Water Quality Assessment Report

State Route 60/World Logistics Center Parkway Interchange Project

State Route 60/World Logistics Center Parkway Interchange Project
City of Moreno Valley
Riverside County, California
08-RIV-60-PM 20.0/22.0
EA 0M5900

January 2019

Caltrans

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STATE OF CALIFORNIA
Department of Transportation

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Executive Summary

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 for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the general environmental 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, identifies potential water quality impacts/benefits associated with the proposed project, and recommends regulatory compliance measures.

The City of Moreno Valley (City), in cooperation with the California Department of Transportation (Caltrans), District 8, proposes to reconstruct and improve the State Route 60 (SR-60)/World Logistics Center Parkway (WLC Pkwy) interchange. The majority of the project site is in the City of Moreno Valley, and a small portion (the northeast quadrant of the interchange), is within unincorporated Riverside County (County) but within the City's Sphere of Influence. The purpose of the project is to alleviate existing and future traffic congestion at the SR-60/WLC Pkwy interchange ramps during peak hours, to improve traffic flow along the freeway and through the interchange, to improve safety by upgrading the geometry at the current interchange, and to provide standard vertical clearance for the WLC Pkwy overcrossing.

The existing drainage system/facilities along the project alignment consist of five culverts that cross SR-60 from north to south between Redlands Boulevard and WLC Pkwy. From west to east, the culverts consist of a 42-inch corrugated metal pipe, a 4-foot (ft) by 2 ft reinforced concrete box, two separate double-barrel 48-inch corrugated metal pipe crossings, and a double 72-inch corrugated metal pipe. In the existing condition, the 42-inch corrugated metal pipe near Redlands Boulevard outlets south of SR-60 and west of Redlands Boulevard. The remaining four culverts combine into a storm drain on the south side of SR-60. The storm drain is routed around the Skechers facility on the west side and outlets into a spreading basin south of Eucalyptus Avenue. In addition, an unnamed blue line stream crosses underneath SR-60 east of the WLC Pkwy interchange at approximately Post Mile 21.75 through an additional culvert. This drainage feature does not drain to the San Jacinto River; however, all stormwater runoff from the project area would be conveyed south into Mystic Lake and a series of nearby reclamation ponds within the San Jacinto Wildlife Area. Overflow from Mystic Lake area flows into Reach 4 of the San Jacinto River.

The 42-inch corrugated metal pipe near Redlands Boulevard would not be impacted by the project. The proposed drainage system for the rest of the culverts would include extending the existing four culverts toward the north along the edge of the limits of grading. In addition, a graded channel would be constructed along the roadway embankment to direct the current southerly flow toward the four existing culverts and to reduce ponding adjacent to the roadway embankment. Furthermore, drainage inlet improvements would include the installation of headwalls and sloped invert paving to improve the existing drainage patterns.

The proposed drainage improvements would be linked to the existing drainage system and would preserve the existing drainage pattern as much as possible, including draining stormwater runoff (that does not infiltrate in infiltration basins and biofiltration swales) south to Mystic Lake, reclamation ponds, and any flow into the San Jacinto River, Reach 4, which is consistent with current conditions. The San Jacinto River, Reach 4, is not listed on the 2014/2016 California 303(d) List of Water Quality Limited Segments for any impairments. Potential impacts during construction activities include exposure of excavated soil, which would increase the potential for soil erosion compared to existing conditions. The total disturbed area during construction would be approximately 115 acres (ac) for Alternatives 2 and 6 and approximately 148 ac for Design Variations 2a and 6a. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters.

Construction

Construction of the Build Alternatives would comply with the requirements of the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit [CGP]) (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ; NPDES No. CAS000002). The CGP's requirements are based on the risk level of the project. Based on the Risk Determination methodology outlined in the CGP, the project has a combined Risk Level 1 (low risk). Risk Level 1 projects are subject to the best management practices (BMP) and visual monitoring requirements of the CGP, but are not required to conduct stormwater sampling.

In compliance with the CGP, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented during construction. The construction SWPPP would identify the specific BMPs to be implemented during construction so as not to cause or contribute to an exceedance of any applicable water quality standard included in the Santa Ana Regional Water Quality Control Board (RWQCB) Basin Plan. These BMPs would be designed to meet the technology requirement stipulated in the CGP.

Groundwater dewatering would not be required during construction. However, dewatering during storm events may be necessary.

With compliance with the CGP permits, including implementation of construction BMPs, and compliance with Sections 401 and 404 of the Clean Water Act (CWA) during construction of the Build Alternatives, as stipulated in Measures WQ-1 and WQ-4, construction of the Build Alternatives is not anticipated to result in adverse impacts to water quality.

Under the No Build Alternative, no improvements to the SR-60/WLC Pkwy interchange would be made. No construction activities, such as grading or excavation, would occur. Therefore, no soil would be disturbed, and there would be no increase in the potential for soil erosion or sedimentation compared to existing conditions. Additionally, there would be no increased risk of spills from construction equipment or materials use.

Operation

Pollutants of concern during operation of the Build Alternatives include nutrients, pesticides, suspended solids/sediments, heavy metals, oil and grease, toxic organic compounds, and trash and debris. Alternatives 2 and 6 would result in a permanent increase in impervious surface area of 16.5 ac and 20.6 ac, respectively. Design Variations 2a and 6a would result in a permanent increase in impervious surface area of approximately 22.1 ac and 26.2 ac, respectively. An increase in impervious area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. Groundwater dewatering would not be required during operation.

Operation of Caltrans facilities is regulated by the *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State of California Department of Transportation* (Caltrans MS4 Permit) (NPDES No. CAS000003, SWRCB Order No. 2012-0011-DWQ, as amended by Order No. 2014-0006-EXEC, Order No. 2014-0077-DWQ, and Order No. 2015-0036-EXEC). Through compliance with the Caltrans MS4 Permit, the City would be required to implement Caltrans-approved Treatment and Design Pollution Prevention BMPs within Caltrans right-of-way. Caltrans-approved Treatment BMPs being proposed as part of the project include a system (i.e., treatment train) of biofiltration swales and infiltration basins to address pollutants of concern during operation of the roadway facility. Caltrans-approved Design Pollution Prevention BMPs include preservation of existing vegetation, slope/surface protection systems, concentrated flow conveyance systems, and Low Impact Development (LID) efforts.

The *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the Riverside County Flood Control and Water Conservation District, the County of Riverside, and the Incorporated Cities of Riverside County within the Santa Ana Region* (Order No. R8-2010-0033; NPDES No. CAS618033) (Riverside County MS4 Permit) is applicable to the operation of the portions of the project outside of Caltrans right-of-way. Through compliance with the Riverside County MS4 Permit and as required by Exhibit D (Transportation Project Guidance) of the Riverside County Water Quality Management Plan (WQMP), the Build Alternatives would implement Treatment Control BMPs outside of Caltrans right-of-way. Treatment Control BMPs being proposed as part of the project include a system of biofiltration swales and infiltration basins to address pollutants of concern during operation of the roadway facility and to increase infiltration.

The BMPs would be designed to reduce the discharge of pollutants of concern to the maximum extent practicable (MEP). The overall strategy to treat runoff from new impervious surface areas would be to use design features that increase the detention time to allow for infiltration, reduce overall pollutant loads by reducing volumetric discharges, and provide infiltration within vegetated conveyances.

With compliance with the applicable NPDES permits, including implementation of BMPs, during operation of the Build Alternatives, as stipulated in Measures WQ-2 and WQ-3, operation of the Build Alternatives is not anticipated to result in adverse impacts to water quality.

Under the No Build Alternative, no improvements to the SR-60/WLC Pkwy interchange other than routine maintenance would be made. There would be no increases in impervious surface area at the SR-60/WLC Pkwy interchange. Therefore, the No Build Alternative would not result in an increase in stormwater runoff or long-term pollutant loading; however, existing stormwater runoff would remain untreated.

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1. Introduction

1.1. Approach to the 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 for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the general environmental 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 regulatory compliance measures.

1.2. Project Description

A segment of Theodore Street has been renamed to World Logistics Center Parkway (WLC Pkwy). The SR-60/Theodore Street Interchange Project will now be referred to as the SR-60/World Logistics Center Parkway Interchange Project (project).

The City of Moreno Valley (City), in cooperation with the California Department of Transportation (Caltrans) District 8, proposes to reconstruct and improve the State Route 60 (SR-60)/WLC Pkwy interchange. The majority of the project site is within the City of Moreno Valley; however, the northeast quadrant of the site is located within unincorporated Riverside County but within the City's Sphere of Influence. The purpose of the project is to alleviate existing and future traffic congestion at the SR-60/WLC Pkwy interchange ramps during peak hours, to improve traffic flow along the freeway and through the interchange, to improve safety by upgrading the geometry at the current interchange, and to provide standard vertical clearance for the WLC Pkwy overcrossing.

The project will be funded with a variety of funding sources including federal and local funds and, as such, will be required to comply with both CEQA and NEPA. Caltrans will be the Lead Agency for CEQA, the City is a Responsible Agency under CEQA, and the Federal Highway Administration is the federal Lead Agency for NEPA. The environmental review, consultation, and any other action required in accordance with the applicable federal laws for this project will be carried out by Caltrans under its assumption of responsibility pursuant to 23 United States Code 327. Therefore, preparation of the NEPA compliance documents, including the technical studies and the environmental document, will have oversight by Caltrans District 8. An Initial Study/Environmental Assessment (IS/EA) (joint CEQA/NEPA document) is being prepared and is anticipated to result in a Mitigated Negative Declaration/Finding of No Significant Impact (MND/FONSI).

1.2.1. Project Site and Description

Although the City's General Plan Circulation Element designates WLC Pkwy as a Minor Arterial (two lanes in each direction), existing WLC Pkwy through the project limits is one travel lane in each direction, including on the overcrossing over SR-60. Existing SR-60 between

Redlands Boulevard and Gilman Springs Road is two mixed-flow travel lanes in each direction. The proposed project would construct modifications to the existing SR-60/WLC Pkwy interchange from Post Mile 20.0 to Post Mile 22.0 on SR-60, a distance of 2 miles (mi). Major improvements to the interchange will include: (1) reconstruction of the westbound and eastbound on- and off-ramps to SR-60, (2) replacement of the existing WLC Pkwy overcrossing with an expanded four-lane overcrossing (two through lanes in each direction) with a minimum 16.5-foot (ft) vertical clearance between the eastbound and westbound SR-60 ramps and reconstruction of WLC Pkwy between the southern limits of the project and the eastbound SR-60 ramps, and (3) construction of three lanes in each direction on WLC Pkwy between the eastbound SR-60 ramps and Eucalyptus Avenue west (Eucalyptus Avenue west of WLC Pkwy); construction of two lanes in each direction but grading for three lanes in each direction on WLC Pkwy between Eucalyptus Avenue west and Eucalyptus Avenue east (Eucalyptus Avenue east of WLC Pkwy); south of Eucalyptus Avenue east, WLC Pkwy would narrow to one lane in each direction. The proposed improvements to the on- and off-ramps would extend west and east of the proposed overcrossing on SR-60 for proposed auxiliary lanes in each direction. The proposed improvements to Theodore Street/WLC Pkwy would extend north of SR-60 to Ironwood Avenue and south of SR-60 to south of Eucalyptus Avenue east. Project construction is anticipated to begin in early 2022 and to be completed in winter 2023, contingent upon full funding of all phases.

An existing Caltrans paved material transfer area in the southwest quadrant of the existing SR-60/WLC Pkwy interchange, within the existing eastbound loop on-ramp, is currently used as a temporary site for the transfer of street sweeping materials. The existing paved material transfer area will be relocated to the SR-60/Gilman Springs Road interchange area as part of the proposed project.

Three alternatives and two design variations will be evaluated in the environmental document for the proposed project: Alternative 1 (No Build Alternative [no project]), Alternative 2 (Modified Partial Cloverleaf), Alternative 6 (Modified Partial Cloverleaf with Roundabout Intersections), Alternative 2 with Design Variation 2a, and Alternative 6 with Design Variation 6a. The Design Variations for each Build Alternative are similar and would realign Eucalyptus Avenue to join WLC Pkwy approximately 900 ft south of the existing Eucalyptus Avenue/WLC Pkwy intersection. Both Build Alternatives and Design Variations would require full right-of-way acquisitions. Design Variation 6a would require the same amount of acquisitions with an additional full acquisition in the southeast quadrant of the interchange that would result in one residential displacement. There would be partial right-of-way acquisitions within all four quadrants of the interchange.

During the construction phase of the proposed project, removal of the existing overcrossing and construction of the new overcrossing and ramps would interfere with access to SR-60 at WLC Pkwy. The WLC Pkwy overcrossing is being evaluated for closure during construction of the proposed project. Therefore, if not done prior to this project, Eucalyptus Avenue would be extended and improved approximately 5,100 ft between WLC Pkwy and Redlands Boulevard to provide a detour route to SR-60. The improvements to Eucalyptus Avenue will be constructed early in the construction schedule, prior to the closure of the WLC Pkwy overcrossing. North of the freeway, access to SR-60 during construction would be provided via Ironwood Avenue and Redlands Boulevard. South of the freeway, access to SR-60 would be provided via Alessandro

Boulevard and Gilman Springs Road and via Eucalyptus Avenue and Redlands Boulevard. Additional intersection improvements are proposed along the detour routes to facilitate vehicle movement. As a result, widening is proposed at the Redlands Boulevard/Ironwood Avenue, WLC Pkwy/Alessandro Boulevard, and Alessandro Boulevard/Gilman Springs Road intersections. Consequently, signal modifications are proposed at the Redlands Boulevard/ Ironwood Avenue and Redlands Boulevard/Eucalyptus Avenue intersections. A new signal would be installed at the Gilman Springs Road/Alessandro Boulevard intersection due to the high number of through movements on Gilman Springs Road conflicting with left turns to and from Alessandro Boulevard. The improvements required for the detour routes also include utility adjustments and/or relocations at Redlands Boulevard/Ironwood Avenue, WLC Pkwy/ Alessandro Boulevard, and Alessandro Boulevard/Gilman Springs Road.

Project construction would also involve the import of soils to the project site from a borrow site. One borrow site, the City Stockpile, is at the northwest corner of the intersection of Alessandro Boulevard/Nason Street, approximately 2.3 mi from the western boundary of the project site. Approximately 50,000 cubic yards of import material will be imported to the project from the City Stockpile borrow site. The City Stockpile will be environmentally cleared with this project. Additional fill material beyond the 50,000 cubic yards will be necessary for the project and will come from another site(s) to be determined during future phases of the project.

The regional location of the proposed project and the project vicinity are shown on Figure 1, and the maximum footprint of disturbance is shown on Figure 2.

1.2.1.1. Purpose and Need

1.2.1.1.1. Project Purpose

The purpose of the proposed project is to:

1. Provide increased interchange capacity, reduce congestion, and improve traffic operations to support the forecast travel demand for the 2045 design year;
2. Improve existing and projected interchange geometric deficiencies; and
3. Accommodate a multimodal facility that has harmony with the community and preserves the values of the area.

1.2.1.1.2. Project Need

The proposed project is needed for the following reasons:

1. According to the demographics and growth forecast prepared for the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS), between 2012 and 2040, Riverside County's population is expected to increase by 41 percent, job growth is anticipated to increase by 90 percent, and the number of households is anticipated to increase by 51 percent. For Moreno Valley specifically, between 2012–2040, population is anticipated to increase by 30 percent, household jobs are anticipated to increase by 165 percent, and the

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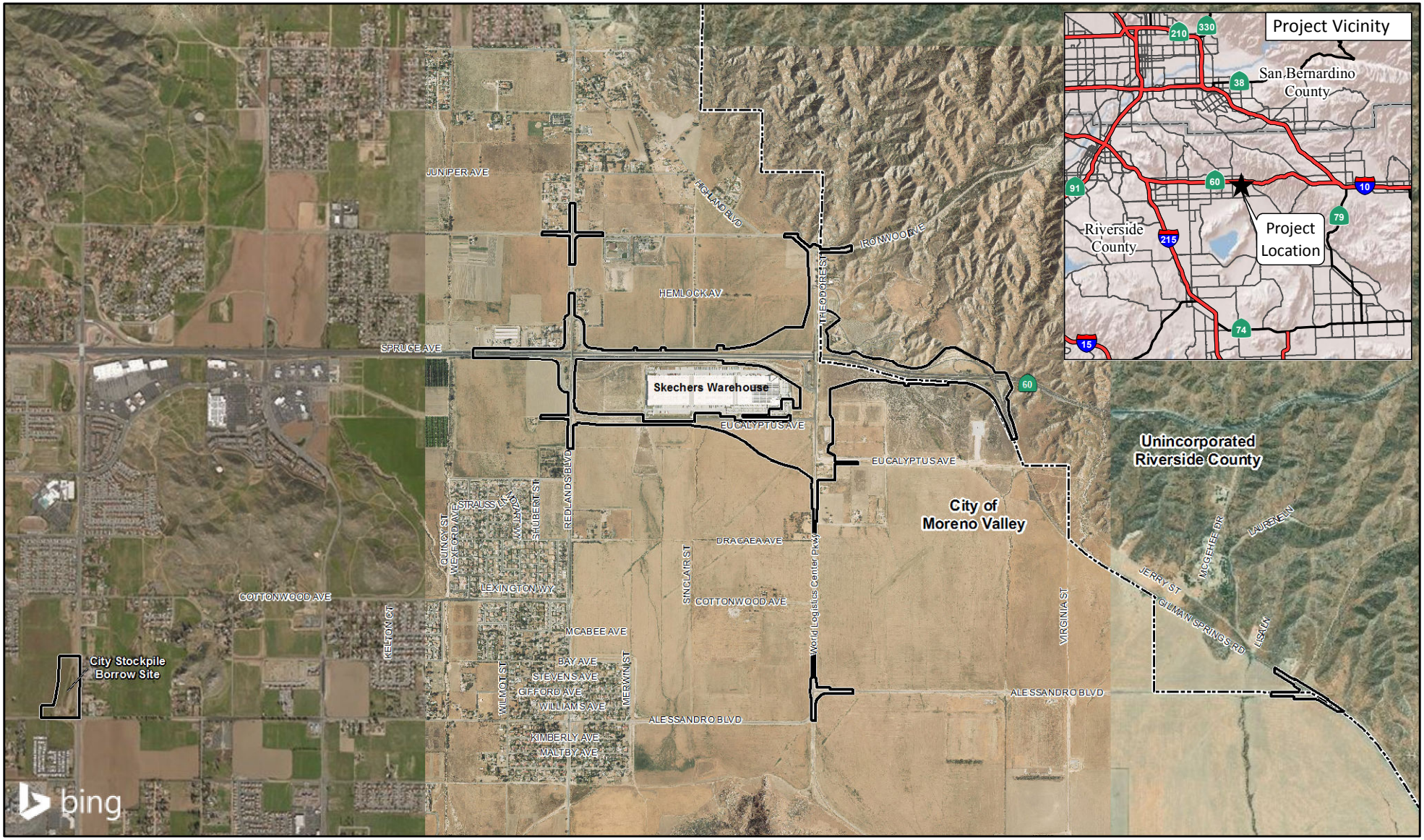

LEGEND

Project Area

City Boundary

FIGURE 1

SR-60/World Logistics Center Parkway Interchange Project

Project Location and Vicinity

08-RIV-60 PM 20.0/22.0
EA No. 0M590
Project No. 0813000109

0 1500 3000
FEET

SOURCE: Bing (2016); MBI (9/2018); ESRI (07/2012)

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LEGEND

Project Location

0 900 1800

FEET

SOURCE: RBF (9/30/2014); ESRI (07/2012)

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FIGURE 2

SR-60/World Logistics Center Parkway Interchange Project

Maximum Footprint of Disturbance

08-RIV-60 PM 20.0/22.0

EA No. 0M590

Project No. 0813000109

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number of households is anticipated to increase by 41 percent. Without improvements, in the year 2045, the eastbound and westbound on-and off- ramps are anticipated to operate at unacceptable levels of service (LOS) (LOS E in the a.m. peak hour and F in the p.m. peak hour, respectively) and the ramp intersections with WLC Pkwy are anticipated to operate at LOS F for both the a.m. and p.m. peak hours. The westbound mainline segment on SR-60 between WLC Pkwy and Redlands Boulevard is anticipated to operate at LOS E during the a.m. peak hour. The Theodore Street intersections with Ironwood Avenue, the SR-60 westbound and eastbound ramps, and Eucalyptus Avenue are forecast to operate at LOS F in the p.m. peak hour.

2. The overpass bridge at the interchange was hit by a truck in January 2015 and a costly emergency repair project was required, so there is a need to bring vertical clearance up to current standards. In addition, the WLC Pkwy overcrossing is geometrically deficient and needs additional capacity to accommodate projected future travel volumes.
3. This project will fulfill the need to accommodate the movement of people using multiple modes of transportation by community-based design taking into consideration the natural environment, social environment, transportation behavior, cultural characteristics, and economic environment.

1.2.2. No Project Alternative

The No Build Alternative (Alternative 1) assumes that no improvements will be made to the freeway mainline or to the existing SR-60/WLC Pkwy interchange. Without the planned improvements proposed as part of the project, the LOS at the on- and off-ramps and traffic operations at the interchange would continue to worsen over time. Alternative 1 was determined to not meet or satisfy the project purpose and need.

1.2.3. Alternative 2 (Modified Partial Cloverleaf)

Alternative 2 proposes to reconstruct the SR-60/WLC Pkwy interchange in a modified partial cloverleaf configuration. Improvements under Alternative 2 would include the construction of a new westbound direct on-ramp and a new westbound loop off-ramp in the northwest quadrant of the interchange, in a cloverleaf configuration. A new eastbound direct off-ramp, a new eastbound loop on-ramp, and a new eastbound direct on-ramp would be constructed in a partial cloverleaf configuration in the southwest and southeast quadrants.

Alternative 2 would also remove the existing two-lane (one lane in each direction) WLC Pkwy overcrossing and replace it with a new four-lane (two lanes in each direction) overcrossing. The proposed overcrossing would accommodate turn lanes in the northbound and southbound direction.

Additional improvements as part of Alternative 2 include the installation of signals at both the proposed eastbound and westbound ramp intersections, as well as at the intersection of Eucalyptus Avenue/WLC Pkwy. Bicycle lanes would be provided on both sides of WLC Pkwy and Eucalyptus Avenue throughout the project limits.

1.2.4. Design Variation 2a – (Alternative 2 with Design Variation)

Design Variation 2a will have the same features as Alternative 2 with the exception of the location of the Eucalyptus Avenue/WLC Pkwy intersection. The Design Variation will consist of moving the current Eucalyptus Avenue/WLC Pkwy intersection approximately 900 ft south from its current location. The shift will cause a partial realignment of Eucalyptus Avenue from approximately 2,600 ft west of WLC Pkwy to connect with the west side of WLC Pkwy.

1.2.5. Alternative 6 (Modified Partial Cloverleaf with Roundabout Intersections)

Alternative 6 proposes to reconstruct the SR-60/WLC Pkwy interchange in a modified partial cloverleaf configuration. Improvements under Alternative 6 would include the construction of a new westbound direct on-ramp and a new westbound loop off-ramp in the northwest quadrant, in a partial cloverleaf configuration. New eastbound direct off- and on-ramps would be constructed in the southwest and southeast quadrants, respectively, in a partial cloverleaf configuration.

Similar to Alternative 2, Alternative 6 would also remove the existing two-lane (one lane in each direction) WLC Pkwy overcrossing and replace it with a new four-lane (two through lanes in each direction) overcrossing. Additional improvements included as part of Alternative 6 include the installation of roundabouts at both the proposed eastbound and westbound ramp intersections, as well as at Eucalyptus Avenue/WLC Pkwy. On WLC Pkwy north of the Eucalyptus Avenue intersection and on Eucalyptus Avenue, bike lanes are provided on both sides within the width of the proposed shoulders. Bicyclists would have the option to merge with vehicular traffic to navigate through the roundabout or exit the travel lane prior to each roundabout and cross the roundabout with pedestrian traffic.

1.2.6. Design Variation 6a – (Alternative 6 with Design Variation)

Design Variation 6a will have the same features as Alternative 6 with the exception of the location of the Eucalyptus Avenue/WLC Pkwy intersection. The Design Variation will consist of moving the current Eucalyptus Avenue/WLC Pkwy intersection approximately 900 ft south from its current location. The shift will cause a partial realignment of Eucalyptus Avenue from approximately 2,600 ft west of WLC Pkwy to connect to the west side of WLC Pkwy. Construction of the roundabout at WLC Pkwy and Eucalyptus Avenue east would result in one residential displacement in the southeast quadrant of WLC Pkwy and Eucalyptus Avenue east.

1.2.7. Soil Disturbance

During construction, the total disturbed surface area for the Build Alternatives would be approximately 115 ac for Alternatives 2 and 6 and approximately 148 ac for Design Variations 2a and 6a. Proposed new slopes would be a standard 2:1 (cuts) and 4:1 (fills) or flatter. During the construction phase, Caltrans would be required to approve a contractor developed and implemented Storm Water Pollution Prevention Plan (SWPPP) in accordance with the *National Pollutant Discharge Elimination System (*NPDES*) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit [CGP]) (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ, National Pollutant Discharge Elimination System (NPDES) No. CAS000002). The requirements of the CGP are based on the risk level of the project. Based on the Risk Determination

methodology outlined in the CGP, the project has a low Sediment Risk (the relative amount of sediment that can be discharged, given the project location and construction schedule) and a low Receiving Water Risk (the risk sediment discharges pose to the receiving waters), which results in a combined Risk Level of 1 (low risk to water quality). Risk Level 1 projects are subject to the best management practice (BMP) and visual monitoring requirements of the CGP, but are not required to conduct stormwater sampling.

1.2.8. Operational Stormwater Details

Alternatives 2 and 6 would result in a permanent increase in impervious surface area of 16.5 ac and 20.6 ac, respectively. Design Variations 2a and 6a would result in a permanent increase in impervious surface area of 22.1 ac and 26.2 ac, respectively. There are currently no known existing Treatment BMPs within the project area. Infiltration basins are proposed in the undeveloped areas between the on-/off-ramps and SR-60. A system of bioswales and infiltration basins would be installed to make up for the low infiltration rates. These proposed Treatment BMPs would treat 100 percent of the runoff from the project area prior to discharge.

1.2.9. Drainage Systems

1.2.9.1. Existing Drainage System

The existing drainage system/facilities along the project alignment consist of five culverts that cross SR-60 from north to south between Redlands Boulevard and WLC Pkwy and eventually convey flows into the San Jacinto River. From west to east, the culverts consist of a 42-inch corrugated metal pipe, a 4-ft by 2 ft reinforced concrete box, two separate double-barrel 48-inch corrugated metal pipe crossings, and a double 72-inch corrugated metal pipe. In the existing condition, the 42-inch corrugated metal pipe near Redlands Boulevard outlets south of SR-60 and west of Redlands Boulevard. The remaining four culverts combine into a storm drain on the south side of SR-60. The storm drain is routed around the Skechers facility on the west side and outlets into a spreading basin south of Eucalyptus Avenue. In addition, an unnamed blue line stream crosses underneath SR-60 east of the WLC Pkwy interchange at approximately Post Mile 21.75 through an additional culvert. This drainage feature does not drain to the San Jacinto River; however, all stormwater runoff from the project area would be conveyed south into Mystic Lake and a series of nearby reclamation ponds within the San Jacinto Wildlife Area. Overflow from Mystic Lake area flows into Reach 4 of the San Jacinto River.

1.2.9.2. Proposed Drainage System

The project would not impact the 42-inch corrugated metal pipe near Redlands Boulevard. The proposed drainage system for the rest of culverts would include extending the existing four culverts toward the north along the edge of the limits of grading. In addition, a graded channel would be constructed along the roadway embankment to direct the current southerly flow toward the four existing culverts and to reduce ponding adjacent to the roadway embankment. Furthermore, drainage inlet improvements would include the installation of headwalls and sloped invert paving to improve the existing drainage patterns.

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2. Regulatory Setting

2.1. Federal Laws and Requirements

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 stormwater 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. The Federal Environmental Protection Agency delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCBs). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross Regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater 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., including wetlands. 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."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. 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 Individual permits: Standard 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 Individual permits. For Standard Individual 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 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 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 has 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

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 as required by the CWA, and regulating discharges to protect beneficial uses of water bodies. 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 standards necessary to protect these uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use. Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a Regional Board 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. The SWRCB implemented the requirements of CWA Section 303(d) through Attachment IV of the Caltrans Statewide MS4, as it includes specific TMDLs for which Caltrans is the named stakeholder.

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. RWQCBs 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 stormwater 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 stormwater, that are designed or used for collecting or conveying stormwater." The SWRCB has identified the Department as an owner/operator of an MS4 pursuant to federal regulations. The Department's MS4 permit 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, NPDES No. CAS000003, SWRCB Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) contains three basic requirements:

  1. The Department must comply with the requirements of the CGP (see below);
  2. The Department must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
  3. The Department stormwater 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 and/or other agency having authority reviewing the stormwater component of the project.

  To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing stormwater 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 stormwater and non-stormwater 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 stormwater runoff.

Construction General Permit

Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, adopted on November 16, 2010) became effective on February 14, 2011 and was amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. The permit regulates stormwater 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, the applicant is required to hire a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD) to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's on-line Stormwater Multiple Application and Report Tracking System (SMARTS), at least 30 days prior to construction.

Waivers from CGP Coverage

Projects that disturb over 1.0 acre but less than 5 acres of soil, may qualify for waiver of CGP coverage. This occurs whenever the R factor of the Watershed Erosion Estimate (=RxKxLS) in tons/acre is less than 5. Within this CGP formula, there is a factor related to when and where the construction will take place. This factor, the 'R' factor, may be low, medium or high. When the R factor is below the numeric value of 5, projects can be waived from coverage under the CGP, and are instead covered by the Caltrans Statewide MS4.

In accordance with SWMP, a Water Pollution Control Plan (WPCP) is necessary for construction of a Caltrans project not covered by 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 a SWPPP, to implement soil erosion and pollution prevention control measures, and to obtain coverage under the CGP.

The CGP contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on project risk of generating sediments and receiving water risk of becoming impaired. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

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

2.3.1. Riverside County NPDES Permit

The County of Riverside and the City of Moreno Valley are co-permittees under the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the Riverside County Flood Control and Water Conservation District (RCFC&WCD) the County of Riverside, and the Incorporated Cities of Riverside County within the Santa Ana Region (Order No. R8-2010-0033; NPDES No. CAS618033) (Riverside County MS4 Permit). The NPDES permit prohibits discharges, sets limits on pollutants being discharged into receiving waters, and requires implementation of technology-based standards.

The Riverside County MS4 Permit prohibits non-stormwater discharges, sets limits on pollutants being discharged into receiving waters, and requires implementation of technology-based standards. The Riverside County MS4 Permit requires all new development and significant redevelopment projects to incorporate Low Impact Development (LID) BMPs and hydromodification management tools to the Maximum Extent Practicable (MEP) to reduce the discharge of pollutants to receiving waters.

Under the Riverside County MS4 Permit, the co-permittees are responsible for the management of storm drain systems within their jurisdiction. The co-permittees are required to implement the Monitoring and Reporting Program, which includes a Watershed Action Plan to support coordinated watershed management, including urban TMDLs; to implement all BMPs outlined in the Drainage Area Management Plan (DAMP); and to take any other actions that may be necessary to protect water quality to the MEP. The co-permittees are required to develop their own Local Implementation Plan, which includes the specific actions the co-permittees would need to take to implement the DAMP and the requirements of the Riverside County MS4 permit.

The Riverside County MS4 Permit requires co-permittees to develop and implement a standard design and post-development BMP guidance to guide application of LID BMPs to the MEP on public street, road, highway, and freeway improvement projects. The Low Impact Development: Guidance and Standards for Transportation Projects for Santa Ana Region Riverside County Co-Permittees (October 2012) was developed to provide direction on how to address the County MS4 Permit requirements on public works transportation projects.

2.3.2. City of Moreno Valley Municipal Code

Chapter 8.10, Stormwater/Urban Runoff Management and Discharge Controls, of the City's Municipal Code sets forth standards to protect and enhance the water quality of watercourses, water bodies, groundwater, and wetlands in a manner pursuant to and consistent with the CWA,

the Porter-Cologne Water Quality Control Act, and the conditions of the MS4 Permit issued to the County of Riverside. Chapter 8.10 is also intended to ensure the health, safety, and welfare of the City's residents by prescribing regulations to effectively reduce pollutants in stormwater discharges to the MEP and to regulate illicit connections, discharges, and non-stormwater discharges to the storm drain system.[1]

2.4. Summary of Applicable NPDES Permits

The project area is within both City right-of-way and Caltrans right-of-way. The Riverside County MS4 Permit (refer to Section 2.3.1) addresses operational impacts of projects within City right-of-way. Therefore, the County MS4 Permit is applicable to the portions of the project within City right-of-way. The Caltrans MS4 Permit addresses operational impacts of projects within Caltrans' jurisdiction, such as on the State highway system. Therefore, the Caltrans MS4 Permit is applicable to the portions of the project within Caltrans right-of-way (refer to Section Municipal Separate Storm Sewer Systems (MS4), above). The CGP addresses construction impacts of the project and is applicable to all construction projects that disturb greater than 1 acre of soil. Therefore, areas within both City and Caltrans right-of-way are subject to the requirements of the CGP.

[1] Moreno Valley Municipal Code. 2017b. Chapter 8.10, Stormwater/Urban Runoff Management and Discharge Controls. Website: http://qcode.us/codes/morenovalley/ (accessed July 24, 2018).

3. Affected Environment

3.1. General Environmental Setting

A majority of the project area is in the City of Moreno Valley, and a small portion of the project area, the northeast quadrant of the SR-60/WLC Pkwy interchange, is within unincorporated Riverside County but within the City's Sphere of Influence. The project area is within the San Jacinto River Watershed.

3.1.1. Population and Land Use

The existing land uses in the project area are characterized by business park/light industrial, office, residential, and open space uses.[1]

According to the United States Census Bureau, in 2017 the estimated population of Riverside County was 2,423,266. The estimated 2017 population of the City of Moreno Valley was 207,226.[2]

3.1.2. Topography

The topography is relatively flat throughout the project area except the sloped areas on the east and west sides of the WLC Pkwy Overcrossing, which are at a 10-percent grade. The elevation ranges from approximately 1,750 ft above mean sea level (amsl) in the southern project limits to approximately 1,850 ft amsl in the northern project limits.[3]

3.1.3. Hydrology

3.1.3.1. Regional Hydrology

The project area is within the Santa Ana RWQCB jurisdiction, which includes Orange, Riverside, and San Bernardino counties. The Santa Ana Region is approximately 2,800 square miles (sq mi) in Southern California and mostly consists of the Santa Ana River Watershed and its tributaries, including the San Jacinto River Watershed, which is where the project is. The Santa Ana Region is too large and complex to be managed as a single watershed. Therefore, for the purpose of watershed planning, the Santa Ana Region has been divided into 10 Watershed Management Areas (WMAs). The project area is within the Lake Elsinore/San Jacinto River WMA.[4]

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1 City of Moreno Valley. 2017a. General Plan Figure 2-2, Land Use Map. Website: http://www.moreno-valley.ca.us/city_hall/general-plan/landuse-map.pdf (accessed July 24, 2018).

2 United States Census Bureau. American FactFinder. Website: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml (accessed July 24, 2018).

3 United States Geologic Survey. 1979 and 1980. 7.5-minute Quadrangle, *Sunnymead* and *El Casco.*

4 Santa Ana Regional Water Quality Control Board. 2006. Watershed Management Initiative. Website: http://www.waterboards.ca.gov/rwqcb8/water_issues/programs/wmi/index.shtml (accessed July 24, 2018).

For regulatory purposes, the Santa Ana RWQCB designates watershed areas into Hydrologic Units (HUs), which are further divided into Hydrologic Areas (HAs) and Hydrologic Subareas (HSAs). As designated by the Santa Ana RWQCB, the western portion of the project area is in the San Jacinto Valley HU, the Perris HA, and the Perris Valley HSA. The eastern portion of the project area is in the San Jacinto Valley HU, the San Jacinto HA, and the Gilman Hot Springs HSA (Figure 3).

3.1.3.2. Local Hydrology

Several drainage features are present within the project area. These consist primarily of channelized stormwater drainages that eventually convey flows into the San Jacinto River. In addition, an unnamed blue line stream[1] crosses underneath SR-60 east of the WLC Pkwy interchange at approximately Post Mile 21.75. This drainage feature does not drain to the San Jacinto River; however, all stormwater runoff from the project site is conveyed south into Mystic Lake and a series of nearby reclamation ponds within the San Jacinto Wildlife Area, which is located approximately 4 miles to the south of the project site.[2] Overflow from the Mystic Lake area flows into the San Jacinto River, Reach 4. The San Jacinto River, Reach 4, is approximately 5 mi downstream of the project area (Figure 3). Refer to Figure 4 for an illustration of the general flow lines surrounding the project site.

3.1.3.2.1. Precipitation and Climate

The climate in Moreno Valley is classified as Mediterranean (i.e., generally dry in the summer with mild, wet winters). The climatological station closest to the project site monitoring temperature is the Riverside Station, which is approximately 15 miles to the northwest of the project site. Temperature in the winter is cool (an average of 43 degrees Fahrenheit [°F] in January), and summers are warm and dry (an average of 94 °F in July). Average rainfall measured at the Riverside Station has an average annual total of 10.32 inches.[3] Most of the precipitation occurs from November to March.[4]

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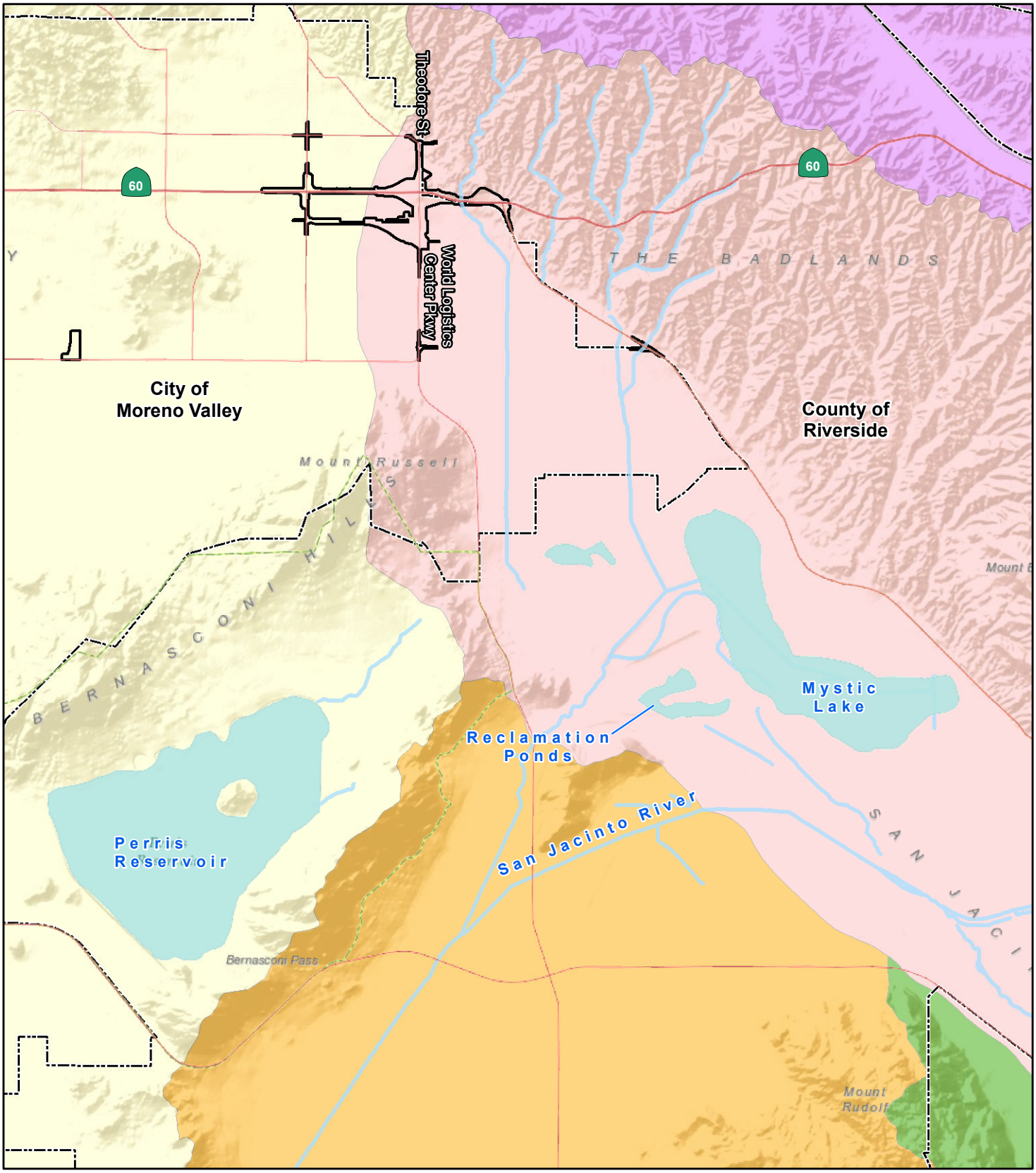
1 A blue line stream is any stream shown on 7.5-minute series quadrangle maps prepared by the United States Department of the Interior Geological Survey (USGS). A blue line stream can be any creek, stream, or other flowing water feature, perennial or ephemeral, indicated on USGS quadrangle maps, with the exception of human-made watercourses.

2 LSA Associates, Inc. 2018c. *Natural Environment Study.*

3 LSA Associates, Inc. 2018a. *Air Quality Report.*

4 United States Geological Survey. 2013. California Water Science Center – Santa Ana Basin, National Water Quality Assessment Program. Website: http://ca.water.usgs.gov/sana_nawqa/env_set.html (accessed July 24, 2018).



Project Location
Jurisdictional Boundary
Santa Ana River Hydrologic Unit (HU)
San Timoteo (HA)/Beaumont (HSA)
San Jacinto Valley Hydrologic Unit (HU)
San Jacinto (HA)/Gilman Hot Springs (HSA)
Perris (HA)/Perris Valley (HSA)
Perris (HA)/Hemet (HSA)
Perris (HA)/Lakeview (HSA)

N

0 3168 6336
FEET

SOURCE: ESRI (2012); USGS NHD (2012); CalWater (v 2.2.1)

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FIGURE 3

SR-60/World Logistics Center Parkway Interchange Project

Hydrologic Units, Areas, and Subareas and Receiving Waters

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EA No. 0M590
Project No. 0813000109

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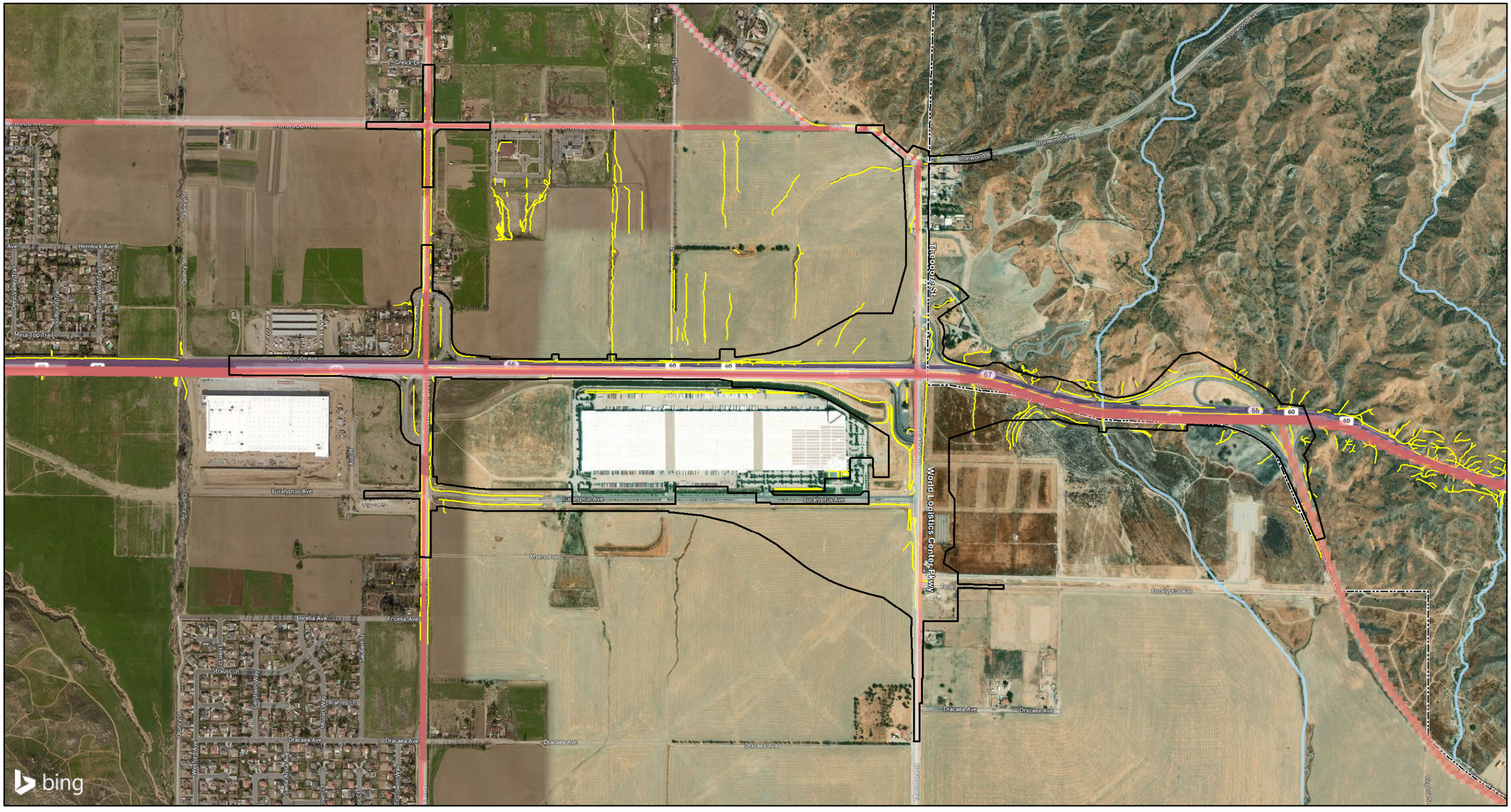

LEGEND

- Project Location
- Jurisdictional Boundary
- Flow Lines

0 500 1000
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SOURCE: Aerial - Bing (2016); ESRI (2012); USGS NHD (2012); CalWater (v 2.2.1)

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FIGURE 4

SR-60/World Logistics Center Parkway Interchange Project

Project Flow Lines

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Project No. 0813000109

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3.1.3.2.2. Surface Waters

The San Jacinto River is approximately 42 mi long and is in Riverside County. The San Jacinto River forms at the base of the San Jacinto Mountains and drains into Lake Elsinore.[1] In rare cases, Lake Elsinore overflows into Temescal Creek. Temescal Creek flows into the Santa Ana River, which then flows into the Pacific Ocean.

Surface Water Quality Objectives

Surface water quality objectives for all inland waters in the Santa Ana Region, as documented in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan), that are applicable to the proposed project are listed in Table 1. In addition, the San Jacinto River Reach 4 (Nuevo Road to North-South Mid-Section Line) has the following site-specific water quality objectives:[2]

- **Total Dissolved Solids (TDS):** 500 milligrams per liter (mg/L)
- **Hardness:** 220 mg/L
- **Sodium:** 75 mg/L
- **Chloride:** 125 mg/L
- **Total Inorganic Nitrogen:** 5 mg/L
- **Sulfate:** 65 mg/L

Beneficial Uses

Beneficial uses of water are defined in the Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of those 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 in the Basin Plan for the San Jacinto River, Reach 4, and include the following intermittent beneficial uses:

- **AGR:** Agricultural Supply
- **GWR:** Groundwater Recharge
- **REC-1:** Contact Water Recreation (swimming/wading)
- **REC-2**: Noncontact Water Recreation (boating/fishing)
- **WARM:** Warm Freshwater Habitat (for fish amenable to reproduction in warm water)
- **WILD:** Wildlife Habitat (for wild plants and animals)

[1] Geographic Names Information System. 1981. United States Geological Survey. *San Jacinto River*. January 19. Website: http://geonames.usgs.gov/apex/f?p=gnispq:3:0::NO::P3_FID:273486 (last accessed July 25, 2018).

[2] Santa Ana Regional Water Quality Control Board. 1995 (updated February 2016). Water Quality Control Plan for the Santa Ana River Basin.

Table 1: Surface Water Quality Objectives for Inland Surface Waters

Constituent	Concentration	Receiving Waters
Algae	Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters.	All inland surface waters
Ammonia, Un-ionized	Calculated numerical non-ionized ammonia objectives and corresponding total ammonia nitrogen concentration vary for various pH, temperature, and salinity conditions.	WARM beneficial use designation
Boron	Shall not exceed 0.75 mg/L in inland surface waters of the region as a result of controllable water quality factors.	All inland surface waters
Chlorine (residual)	Chlorine residual in wastewater discharged to inland surface waters shall not exceed 0.1 mg/L.	All inland surface waters
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other inland surface water resources used for human consumption shall not be impaired.	All inland surface waters
Floatables	Waste discharges shall not contain floating materials, including solids, liquids, foam, or scum, that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Metals	Varies based on hardness.	All inland surface waters
Oil and Grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that result in a visible film, that coat objects in the water, or that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Oxygen (dissolved)	Shall not be depressed below 5 mg/L as a result of controllable water quality factors.	WARM beneficial use designation
	Waste discharges shall not cause the median dissolved oxygen concentration to fall below 85% of saturation or the 95th percentile concentration or fall below 75% of saturation within a 30-day period.	All inland surface waters
Pathogen indicator bacteria	Waste discharges shall not cause or contribute to excessive risk of illness from microorganisms pathogenic to human beings. Pathogen indicator concentrations shall not exceed 126 E. coli organisms per 100 mL.	REC 1 and REC 2 beneficial use designation
pH	Shall not be raised above 8.5 or depressed below 6.5 as a result of controllable water quality factors.	All inland surface waters
Solids (suspended and settleable)	Shall not cause a nuisance or adversely affect beneficial uses as a result of water quality factors.	All inland surface waters
Sulfides	Shall not be increased as a result of controllable water quality factors.	All inland surface waters
Surfactants	Waste discharges shall not contain concentrations of surfactants that result in foam in the course of flow or use of the receiving water, or that adversely affect aquatic life.	All inland surface waters
Taste and Odor	Shall not contain taste- or odor-producing substances at concentrations that cause a nuisance or adversely affect beneficial uses. The natural taste and odor of fish, shellfish or other regional inland surface water resources used for human consumption shall not be impaired.	All inland surface waters
Temperature	Shall not be raised above 90°F June through October or above 78°F during the rest of the year as a result of controllable water quality factors.	WARM beneficial use designation
Toxic Substances	Shall not be discharged at levels that will bioaccumulate in aquatic resources to levels that are harmful to human health. Concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses.	All inland surface waters
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%. Where natural turbidity is between 50 JTU and 100 JTU, increases shall not exceed 10 NTU. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10%.	All inland surface waters

Source: Water Quality Control Plan for the Santa Ana River Basin (1995; updated February 2016).
°F = degrees Fahrenheit
JTU = Jackson Turbidity Units
mg/L = milligrams per liter
mL = milliliters
NTU = Nephelometric Turbidity Units
pH = percentage of hydrogen
REC-1 = Contact Water Recreation
REC-2 = Noncontact Water Recreation
WARM = Warm Freshwater Habitat

Surface Water Quality

The surface waters are within the Lake Elsinore/San Jacinto River WMA. Primary water quality concerns within this WMA include lake water level management, summer lake algal blooms and fish kills affecting the bacterial quality of the lakes, high nitrogen and TDS in groundwater, and water quality problems associated with confined animal feeding operations.[1]

Water Quality Impairments

The SWRCB approved the 2014/2016 Integrated Report (CWA Section 303(d) List) on October 3, 2017. On April 6, 2018, the EPA approved the California 303(d) List of Water Quality Limited Segments. Reach 4 of the San Jacinto River is not listed for any impairments on the 2014/2016 California 303 (d) List of Water Quality Limited Segments. There are currently no proposed or adopted TMDLs for Reach 4 of the San Jacinto River.

Areas of Special Biological Significance

Areas of Special Biological Significance (ASBS) are a subset of State water quality protection areas and require special protection as determined by the SWRCB pursuant to the California Ocean Plan. There are no ASBS, as defined by the SWRCB, in the project area or in Riverside County. Therefore, runoff from the project area does not drain into an ASBS.[2]

3.1.3.2.3. Flood Plains

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Nos. 06065C760G and 06065C0770G (August 28, 2008), the majority of the project area is located within FEMA Shaded Zone X, Other Flood Areas. Shaded Zone X is defined as areas within the 500-year flood; areas within the 100-year flood with average depths of less than 1 ft or with drainage areas of less than 1 sq mi; and areas protected by levees from the 100-year flood.[3] In summary, Shaded Zone X is commonly described as the area subject to flooding between the 100-year and 500-year floods.

The California Department of Water Resources (DWR) has developed Awareness Floodplain Maps to identify all flood hazard areas that are not mapped under FEMA's National Flood Insurance Program and to provide communities and residents an additional understanding of potential flood hazards currently not mapped as a regulated floodplain. According to the Sunnymead Quadrangle Awareness Floodplain Map, an Awareness Floodplain is within the project area (refer to Figure 5). The majority of the project area within the Awareness Floodplain is within the City. A small portion of the project area, the northeast quadrant of

1 Santa Ana Regional Water Quality Control Board. 2006. Watershed Management Initiative. Website: http://www.waterboards.ca.gov/rwqcb8/water_issues/programs/wmi/index.shtml (accessed July 24, 2018).

2 State Water Resources Control Board. 2013. Ocean Standards. Website: http://www.waterboards.ca.gov/water_issues/programs/ocean/asbs_areas.shtml (accessed July 24, 2018).

3 Federal Emergency Management Agency. 2008. Flood Insurance Rate Map Nos. 06065C760G and 06065C0770G. August 28.

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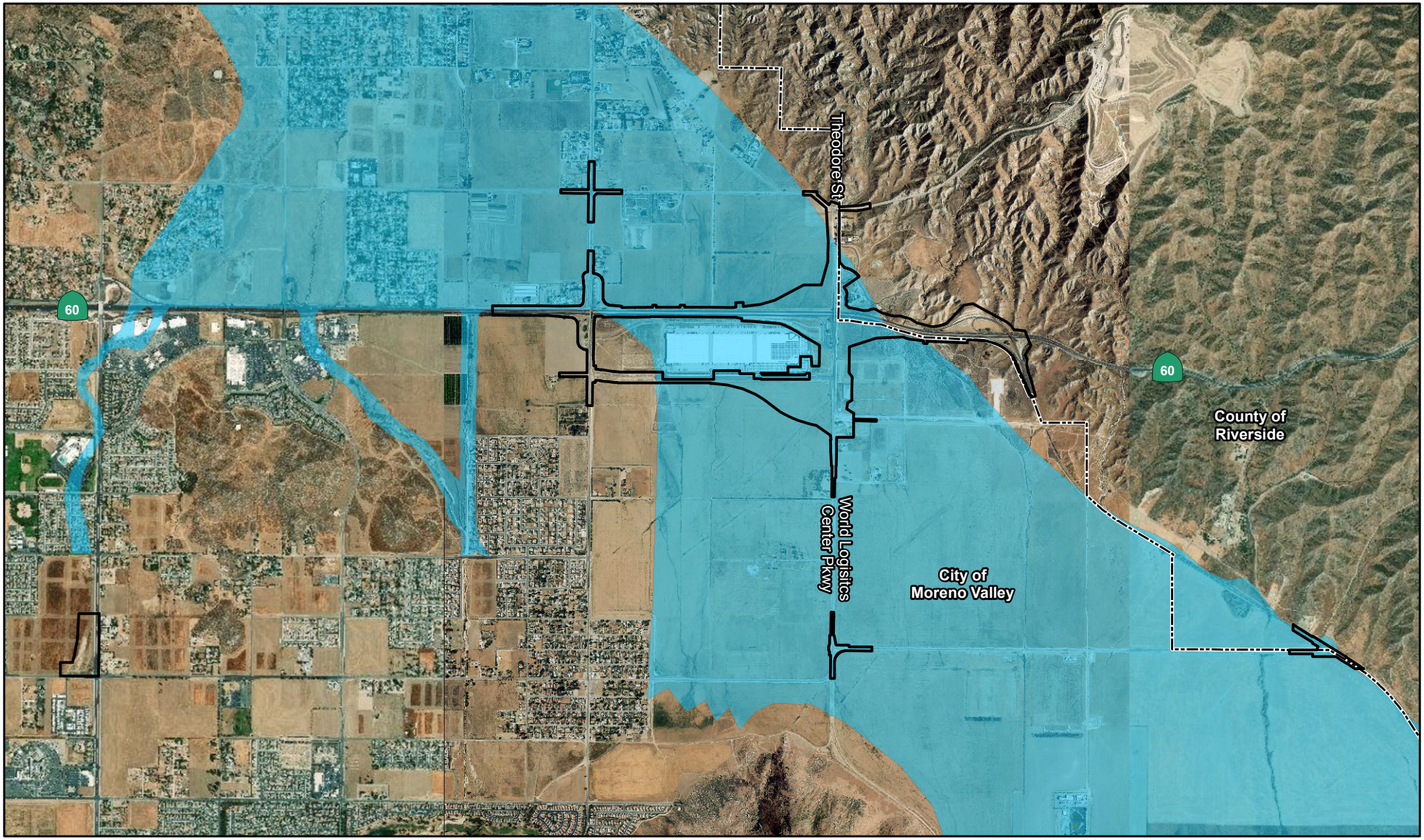

LEGEND

Project Location

Jurisdictional Boundary

Awareness Floodplain

0 1500 3000

FEET

SOURCE: Aerial - RBF (9/30/2014; 2015); ESRI (2012); Department of Water Resource (10/31/2002)

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FIGURE 5

SR-60/World Logistics Center Parkway Interchange Project

Awareness Floodplain

08-RIV-60 PM 20.0/22.0

EA No. 0M590

Project No. 0813000109

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the SR-60/WLC Pkwy interchange, is within unincorporated Riverside County. The City has not adopted and does not regulate the Awareness Floodplains; therefore, the larger portion of the Awareness Floodplain within the City is not regulated. The local flood control agency, the Riverside County Flood Control and Water Conservation District (RCFC&WCD), has adopted and regulates the Awareness Floodplain within the unincorporated portion of the project area.

3.1.3.2.4. Municipal Supply

The Eastern Municipal Water District (EMWD) supplies water to the project area.[1] The water from EMWD comes from several sources, including imported water and groundwater. Approximately 75 percent of EMWD's potable water demand is supplied by imported water from the Metropolitan Water District of Southern California through its Colorado River Aqueduct and its connections to the State Water Project. EMWD groundwater wells supply approximately 25 percent of EMWD's potable water demand. The majority of the groundwater produced by EMWD comes from its wells in the Hemet and San Jacinto areas. EMWD also has wells in the Moreno Valley, Perris Valley, and Murrieta areas.[2]

3.1.3.3. Groundwater Hydrology

The project area is within the South Coast Hydrologic Region, as defined by the DWR and the Santa Ana RWQCB. The majority of the project area is in the San Jacinto Groundwater Basin. A small portion of the eastern side of the project area is in the San Timoteo Subbasin of the Upper Santa Ana Valley Groundwater Basin (Figure 6).[3]

The San Jacinto Groundwater Basin underlies San Jacinto, Perris, Moreno, and Menifee Valleys in western Riverside County. This basin is bounded by the San Jacinto Mountains on the east, the San Timoteo Badlands on the northeast, the Box Mountains on the north, the Santa Rosa Hills and Bell Mountain on the south, and unnamed hills on the west. The San Jacinto, Perris, Moreno, and Menifee Valleys are drained by the San Jacinto River and its tributaries.[4]

1 Eastern Municipal Water District. 2015a. EMWD Service Area. Website: https://www.emwd.org/about-emwd/emwd-service-area (accessed July 24, 2018).

2 Eastern Municipal Water District. 2015b. Water Supply. Website: http://www.emwd.org/services/drinking-water-service/water-supply#conditions (accessed July 24, 2018).

3 California Department of Water Resources, Bulletin 118. 2013. Alluvial Groundwater Basins and Subbasins within the South Coast Hydrologic Region. Last accessed July 24, 2018, from http://www.water.ca.gov/groundwater/bulletin118/maps/SC.pdf.

4 California Department of Water Resources, Bulletin 118. 2006. San Jacinto Groundwater Basin. Last accessed July 24, 2018, from http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/8-5.pdf.

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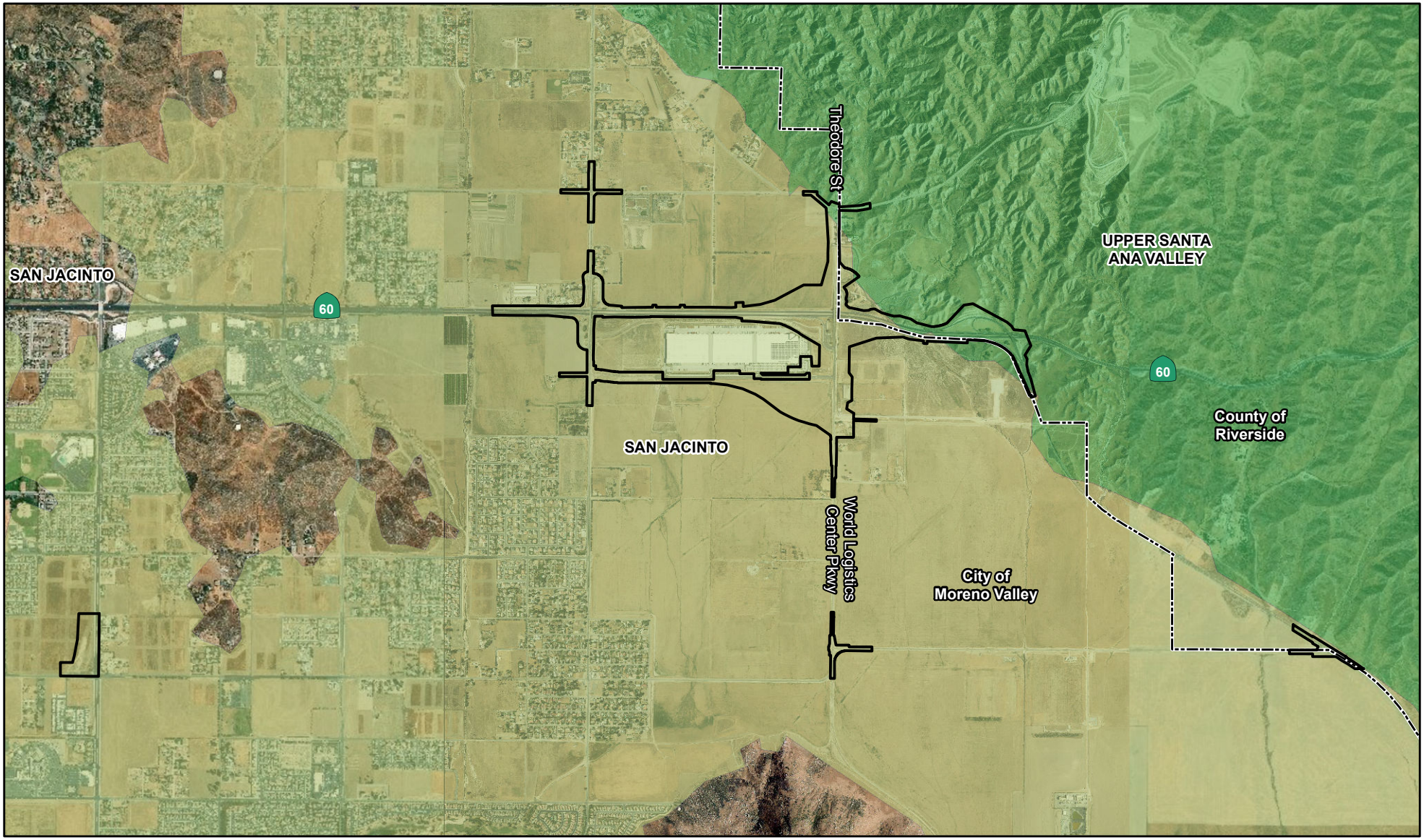

FIGURE 6

LEGEND

- Project Location
- Jurisdictional Boundary
- San Jacinto Groundwater Basin
- Upper Santa Ana Valley Groundwater Basin/San Timoteo Subbasin

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FEET

SOURCE: Aerial - RBF (9/30/2014; 2015); ESRI (2012); USGS NHD (2012); CalWater (v 2.2.1)

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Groundwater Basins

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The San Timoteo Subbasin underlies southwestern San Bernardino and northwestern Riverside Counties. The subbasin is bounded to the north and northeast by the Banning fault and impermeable rocks of the San Bernardino Mountains, Crafton Hills, and Yucaipa Hills; on the south by the San Jacinto fault; on the west by the San Jacinto Mountains; and on the east by a topographic drainage divide with the Colorado River Hydrologic Region.[1] Depth of groundwater near the project site is reported to be in excess of 110 ft below existing ground surface.[2]

For regulatory purposes, the Santa Ana RWQCB designated Groundwater Management Zones for the Santa Ana Region. As designated by the Santa Ana RWQCB, the project area is within the Perris-North Groundwater Management Zone and the San Jacinto-Lower Pressure Groundwater Management Zone. Groundwater basins were predesignated as Groundwater Management Zones by the Santa Ana RWQCB in the February 2016 update of the Basin Plan.[3]

3.1.3.3.1. Groundwater Quality Objectives

Table 2 provides the groundwater quality objectives for the Santa Ana Region, as designated in the Basin Plan. The site-specific groundwater quality objectives for the Perris North Groundwater Management Zone are:

- **TDS:** 570 mg/L
- **Nitrate as Nitrogen:** 5.2 mg/L

The site-specific groundwater quality objectives for the San Jacinto-Lower Pressure Groundwater Management Zone are:

- **TDS:** 520 mg/L
- **Nitrate as Nitrogen**: 1 mg/L

3.1.3.3.2. Groundwater Beneficial Uses

The present or potential beneficial uses identified in the Basin Plan for the Perris North Groundwater Management Zone include:

- **MUN:** Municipal and Domestic Supply
- **AGR:** Agricultural Supply
- **IND:** Industrial Supply
- **PROC:** Industrial Process Supply

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1 California Department of Water Resources. 2004. Upper Santa Ana Valley Groundwater Basin- San Timoteo Subbasin. Bulletin 118. Website: http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/8-02.08.pdf (accessed July 24, 2018).

2 Leighton Consulting, Inc. 2015. *Preliminary Foundation Report, Proposed SR-60/Theodore Street Interchange Improvements.*

3 Santa Ana Regional Water Quality Control Board. 1995. Updated February 2016. Water Quality Control Plan for the Santa Ana River Basin.

Table 2: Groundwater Quality Objectives for Groundwater Basins

Constituent	Concentration	Area
Arsenic	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Bacteria, Coliform	Total coliform numbers shall not exceed 2.2 organism/100 mL median over any seven-day period as a result of controllable water quality factors.	MUN beneficial use designation
Barium	Shall not exceed 1.0 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Boron	Shall not exceed 0.75 mg/L as a result of controllable water quality factors.	Santa Ana Region
Chloride	Shall not exceed 500 mg/L as a result of controllable factors.	MUN beneficial use designation
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses.	Santa Ana Region
Cyanide	Shall not exceed 0.2 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Fluoride	Shall not exceed 1.0 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Hardness	Shall not be increased as a result of waste discharges to levels that adversely affect beneficial uses.	MUN beneficial use designation
Metals	Shall not exceed the following: cadmium 0.01 mg/L; chromium 0.05 mg/L; cobalt 0.2 mg/L; copper 1.0 mg/L; iron 0.3 mg/L; lead 0.05 mg/L; manganese 0.05 mg/L; mercury 0.002 mg/L; selenium 0.01 mg/L; and silver 0.05 mg/L, as a result of controllable water quality factors.	MUN beneficial use designation
Methylene blue-activated substances	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Oil and grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that cause a nuisance or adversely affect beneficial uses.	Santa Ana Region
pH	Shall not be raised above 9 or depressed below 6 as a result of controllable water quality factors.	Santa Ana Region
Radioactivity	Shall not exceed the California Code of Regulations, Title 22, standards of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha particle activity, 20,000 pCi/L for tritium, 8 pCi/L for strontium-90, 50 pCi/L for gross beta particle activity, and 20 pCi/L for uranium.	MUN beneficial use designation
Sodium	Shall not exceed a sodium absorption rate of 9.	AGR beneficial use designation
	Shall not exceed 180 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Sulfate	Shall not exceed 500 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Taste and Odor	Shall not contain taste- or odor-producing substances in concentrations that adversely affect beneficial uses.	Santa Ana Region
Toxic Substances	All waters shall be maintained free of substances in concentrations that are toxic or that produce detrimental physiological responses in human, plant, animal, or aquatic life.	Santa Ana Region

Source: Water Quality Control Plan for the Santa Ana River Basin (1995; updated February 2016).
AGR = Agricultural Supply
mg/L = milligrams per liter
MUN = Municipal Supply
pCi/L = picocuries per liter
pH = percentage of hydrogen

The present or potential beneficial uses identified in the Basin Plan for the San Jacinto-Lower Groundwater Management Zone include:

- **MUN:** Municipal and Domestic Supply
- **AGR:** Agricultural Supply
- **IND:** Industrial Supply

3.1.3.3.3. Groundwater Quality

According to DWR, the character of groundwater for the San Timoteo Subbasin beneath San Timoteo Canyon is sodium bicarbonate, in the alluvium of Little San Gorgonio Creek is calcium bicarbonate, and near the City of Beaumont is both calcium bicarbonate and sodium bicarbonate. TDS content ranges from 170 to 340 mg/L and averages 253 mg/L.[1] According to the Basin Plan, the current ambient TDS level in the Perris North Groundwater Management Zone is 750 mg/L, which is higher than the water quality objective. The current ambient nitrate level is 4.7 mg/L, which is lower than the water quality objective.

According to DWR, in 2002 the San Jacinto Groundwater Basin's average groundwater character was primarily sodium chloride, sodium-calcium chloride, calcium-sodium chloride, or calcium-sodium chloride-bicarbonate. TDS content ranges from 160 to 1,390 mg/L and averages 463 mg/L.[2] According to the Basin Plan, the current ambient TDS level in the San Jacinto Groundwater Management Zone is 730 mg/L, which is higher than the water quality objective. The current ambient nitrate level is 1.9 mg/L, which is higher than the water quality objective.

3.1.4. Geology/Soils

Based on the United States Department of Agricultural Natural Resources Conservation Service (NRCS) Web Soil Survey, the project area contains Badland, San Emigdio fine sandy loam, San Emigdio loam, and Metz gravelly sandy loam soils. The NRCS defines the various soil types within the project area in four broad categories. Group A soils have low runoff potential and high infiltration rates. Group B soils have moderate runoff potential and moderate infiltration rates. Group C soils have moderately high runoff potential and low infiltration rates. Group D soils have very low infiltration rates and high runoff potential.[3]

Badland soils are in the area east of the interchange, toward Gilman Springs Road, and are generally rated soil type D with a very severe erosion hazard rating. Metz gravelly sandy loam is located in the northwest quadrant of the proposed interchange and is generally rated soil type A, with a slight erosion hazard rating. San Emigdio fine sandy loam and loam are at the existing interchange and are generally rated soil type B, with a slight erosion hazard rating.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water, transportability of the sediment, and the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Factor K is one of six factors used in the Universal Soil Loss Equation and the Revised Universal Soil Loss Equation to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre, per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and

[1] California Department of Water Resources, 2004. Upper Santa Ana Valley Groundwater Basin- San Timoteo Subbasin. Bulletin 118. Website: http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/8-02.08.pdf (accessed July 24, 2018).

[2] California Department of Water Resources, 2006. San Jacinto Groundwater Basin. Bulletin 118. Website: http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/8-5.pdf (accessed July 24, 2018).

[3] United States Department of Agriculture. 2007. Chapter 7, Hydrologic Soils.

saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The soils found within the project area have a soil erosion factor K of 0.24, which indicates moderate susceptibility to particle detachment and moderate runoff rates.

3.1.5. Biological Communities

3.1.5.1. Aquatic Habitat

The drainage features within the project area that carry ephemeral stormwater runoff flows are primarily channelized or have been altered in some form. As a result, aquatic resources are limited in the project area.

3.1.5.1.1. Special-Status Species

A literature review and field investigations were conducted in 2013, 2015, and 2018 as part of the *Natural Environment Study* (NES) for the proposed project to determine the special-status plant and animal species that may occur within or in the immediate vicinity of the Biological Study Area (BSA). The BSA was created to encompass the footprint of all Build Alternatives, design variations, and adjacent habitats within 50 ft of the project footprint. The vegetation in the BSA has primarily been impacted by agriculture and commercial/industrial and residential development. There are three small areas of riparian scrub associated with two drainages. The NES identified 37 special-status plant and animal species with the potential to occur within the BSA; however, no aquatic or aquatic-dependent special-status plant or wildlife species are known or expected to occur within the BSA. Seven culverts contain marginally suitable roosting habitat for special-status bat species, and a confirmed night roost was observed at Culvert F.

3.1.5.1.2. Stream/Riparian Habitats

The drainage features within the project area are primarily channelized and carry ephemeral flows. All of these drainage features have been altered in some form or are wholly human-made. Due to the impacted drainage features and ephemeral flows, it is unlikely that aquatic wildlife species would depend on the conveyance of water through the project area.

The project area does not appear to function as a wildlife movement corridor since the project site is located in a primarily agricultural area, surrounded by commercial and residential uses.

3.1.5.1.3. Wetlands

The Jurisdictional Delineation prepared for the proposed project identified nine drainage features within the BSA, three of which eventually may flow to the San Jacinto River via Mystic Lake, and six of which are considered roadside drainage ditches. All nine drainage features may be subject to USACE and California Department of Fish and Wildlife

jurisdiction. No wetland waters were observed within the project limits that met the USACE three-parameter hydrophytic vegetation, hydric soils, and wetland hydrology requirements.[1]

3.1.5.1.4. Fish Passage

It is unlikely that the channelized or altered drainages would provide necessary habitat to support fish. Additionally, aquatic animals such as fish require perennial water flows. Because the drainage features within the project area are primarily channelized and carry ephemeral flows, fish are not supported by the drainage features within the project area.

[1] LSA Associates, Inc. 2018b. *Jurisdictional Delineation.*

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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 Build Alternatives, as well as the procedures and practices that will be applied to reduce those effects.

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. The total disturbed surface area for the Build Alternatives would be approximately 115 ac for Alternatives 2 and 6 and approximately 148 ac for Design Variations 2a and 6a. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters.

Projects that disturb greater than one acre of soil are required to obtain coverage under the CGP. Pursuant to the requirements of the CGP, a SWPPP would be prepared and construction BMPs would be implemented during construction. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site, and Good Housekeeping BMPs designed to prevent and contain spills and leaks, and prevent discharge of construction debris and waste into receiving waters.

Pollutants of concern during operation of the project include suspended solids/sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris. Caltrans completed a comprehensive set of studies designed to characterize stormwater runoff from transportation facilities throughout the State of California. The study results were published in 2003 in a report titled *Stormwater Monitoring & Data Management, Discharge Characterization Study Report.* Table 3 presents the concentrations of typical pollutants found on State highways based on the monitoring conducted as part of the Caltrans 2003 *Statewide Discharge Characterization Study Report.*

The total existing impervious surface area in the project area is 13.2 ac. Alternative 2 would result in a total of 29.7 ac of impervious surface area, for a net increase of 16.5 ac (a 125 percent increase). Alternative 6 would result in a total of 33.8 ac of impervious surface area, for a net increase of 20.6 ac (a 156 percent increase). Design Variation 2a would result in a total of 43.7 ac of impervious surface area, for a net increase of 22.1 ac (a 167 percent increase). Alternative 6a would result in a total of 42.8 ac, for a net increase of 26.2 ac (a 198 percent increase). An increase in impervious surface area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters.

Table 3: Summary Statistics for Water Quality Data for Highway Facilities

Constituent	Concentration
pH	7.1
TSS	112.7 mg/L
NH_3-N	1.08 mg/L
NO_3-N	1.07 mg/L
TKN	2.06 mg/L
Ortho-phosphate	0.11 mg/L
Dissolved Copper	14.9 µg/L
Dissolved Zinc	68.8 µg/L
Dissolved Lead	7.6 µg/L
Total Copper	**33.5 µg/L**
Total Zinc	**187.1 µg/L**
Total Lead	**47.8 µg/L**

Source: Caltrans *Stormwater Monitoring & Data Management, Discharge Characterization Study Report* (CTSW-RT-03-065.51.42), Table 3-2, *Summary Statistics for Highway Facilities* , Mean Values

µg = micrograms
L = liter
mg = milligrams
NH_3-N = ammonia
NO_3-N = nitrate
pH = percentage of hydrogen
TKN = total Kjeldahl nitrogen
TSS = total suspended solids

The Caltrans MS4 Permit and SWMP provide the framework for management of stormwater discharges and water quality controls within Caltrans right-of-way. Through compliance with the Caltrans MS4 Permit, the City would be required to implement Caltrans-approved Treatment and Design Pollution Prevention BMPs within Caltrans right-of-way. Caltrans-approved Treatment BMPs being proposed as part of the project include a system (i.e., treatment train) of biofiltration swales and infiltration basins to address pollutants of concern during operation of the roadway facility. Caltrans-approved Design Pollution Prevention BMPs include preservation of existing vegetation, slope/surface protection systems, concentrated flow conveyance systems, and LID efforts.

The Riverside County MS4 Permit covers stormwater discharges and water quality controls outside Caltrans right-of-way. Through compliance with the Riverside County MS4 Permit and as required by Exhibit D (Transportation Project Guidance) of the Riverside County Water Quality Management Plan (WQMP), the Build Alternatives would implement Treatment Control BMPs outside of Caltrans right-of-way. Treatment Control BMPs being proposed as part of the project include a system (i.e., treatment train) of biofiltration swales and infiltration basins to address pollutants of concern during operation of the roadway facility and increase infiltration.

Stormwater runoff from the Build Alternatives would be collected and conveyed via the extended culverts into the existing storm drain system and eventually into Mystic Lake and nearby reclamation ponds. The project would not impact the 42-inch corrugated metal pipe near Redlands Boulevard. The proposed drainage system for the rest of the culverts would include extending the existing four culverts toward the north along the edge of the limits of grading. In addition, a graded channel would be constructed along the roadway embankment to direct the current southerly flow toward the four existing culverts and to reduce ponding adjacent to the

roadway embankment. Furthermore, drainage inlet improvements would include the installation of headwalls and sloped invert paving to improve the existing drainage patterns.

4.2. Potential Impacts to Water Quality

4.2.1. Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

4.2.1.1. Substrate

Construction activities disturb soil and increase the potential for soil erosion. During the removal of the existing overcrossing, construction of the new overcrossing, modifications to the on- and off-ramps, and other additional intersection and roadway improvements, there is a potential for soil to be disturbed and an increase in the potential for erosion and downstream transport of sediment to occur. In compliance with the Construction General Permit, the City would be required to prepare a SWPPP and implement Construction BMPs including, but not limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site. Therefore, there is a low potential for construction-related activities associated with the Build Alternatives including the Design Variations to adversely affect downstream receiving waters.

Alternatives 2 and 6 would result in a net increase of impervious surface area of 16.5 ac and 20.6 ac, respectively. Design Variations 2a and 6a would result in a permanent increase in impervious surface area of approximately 22.1 ac and 26.2 ac, respectively. Increases in impervious surface area decrease infiltration and increase the volume of runoff during a storm, which can more effectively transport pollutants and sediments to receiving waters. The downstream transport of pollutants and/or sediments may change the substrate of the downstream receiving waters. The drainage features within the project area are primarily channelized and concrete-lined, but some are unlined, with earthen bottoms. Runoff from the Build Alternatives would drain into the channelized drainage features to Mystic Lake and a series of nearby reclamation ponds within the San Jacinto Wildlife Area. Flows that exceed the storage capacity of the reclamation ponds would eventually discharge to the San Jacinto River, Reach 4. Because a portion of the proposed project's stormwater is discharged into unlined drainage features, if stormwater volumes and velocities increase, there is a potential for on-site erosion and for the substrate to be carried to downstream receiving waters. However, during operation, Treatment BMPs for the Build Alternatives would include a system of biofiltration swales and infiltration basins, which would reduce runoff flow and increase infiltration, thereby reducing the downstream transport of sediment in stormwater runoff. Therefore, there is a low potential for operational activities associated with the Build Alternatives including the Design Variations to adversely affect the downstream substrate.

4.2.1.2. Currents, Circulation, and Drainage Patterns

During the removal of the existing overcrossing and construction of the new overcrossing, ramps, and additional intersection improvements, the Build Alternatives would result in an increase in impervious surface area. Alternatives 2 and 6 would result in a net increase of 16.5 ac and 20.6 ac, respectively. Design Variations 2a and 6a would result in a permanent increase in

impervious surface area of approximately 22.1 ac and 26.2 ac, respectively. Increases in impervious surface area can change on-site drainage patterns, decrease infiltration, and increase the volume and rate of runoff during a storm. Stormwater runoff from the Build Alternatives would be collected and conveyed via the existing stormwater infrastructure along with the newly constructed graded channel, headwalls, and sloped invert paving. The Build Alternatives would not substantially alter the overall drainage pattern in the project area but would improve the existing drainage patterns by improving the distribution of stormwater flow to the storm drain system. In addition, the Build Alternatives would implement Treatment BMPs, which include a system of biofiltration swales and infiltration basins. These infiltration basins and biofiltration swales would promote infiltration to potentially offset any increased flows associated with the increase in impervious surface from the project area and would potentially provide flow duration, volume, and rate control functions. By preserving and improving the existing drainage pattern and including infiltration basins and biofiltration swales, stormwater flow concentrations associated with the project area would be the same as under current conditions. Currents, circulation, and drainage patterns would be verified and confirmed during final design. Therefore, the Build Alternatives would result in only a negligible change in flow velocities and volumes. Therefore, there is a low potential for the Build Alternatives including the Design Variations to adversely affect currents, circulation, and drainage patterns.

4.2.1.3. Suspended Particulates (Turbidity)

Natural sediment loads are important to downstream environments because they provide habitat, substrate, and nutrition; however, increased sediment loads can result in several negative effects to downstream environments. Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction. In addition, pollutants that adhere to sediment (e.g., nutrients, trace metals, and hydrocarbons) can have other harmful effects on the aquatic environment when they occur at elevated levels.

Construction activities disturb soil and increase the potential for soil erosion. During grading, excavation, removal of the existing overcrossing, construction of the new overcrossing, modifications to the on- and off-ramps, and other additional intersection and roadway improvements, land and vegetation would be cleared, thereby exposing soil to the potential for erosion. When soil erodes, the sediments/suspended particles can enter surface waters, increasing turbidity (water cloudiness). In addition, suspended particles can also be generated from vehicles operating on a roadway during construction activities. In compliance with the CGP, preparation of a SWPPP and implementation of Construction BMPs would be included. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs that are designed to minimize erosion and retain sediment on site. Therefore, there is a low potential for construction activities to result in adverse water quality effects related to suspended particles.

During operation of the Build Alternatives, increases in impervious surface area would increase the volume and velocity of runoff during a storm, which would increase the potential for pollutants to be transported to receiving waters and may lead to downstream erosion and an increase in turbidity. Vehicular traffic is anticipated to increase on SR-60 and WLC Pkwy as a result of planned growth in the area surrounding the interchange regardless of whether or not the proposed project is constructed. In addition to an increase in vehicular traffic, it is assumed that road maintenance activities would incrementally increase beyond the existing requirements as a

result of the increase in paved area from construction of the Build Alternatives. Vehicles traveling on a roadway can generate suspended particles and sediment that can increase turbidity. Therefore, there would be an increase in sediments generated by vehicles operating on the roadways and through maintenance activities compared to existing conditions, thereby increasing turbidity. During operation, Treatment BMPs for the Build Alternatives would include a system of infiltration basins and biofiltration swales, which would reduce runoff flow and increase infiltration, thereby reducing the amount of suspended particles in stormwater runoff. Furthermore, the Treatment BMPs would treat 100 percent of the runoff from the project site. Therefore, there is a low potential for operational activities associated with the Build Alternatives including the Design Variations to contribute to adverse water quality effects related to suspended particles.

4.2.1.4. Oil, Grease, and Chemical Pollutants

Heavy metals, pesticides, petroleum hydrocarbons (oil and grease), and organic compounds can be toxic to aquatic life. In addition, some of these compounds can bioaccumulate (concentrate within the body) over several years, resulting in health problems for the affected organism. For example, these compounds can affect reproduction, the nervous system, and other biological functions.

Construction activities for the Build Alternatives (excavation, removal of the existing overcrossing, construction of the new overcrossing, modifications to the on- and off-ramps, and other additional intersection and roadway improvements) involve grading and earthmoving activities. Grading and earthmoving equipment are a source of chemicals, liquid products, and petroleum products if the equipment leaks. Chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked, and when spilled or leaked may have the potential to be transported via storm runoff into receiving waters. In compliance with the CGP, the City would be required to prepare a SWPPP and would implement Construction BMPs (including, but not limited to, Good Housekeeping BMPs) to prevent spills, leaks, and discharges of construction debris and waste into receiving waters. Therefore, there is a low potential for construction activities to contribute to adverse water quality effects related to oil, grease, and chemical pollutants.

During operation of the Build Alternatives, oil, grease, and toxic organic compounds are pollutants of concern. These pollutants of concern can be generated from vehicles operating on the roadways as well as maintenance activities. Vehicular traffic is anticipated to increase on SR-60 and WLC Pkwy as a result of planned growth in the area surrounding the interchange regardless of whether or not the proposed project is constructed. In addition to an increase in vehicular traffic, it is assumed that road maintenance activities would incrementally increase beyond the existing requirements as a result of the increase in paved area from construction of the Build Alternatives. Therefore, there would be an increase in oils, grease, and chemical pollutants generated by vehicles operating on the roadways and through maintenance activities compared to existing conditions. The Build Alternatives would include a system of biofiltration swales and infiltration basins, which would target pollutants of concern— including oil, grease, and chemical pollutants—in surface runoff from the operation of transportation facilities. Therefore, there is a low potential for operational activities associated with the Build

Alternatives including the Design Variations to contribute to adverse water quality effects related to oil, grease, and chemical pollutants.

4.2.1.5. Temperature, Oxygen, Depletion, and Other Parameters

Water temperature can affect survival, spawning success, and metabolic rates of aquatic animals. In addition, increased water temperature decreases the availability of dissolved oxygen, promotes algal and bacterial growth, and increases the sensitivity of organisms to pollution, parasites, and diseases. Water detained on construction sites has the potential to reach ambient air temperature, which could increase surface water temperature if discharged during storm events. In addition, non-stormwater discharges have the potential to change surface water temperatures. During operation, stormwater falling on or flowing over warm pavement can increase the temperature of runoff.

Nutrients are typically composed of phosphorus and/or nitrogen. Elevated levels in surface waters cause algal blooms and excessive vegetative growth. As nutrients are absorbed, the vegetative growth decomposes, using oxygen in the process and reducing dissolved oxygen levels. Dissolved oxygen is critical for the support of aquatic life. The ammonium form of nitrogen (found in wastewater discharges) converts to nitrate in the presence of oxygen, thereby further reducing the dissolved oxygen levels in water. Temporary or portable sanitary facilities provided for construction workers could be a source of sanitary waste (i.e., nutrients that would be a pollutant of concern during construction). During operation, sources of phosphorus that may be present in roadway runoff include tree leaves, surfactants and emulsifiers, and natural sources (e.g., the mineralized organic matter in soils). Potential sources of nitrogen in roadway runoff include atmospheric fallout, nitrite discharges from automobile exhausts, fertilizer runoff, and natural sources such as mineralized soil organic matter.

Trash and debris can interfere with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris. Construction workers can generate trash and debris (e.g., food wrappers) and construction waste and debris (e.g., broken concrete and wood, rocks, and reclaimed asphalt). During operation, trash and debris are pollutants of concern that are generated from vehicles using the roads.

In compliance with the CGP, during construction activities, the City would be required to prepare a SWPPP and implement Construction BMPs detailed in the SWPPP. Construction BMPs would include, but not be limited to, Good Housekeeping BMPs to prevent spills, leaks, and discharges of construction debris and waste into receiving waters. In addition, sanitary waste generated from temporary or portable sanitary facilities would be disposed of in compliance with the applicable regulations. Therefore, there is a low potential for construction activities to contribute to adverse water quality effects related to temperature, oxygen depletion, and other parameters.

During operation, ongoing maintenance activities would include trash and debris removal along the roadways. In addition, the Build Alternatives would include a system of biofiltration swales and infiltration basins that would target pollutants of concern in surface runoff from the operation of transportation facilities, including nutrients and debris. Therefore, there is a low potential for operational activities associated with the Build Alternatives including the Design

Variations to contribute to adverse water quality effects related to temperature, oxygen depletion, trash, and debris.

4.2.1.6. Flood Control Functions

The Build Alternatives are not located within a FEMA-designated 100-year floodplain. However, the Build Alternatives are within an Awareness Floodplain designated by DWR. A majority of the project area is within an unregulated Awareness Floodplain under City jurisdiction. A small portion of the project area, the northeast quadrant of the interchange, is in a regulated Awareness Floodplain under RCFC&WCD jurisdiction. Only minor grading improvements are anticipated within the regulated Awareness Floodplain; however, these minor activities would not result in impacts to the floodplain.[1] All of the proposed drainage improvements would connect to the existing drainage system to maintain the existing drainage patterns. Because of the reasons stated above, the Build Alternatives would not alter the existing flood control functions along the roadways or at the intersections. Therefore, the Build Alternatives including the Design Variations would not have an adverse effect on the flood control functions of surface waters or storm drain facilities in or downstream of the project area.

4.2.1.7. Storm, Wave, and Erosion Buffers

Wetlands serve as buffer zones, shielding upland areas from wave actions, storm damage, and erosion. However, there are no areas in the project area that are considered to be wetland waters of the United States. Therefore, the Build Alternatives including the Design Variations would not change existing storm, wave, and erosion buffers in the project area, and there would be no adverse impacts to storm, wave, and erosion buffers.

4.2.1.8. Erosion and Accretion Patterns

The drainage features within the project area are primarily channelized and concrete-lined. Some of the drainage features are unlined with earthen bottoms. Runoff from the Build Alternatives would drain into the channelized drainage features to Mystic Lake and a series of nearby reclamation ponds within the San Jacinto Wildlife Area. Flows that exceed the storage capacity of the reclamation ponds would be eventually discharged to the San Jacinto River, Reach 4. Because a portion of the proposed project's stormwater is discharged into unlined drainage features, if stormwater volumes and velocities increase, there is a potential for on- and off-site erosion and accretion to occur. During removal of the existing overcrossing, construction of the new overcrossing, modifications to the on- and off-ramps, and other additional intersection and roadway improvements, there would be a potential for soil to be disturbed, thereby exposing soil to the potential for erosion. In compliance with the Construction General Permit, the City would be required to prepare a SWPPP and implement Construction BMPs, including, but not limited to, Erosion Control and Sediment Control BMPs, which are designed to minimize erosion and to retain sediment on site. Therefore, there is a low potential for construction-related activities

[1] Michael Baker International. 2018b. *Route 60/Theodore Street Location Hydraulics Report and Summary Floodplain Encroachment Report.* August.

associated with the Build Alternatives, including the Design Variations, to adversely affect erosion and accretion patterns.

Alternatives 2 and 6 would result in a net increase of impervious surface area of 16.5 ac and 20.6 ac, respectively. Design Variations 2a and 6a would result in a permanent increase in impervious surface area of approximately 22.1 ac and 26.2 ac, respectively. Increases in impervious surface area decrease infiltration and increase the volume of runoff during a storm, which can lead to changes in downstream erosion and accretion patterns. During operation, stormwater runoff from the Build Alternatives would be treated with Treatment BMPs, which include a system of biofiltration swales and infiltration basins. The infiltration basins and biofiltration swales would reduce the total amount of sediment in surface runoff from the operation of transportation facilities, thereby reducing the downstream transport of sediment in stormwater runoff. Therefore, there is a low potential for the Build Alternatives, including the Design Variations, to adversely affect downstream erosion and accretion patterns.

4.2.1.9. Aquifer Recharge/Groundwater

Depths of groundwater at the project site are reported to be in excess of 110 ft below the existing ground surface. The primary improvements as part of the Build Alternatives consist of fill placement; therefore, excavations extending deep into the subsurface are not anticipated. Groundwater is not anticipated to be encountered during construction; therefore, groundwater dewatering would not be required during construction. In addition, groundwater extraction would not be required during operation.

The project area is not in a "high-risk" area, which is defined as a location where spills from State-owned rights-of-way, activities, or facilities can discharge directly into municipal or domestic water supply reservoirs or groundwater percolation facilities.[1] A majority of the soils within the project area are either San Emigdio fine sandy loam, loam, or Badland soils. San Emigdio soils are located at the existing interchange and generally have moderate runoff potential and moderate infiltration rates. Badland soils are located east of the interchange, toward Gilman Springs Road, and generally have high runoff potential and low infiltration rates. The Build Alternatives would increase impervious surface area, which decreases infiltration potential, thereby decreasing the amount of water that is able to recharge the aquifer/groundwater. Because infiltration is moderate to low in existing conditions, replacing low-infiltrating soils with impervious pavement would not substantially decrease infiltration or substantially change groundwater levels in the groundwater basin compared to the existing condition. In addition, the Build Alternatives would include Treatment BMPs such as infiltration basins, which would offset the decrease in infiltration. Furthermore, the Build Alternatives including the Design Variations are not in a "high-risk" area. Therefore, there would be a low potential for impacts to aquifer/groundwater recharge to occur.

[1] California Department of Transportation. 2016. Storm Water Management Program, District 8 Work Plan, Fiscal Year 2017–2018. October 1.

4.2.1.10. Baseflow

Baseflow is the streamflow resulting from precipitation that infiltrates the soil and eventually moves through the soil to the stream channel. This is also referred to as groundwater flow or dry-weather flow. The drainages in the project area do not contain persistent dry-weather flow. In addition, as discussed above, the soils within the project area primarily have moderate to low infiltration rates. However, in the northwest quadrant of the proposed interchange, there are some pockets of soils with high infiltration rates. Because a majority of the soils within the project area has low to moderate infiltration rates, there is little or no baseflow in the project area. Where construction may disturb existing vegetated slopes, the disturbed slopes would be landscaped with appropriate vegetation for erosion control purposes. Irrigation would be required for landscaping; however, potential dry-weather flows generated from over-irrigation are not anticipated to be persistent because the irrigation controllers and heads can be adjusted to avoid over-irrigation. Therefore, because the soils have low to moderate infiltration rates and efficient irrigation methods would be used, there would be little to no potential for creating dry-weather flows from irrigation water used for landscaping for the Build Alternatives including the Design Variations.

4.2.2. Anticipated Changes to the Biological Characteristics of the Aquatic Environment

4.2.2.1. Special Aquatic Sites

No special aquatic sites exist in the project area. Therefore, no special aquatic sites would be impacted by the Build Alternatives. Furthermore, the Build Alternatives including the Design Variations would not result in impacts to jurisdictional waters or wetlands.

4.2.2.2. Habitat for Fish and Other Aquatic Organisms

No habitat for fish or other aquatic organisms exists on site. Therefore, no habitat for fish or other aquatic organisms would be impacted by the Build Alternatives including the Design Variations.

4.2.2.2.1. Fish Passage (Beneficial Uses)

It is unlikely that altered or wholly human-made drainages in and adjacent to the project area would provide necessary habitat to support fish. In addition, most of the drainages within the project area are channelized and carry ephemeral flows and, therefore, would not support fish habitat. Therefore, no fish passage would be impacted by the Build Alternatives including the Design Variations.

4.2.2.3. Wildlife Habitat

The drainage features within the project area are primarily channelized and carry ephemeral flows. All of these drainage features have been altered in some form or are wholly human-made and do not provide suitable aquatic wildlife habitat. Due to the impacted drainage features and ephemeral flows, it is unlikely that aquatic wildlife species would depend on the conveyance of

water through the project area. Therefore, no wildlife habitat would be impacted by the Build Alternatives including the Design Variations.

4.2.2.3.1. Wildlife Passage (Beneficial Uses)

The project area does not appear to function as a wildlife movement corridor, because the project site is in a primarily agricultural area with commercial and residential uses. Therefore, the Build Alternatives including the Design Variations would not impact any wildlife passage corridors.

4.2.2.4. Endangered or Threatened Species

There are no aquatic or aquatic-dependent endangered or threatened wildlife species known or expected to occur within the project area. Therefore, the Build Alternatives including the Design Variations would not impact any aquatic or aquatic-dependent endangered or threatened species.

4.2.2.5. Invasive Species

The Build Alternatives may provide opportunities for the movement of invasive species through the landscape. Invasive species can move on vehicles and in the loads they carry. Invasive plants can be moved from site to site during spraying and mowing operations. Weed seed can be inadvertently introduced into the corridor on equipment during construction through the use of mulch, imported soil or gravel, and sod. Some invasive plant species might be deliberately planted in erosion control, landscape, or wildflower projects. Highway rights-of-way provide ample opportunity for weeds in adjacent land to spread along corridors that, on a national scale, span millions of miles of highway.

In compliance with Executive Order (EO) 13112, a weed abatement program would be developed to minimize the importation of nonnative plant material during and after construction. Eradication strategies would need to be employed should an invasion occur. Measures addressing invasive species abatement and eradication would be included in the project design and contract specifications, and would be implemented and enforced by the construction contractor. Therefore, with compliance with EO 13112, it is not anticipated that the Build Alternatives would result in adverse impacts related to the spread and introduction of invasive species during construction or operation of the Build Alternatives including the Design Variations.

4.2.3. Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

4.2.3.1. Existing and Potential Water Supplies and Water Conservation

EMWD provides water service to the project area. The Build Alternatives would maintain existing vegetated areas where feasible with ESA fencing during construction; however, the Build Alternatives would require the removal of some existing vegetation. Highway planting would potentially be provided and coordinated with Caltrans. Irrigation would be required for landscaped areas; however, drought-tolerant plants would be used to minimize the demand for

irrigation water. There are no other demands for portable water associated with implementation of the Build Alternatives including the Design Variations.

4.2.3.2. Recreational or Commercial Fisheries

Changes in water quality can affect the survival of fish and other aquatic organisms that would have deleterious impacts to recreational and commercial fisheries. Runoff from the project area is conveyed south into Mystic Lake and a series of nearby reclamation ponds within the San Jacinto Wildlife Area. Overflow from the Mystic Lake area flows into the San Jacinto River, Reach 4, and eventually drains into Lake Elsinore, which is approximately 22 mi downstream from the project area. According to the Basin Plan, Mystic Lake and Lake Elsinore do not have any identified beneficial uses; however, these lakes may be used for recreational purposes. According to the Basin Plan, the San Jacinto River, Reach 4 is used for recreational purposes but not for recreational or commercial fishing. However, the Basin Plan states that recreational uses should not be construed as encouraging recreational activities. Lake Elsinore overflows into Temescal Creek, Temescal Creek flows into the Santa Ana River, which then flows into the Pacific Ocean, which is approximately 45 mi downstream from the Build Alternatives and is used for recreational and commercial fishing. The Build Alternatives include a system of biofiltration swales and infiltration basins that would target pollutants of concern from transportation facilities. Because runoff from the Build Alternatives would be treated using approved Treatment BMPs and because of the Build Alternatives' distance from the receiving waters and the fact that they do not drain directly into the Pacific Ocean, there would be a low potential for the Build Alternatives including the Design Variations to result in adverse effects on recreational or commercial fishing.

4.2.3.3. Other Water-Related Recreation

Trash and debris, oil and grease, nutrients, and sediment can decrease the recreational value and safety of a water body for contact and noncontact recreational activities. According to the Basin Plan, Mystic Lake and Lake Elsinore do not have any identified beneficial uses; however, these lakes may be used for recreational purposes. The Basin Plan identifies both contact and noncontact recreation as beneficial uses for the San Jacinto River, Reach 4. However, the Basin Plan states that recreational uses should not be construed as encouraging recreational activities.

Pollutants of concern during construction include sediments, trash, and petroleum products. All aspects of a construction project can generate trash, debris, and petroleum products. Construction workers can generate trash, and construction trash and debris can be generated as a result of intersection, street, and freeway ramp improvements and road widening. Chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and therefore have the potential to be transported via storm runoff into receiving waters. Construction of the Build Alternatives would require construction vehicles and activities that use chemicals, liquid products, and petroleum products. In compliance with the CGP, the City would be required to prepare a SWPPP and implement Construction BMPs during construction activities to address pollutants of concern. Construction BMPs would include, but are not limited to, Erosion and Sediment Control and Good Housekeeping BMPs. Therefore, there is a low potential for construction activities associated with the Build Alternatives including the Design Variations to have an adverse effect on other water-related recreation.

Pollutants of concern during operation of the Build Alternatives include suspended solids/ sediments, nutrients, pesticides, oil and grease, and trash and debris. These pollutants can be introduced by maintenance/repair activities during operation of the project (e.g., repairing pavement) or by vehicles operating on the facility. During operation, the Build Alternatives would treat stormwater runoff with a system of biofiltration swales and infiltration basins. Infiltration basins and biofiltration swales would target pollutants of concern emanating from the Build Alternatives, including nutrients, sediments, oil and grease, and trash and debris. Therefore, there is a low potential for operational activities associated with the Build Alternatives including the Design Variations to have an adverse effect on other water-related recreation.

4.2.3.4. Aesthetics of the Aquatic Ecosystem

The drainage features within the project area are primarily channelized and carry ephemeral flows. All of these drainages have been altered in some form or are wholly human-made. Because of the disturbed nature of the drainages and their inability to support aquatic organisms, the drainages within the project area are considered to have little aesthetic value.

Trash and debris, oil and grease, nutrients, and sediment can detract from the aesthetics of a water body. Trash and debris can accumulate in the waterways. Oil and grease float on the water surface and often have a distinctive sheen and/or smell. Sediment increases turbidity and can turn water a murky brown color. Nutrients can promote algal blooms and reduce the clarity of surface waters.

Pollutants of concern during construction include sediments, trash, and petroleum products. Chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels) and concrete-related waste may be spilled or leaked and therefore have the potential to be transported via storm runoff into receiving waters. Sediment, trash, petroleum products, chemicals, liquid products, and concrete-related waste would be generated from all aspects of the Build Alternatives. Construction activities would comply with the requirements of the CGP. In compliance with the CGP, the City would be required to prepare and implement an effective SWPPP during construction to address pollutants of concern. Construction BMPs would include, but are not limited to, Erosion and Sediment Control and Good Housekeeping BMPs. Therefore, there is a low potential for construction activities associated with the Build Alternatives including the Design Variations to have an adverse effect on the aesthetics of the aquatic ecosystem.

Pollutants of concern during operation of the project include suspended solids/sediments, nutrients, pesticides, oil and grease, and trash and debris. As with construction activities, these pollutants can be introduced during all aspects of the operation of the Build Alternatives, including repair/maintenance activities or vehicles operating on the facility. The Build Alternatives would include a system of biofiltration swales and infiltration basins to treat runoff from the project site and reduce pollutants of concern. Because the BMPs would target pollutants of concern in stormwater runoff, there is a low potential for the Build Alternatives including the Design Variations to have an adverse effect on the aesthetics of the aquatic ecosystem.

4.2.3.5. Parks, National and Historic Monuments, National Seashores, Wild and Scenic Rivers, Wilderness Areas, etc.

There are no national or historic monuments, national seashores, wild or scenic rivers, or wilderness areas in the vicinity of the project area. There are several parks within 5 mi of the project limits, including Celebration Park, Rock Ridge Park, Morrison Park, Weston Park, and Sunnymead Park. In addition, the Moreno Valley Ranch Golf Club, the Upland Game Hunting Area, and the Lake Perris State Recreation Area are within 5 mi south of the project area. However, these parks are a great enough distance away from the project area to not be affected by runoff from the Build Alternatives. Therefore, there is no potential for the Build Alternatives including the Design Variations to have an adverse effect on parks, national and historic monuments, national seashores, wild and scenic rivers, wilderness areas, etc., in the vicinity of the project area.

4.2.3.6. Traffic/Transportation Patterns

Although construction of the Build Alternatives would affect traffic and transportation patterns in the project area, the aquatic resources in the project area are not used for transportation. Therefore, there is no potential for the Build Alternatives including the Design Variations to have an adverse effect on aquatic traffic/transportation patterns.

4.2.3.7. Energy Consumption and Generation

The waters in the project area are not used for energy generation. Therefore, there is no potential for the Build Alternatives including the Design Variations to have an adverse effect on energy consumption or energy generation.

4.2.3.8. Navigation

The waters in the project area are altered in some form or are wholly human-made channels and ditches that are not used for navigation. Therefore, the Build Alternatives including the Design Variations would not have an adverse effect on navigation.

4.2.3.9. Safety

As discussed previously, the Build Alternatives would include drainage improvements that would preserve and improve the existing drainage patterns in the area. The negligible increase in the amount of runoff would be managed by the drainage improvements and would not result in an increase in the volume and velocity of stormwater flows. A small portion of the project area, the northeast quadrant of the interchange, is in a regulated Awareness Floodplain under RCFC&WCD jurisdiction. Only minor grading improvements are anticipated within the regulated Awareness Floodplain; however, these minor activities would not result in impacts to the floodplain and would not increase flood levels. Therefore, the Build Alternatives including the Design Variations would not result in any adverse effects on safety.

4.2.4. Temporary Impacts During Construction

4.2.4.1. No Build Alternative

Under the No Build Alternative, no improvements to the SR-60/WLC Pkwy interchange would be made. No construction activities, such as grading or excavation, would occur. Therefore, soil would not be disturbed, and there would be no increase in the potential for soil erosion or sedimentation compared to existing conditions. Additionally, there would be no increased risk of spills from construction equipment or materials use.

4.2.4.2. Build Alternative

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. During construction, the total disturbed area would be approximately 115 ac for Alternatives 2 and 6 and approximately 148 ac for Design Variations 2a and 6a.

During construction, there is also the potential for construction-related pollutants to be spilled, leaked, or transported via storm runoff into drainages adjacent to the project area and into downstream receiving waters. The following construction-related pollutants have the potential to impact water quality: chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste. These pollutants may be spilled or leaked and would then have the potential to be transported via storm runoff into receiving waters.

4.2.5. Long-Term Impacts During Operation and Maintenance

4.2.5.1. No Build Alternative

Under the No Build Alternative, no improvements to the SR-60/WLC Pkwy interchange would be made. Therefore, there would be no increase in impervious area at the SR-60/WLC Pkwy interchange or at the other intersections included as part of the proposed project. Furthermore, Treatment BMPs would not be implemented, and stormwater would remain untreated. Therefore, the No Build Alternative would not result in an increase in stormwater runoff or long-term pollutant loading compared to existing conditions.

4.2.5.2. Build Alternative

Pollutants of concern during operation of the Build Alternatives include suspended solids/ sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris. The removal and replacement of the overcrossing, modifications to the on- and off-ramps, and additional intersection and roadway improvements would result in an increase in impervious surface area of 16.5 ac for Alternative 2 and 20.6 ac for Alternative 6. Design Variations 2a and 6a would result in a permanent increase in impervious surface area of approximately 22.1 ac and 26.2 ac, respectively. An increase in impervious surface area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. In addition, an increase in impervious surface area would also increase the

total amount of pollutants in the stormwater runoff and non-stormwater runoff, which would increase the amount of pollutants traveling to on-site drainages and downstream receiving waters.

4.3. Impact Assessment Methodology

This WQAR analyzes the differences between the existing condition and the Build Alternatives conditions with respect to water quality impacts. The WQAR takes the following into consideration:

- Pollutant sources (changes in land uses)
- Disturbed soil area during construction
- Impervious areas and relation to the amount of runoff (increase or decrease)
- Compliance with regulatory requirements (NPDES permits)
- Application of BMPs (number of BMPs, new technologies, and effectiveness)
- Discharges into impaired waters (listed pursuant to Section 303(d) of the CWA)

4.3.1. No Build Alternative

Under the No Build Alternative, no improvements to the SR-60/WLC Pkwy interchange would be made. No construction activities, such as grading or excavation, would occur. Therefore, no soil would be disturbed, and there would be no increase in the potential for soil erosion or sedimentation compared to existing conditions. Additionally, there would be no increased risk of spills from construction equipment or materials use.

In addition, under the No Build Alternative, there would be no increase in impervious area at the SR-60/WLC Pkwy interchange or at the other intersections included as part of the proposed project. Furthermore, Treatment BMPs would not be implemented, and stormwater would remain untreated. Therefore, the No Build Alternative would not result in an increase in stormwater runoff or long-term pollutant loading compared to existing conditions.

4.3.2. Build Alternatives

4.3.2.1. Construction Impact Analysis

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. The total disturbed area would be approximately 115 ac for Alternatives 2 and 6 and approximately 148 ac for Design Variations 2a and 6a.

During construction, there is also a potential for construction-related pollutants to be spilled, leaked, or transported via storm runoff into drainages adjacent to the project area and thereby into downstream receiving waters. The following construction-related pollutants have the

potential to impact water quality: chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste. These pollutants may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters.

As specified in Measure WQ-1 of Chapter 5, the construction activities associated with the Build Alternatives would comply with the requirements of the CGP. In compliance with the CGP, the City would be required to prepare a SWPPP and implement Construction BMPs detailed in the SWPPP during construction activities to minimize erosion and to prevent spills. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs (which are designed to minimize erosion and retain sediment on site) and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The SWPPP would be developed and Construction BMPs selected and implemented to target pollutants of concern during construction. Because the Construction BMPs would be designed to retain sediment and other pollutants on the project site so they would not reach receiving waters, stormwater discharges and authorized non-stormwater discharges are not anticipated to cause or contribute to any violations of applicable water quality standards or objectives, or to adversely impact human health or the environment. In addition, because Construction BMPs would be designed to retain sediment and other pollutants on the project site so they would not reach receiving waters, runoff during construction would not contain pollutants in quantities that would create a condition of nuisance or adversely affect beneficial uses of waters of the State. In addition, as specified in Measure WQ-4, the proposed project would be required to obtain a Section 401 Water Quality Certification and a Section 404 Nationwide Permit for impacts to jurisdictional waters. The USACE and RWQCB may specify additional measures in these permits to reduce water quality impacts. When Construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, as required in Measure WQ-1, and measures specified in the Section 401 and 404 permits are implemented, as required by Measure WQ-4, pollutants of concern would be retained on the project site so they would not reach receiving waters; therefore, no adverse water quality impacts are anticipated during construction of the Build Alternatives including the Design Variations.

Groundwater dewatering is not anticipated to be required during construction or operation of the Build Alternatives including the Design Variations. However, dewatering during storm events may be necessary.

As previously discussed, Reach 4 of the San Jacinto River is not listed for any impairments on the 2014/2016 California 303(d) List of Water Quality Limited Segments. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. However, as discussed above, Construction BMPs would be implemented to target these pollutants of concern. Because there are no existing water quality impairments, there is a no potential for construction of the Build Alternatives to contribute to any existing water quality impairments. Furthermore, with the implementation of Construction BMPs, the Build Alternatives including the Design Variations would not result in any water quality impairments during construction.

4.3.2.2. Operational Impact Analysis

Pollutants of concern during operation of the Build Alternatives include suspended solids/ sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris. Alternatives 2 and 6 would result in a permanent net increase in impervious surface area of 16.5 ac and 20.6 ac, respectively. Design Variations 2a and 6a would result in a permanent increase in impervious surface area of approximately 22.1 ac and 26.2 ac, respectively. An increase in impervious surface area would increase the volume of runoff during a storm, thereby increasing the potential for more effectively transporting pollutants to receiving waters. Also, an increase in impervious surface area would also increase the total amount of pollutants in the stormwater runoff and non-stormwater runoff, which would increase the amount of pollutants traveling to on-site drainages and downstream receiving waters.

As specified in Measure WQ-3 in Chapter 5, the City would be required to implement Treatment BMPs to reduce the discharge of pollutants of concern to the MEP to comply with Exhibit D (Transportation Project Guidance) of the Riverside County's WQMP for improvements proposed outside Caltrans right-of-way. Treatment BMPs outside of Caltrans right-of-way would include a system of biofiltration swales and infiltration basins. These Treatment BMPs would treat runoff from the project site and would target pollutants of concern. In addition, the infiltration basins and biofiltration swales would promote infiltration to offset any increased flows associated with the increase in impervious surface from the project area and would provide flow duration, volume, and rate control functions.

As specified in Measure WQ-2 in Chapter 5, the City would be required to comply with the Caltrans MS4 Permit for the portions of the project area within Caltrans right-of-way. In addition, as specified in Measure WQ-4, the proposed project would be required to obtain a Section 401 Water Quality Certification and a Section 404 Nationwide Permit for impacts to jurisdictional waters. The USACE and the RWQCB may specify additional measures in these permits to reduce water quality impacts. The Build Alternatives would implement Caltrans-approved Treatment BMPs and Design Pollution Prevention BMPs to reduce the discharge of pollutants of concern to the MEP for improvements proposed within the project limits. Treatment BMPs use treatment mechanisms to remove pollutants that have entered stormwater runoff. Treatment BMPs within the project limits would include a system of biofiltration swales and infiltration basins. Design Pollution Prevention BMPs are measures that focus on reducing or eliminating runoff and controlling sources of pollutants during operation of the project. The Design Pollution Prevention BMPs proposed as part of the project include the following.

1. **Downstream Effects Related to Potentially Increased Flow:**

    a. LID efforts would be incorporated in the development and placement of permanent BMPs within the project limits and would include:

        1) Minimizing impervious surface area and using pervious material for hardened surfaces outside the roadway
        2) Preserving existing drainage patterns

3) Constructing permanent Treatment BMPs, including infiltration basins that provide retention and promote infiltration
4) Maintaining existing vegetated areas where feasible

2. **Slope/Surface Protection Systems:**

a. Proposed new slopes would be a standard 2:1 (cuts) and 4:1 (fills) or flatter.
b. Proposed new slopes and modified existing slopes are to be graded to 4:1 (H:V) when possible.
c. Slope rounding would be provided to further stabilize the slopes.
d. The creation and modification of the flow conveyance, including ditches, dikes, berms, and swales, would be earthen when possible.
e. Hard surfaces would be used as slope/surface protection.

3. **Concentrated Flow Conveyance Systems:**

a. Typical conveyances would be directed by curbs and gutters throughout the project area and would be developed further during the design phase.
b. Rock Slope Protection and velocity dissipation would be included at new and modified existing drainage outfalls to minimize erosion.

4. **Preservation of Existing Vegetation:**

a. All existing vegetation would be preserved to the MEP and would be protected with temporary ESA fencing during construction.

As previously discussed, the San Jacinto River, Reach 4 is not listed for any water quality impairments on the 2014/2016 California 303(d) List. Therefore, operation of the Build Alternatives would not contribute to any existing water quality impairments. The proposed Treatment BMPs include a system of biofiltration swales and infiltration basins and would be implemented both within and outside Caltrans right-of-way for the Build Alternatives to target pollutants of concern. The Treatment BMPs would be sized and designed to retain and infiltrate the Water Quality Volume and would not result in an increase in velocity or volume of downstream flow. Furthermore, the Treatment BMPs would treat 100 percent of the runoff from the project site, thereby reducing the amount of pollutants that would drain to downstream receiving waters. Therefore, the Build Alternatives would not result in any adverse impacts to water quality during operation with the implementation of Measures WQ-2 and WQ-3 in Chapter 5.

4.4. Cumulative Impacts

Cumulative development in the project area is a continuation of the existing urban pattern of development that has already resulted in extensive modifications to watercourses in the area. The project area's watercourses have been channelized, and drainage systems have been put in place to respond to the urbanization that has occurred in this area. For all cumulative analysis related to hydrology and water quality, the cumulative projects being considered include all potential projected development within the Perris Valley HSA and the Gilman Hot Springs HSA, because

the project area is within both of these HSAs (Figure 3). Because cumulative hydrology and water quality impacts are caused by build out of properties that increase impervious surface area and pollutant loads, cumulative development is considered to include the build out of both the Perris Valley HSA and the Gilman Hot Springs HSA over an extended period of time, resulting in the development of all available parcels consistent with local and regional plans.

New development and redevelopment can result in increased urban pollutants in dry weather and stormwater runoff from project sites. Each project must comply with NPDES permitting requirements and include BMPs to avoid impacts to water quality and local hydrology in compliance with local ordinances and plans adopted to comply with the MS4 Permit and other permits (e.g., CGP). The Build Alternatives must consider impaired receiving waters and annual TMDL levels for receiving waters. The TMDL program is designed to identify all constituents that adversely affect the beneficial uses of water bodies and then identify appropriate reductions in pollutant loads or concentrations from all sources so that the receiving waters can maintain/attain the beneficial uses in the Basin Plan. Thus, by complying with TMDLs, the project's contribution to overall water quality improvement in the San Jacinto River Watershed, in the context of the regulatory program, is designed to account for cumulative impacts.

The Build Alternatives including the Design Variations would make modifications and improvements to an existing transportation facility. The Build Alternatives include a system of biofiltration swales and infiltration basins that would target pollutant concentrations from runoff from the new overcrossing and on- and off-ramps, as well as additional intersection and roadway improvements.

Regional programs and BMPs, such as TMDL programs and the MS4 Permit Program, have been designed under an assumption that the Perris Valley HSA and Gilman Hot Springs HSA would continue their pattern of urbanization. The regional control measures contemplate the cumulative effects of proposed development. The City would be required to comply with the regulations in effect at the time the grading permits are issued. Compliance with these regional programs and the Construction General Permit constitutes compliance with programs intended to address cumulative water quality impacts.

Each project would be required to develop a SWPPP and WQMP and would be evaluated individually to determine appropriate BMPs and treatment measures to avoid impacts to surface water quality. Because the project includes BMPs to reduce pollutants of concern in runoff from the project area during construction and operation, the Build Alternatives' contribution to cumulative water quality impacts is not anticipated to be substantial.

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5. Avoidance and Minimization Measures

The following regulatory requirements would be implemented with the Build Alternatives and would reduce or avoid impacts related to water quality:

Measure WQ-1 **Construction General Permit.** Construction of the proposed project shall comply with the provisions of the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and Order 2012-0006-DWQ; NPDES No. CAS000002), or any other subsequent permit. The project shall comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and include Best Management Practices (BMPs) to control the pollutants, such as Sediment Control, Catch Basin Inlet Protection, Construction Materials Management, and Non-Stormwater BMPs. All work shall conform to the Construction Site BMP requirements specified in the latest edition of the California Department of Transportation (Caltrans) *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, concrete waste management, street sweeping and vacuuming, wind erosion control, and other non-stormwater BMPs.

Measure WQ-2 **Caltrans MS4 Permit.** Design and operation of the proposed project shall comply with the provisions of the *National Pollutant Discharge Elimination System (NPDES) Statewide Stormwater Permit, Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation* (Caltrans MS4 Permit) (Order No. 2012-0011-DWQ, as amended by Order No. 2014-0006-EXEC, Order No. 2014-0077-DWQ, and Order No. 2015-0036-EXEC, NPDES No. CAS000003), or any subsequent permit. This permit is applicable to the portions of the project area within Caltrans right-of-way. Caltrans-approved Treatment and Design Pollution Prevention BMPs shall be implemented within Caltrans right-of-way to the maximum extent practicable. Treatment BMPs shall be sized and designed to retain and infiltrate the Water Quality Volume and would not result in an increase in velocity or volume of downstream flow. Treatment BMPs include a system of biofiltration swales and infiltration basins. Design Pollution Prevention BMPs include preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization

and replanting of vegetation), concentrated flow conveyance systems, and low-impact design (LID) efforts.

Measure WQ-3 **Riverside County MS4 Permit.** Design and operation of the proposed project shall comply with the provisions of the *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the Riverside County Flood Control and Water Conservation District, the County of Riverside, and the Incorporated Cities of Riverside County within the Santa Ana Region*, Order No. R8-2010-0033, NPDES No. CAS618033, or any subsequent permit. The proposed project would follow the City of Moreno Valley's Local Implementation Plan (LIP) to implement the Drainage Area Management Plan (DAMP) and would implement the Monitoring and Reporting Program (MRP). Additionally, in compliance with Exhibit D (Transportation Project Guidance) of the Riverside County Water Quality Management Plan (WQMP) prepared for the NPDES Permit, a final project-specific Transportation Project Guidance Document shall be prepared. This permit is applicable to the portions of the project area outside Caltrans right-of-way. Treatment Control BMPs for the project outside Caltrans right-of-way would include infiltration basins and biofiltration swales.

Measure WQ-4 **Clean Water Act Sections 401 and 404.** The permits listed shall be obtained for the proposed project. Additionally, any requirements specified in these permits shall be adhered to during construction.

- Clean Water Act (CWA) Section 401 Water Quality Certification from the Santa Ana Regional Water Quality Control Board (RWQCB) for any discharge to a water of the United States
- CWA Section 404 Nationwide Permit from United States Army Corp of Engineers (USACE) for the discharge of dredge or fill material into a water of the United States

6. References

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