA. This area supports planted row crops that are currently active and are exposed to routine irrigation practices.

Disturbed

Disturbed areas encompass approximately 120 acres of the BSA. Disturbed areas within the BSA generally consist of unpaved areas that no longer support vegetation or comprise a plant community. These areas include unimproved access roads and land that has been routinely cleared or graded during maintenance and/or weed abatement activities. The areas immediately west and east of the active channel, but within the limits Coachella Valley Stormwater Channel/Whitewater River are routinely graded/maintained and no longer support a native plant community. In addition, the area south of Avenue 50, west of SR-86, and east of the Coachella Valley Stormwater Channel/Whitewater River has also been subject to grading/maintenance activities and no longer supports a native plant community.

Developed

Developed areas encompass approximately 62.3 acres of the BSA and consist of residential properties and paved, impervious surfaces. Developed areas within the BSA include the Sierra Vista Park, residential properties, city streets, and other paved roadways (i.e., Avenue 50, Tyler Street, and SR-86).

Wildlife Passage (Beneficial Uses)

There are no known habitat linkages or migration corridors within the BSA. Further, the Coachella Valley Stormwater Channel/Whitewater River has not been identified in the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) as a habitat linkage or migration corridor. Areas surrounding the BSA are completely developed and comprised of residential, transportation, and agricultural land uses which have eliminated the connection between the BSA and naturally occurring vegetation communities. Although channelized, the Coachella Valley Stormwater Channel/Whitewater River has the potential to provide movement opportunities for a limited variety of wildlife species such as coyotes. Further, the riparian and emergent vegetation along the active channel of the Coachella Valley Stormwater Channel/Whitewater River has the potential to provide stopover habitat for migrating avian species.

Endangered or Threatened Species

A USFWS Species List was generated from the IPaC database on April 6, 2018. According to the IPaC Species List, a total of six (6) federally listed threatened or endangered plant or animal species have the potential to occur within the vicinity of the BSA. There were no additional federally listed species identified by the CNDDB and CNPS records searches. No federally listed plant or animal species were observed with the BSA during the habitat assessment. Based on the results of the habitat assessment, it was determined that the arrowweed scrub plant community

within the low-flow channel of the CVSC provides a minimal amount of low quality nesting habitat for least Bell's vireo. The proposed Avenue 50 Bridge will span the low-flow channel of the CVSC thereby avoiding direct impacts to low-quality nesting habitat for least Bell's vireo. With implementation of the avoidance and minimization measures identified in Chapter 4 of the NES, no impacts to least Bell's vireo are expected to occur. Therefore, it was determined that the proposed project will result in a "no effect" determination to least Bell's vireo. All remaining federally listed plant or animal species are presumed absent from the BSA and will not be directly or indirectly impacted from implementation of the proposed project due to a lack of suitable habitat and recorded occurrences by the CNDDB. As such, the proposed project is determined to have no effect on any federally listed species identified by the USFWS Species List, CNDDB, or CNPS. Therefore, no additional mitigation or consultation with USFWS pursuant to the Federal Endangered Species Act (FESA) will be required. Additionally, the BSA is not located within federally designated Critical Habitat and consultation with USFWS pursuant to the FESA for the loss or adverse modification to Critical Habitat will not be required.

Invasive Species

Noxious weed species include species designated as federal noxious weeds by the U.S. Department of Agriculture, species listed by the California Department of Food and Agriculture, and other exotic pest plants designated by the California Invasive Plant Council. Invasive plant species occur throughout the BSA within the arrowweed scrub, saltbush scrub, and disturbed areas. Some of the more commonly occurring exotic plants occurring in the BSA include pigweed, five hook bassia, Bermuda grass, tree tobacco, Russian thistle (*Salsola tragus*), London rocket (*Sisymbrium irio*), and tamarisk. Prior to implementation of the proposed project, all construction equipment will be inspected and cleaned prior to use to minimize the importation and spread of non-native plant material.

4.2.3 Short Term Impacts During Construction

During construction, the proposed project's total disturbed soil area is approximately 90 acres for each alternative and will include the following elements:

- Construction of a new SR-86 overcrossing structure and access ramps;
- Realignment and widening of Avenue 50 from a two-lane roadway to six-lane arterial, and realignment of Tyler Street (east and west of SR-86);
- Construction of a new bridge spanning over the Coachella Valley Stormwater Channel/Whitewater River;
- Construction of undercrossing bridge structures;
- Drainage structures (as needed); and
- Permanent water quality treatment control BMPs.

Pollutants during construction include:

- Sediment;
- Metals;
- Trash;
- Petroleum products;
- Concrete waste (dry and wet);

- Sanitary waste; and
- Chemicals.

Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Under the Construction General Permit, the proposed project is required to prepare a SWPPP and implement erosion and sediment control BMPs detailed in the SWPPP to be implemented during construction. If construction BMPs are properly designed, implemented, and maintained, as presented in the Avoidance and Minimization Measures in Section 5, then no adverse water quality impacts would occur during construction of the proposed project.

Based on professional experience in this region of California, the footing depth will likely be below 24 feet to prevent scouring in the channel. Therefore, construction of the bridge may require dewatering and the use of a coffer dam. In the event that groundwater and any other non-stormwater dewatering activities are necessary, these activities are subject to the requirements of the Regional Board. A separate permit may be required if dewatering is necessary.

4.2.4 Long-Term Impacts During Operation and Maintenance

The roadway and storm drain improvements in the proposed project will be built within the existing Caltrans right-of-way and the City of Coachella's jurisdiction. Targeted Design Constituents are defined in the Caltrans NPDES Permit as pollutants that are expected to be generated by the proposed project which may "cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters", its properties, or may cause the impairment of Clean Water Act Section 303(d) listed receiving waters.

Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. As required by the Caltrans NPDES Permit, the proposed project is required to prepare a SWDR and evaluate the proposed project for the feasibility of Treatment Control BMPs that will be implemented when the project is constructed. The SWDR will document the Caltrans approved Treatment Control BMPs that will treat the Targeted Design Constituents. If Treatment Control BMPs are properly designed, implemented, and maintained, as presented in the Avoidance and Minimization Measures in Section 5, then no adverse water quality impacts would occur during long-term operation of the proposed project.

4.3 Impact Assessment Methodology

Because the proposed project consists of a new overcrossing, roadway widening, new bridge, and interchange, it will result in a permanent increase in impervious surfaces and a permanent increase in runoff and pollutant loading. The Construction General Permit requires that the proposed project is assessed for its potential to discharge sediment and its potential to contribute to receiving water impairments or designated beneficial uses (Spawn, Cold and Migratory). Based on the information currently available, this project will be a risk level 2 project, which will require technology-based numeric action levels (NALs) for pH and turbidity. A risk level 2 is considered medium risk due to the proposed project's location in an area with moderately erosive soils, but no sediment impairments. Operation of the proposed project is subject to the Caltrans NPDES Permit requirements. As a part of these requirements, Caltrans projects must incorporate a combination of Structural Treatment Control BMPs and Non-Structural Source Control BMPs

(Caltrans NPDES Permit Section E.2.d), as applicable and feasible, into project plans through PS&E conditions.

Currently, stormwater runoff from within the proposed project limits is untreated. Any Treatment Control BMPs located within Caltrans' right-of-way will be selected from the Caltrans Storm Water Management Plan (SWMP) guidance and its Project Planning and Design Guide (PPDG) approved BMP list. Where feasible, Structural Treatment Control BMPs and Non-Structural Source Control BMPs will be incorporated into the proposed project to maximize pollutant treatment.

4.4 Alternative-Specific Impact Analysis

The No-Build Alternative will result in no impacts to the existing impervious surface. Table 5 summarizes the specific impacts associated with the build alternatives (Alternative 7 and Alternative 8) and constructing the proposed project.

Table 5: Summary of Specific Impacts

Alternative Number	Estimated Disturbed Soil Area (acres)	Existing Impervious Surface (acres)	Proposed Impervious Surface (acres)	Increase in Impervious Surface Area from Existing Impervious Surface Area (acres)
7	90	20	42	21.3
8	90	20	40	21.7

4.5 Cumulative Impacts

When the proposed impervious surface (42 acres in Alternative 7 and 40 acres in Alternative 8) is compared with the total watershed area (over 960,000 acres in the Whitewater River watershed), the proposed impervious surface is less than 1% of the watershed area. The construction and implementation of the proposed project's increase in impervious surface could contribute to exceeding the waste load allocations in approved TMDLs and impairments in the California Clean Water Act, Section 303(d) listed downstream waterbodies. The implementation of appropriate treatment control BMPs as a part of the proposed project to treat the Targeted Design Constituents should adequately address any potential cumulative impacts of constructing or long-term maintenance and operation of the proposed project.

5 Avoidance and Minimization Measures

Caltrans' PPDG is the guidance for compliance with the NPDES Permit requirement for discharges from projects in the planning phase. As part of the Caltrans NPDES Permit requirements to implement the SWMP, selected construction site, design pollution prevention, and treatment control BMPs would be considered in the final design of the proposed project. Compliance with the standard requirements of the SWMP for potential short-term (during construction) and long-term (post-construction/maintenance) impacts (listed below in Measures WQ-1, WQ-2, and WQ-3) is required.

- **WQ-1** – The proposed project will comply with the provisions of the Caltrans *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements for State of California Department of Transportation* (Order No. 2012-0011-DWQ, as amended by Order WQ 2014-0006-EXEC, Order WQ 2014-0077-DWQ, and Order WQ 2015-0036-EXEC, NPDES No. CAS000003) and the *NPDES General Permit for Storm Water Discharges of Stormwater Runoff Associated with Construction Activities* (Order No. 2009-0009-DWQ, as amended by 2012-0006-DWQ), and any subsequent permit in effect at the time of construction.
- **WQ-2** – A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and implemented to address all construction-related activities, equipment, and materials that have the potential to impact water quality. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and include the construction site BMPs to control pollutants such as sediment control, catch basin inlet protection, construction materials management and non-stormwater Best Management Practices (BMPs). Additional BMP reference material is contained within the Caltrans Project Planning and Design Guide (2017) and Caltrans Construction Manual (2017). These include, but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-stormwater BMPs.
- **WQ-3** – Caltrans Project Planning and Design Guide (2017) approved treatment BMPs will be implemented to the Maximum Extent Practicable (MEP) and documented in the Storm Water Data Report (SWDR), meeting requirements in the Caltrans NPDES Permit and any subsequent permits.

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U.S. Code of Federal Regulations, Sections 33 (Part 320.4) and 40 (Part 230).

U.S. Environmental Protection Agency Section 404(b)(1) guidelines: http://www.epa.gov/owow/wetlands/pdf/40cfrPart230.pdf

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6.2 Preparer(s) Qualifications

Nora C. Jans, LEED AP

Bachelor of Arts, Environmental Studies

17 years of experience in Storm Water Program Implementation and Analysis

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Appendix A: Construction General Permit Risk Assessment Information

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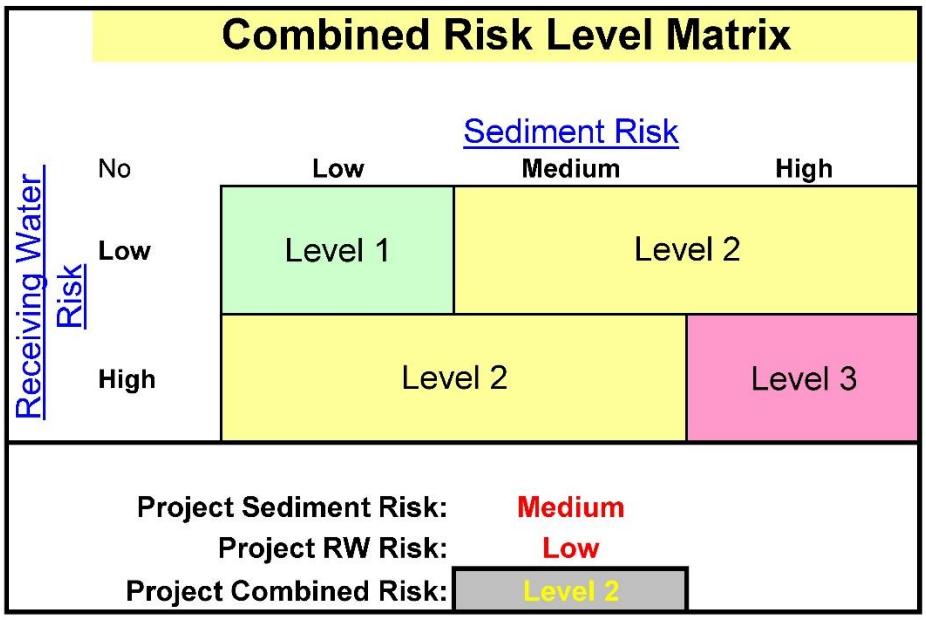
Sediment Risk Factor Worksheet	**Entry**
A) R Factor	
Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. The EPA's fact sheet for calculating R-factors was used to calculate the project R-factor.	
R Factor Value	19.36
B) K Factor (weighted average, by area, for all site soils)	
The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted. Site-specific K factor guidance	
K Factor Value	0.37
C) LS Factor (weighted average, by area, for all slopes)	
The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction. LS Table	
LS Factor Value	0.74
Watershed Erosion Estimate (=RxKxLS) in tons/acre	5.300768
Site Sediment Risk Factor Low Sediment Risk: < 15 tons/acre Medium Sediment Risk: >=15 and <75 tons/acre High Sediment Risk: >= 75 tons/acre	**Medium**

Receiving Water (RW) Risk Factor Worksheet	**Entry**	**Score**
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment**? For help with impaired waterbodies please check the attached worksheet or visit the link below:	**No**	**Low**
2006 Approved Sediment-impared WBs Worksheet		
http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml		
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY?		
http://www.ice.ucdavis.edu/geowbs/asp/wbquse.asp		


Combined Risk Level Matrix
Sediment Risk
No
Low
Medium
High
Receiving Water Risk
Low
High
Level 1
Level 2
Level 2
Level 3
Project Sediment Risk:
Medium
Project RW Risk:
Low
Project Combined Risk:
Level 2

EPA United States Environmental Protection Agency

Rainfall Erosivity Factor Calculator for Small Construction Sites

EPA's stormwater regulations allow NPDES permitting authorities to waive NPDES permitting requirements for stormwater discharges from small construction sites if:

- the construction site disturbs less than five acres, and
- the rainfall erosivity factor ("R" in the revised universal soil loss equation, or RUSLE) value is less than five during the period of construction activity.

If your small construction project is located in an area where EPA is the permitting authority and your R factor is less than five, you qualify for a low erosivity waiver (LEW) from NPDES stormwater permitting. LEW certifications are submitted through the electronic Notice of Intent (eNOI) system. Several states that are authorized to implement the NPDES permitting program also accept LEWs. Check with your state NPDES permitting authority for more information.

- List of states, Indian country, and territories where EPA's 2012 Construction General Permit (CGP) and Multi-Sector General Permit (MSGP) Apply
- EPA's 2012 CGP eNOI System

The period during which small construction sites qualify for the waiver generally occurs during a relatively short time in arid and semi-arid areas. If your small construction project does not qualify for a waiver, then NPDES stormwater permit coverage is required.

To use the Rainfall Erosivity Factor Calculator to determine your eligibility for the LEW, you will need your project's location (either latitude/longitude or address) and the estimated start and end dates of construction. The period of construction activity begins at initial earth disturbance and ends with final stabilization.

- Construction Rainfall Erosivity Waiver Fact Sheet
- Appendix C of the 2012 CGP – Small Construction Waivers and Instructions

For questions or comments, email EPA's 2012 CGP staff at cgp@epa.gov.

Facility Information

- Start Date: 12/01/2019
- End Date: 11/30/2021
- Latitude: 33.6872
- Longitude: -116.1638

Erosivity Index Calculator Results

An erosivity index value Of **19.36** has been determined for the construction period of **12/01/2019 - 11/30/2021**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do NOT qualify for a waiver from NPDES permitting requirements**.

Start Over

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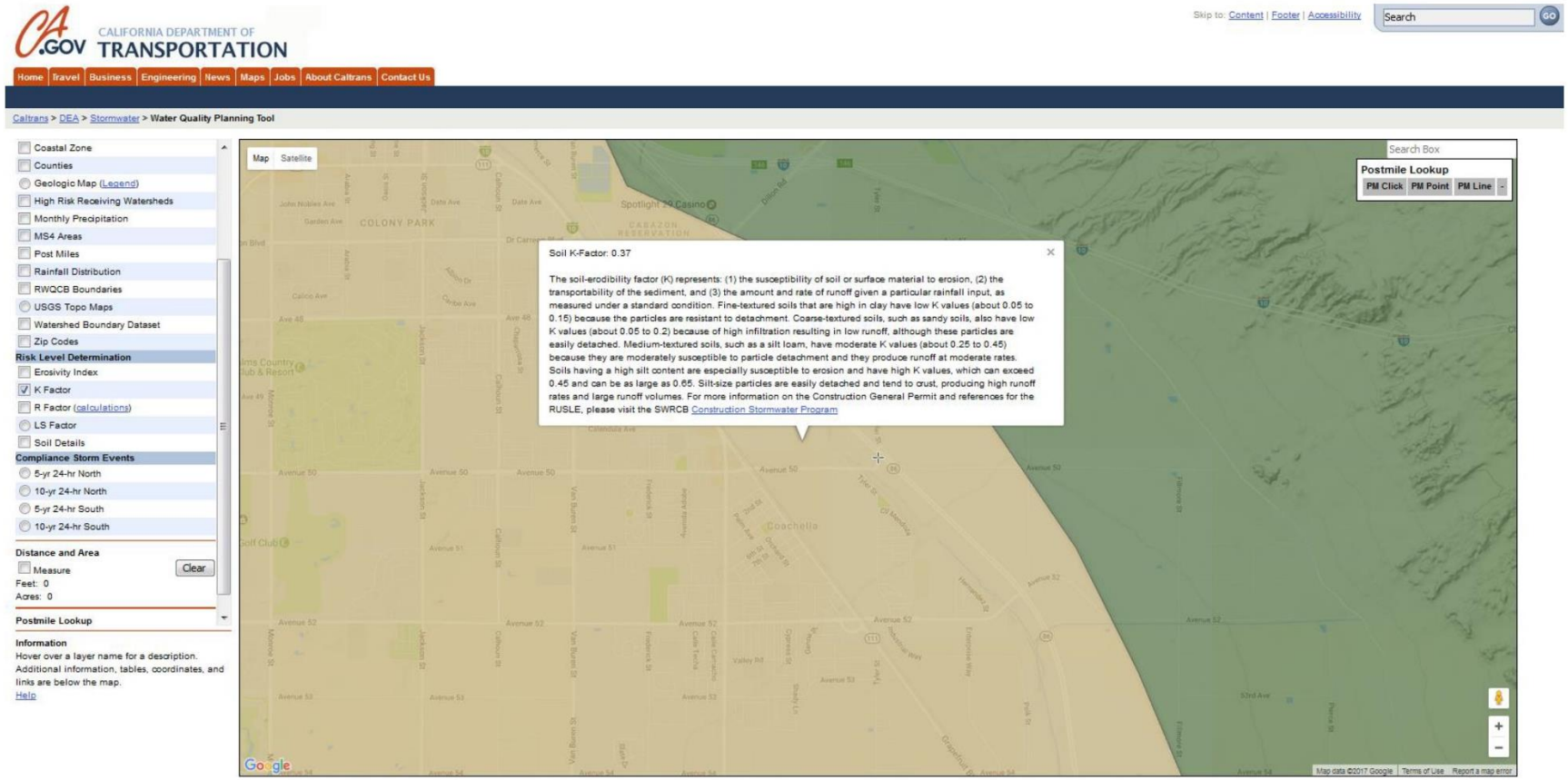
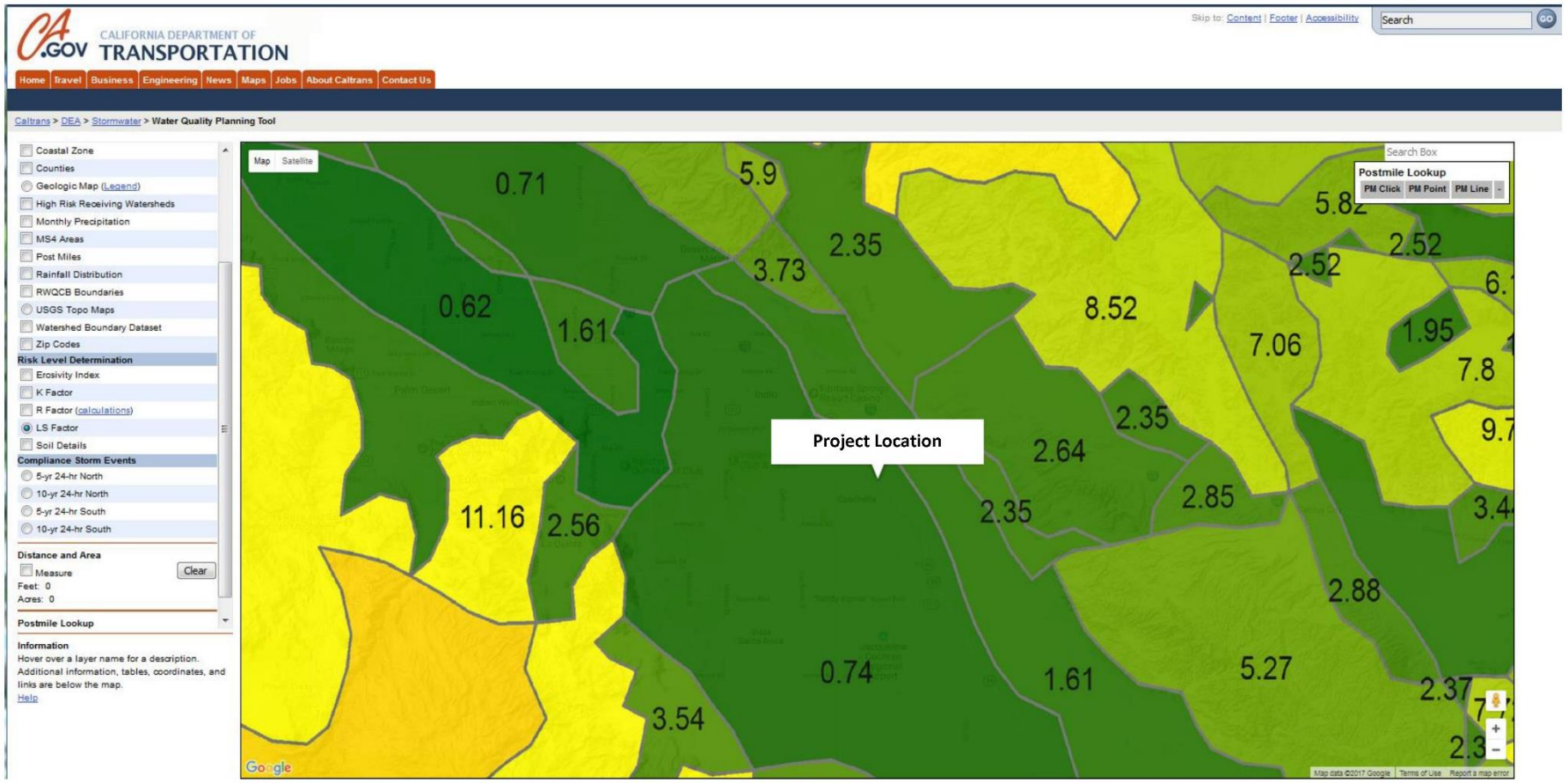


K Factor Map for the SR-86/Avenue 50 PAED Project



LS Factor Map for the SR-86/Avenue 50 PAED Project

Appendix B: Riverside County Monitoring Data

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Project Name WWR Receiving Wet 1
WWR Receiving Dry 1 & 2
FY2015-16

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	°C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	--	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	0.5	mg/L
MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

Table 3-13. Normal Range Analysis - WWR Receiving Water Station

Constituent	Units	CVSC at Avenue 52 Bridge (719CVS884)								
		Dry Weather					Wet Weather			
		Historical Data			2015-2016 Monitoring Year Data		Historical Data			2015-2016 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	7/30/2015	1/28/2016	n	Normal Range	Mean of Results[1]	1/6/2016
Bacteriological										
E. coli	MPN/100mL	14	1.8-540	131*	79	350	9	200-33,000	2,060*	4,900
Field Measurements										
Dissolved Oxygen	mg/L	16	2.78-7.18	4.42	4.17	3.89	9	1.2-9.55	5.14	4.07
Specific Conductance	µS/cm	16	917-1,500	1119	1,123	1,140	9	216-1,191	855	1,638
Temperature	Celsius	16	15-29.3	21.8	30	16.5	9	9.9-26	17.5	13.4
Turbidity	NTU	16	2.15-39.6	12.5	16.4	14.9	9	5.4-31,200	6187	196
pH	pH	16	7.2-8.2	7.6	7.3	7.68	9	7.2-8.8	7.9	8.38
Other General Parameters										
MBAS	mg/L	3	<0.08-<0.2	0.12	ND	ND	NA	NA	NA	ND
Total Dissolved Solids	mg/L	15	500-980	669	710	650	9	360-800	609	960
Total Suspended Solids	mg/L	3	17-31	26	20	17	NA	NA	NA	120
Hydrocarbons										
Ethylene Glycol	mg/L	3	<10-<10	<10	ND	ND	NA	NA	NA	ND
Oil & Grease (HEM)	mg/L	3	DNQ (2.8)-6.9	4.3	2.1	DNQ (3.8)	NA	NA	NA	DNQ (2.6)
Diesel Range Hydrocarbons[1]	mg/L	-	-	-	-	-	NA	NA	NA	ND
Gasoline Range Organics[1]	mg/L	-	-	-	-	-	NA	NA	NA	DNQ (0.024)
Total Petroleum Hydrocarbons	mg/L	3	<1-<1	<1	DNQ (0.44)	ND	-	-	-	-
Nutrients										
Ammonia-Nitrogen	mg/L	16	6.6-20	13	15	24	9	0.22-15	6.8	10
Nitrate as N	mg/L	16	0.41-6.6	2.9	13	2.6	9	1.2-4.3	2.5	2.9
Nitrite as N	mg/L	16	0.23-1.4	0.59	0.77	0.56	9	0.08-0.67	0.30	0.38
Total Kjeldahl Nitrogen	mg/L	16	1.8-24	15	17	28	9	3.9-26	15.3	21
Total Nitrogen	mg/L	15	2.4-26.44	18	31	31	9	5.3-28	18	24
Ortho Phosphate Phosphorus	mg/L	16	0.2-5.83	1.8	1.3	1.8	9	0.065-6.36	1.7	1.2
Total Phosphorus	mg/L	16	0.42-3.2	1.8	2.2	2.3	9	2-23	5.8	1.5
Total Metals[3]										
Antimony	µg/L	5	<0.5-<10	<6.2	DNQ (0.61)	ND	1	<0.5-<0.5	<0.5**	DNQ (1.3)
Arsenic	µg/L	18	1.1-<5	2.1	DNQ (1.2)	DNQ (1.4)	9	1.5-7.2	4.1	DNQ (2.7)
Barium	µg/L	18	31-68	51	45	49	9	39-4,300	907	77
Beryllium	µg/L	5	<0.5-<10	<6.2	ND	DNQ (0.34)	1	NA	11**	ND
Cadmium	µg/L	18	<0.25-<2	<1.1	ND	DNQ (0.27)	9	DNQ (0.02)-3.6	1.1	ND

Table 3-13. Normal Range Analysis - WWR Receiving Water Station

Constituent	Units	CVSC at Avenue 52 Bridge (719CVS884)								
		Dry Weather					Wet Weather			
		Historical Data			2015-2016 Monitoring Year Data		Historical Data			2015-2016 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	7/30/2015	1/28/2016	n	Normal Range	Mean of Results[1]	1/6/2016
Chromium	µg/L	18	1.7-<20	5.0	DNQ (2.5)	ND	9	2.4-260	58	DNQ (8.5)
Chromium, Hexavalent	µg/L	5	DNQ (0.064)-<10	2.3	DNQ (0.32)	DNQ (0.038)	NA	NA	NA	DNQ (0.47)
Copper	µg/L	5	DNQ (2.7)-5.5	3.8	DNQ (3.6)	DNQ (2.7)	1	NA	380**	23
Lead	µg/L	17	DNQ (0.23)-1.1	0.61	DNQ (0.51)	DNQ (0.69)	9	<0.5-510	86	DNQ (5.2)
Mercury	µg/L	17	<0.2-<0.2	<0.2	ND	ND	9	<0.2-2.6	0.50	DNQ (0.058)
Nickel	µg/L	5	DNQ (1.5)-3.1	2.3	DNQ (2.2)	DNQ (3)	1	NA	150**	DNQ (9)
Selenium	µg/L	17	1.1-<5	2.4	ND	ND	9	1.6-<5	2.7	DNQ (1.5)
Silver	µg/L	5	<0.25-<10	<6.1	ND	DNQ (0.26)	1	NA	0.85**	ND
Thallium	µg/L	5	<1-<200	<120	ND	DNQ (0.21)	1	NA	<1**	ND
Zinc	µg/L	5	DNQ(9.4)-38	17	DNQ (7.8)	DNQ (7.5)	1	NA	980**	47

< Constituent not detected above the reporting limit (RL).
NA -Data not available.
ND - Indicates sample was not detected above the RL.
DNQ - Detected Not Quantified. Indicates that the constituent was detected below the reporting limit (RL). The concentration was not quantified. Values in parentheses are estimated. DNQ values are known for data after July 1, 2011.
[1] The mean was calculated using the RL for samples that were not detected above the RL.
[2] Laboratory reported gasoline range organics and diesel range organics in lieu of total petroleum hydrocarbons for wet weather samples.
[3] Historical analyses for total metals used higher RLs than more recent analyses. Therefore, more recent samples may have a detection below an older sample that was reported as not detected.
* For *E. coli* the mean calculation is the geometric mean.
** Result based on one sample.
Shaded text indicates the result was outside the normal range.

Table 3-12: 2016-2017 Concentrations of Monitored Constituents – WWR Receiving Water Station

Constituent	Units	719CVS884		
		CVSC at Avenue 52 Bridge		
		Dry Event	Dry Event	Wet Event
		7/28/2016	1/31/2017	12/22/2016
Bacteriological				
E.coli	MPN/100mL	1100	170	24,000
Field Measurements				
Dissolved Oxygen	mg/L	4.10	5.63	4.80
Specific Conductance	µs/cm	1153	1408	1878
Temperature	Celsius	31.0	17.1	15.6
Turbidity	NTU	16	36.3	110
pH	pH units	7.56	7.63	7.87
Other General Parameters				
Methylene Blue Activated Substances (MBAS)	mg/L	ND	ND	0.15
Total Dissolved Solids (TDS)	mg/L	750	870	1100
Total Suspended Solids (TSS)	mg/L	29	71	83
Hydrocarbons				
Ethylene Glycol	mg/L	ND	ND	ND
Oil & Grease (HEM)	mg/L	ND	ND	ND
Diesel Range Hydrocarbons[1]	mg/L	NA	0.13	NA
Gasoline Range Organics[1]		NA	ND	ND
Total Petroleum Hydrocarbons[1]		ND	NA	NA
Nutrients				
Ammonia-Nitrogen	mg/L	21	26	9.3
Nitrate as N	mg/L	4.0	4.6	4.6
Nitrite as N	mg/L	1.0	0.77	0.36

Table 3-12: 2016-2017 Concentrations of Monitored Constituents – WWR Receiving Water Station

Constituent	Units	719CVS884		
		CVSC at Avenue 52 Bridge		
		Dry Event	Dry Event	Wet Event
		7/28/2016	1/31/2017	12/22/2016
Total Kjeldahl Nitrogen	mg/L	19	25	12
Total Nitrogen (calculated)	mg/L	NA	NA	NA
Ortho Phosphate Phosphorus	mg/L	2.6	2.0	1.2
Total Phosphorus	mg/L	3.0	2.7	1.3
Total Metals				
Antimony	µg/L	ND	NA	ND
Arsenic	µg/L	1.5	NA	2.0
Barium	µg/L	48	67	55
Beryllium	µg/L	ND	NA	ND
Cadmium	µg/L	ND	NA	ND
Chromium	µg/L	2.5	4.3	5.6
Chromium, Hexavalent	µg/L	11	NA	NA
Copper	µg/L	3.5	NA	21
Lead	µg/L	0.64	NA	3.4
Mercury	µg/L	ND	NA	ND
Nickel	µg/L	ND	NA	6.5
Selenium	µg/L	ND	NA	ND
Silver	µg/L	ND	NA	ND
Thallium	µg/L	ND	NA	ND
Zinc	µg/L	ND	NA	39
CONSTITUENTS NOT REQUIRED UNDER THE 2013 PERMIT				
Nutrients				
Nitrate as NO3 ^	mg/L	18	20	20
Total Nitrate, Nitrite as N	mg/L	5.0	5.4	5.0
Orthophosphate as PO4	mg/L	8.0	6.1	3.7
Total phosphorus as PO4	mg/L	9.2	8.3	
Bacteriological				
Total Coliform	MPN/100mL	17000	--	
Fecal Coliform	MPN/100mL	920	--	
Metals				
Dissolved Hexavalent Chromium	µg/L	--	--	0.41

DNQ - Detected Not Quantified. Indicates that the constituent was detected below the reporting limit (RL). The concentration was not quantified. Values in parentheses are estimated.
ND - Indicates constituent was not detected above the RL.
1 - The laboratory reported this constituent as gasoline range organics and diesel range organics in some of the events 2016-2017 monitoring year.

Table 3-13. Normal Range Analysis - WWR Receiving Water Station

Constituent	Units	CVSC at Avenue 52 Bridge (719CVS884)								
		Dry Weather					Wet Weather			
		Historical Data			2016-2017 Monitoring Year Data		Historical Data			2016-2017 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	7/28/2016	1/31/2017	n	Normal Range	Mean of Results[1]	12/22/2016
Bacteriological										
E.coli	MPN/100mL	16	1.8-540	135*	1100	170	10	200-33,000	2246*	24,000
Field Measurements										
Dissolved Oxygen	mg/L	17	2.78-7.18	4.32	4.10	5.63	10	1.2-9.55	5.04	4.80
Specific Conductance	µS/cm	17	917-1,466	1110.7	1153	1408	10	216-1,638	932.9	1878
Temperature	Celsius	17	15-30	22.1	31.0	17.1	10	9.9-26	18.21	15.6
Turbidity	NTU	17	2.15-39.6	12.68	16	36.3	10	5.4-31,200	5588.3	110
pH	pH	17	7.2-8.2	7.56	7.56	7.63	10	7.2-8.8	7.9	7.87
Other General Parameters										
MBAS	mg/L	4	<0.08-<0.09	0.08	ND	ND	1	0.4**	0.4**	0.15
Total Dissolved Solids	mg/L	17	500-980	670.6	750	870	10	360-960	644	1100
Total Suspended Solids	mg/L	5	17-31	23	29	71	1	120**	120**	83
Hydrocarbons										
Ethylene Glycol	mg/L	5	<1-<10	6. 4	ND	ND	1	<1**	<1**	ND
Oil & Grease (HEM)	mg/L	5	DNQ(2.1)-6.9	3.74	ND	ND	1	DNQ(2.6)**	DNQ(2.6)**	ND
Diesel Range Hydrocarbons[2]	mg/L	-	-	-	NA	0.13	1	<5**	<5**	NA
Gasoline Range Organics[2]	mg/L	-	-	-	NA	ND	1	DNQ(0.024)**	DNQ(0.024)**	ND
Total Petroleum Hydrocarbons[2]	mg/L	5	<1-DNQ(0.44)	0.88	ND	NA	-	-	-	NA
Total Metals[3]										
Antimony	µg/L	11	0.4-<10	<6.5	ND	NA	2	<0.5-DNQ(1.3)	0.9	ND
Arsenic	µg/L	24	1.1-<5	1.9	1.5	NA	10	1.5-7.2	3.97	2.0
Barium	µg/L	24	31-73	51.2	48	67	10	39-4,300	824.1	55
Beryllium	µg/L	11	0.34-<10	7.4	ND	NA	2	<10-11	10.5	ND
Cadmium	µg/L	24	<0.25-<2	1.2	ND	NA	10	DNQ (0.02)-3.6	1.1	ND
Chromium	µg/L	24	1.7-<20	5.0	2.5	4.3	10	2.4-260	52.9	5.6
Chromium, Hexavalent	µg/L	6	DNQ (0.04)-<10	<1.9	11	NA	1	0.47	0.47**	NA
Copper	µg/L	11	DNQ (2.7)-5.5	3.5	3.5	NA	2	23-380	201.5	21
Lead	µg/L	24	DNQ (0.23)-1.1	0.60	0.64	NA	10	0.5-510	78.2	3.4
Mercury	µg/L	24	<0.2-<0.2	<0.2	ND	NA	10	DNQ(0.06)-2.6	0.46	ND
Nickel	µg/L	11	DNQ (1.5)-3.1	2.26	ND	NA	2	DNQ(9) - 150	79.5	6.5
Selenium	µg/L	24	<1-<5	2.64	ND	NA	10	DNQ(1.5)-<5	2.56	ND

Table 3-13. Normal Range Analysis - WWR Receiving Water Station

Constituent	Units	CVSC at Avenue 52 Bridge (719CVS884)								
		Dry Weather					Wet Weather			
		Historical Data			2016-2017 Monitoring Year Data		Historical Data			2016-2017 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	7/28/2016	1/31/2017	n	Normal Range	Mean of Results[1]	12/22/2016
Silver	µg/L	11	<0.25-<10	<7.34	ND	NA	2	0.85-<10	5.4	ND
Thallium	µg/L	11	DNQ (0.23)-<200	145	ND	NA	2	<1-<200	<100	ND
Zinc	µg/L	11	DNQ(7.5)-38	12.3	ND	NA	2	47-980	513.5	39
Nutrients										
Ammonia-Nitrogen	mg/L	18	6.6-24	13.84	21	26	10	0.22-15	7.14	9.3
Nitrate as N	mg/L	16	0.41-13	3.39	4.0	4.6	9	1.2-4.3	2.4	4.6
Nitrite as N	mg/L	17	0.23-1.4	0.59	1.0	0.77	10	0.08-0.67	0.30	0.36
Total Kjeldahl Nitrogen	mg/L	18	1.8-28	15.8	19	25	10	3.9-26	15.86	12
Total Nitrogen	mg/L	15	2.4-31	17.8	NA	NA	9	4.4-28	17.1	NA
Ortho Phosphate Phosphorus	mg/L	17	0.2-5.83	1.85	2.6	2.0	10	0.065-6.36	1.7	1.2
Total Phosphorus	mg/L	19	0.42-3.2	1.87	3.0	2.7	11	1.5-23	5.1	1.3

< Constituent not detected above the reporting limit (RL).
NA -Data not available.
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* For *E.coli* the mean calculation is the geometric mean.
** Result based on one sample.
Shaded text indicates the result was outside the normal range.