

MEMORANDUM

DATE: September 16, 2019

To: Brian Liu, Associate Environmental Planner, California Department of Transportation, District 12

FROM: Nicole West, Associate Environmental Planner, LSA

SUBJECT: Water Quality Memorandum: Fairview Street Improvements from 9th Street to 16th Street and Bridge Replacement Project BRLS 5063(184)

1.0 PROJECT DESCRIPTION

The City of Santa Ana, in conjunction with Caltrans District 12, proposes to widen Fairview Street between 9th Street and 16th Street, including replacing the Fairview Street bridge crossing over the Santa Ana River (proposed Project) in Santa Ana, California. The purpose of the Project is to reduce congestion and improve pedestrian and bicyclist safety on Fairview Street between 9th Street and 16th Street, consistent with the Orange County Master Plan of Arterial Highways and the City's General Plan Circulation Element.

South of 9th Street, Fairview Street provides three lanes in each direction which are reduced to two lanes in each direction north of 9th Street, across the existing four-lane bridge, to 16th Street. The Fairview Street segment between 9th Street and 16th Street is the only constraint for Fairview Street to be built out to its planned width of six lanes. This condition causes a traffic "bottleneck" during peak hours. In addition, there are no sidewalks, bikeways, or lighting on the existing bridge. Pedestrians and bicyclists currently use the roadway shoulder to cross the bridge.

The Santa Ana River Trail (SART) runs on both sides of the Santa Ana River in the Project area. The SART is a Section 4(f) Resource and would be temporarily closed during construction of the proposed Project.

The proposed Project includes widening Fairview Street between 9th Street and 16th Street, including replacing the Fairview Street bridge over the Santa Ana River. The proposed Project would widen Fairview Street from two lanes in each direction to three lanes in each direction in the City of Santa Ana (refer to Figures 1 and 2; all figures are provided in Attachment A). Fairview Street bridge would be replaced with a new six-lane bridge (three lanes in each direction), including a complete bridge deck with barrier rails, sidewalks, bicycle lanes, a raised median, and lighting.

The proposed bridge would be expanded from approximately 52 feet (ft) to 100 ft in width, and would have the same roadway profile as the existing bridge. The eight pier walls that support the existing bridge would be removed, and four new pier walls would be constructed to support the new bridge.

The proposed Project would acquire partial right-of-way take from three parcels (two commercial parcels [Assessor's Parcel Numbers (APN) 405-213-02 and 405-213-01] and one single-family residence [APN 405-213-14]) as shown in Figure 2.

An existing 12-inch water line and a bank of 12 phone conduits cross the Santa Ana River, suspended under the deck of the existing bridge. These utilities would be temporarily relocated during construction and then permanently relocated to the new bridge.

Water quality best management practices (BMPs) would be included to treat stormwater runoff such as a vegetated swale adjacent to Fairview Street in the Fairview Triangle rest area.

Fairview Street would remain open during the construction period with two southbound lanes and one northbound lane, with lanes shifted to one side of the bridge while the other side is replaced. Therefore, no detours would be required for vehicles traveling along Fairview Street. Access to properties would be maintained.

During construction, pedestrians and bicyclists would be detoured away from the Fairview Street bridge to the 17th Street bridge to cross the Santa Ana River by way of the SART between the hours of 9:00 a.m. and 7:00 p.m., when the gates to the SART are open and unlocked. After hours, pedestrians and bicyclists wishing to cross the Santa Ana River would be detoured to adjacent City streets such as King Street.

Construction of the proposed Project would require temporary closures of a portion of the SART for the demolition and placement of the bridge superstructure. The SART includes a Class I bike path on the eastern side and a regional riding and hiking trail on the western side. The portion of SART affected by Project construction would need to be temporarily closed four times for approximately 8 hours each time during two summer periods for the placement of precast concrete girders. During these periods, SART users would be detoured and signage would be provided to display the dates of the closures and to identify the detour routes. Work on the north and south sides of the bridge would be completed during separate periods so that SART users can be detoured to the trail on the opposite side of the Santa Ana River at 5th Street (refer to Figures 3A and 3B for the detour plans). There are gates and ramps located on both sides of the SART at 5th Street that provide access to bicyclists and pedestrians for these detours. Details regarding the detour are being coordinated with Orange County (OC) Parks. Other short-term closures of up to 15 minutes would be allowed with flagmen.

A temporary detour within the river bed may be required as a contingency. This would involve construction of dirt and gravel ramps with asphalt topping to and from the SART and the river bed as shown on Figure 2.

Construction vehicles would access the Santa Ana River from the gate and ramp at the County of Orange access road at the northwest corner of the bridge, and would use the existing concrete access ramp into the river approximately 250 ft west of the Project area (Figure 2). All access roads to the SART that are utilized by construction vehicles or for detour routes would be reconstructed and restored to pre-construction conditions or better prior to Project completion.

2.0 REGULATORY SETTING

2.1 Federal Law 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 National Pollutant Discharge Elimination System (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 program. 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 permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

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

2.2 State Laws and Requirements

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 or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

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 Construction General Permit (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.

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 prescribe a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act). WDRs may specify the inclusion of additional project 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

Santa Ana Regional Water Quality Control Board

The SWRCB carries out its water quality protection authority through the adoption of Water Quality Control Plans (Basin Plans). These plans establish water quality standards for particular bodies of water.

California water quality standards are composed of three parts: the designation of beneficial uses of water, water quality objectives to protect those uses, and implementation programs designed to achieve and maintain compliance with water quality objectives. The RWQCB, Santa Ana Region, is responsible for the Basin Plan for the Santa Ana River Basin, where the proposed project is. The RWQCB implements management plans to modify and adopt standards under provisions set forth in Section 303(c) of the CWA and the California Water Code (Division 7, Section 13240).

The SWRCB adopted the Policy for Implementation of Toxics Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California in 2000. This policy provides implementation measures for criteria contained in the California Toxics Rule, promulgated in May 2000 by the EPA. When combined with the beneficial use designations in the Basin Plan, these documents establish statewide water quality standards for toxic constituents in surface water.

Basin Plan

The Basin Plan for the Santa Ana River Basin (RWQCB Region 8), most recently amended in February 2016, establishes water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water. Specifically, Basin Plans are designed to accomplish the following.

1. Designate beneficial uses for surface and groundwater
2. Set the narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to California's anti-degradation policy
3. Describe implementation programs to protect the beneficial uses of all water in the region
4. Describe surveillance and monitoring activities to evaluate the effectiveness of the Basin plans

Basin Plans incorporate by reference all applicable SWRCB and RWQCB plans and policies. In addition to Basin Plan requirements, the RWQCB has water quality control authority under Section 401 of the CWA if a project needs to apply for a Nationwide Permit under Section 404 of the CWA.

Total Maximum Daily Load

TMDL refers to the amount of a specific pollutant a river, stream, or lake can assimilate and still meet federal water quality standards as provided in the CWA. TMDL accounts for all sources of pollution, including point sources, non-point sources, and natural background sources. Section 303(d) of the CWA (33 United State Code Section 1313[d]) requires that regulatory agencies determine TMDLs for all water bodies that do not meet water quality standards. The Section 303(d) list of impaired waterbodies provides a prioritization and schedule for development of TMDLs for the state.

The SWRCB, in compliance with the Section 303(d) of the CWA, prepared a 2014/2016 list of impaired water bodies in California. The SWRCB approved the 2014/2016 California Integrated Report (CWA Section 303(d) List/305(b) Report on October 3, 2017. On April 6, 2018, the EPA approved the 2014/2016 California 303(d) List of Water Quality Limited Segments. The 303(d) list includes a priority schedule for the development of TMDLs implementation for each contaminant impacting the waterbody.

Orange County National Pollutant Discharge Elimination System Permit

The proposed Project is subject to the requirements of the *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff Orange County* (North Orange County MS4 Permit), Order R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062. The North Orange County MS4 Permit regulates discharges into the MS4 system in the cities and county areas within Orange County in the Santa Ana Region. As discussed further below, the North Orange County MS4 Permit requires preparation of a Water Quality Management Plan (WQMP) and implementation of postconstruction BMPs for new development and significant redevelopment projects that qualify as Priority Projects.

Drainage Area Management Program

The *Drainage Area Management Plan* (DAMP) was implemented and created by the County of Orange, the Orange County Flood Control District, and incorporated cities (permittees) and includes specific water pollutant requirements of the North Orange County Stormwater Program. The DAMP is the principle policy and guidance document for the NPDES program. It is the foundation for model programs, local implementation plans, and watershed implementation plans. Section 7 of the DAMP discusses issues relating to new developments and significant redevelopments.

Model Water Quality Management Plan

The *Model Water Quality Management Plan* (May 2011) was developed to aid Orange County, the Orange County Flood Control District, the cities in Orange County (permittees) and developers within Orange County to address postconstruction urban runoff and stormwater pollution from new development and significant redevelopment projects that qualify as Priority Projects. The proposed Project is categorized as street, road, highway, and freeway of 5,000 square feet or more of paved surface and, thus, is considered a Priority Project. The proposed Project will be required to comply with the North Orange County MS4 Permit Priority Project requirements.

Priority Projects are required to develop a Project WQMP to minimize adverse impacts of development to on-site hydrology, volume and rate of runoff, and pollutants of concern. The Project WQMP includes project-specific BMPs to minimize these effects (e.g., Low Impact Development [LID], site design measures, source control BMPs). The requirements identified in the Project WQMP are subject to DAMP Section 7.

According to the North Orange County MS4 Permit, all street and road construction project of 10,000 or more of street, road, highway, and freeway of 5,000 square feet or more of paved surface must also comply with the EPA guidance *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets* (December 2008 EPA-833-F-08-009) to the maximum extent practicable.

Technical Guidance Document

The County of Orange developed the *Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs)* (TGD) (County of Orange 2013) in cooperation with the incorporated cities of Orange County to aid agency staff and project proponents with addressing postconstruction urban runoff and stormwater pollution from new development and significant redevelopment projects in the county. The TGD serves as a technical guidance to complete the Project WQMP.

Orange County Construction Runoff Guidance Manual

The *Construction Runoff Guidance Manual for Contractors, Project Owners, and Developers* (County of Orange 2012) presents the requirements related to construction from the DAMP. The goal of the Guidance Manual is to control pollutant discharges from construction sites. As such, it helps applicants for building and grading permits to understand the water quality requirements during the construction phase of development projects.

City of Santa Ana General Plan

The City of Santa Ana General Plan Conservation Element establishes the following policies and programs that relate to hydrology and water quality (City of Santa Ana 1982).

- Encourage water conservation through design and facilities features of new developments through the use of water quality wetlands, biofiltration swales, watershed-scale retrofits, etc. where such measures are likely to be effective and technically and economically feasible.
- Preserve vegetation along watercourse channels.
- Establish development guidelines for areas particularly susceptible to erosion and sediment loss.
- Provide for appropriate permanent measures to reduce stormwater pollutant loads in stormwater from the development site.
- Minimize changes in hydrology and pollutant loading; require incorporation of control, including structural and non-structural and Best Management Practices to mitigate the projected increases in pollutant loads and flows.
- Ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat.
- Maintain compliance with regional watershed and stormwater management principles.

City of Santa Ana Municipal Code

The City of Santa Ana Municipal Code (1969), Chapter 18, Article IV, Sections 151-161 regulate water pollution to improve water quality and comply with federal regulations relating to stormwater runoff. The code includes:

- Prohibition on illicit connections and discharges;
- Compliance with the Orange County DAMP and any other terms, conditions and requirements defined by the City of Santa Ana;
- Inspection of the project for compliance and the administrative remedies for noncompliance; and,
- Discussion of the permitting process.

General Waste Discharge Requirement Permit for Groundwater Discharges

The Santa Ana RWQCB requires a permit for discharging wastes to surface waters from activities involving groundwater extraction. The *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2009-0003, NPDES No. CAG998001) (De Minimus Permit) covers discharges that pose a low potential to impact surface water quality within the Santa Ana Region. This Order would apply to the project if it could be

demonstrated that the groundwater being discharged to surface waters does not contain pollutants of concern (selenium and nitrates). Under this permit, permittees are required to monitor their discharges from groundwater extraction waste from construction to ensure that effluent limitations for constituents are not exceeded.

3.0 AFFECTED ENVIRONMENT

3.1 Surface Waters

The Project area is within the Santa Ana River Watershed, which is within the jurisdiction of the Santa Ana RWQCB. The Santa Ana RWQCB jurisdiction is approximately 2,800 square miles in portions of Orange, Riverside, and San Bernardino counties and mostly consists of the 2,650-square-mile Santa Ana River Watershed. Specifically, the Project area is within the Lower Santa Ana River Watershed, which extends from Prado Dam to the Pacific Ocean.

For regulatory purposes, the Santa Ana RWQCB designates watershed areas in Hydrologic Units (HUs), which are further divided into Hydrologic Areas (HAs) and Hydrologic Subareas (HSAs). As designated by the Santa Ana RWQCB, the Project area is located within the Santa Ana River HU, the Lower Santa Ana River HA, and East Coast Plain HSA (Santa Ana RWQCB 1995).

The Santa Ana River extends approximately 96 miles from its headwaters to where it drains into the Pacific Ocean. The headwaters for the Santa Ana River and its tributaries originate in the San Gabriel, San Bernardino, and Santa Ana Mountains. From the San Bernardino and San Gabriel Mountains, the Santa Ana River flows through San Bernardino and Riverside Counties, then through the Prado Basin and a narrow pass in the Santa Ana Mountains. From the Santa Ana Mountains, the Santa Ana River flows southwesterly through Orange County to the Pacific Ocean. The Santa Ana River is divided into six reaches. The Fairview Street bridge crosses Reach 1 of the Santa Ana River, which is defined as the portion of the river between the tidal prism and 17th Street in Santa Ana. The Santa Ana River within the Project area is a concrete-lined, trapezoidal channel and is devoid of vegetation (LSA 2018b). Intermittent flows within the Santa Ana River can be attributed to stormwater runoff, urban runoff, and treated wastewater (LSA 2018a).

Beneficial Uses of Surface Waters

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. The existing or potential beneficial uses for the Santa Ana River Reach 1, as identified in the Basin Plan, are:

- **REC-1:** Water Contact Recreation (access prohibited in all or part of the river per agency jurisdiction)
- **REC-2:** Non-Contact Water Recreation

The intermittent beneficial uses for the Santa Ana River Reach 1, as identified in the Basin Plan:

- **WARM:** Warm Freshwater Habitat
- **WILD:** Wildlife Habitat

Surface Water Quality Objectives

Surface water quality objectives establish the limits or levels of water quality constituents to protect beneficial uses. Table A lists surface water quality objectives for all inland surface waters from the Basin Plan that are applicable to Reach 1 of the Santa Ana River. No site-specific numeric water quality objectives were identified in the Basin Plan for Santa Ana River Reach 1, as this reach only contains flood flows.

Existing Water Quality

Reach 1 of the Santa Ana River is not listed as impaired for any constituents on the 2014/2016 303(d) List. In addition, there are no TMDLs applicable to Reach 1 of the Santa Ana 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, within or downstream of the Project area (SWRCB 2019).

3.2 Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 0659C0144J (2009), the Santa Ana River within the Project area is designated Special Flood Hazard Area Zone A, areas subject to inundation by the 1 percent annual chance flood (100-year flood) with no base flood elevations determined. The remainder of the Project area (outside of the Santa Ana River) is designated as Other Areas of Flood Hazard Zone X, areas with reduced flood risk due to levee.

3.3 Groundwater Hydrology

The Project area is above the Coastal Plain of Orange County Groundwater Basin, which underlies the Lower Santa Ana River Watershed. The basin is bounded on the north by the Puente and Chino Hills, on the east by the Santa Ana Mountains, on the south by the San Joaquin Hills, on the southwest by the Pacific Ocean, and on the northwest by low topographic divide at approximately the Orange County-Los Angeles County line (DWR 2004).

For regulatory purposes, the Santa Ana RWQCB divides the Coastal Plain of Orange County Groundwater Basin into three Groundwater Management Zones. The Project area is within the Orange County Groundwater Management Zone (Santa Ana RWQCB 1995). The Orange County Groundwater Management Zone is bounded to the north by the Chino Hills, to the east by the Santa Ana Mountains, to the southeast by State Route 55, to the south by the Pacific Ocean, and to the northwest by the Orange County-Los Angeles County line.

Recharge to the Coastal Plain or to the Orange County Groundwater Basin occurs from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells (DWR 2004). A portion of the flow from the Santa Ana River directly below Prado Dam is diverted to recharge groundwater (RWQCB 2004).

Based on exploratory boreholes drilled in 2003 and 2004, groundwater levels are 25 to 30 feet below ground surface (Earth Mechanics, Inc. 2018).

Table A: Surface Water Quality Objectives for Inland Surface Waters

Constituent	Concentration
Algae	Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters.
Ammonia, Un-ionized	Waters with WARM beneficial use designation: varies based on pH and temperature.
Boron	Shall not exceed 0.75 mg/L in inland surface waters of the region as a result of controllable water quality factors.
Chlorine (residual)	Chlorine residual in wastewater discharged to inland surface waters shall not exceed 0.1 mg/L.
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.
Floatables	Waste discharges shall not contain floating materials, including solids, liquids, foam, or scum, that cause a nuisance or adversely affect beneficial uses.
Metals	Varies based on hardness.
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 or in coating objects in the water or which cause a nuisance or adversely affect beneficial uses.
Oxygen (dissolved)	Waters with WARM beneficial use designation: shall not be depressed below 5 mg/L as a result of controllable water quality factors. Waste discharges shall not cause the median dissolved oxygen concentration to fall below 85 percent of saturation or the 95 th percentile concentration or fall below 75 percent of saturation within a 30-day period.
Pathogen indicator bacteria	Waters with REC-1 and REC-2 beneficial use designation: waste discharges shall not cause or contribute to excessive risk of illness from microorganisms pathogenic to human beings. Pathogen indicator concentrations shall not exceed a geometric mean of at least 5 samples in a 30-day period of 126 E. coli organism per 100 mL as a result of controllable water quality factors unless it is demonstrated to the Regional Board's satisfaction that the elevated indicator concentrations do not result in excessive risk of illness among people recreating in or near the water.
pH	Shall not be raised above 8.5 or depressed below 6.5 as a result of controllable water quality factors.
Solids (suspended and settleable)	Shall not cause nuisance or adversely affect beneficial uses as a result of water quality factors.
Sulfides	Shall not be increased as a result of controllable water quality factors.
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.
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.
Temperature	Waters with WARM beneficial use designation: 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.
Toxic substances	Shall not be discharged at levels that will bioaccumulate in aquatic resources to levels that are harmful to human health. The concentrations of contaminants in waters which are existing or potential sources of drinking water shall not occur at levels that are harmful to human health. Concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses.
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.

Source: *Water Quality Control Plan for the Santa Ana River Basin* (Santa Ana RWQCB 1995; updated February 2016).

°F = degrees Fahrenheit
mg/L = milligrams per liter
mL = milliliter
N = nitrogen

NTU = nephelometric turbidity units
pCi/L = picocuries per liter
pH = percentage of hydrogen
RWQCB = Regional Water Quality Control Board
WARM = Warm Freshwater Habitat

Beneficial Uses for Groundwater Basins

The existing or potential beneficial uses identified in the Basin Plan for the Orange Groundwater Management Zone are:

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

Water Quality Objectives for Groundwater Basins

Table B lists the groundwater quality objectives for all groundwater basins from the Basin Plan that are applicable to the Orange Groundwater Management Zone. The site-specific groundwater quality objectives for the Orange Groundwater Management Zone are:

- **Total Dissolved Solids:** 580 milligrams per liter (mg/L)
- **Nitrate as Nitrogen:** 3.4 mg/L

Existing Groundwater Quality

Water in the Orange Groundwater Management Zone is primarily sodium-calcium bicarbonate-based. Total dissolved solids range from 232 to 661 mg/L and average 475 mg/L. Near the coast, groundwater is impaired from seawater intrusion. Groundwater is impaired by salinity, nitrate, and methyl tert-butyl ether (MTBE) (DWR 2004).

4.0 POTENTIAL IMPACTS TO WATER QUALITY

4.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

Substrate

According to the *Draft Water Quality Management Plan (WQMP)* (Civil Works Engineers 2019b) prepared for the proposed Project, the Project would increase impervious area by approximately 8,500 square feet (approximately 0.2 acre), which would increase runoff to the Santa Ana River. Changes in runoff can affect substrate deposition in the downstream receiving waters. However, because the Santa Ana River is concrete-lined with no substrate, the proposed Project does not have the potential to affect substrate in downstream receiving waters.

Current, Circulation, or Drainage Patterns

Hydromodification is the alteration of the hydrologic characteristics of water bodies. Increased runoff from increases in impervious areas can alter the volume of water discharged to water bodies that can alter current and circulation patterns. However, the Santa Ana River is a stabilized concrete channel and is not susceptible to hydromodification¹ (County of Orange 2012).

¹ Hydromodification is the alteration of the hydrologic characteristics of water bodies. Increased stream flows and changes in sediment transport caused by increased impervious areas from urbanization or other land use changes can result in increased stream flows and changes in sediment transport.

Table B: Groundwater Quality Objectives for Groundwater Basins

Constituent	Concentration
Arsenic	Waters with MUN beneficial use designation: shall not exceed 0.05 mg/L as a result of controllable water quality factors.
Bacteria, Coliform	Waters with MUN beneficial use designation: 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.
Barium	Waters with MUN beneficial use designation: shall not exceed 1.0 mg/L as a result of controllable water quality factors.
Boron	Shall not exceed 0.75 mg/L as a result of controllable water quality factors.
Chloride	Waters with MUN beneficial use designation: shall not exceed 500 mg/L as a result of controllable factors.
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses.
Cyanide	Waters with MUN beneficial use designation: shall not exceed 0.2 mg/L as a result of controllable water quality factors.
Fluoride	Waters with MUN beneficial use designation: shall not exceed 1.0 mg/L as a result of controllable water quality factors.
Hardness	Waters with MUN beneficial use designation: shall not be increased as a result of waste discharges to levels that adversely affect beneficial uses.
Metals	Waters with MUN beneficial use designation: 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.
Methylene blue-activated substances	Waters with MUN beneficial use designation: shall not exceed 0.05 mg/L as a result of controllable water quality factors.
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.
pH	Shall not be raised above 9 or depressed below 6 as a result of controllable water quality factors.
Radioactivity	Waters with MUN beneficial use designation: 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.
Sodium	Waters with AGR beneficial use designation: shall not exceed a sodium absorption rate of 9.
	Waters with MUN beneficial use designation: shall not exceed 180 mg/L as a result of controllable water quality factors.
Sulfate	Waters with MUN beneficial use designation: shall not exceed 500 mg/L as a result of controllable water quality factors.
Taste and odor	Shall not contain taste- or odor-producing substances in concentrations that adversely affect beneficial uses.
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.

Source: *Water Quality Control Plan for the Santa Ana River Basin* (Santa Ana RWQCB 1995, last updated February 2016).

AGR = Agricultural Supply

MUN = Municipal Supply

mg/L = milligrams per liter

mL = milliliter

pCi/L = picocuries per liter

pH = percentage of hydrogen

In addition, the proposed Project would improve the hydraulics of the Santa Ana River. As part of the bridge replacement, the proposed Project would replace eight existing pier walls within the Santa Ana River (totaling an area of 0.09 acre) with four new pier walls (totaling an area of 0.05 acre). As detailed in the River Hydraulics Analysis (Civil Works Engineers, Inc. 2019a) prepared for the proposed Project, in the existing condition, a hydraulic jump occurs upstream of the bridge (i.e. flows transition from supercritical to subcritical, which represents a high energy loss with erosive potential). The proposed Project would improve the river hydraulics upstream of the bridge by lowering the water surface elevation and reducing the length of the subcritical flows by approximately 300 ft. Therefore, implementation of the proposed Project would have a beneficial effect on the river hydraulics upstream of the Project area. Additionally, the proposed Project would maintain the overall drainage patterns in the Project area. For these reasons, Project impacts to current, circulation, and drainage patterns would not be adverse.

Suspended Particulates (Turbidity)

Construction activities disturb and expose soil and increase the potential for soil erosion. Suspended particles, trash, and debris are often discovered on streets and highways. Because the proposed Project would increase impervious surface area, the amount of suspended solids and sediments generated within the Project area could increase. However, the increase in impervious area is minor and construction and operational BMPs would be implemented to reduce pollutants of concern in runoff, including suspended particles. Therefore, impacts related to suspended pollutants would not be adverse.

Oil, Grease, and Chemical Pollutants

Grading and earthmoving equipment is a source of chemicals, liquid products, and petroleum products if the equipment leaks. Chemicals, liquid products, and petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked during construction and have the potential to be transported via storm runoff into receiving waters. During operation, oil, grease, and toxic organic compounds are pollutants of concern from transportation facilities. These pollutants of concern can be generated from maintenance activities as well as vehicles operating on the facility. However, the increase in impervious area is minor and construction and operational BMPs would be implemented to reduce pollutants of concern in runoff, including oil, grease, and chemical pollutants. Therefore, impacts related to oil, grease, and chemical pollutants would not be adverse.

Temperature, Oxygen Depletion, and Other Parameters

The proposed Project is not anticipated to impact the temperature or decrease oxygen in receiving waters. In addition, Reach 1 of the Santa Ana River is not listed as impaired by temperature or low dissolved oxygen. Therefore, the proposed Project does not have a potential to impact receiving water temperature or oxygen levels.

Flood Control Functions

As discussed previously, the proposed Project would improve the river hydraulics upstream of the bridge by lowering the water surface elevation and reducing the length of the subcritical flows by approximately 300 ft. Therefore, implementation of the proposed Project would have a beneficial effect on the flood control functions of the surface waters upstream of the Project area.

Storm, Wave, and Erosion Buffers

The Project area is approximately 9.5 miles from the coast and would have no impact on storm, wave, or erosion buffers.

Erosion and Accretion Patterns

The increase in impervious area would increase the volume of stormwater runoff from the Project area into the Santa Ana River. However, the Santa Ana River is a stabilized concrete channel and is not susceptible to hydromodification (County of Orange 2012). Therefore, increasing flow to this channel would not change sediment transport or increase downstream erosion and accretion.

Aquifer Recharge/Groundwater

Groundwater dewatering during construction may be required during construction of the bridge piles to ensure groundwater levels are below the pile cap elevation (Earth Mechanics, Inc., 2018). However, groundwater dewatering would be temporary, and the volume of groundwater removed would be minimal compared to the size of the groundwater basin. Therefore, Project construction would not substantially change groundwater levels in the groundwater basin.

The Project would increase impervious surface areas on site, which can decrease infiltration. However, due to the large amount of impervious surface area in the vicinity of the Project area and within the Santa Ana River channel, minimal infiltration would be expected to occur in the existing conditions. Additionally, the increase in impervious surface area 8,500 square feet (approximately 0.2 acre) is minimal compared to the size of the watershed and the amount of existing impervious surface area in the vicinity of the Project area. In addition, operation of the proposed Project would not require groundwater extraction. Therefore, the proposed Project would not substantially deplete groundwater supplies or interfere with groundwater recharge.

Baseflow

Baseflow is streamflow that results 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 Santa Ana River is concrete lined, so there is no baseflow in the Project area. Therefore, the proposed Project would not impact baseflow.

4.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

Special Aquatic Sites

According to the Natural Environment Study (Minimal Impacts) (NES[MI]; LSA 2018a) prepared for the proposed Project, there are no wetlands or riparian areas present in the Project area. There are no ASBSs within or downstream of the Project area. However, the Santa Ana River is subject to USACE, California Department of Fish and Wildlife, and Santa Ana RWQCB jurisdiction. Although an increase in pollutant loading from construction activities and the increase in impervious surface area can impact the water quality in the Santa Ana River, the disturbance area and increase in impervious area is minimal and construction and operational BMPs would be implemented to reduce pollutants of concern in runoff. Therefore, the proposed Project would not have an adverse effect water-quality related impact on special aquatic sites.

Habitat for Fish and Other Aquatic Organisms

Designated intermittent beneficial uses of Reach 1 of the Santa Ana River include Warm Freshwater Habitat (WARM). However, according to the NES(MI) prepared for the proposed Project (LSA 2018a), there are no aquatic resources within the Project area that would provide habitat for fish or other aquatic species. The Santa Ana River is concrete-lined, devoid of vegetation, and conveys intermittent flows. Therefore, the proposed Project does not have the potential to impact the beneficial uses of warm freshwater habitat in the Santa Ana River.

Wildlife Habitat

Designated intermittent beneficial uses of Reach 1 of the Santa Ana River include Wildlife Habitat (WILD). However, according to the NES(MI) prepared for the proposed Project (LSA 2018a), there are no aquatic resources within the Project area that would provide wildlife habitat for terrestrial or aquatic species. The Santa Ana River is concrete-lined, devoid of vegetation, and conveys intermittent flows. Therefore, the proposed Project does not have the potential to impact the beneficial uses of wildlife habitat in the Santa Ana River.

According to the NES(MI), mammals such as coyote, raccoon, opossum, and skunk have adapted to densely developed urban environments and may utilize the Santa Ana River as a movement corridor; however, the lack of vegetative cover within the concrete channel and high level of anthropogenic disturbance may limit use. Wildlife may use the river as a source of water when flows are present. However, this would only occur intermittently, as the Santa Ana River only conveys intermittent flows. Poor water quality could be toxic to wildlife that may use the river as a source of water. However, the disturbance area and increase in impervious area is minimal and the proposed Project would implement construction and operational BMPs to target pollutants of concern in stormwater runoff such that the proposed Project would not degrade water quality or result in water-quality related impacts to wildlife using the river as a wildlife corridor.

Endangered or Threatened Species

According to the NES(MI), there are no aquatic or aquatic-dependent endangered or threatened plant or animal species known or expected to occur within the Project area. In addition, beneficial uses of Reach 1 of the Santa Ana River do not include Habitat for Rare, Threatened, or Endangered Species (RARE). Therefore, the proposed Project would not result in water quality-related impacts to endangered or threatened aquatic species.

Invasive Species

The Santa Ana River is devoid of vegetation within the Project area. Although the proposed Project has the potential to spread invasive plant species, there are no adjacent native aquatic habitats that may become contaminated. Therefore, no change to aquatic or riparian invasive species is anticipated as a result of the proposed Project.

4.3 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

Existing and Potential Water Supplies; Water Conservation

The water service provider in the Study Area is Santa Ana Municipal Utility Services. Other than the proposed area of revegetation and vegetated swale adjacent to Fairview Street in the Fairview Triangle rest area, no landscaping is proposed. Any water use for establishment and maintenance of the revegetated area and vegetated swale would be minimal. The proposed Project would implement

structural source control BMPs, which would include use of efficient irrigation systems and landscape design, water conservation, smart controllers to reduce water usage. There are no other demands for harvested water that exist in the Project area.

Recreational or Commercial Fisheries

The beneficial uses of the Santa Ana River do not include commercial and sportfishing (COMM). In addition, the river is not used for water-related recreation or commercial fishing within or adjacent to the Project area. Therefore, the proposed Project would not have an adverse effect on recreational or commercial fisheries.

Other Water-Related Recreation

Although the beneficial uses of Reach 1 of the Santa Ana River include Water Contact Recreation (REC-1) and Non-Contact Water Recreation (REC-2), the river is not used for water-related recreation within or adjacent to the Project area. Therefore, the proposed Project would not have an adverse effect on water-related recreation.

Aesthetics of the Aquatic Environment

The SART is a multi-use recreational trail that parallels both sides the Santa Ana River within the Project area. The Santa Ana River is an aesthetic component that contributes to the enjoyment of users of the SART, particularly when water is present within the river. Trash and debris, oil and grease, nutrients, and sediment can detract from the aesthetics of a waterbody. 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. The Project has the potential to impact the aesthetics of the Santa Ana River by increasing pollutant loading. However, the disturbance area and increase in impervious area is minimal and construction and operational BMPs would be implemented to reduce pollutants of concern in runoff. Therefore, the proposed Project would not have an adverse effect on the aesthetics of the aquatic environment.

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

The Santa Ana River is not designated as a wild and scenic river by the National Wild and Scenic Rivers System. In addition, there are no national or historic monuments, national seashores, or wilderness areas in the vicinity of the Project area. No resources listed or eligible for listing in the National Register of Historic Places or the California Historical Landmarks were identified as part of the draft *Historic Property Survey Report* (LSA 2019a) and *Historic Resources Evaluation Report* (LSA 2019b) prepared for the proposed Project. However, the SART parallels both sides of the Santa Ana River in the Project area. As discussed previously, the Santa Ana River is an aesthetic component that contributes to the enjoyment of users of this resource, particularly when water is present within the river.

As also discussed previously, trash and debris, oil and grease, nutrients, and sediment can detract from the aesthetics of a waterbody. The Project has the potential to impact the aesthetics of the Santa Ana River by increasing pollutant loading. However, the disturbance area and increase in impervious area is minimal and construction and operational BMPs would be implemented to reduce pollutants of concern in runoff. Therefore, the proposed Project would not have an adverse water quality related effect on the use of the SART.

Traffic/Transportation Patterns

The Santa Ana River is not used for transportation. Therefore, the proposed Project would not have an adverse effect on aquatic traffic/transportation patterns.

Energy Consumption or Generation

The Santa Ana River is not used for energy generation. Therefore, the proposed Project would not have an adverse effect on energy consumption or generation.

Navigation

The Santa Ana River within the Project area is not used for navigation. According to the NES(MI) prepared for the proposed Project, downstream of the Project area the channel has a direct nexus to the Pacific Ocean (a navigable water of the U.S.) and is tidally influenced at its mouth. However, the tidal influence does not extend to the Project area. Because the Santa Ana River is not used for navigation in the Project area, the proposed Project would not have an adverse effect to aquatic navigation.

Safety

As discussed previously, the proposed Project would improve the river hydraulics upstream of the bridge by lowering the water surface elevation and reducing the length of the subcritical flows by approximately 300 ft. Therefore, implementation of the proposed Project would have a beneficial effect on the flood control functions of the surface waters upstream of the Project area. Because the proposed Project would not increase flooding in the Project area, no safety impacts related to flooding would occur.

4.4 Short Term Impacts During Construction

No Build Alternative

Under the No Build Alternative, no improvements to Fairview Street between 9th Street and 16th Street would occur and the Fairview Street bridge over Santa Ana River would not be replaced. 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.

Build Alternative

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. According to the *Draft Water Quality Management Plan (WQMP)* (Civil Works Engineers 2019b) prepared for the proposed Project, the disturbed soil area during construction would be 1.15 acre. However, project construction may disturb additional area depending on any sound barriers incorporated into the proposed Project. In addition, there is a potential for chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste to be spilled or leaked and transported via storm runoff into receiving waters.

Construction activities within the Santa Ana River during bridge replacement have the greatest potential to impact water quality. However, construction within the river would not occur during the rainy season.

Activities above and within the river are anticipated to include demolition of the existing concrete bridge, saw cutting and removal of the concrete invert (i.e., the channel lining below the bridge), excavation (3 feet deep at the channel bottom and 6 feet deep at the abutments), pile driving, and installation of concrete for the pile caps, columns, and reconstructed invert. A potential temporary bicycle detour route may be constructed within the Santa Ana River channel. This potential detour route would be constructed and deconstructed during dry-season work within the channel. The detour route would have a dirt base with an asphalt surface and would be entirely removed prior to completion of construction.

Diversion of flows within the Santa Ana River is not anticipated to be required because construction activities would not take place within the low flow portion of the channel. However, sandbags or concrete k-rails with plastic sheets may be required upstream of the work area to ensure any water that escapes the low flow channel is diverted back to the low flow channel before reaching the construction area. A staging area would be located within along the riverbank (see Figure 2). No materials or equipment would be stored within the river channel.

Projects that disturb more than 1 acre of soil are subject to the requirements of the CGP. However, projects that disturb between 1 and 5 acres are potentially eligible for a Small Construction Rainfall Erosivity Waiver, which would exempt the project from coverage under the CGP. To obtain a waiver, a project would need to demonstrate that there would be no adverse water quality impacts, because construction activities would only take place when there is a low erosivity potential (i.e., the rainfall erosivity value in the Revised Universal Soil Loss Equation [R value] for a project is less than 5). Based on a construction start date of spring 2020 and construction end date of spring 2022, the R factor for the proposed Project would be approximately 38. Because of the long construction schedule, the R factor is well above 5, and the proposed Project would not qualify for a CGP waiver. Therefore, the proposed Project would be required to obtain coverage under and comply with the requirements of the CGP.

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 inspection requirements of the CGP.

In compliance with the CGP (Measure PF-WQ-1), a SWPPP would be prepared and construction BMPs that comply with the requirements of the *Construction Runoff Guidance Manual for Contractors, Project Owners, and Developers* (County of Orange Stormwater Program 2012) would be implemented to reduce pollutants of concern in the stormwater runoff. 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 to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Construction BMPs around the work area within the Santa Ana River are anticipated to include a gravel bag or fiber roll perimeter barrier to contain spills and potential runoff, to be installed and maintained year-round. Additional Construction BMPs would be determined during preparation of the SWPPP. When Construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, as required in Measure WQ-1, pollutants of concern would be retained on site so they would not reach receiving waters; therefore, no adverse water quality impacts are anticipated during construction.

Groundwater dewatering may be required during construction of the bridge piles to ensure groundwater levels are below the pile cap elevation (Earth Mechanics, Inc. 2018). Release of dewatered groundwater to surface waters can introduce total dissolved solids and other constituents to surface waters. As specified in Measure WQ-2, if groundwater dewatering becomes necessary during construction, the proposed Project would be required to comply with the requirements of the De Minimis Permit. In compliance with this permit, groundwater would be tested and treated (as necessary) prior to release to surface waters to ensure that discharges do not exceed water quality limits specified in the permit. Therefore, no adverse water quality impacts are anticipated during groundwater dewatering activities.

4.5 Long-Term Impacts During Operation and Maintenance

No Build Alternative

Under the No Build Alternative, no improvements to Fairview Street between 9th Street and 16th Street would occur and the Fairview Street bridge over Santa Ana River would not be replaced. In addition, under the No Build Alternative, there would be no increase in impervious surface area. Therefore, the No Build Alternative would not result in an increase in stormwater runoff or long-term pollutant loading compared to existing conditions. Furthermore, Treatment BMPs would not be implemented, and stormwater would remain untreated.

Build Alternative

According to the *Draft Water Quality Management Plan (WQMP)* (Civil Works Engineers 2019b) prepared for the proposed Project, expected pollutants of concern during operation of the proposed Project include suspended solids/sediment, nutrients, heavy metals, pathogens (bacteria/viruses), pesticides, oil and grease, toxic organic compounds, and trash and debris. The pollutants of concern for the project are metals and oil and grease. The proposed Project would increase impervious area by approximately 8,500 square feet (approximately 0.2 acre), which would increase the volume of runoff during a storm and more effectively transport pollutants to receiving waters. In addition, an increase in impervious surface would increase the total amount of pollutants in the stormwater runoff, which would increase the amount of pollutants discharged to downstream receiving waters.

As specified in Measure WQ-3 (see Section 5.0), a final WQMP would be prepared for the proposed Project that would specify the LID, Source Control, Site Design BMPs, and/or Treatment Control BMPs to be incorporated into Project design to reduce the discharge of pollutants of concern to the maximum extent practicable. LID BMPs mimic a project site's existing hydrology by using design measures that capture, filter, store, evaporate, detain, and infiltrate runoff, rather than allowing runoff to flow directly to piped or impervious storm drains. Source Control BMPs are preventative measures that are implemented to prevent the introduction of pollutants into stormwater. Site Design BMPs are stormwater management strategies that emphasize conservation and use of existing site features to reduce the amount of runoff and pollutant loading generated from a project site. Treatment Control BMPs are structural BMPs designed to treat and reduce pollutants in stormwater runoff prior to release to receiving waters.

Currently, proposed BMPs include a vegetated swale adjacent to Fairview Street in the Fairview Triangle rest area. Additional treatment BMPs to treat runoff from the bridge deck may be incorporated into the bridge design at a later date during final design. According to the *Draft Water Quality Management Plan (WQMP)* (Civil Works Engineers 2019b), proposed non-structural Source Control BMPs include right-of-way landscape management, right-of-way litter control, right-of-way catch basin inspection, and street

sweeping. Structural source control BMPs include use of efficient irrigation systems and landscape design, water conservation, smart controllers, and source control. A Final Water Quality Management Plan would be prepared and the BMPs refined during final design. The BMPs would target and reduce constituents of concern from transportation facilities in compliance with the North Orange County MS4 Permit requirements. Therefore, when operational BMPs are implemented in accordance with NPDES Permit requirements as stipulated in Measure WQ-3, the proposed Project is not anticipated to result in long-term adverse impacts to water quality.

4.6 Cumulative Impacts

Cumulative development in the Lower Santa Ana River Watershed is a continuation of the existing urban pattern of development that has already resulted in extensive modifications to watercourses in the area. The area's watercourses have been channelized, and drainage systems have been put into place to respond to the past 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 discharging to the Lower Santa Ana Watershed. Because cumulative hydrology and water quality impacts are caused by build out of properties that increase impervious area and pollutant loads, cumulative development is considered to be the build out of the Lower Santa Ana River over an extended period of time, resulting in 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 requirements of the various NPDES permits. Specifically, all projects that disturb one acre or more of soil must comply with the CGP. Caltrans projects must comply with the Caltrans MS4 Permit. Local projects within the cities and the county must comply with the North Orange County MS4 Permit. Each project must consider impaired receiving waters and annual TMDL loads for receiving waters. The TMDL program is designed to identify all constituents that adversely affect the beneficial uses of waterbodies 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, a project's contribution to overall water quality improvement in the Lower Santa Ana Watershed in the context of the regulatory program is designed to account for cumulative impacts.

Regional programs and BMPs such as TMDL programs and the MS4 Permit Program have been designed under an assumption that the Lower Santa Ana River Watershed would continue its pattern of urbanization. The regional control measures contemplate the cumulative effects of proposed development. The proposed Project would be required to comply with the requirements of the CGP and the North Orange County MS4 Permit and implement construction and operational BMPs to reduce pollutants in stormwater runoff. Compliance with these regional programs and permits constitutes compliance with programs intended to address cumulative water quality impacts. Each cumulative project would be required to develop a SWPPP (for construction), a WQMP (for local projects) or Storm Water Data Report (for Caltrans projects), and would be evaluated individually to determine appropriate BMPs and treatment measures to avoid impacts to surface water quality. Because the proposed Project's disturbance area and increase in impervious area is minimal and includes BMPs to reduce pollutants of concern in runoff from the Project area during construction and operation, the proposed Project's contribution to cumulative water quality impacts is not anticipated to be substantial.

5.0 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following regulatory requirements would be implemented as project design features and would reduce or avoid impacts to water quality:

Measure WQ-1: Construction General Permit. Prior to commencement of construction activities, the City of Santa Ana shall obtain coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)* NPDES No. CAS000002, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ, or any other subsequent permit. This shall include submission of Permit Registration Documents (PRDs), including permit application fees, a Notice of Intent (NOI), and other compliance-related documents required by the permit, to the State Water Resources Control Board via the Storm Water Multiple Application and Report Tracking System (SMARTS). Construction activities shall not commence until a Waste Discharge Identification Number (WDID) is obtained for the project from SMARTS. Project construction shall comply with all applicable requirements specified in the Construction General Permit, including but not limited to, preparation of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of construction site best management practices (BMPs) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level identified for the project. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and shall include BMPs, such Sediment Control, Erosion Control, and Good Housekeeping BMPs, to control the pollutants in stormwater runoff. Construction Site BMPs shall also confirm to the requirements specified in the latest edition of the Orange County Stormwater Program *Construction Runoff Guidance Manual for Contractors, Project Owners, and Developers* to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. Upon completion of construction activities and stabilization of the site, a Notice of Termination (NOT) shall be submitted via SMARTS.

Measure WQ-2: Groundwater Dewatering Permit. If groundwater dewatering is required during construction, the City of Santa Ana shall obtain coverage under the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2009-0003, NPDES No. CAG998001), or any subsequent permit. This shall include submission of a Notice of Intent (NOI) for coverage under the permit to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 45 days prior to the start of dewatering. Groundwater dewatering activities shall comply all applicable provisions in the permit, including water sampling, analysis, treatment (if required), and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination (NOT) shall be submitted to the Santa Ana RWQCB.

Measure WQ-3: Water Quality Management Plan. During the final design phase, the City of Santa Ana shall insure that a Final Water Quality Management Plan (WQMP) be prepared for the project in compliance with the *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff Orange County* (North Orange County MS4 Permit), Order R8-2009-0030, NPDES No. CAS618030 (as amended by Order No. R8-2010-0062). The Final WQMP shall be prepared consistent with the requirements of the *Model Water Quality Management Plan (WQMP)* (2011) and *Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs)* (TGD; 2013), or subsequent guidance manuals. The Final WQMP

shall specify the BMPs to be incorporated into the project design to target pollutants of concern in runoff from the project area. The City of Santa Ana shall ensure that the BMPs specified in the Final WQMP are incorporated into the final project design.

6.0 REFERENCES

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Attachment A: Figures 1–3

ATTACHMENT A

FIGURES 1–3

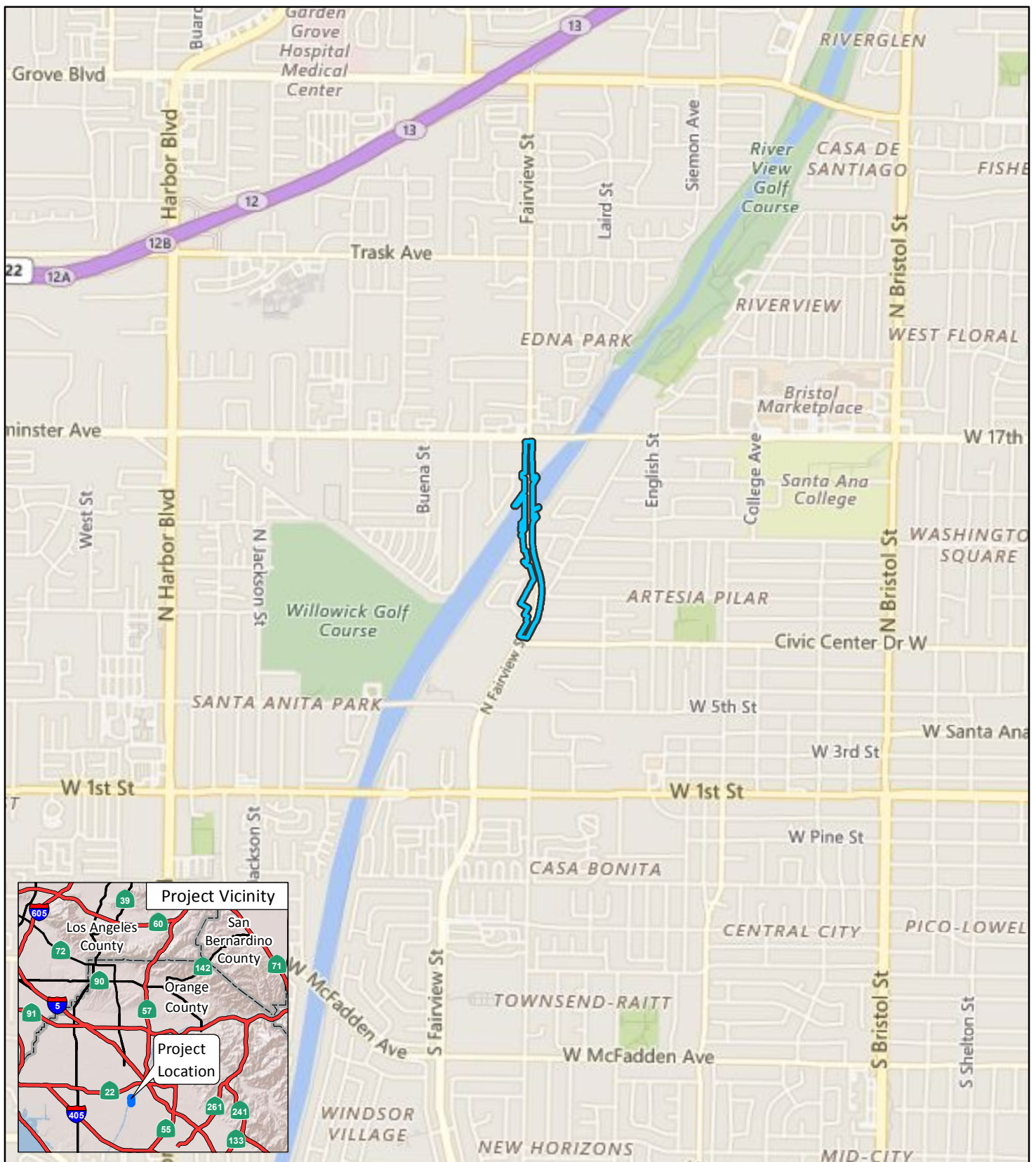
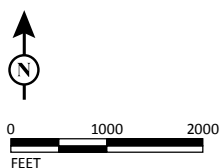


FIGURE 1

LEGEND

 Project Location



SOURCE: Bing (2015)

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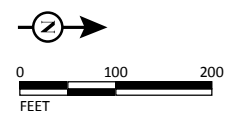
*Fairview Street Improvements
from 9th Street to 16th
Street and Bridge Replacement Project*
Project Location



FIGURE 2

LEGEND

- | | | |
|--------------------------------|-------------------------------|------------------------------|
| Project Area | Reconstruction of Access Road | Proposed Construction Access |
| Proposed Right of Way | Potential Detour in River | Potential Noise Barriers |
| Proposed Roadway Widening | Grading / Revegetation / BMPS | |
| Proposed Roadway Modifications | Construction Staging Area | |
| Proposed Bridge Piers | | |



SOURCE: WKE (3/2018); Google (2016)

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Fairview Street Improvements
from 9th Street to 16th
Street and Bridge Replacement Project
Proposed Project

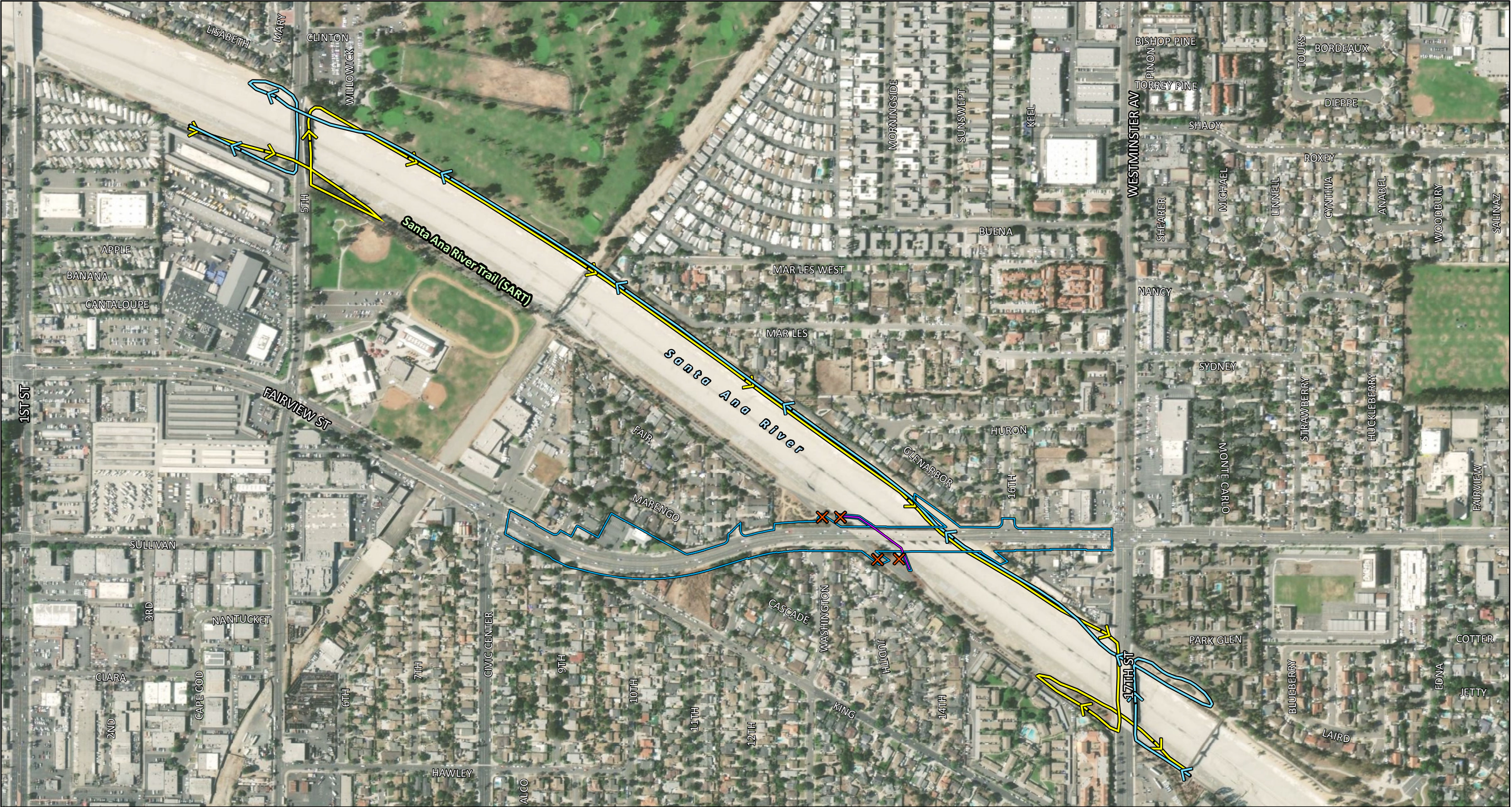
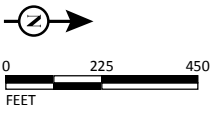


FIGURE 3A

- LEGEND
- Project Area
 - NB Trail Detour
 - SB Trail Detour
 - Potential Detour in River
 - Trail Closure



SOURCE: WKE (3/2018); Google (2016)
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*Fairview Street Improvements
from 9th Street to 16th
Street and Bridge Replacement Project
Detour for Eastern Trail Closure*

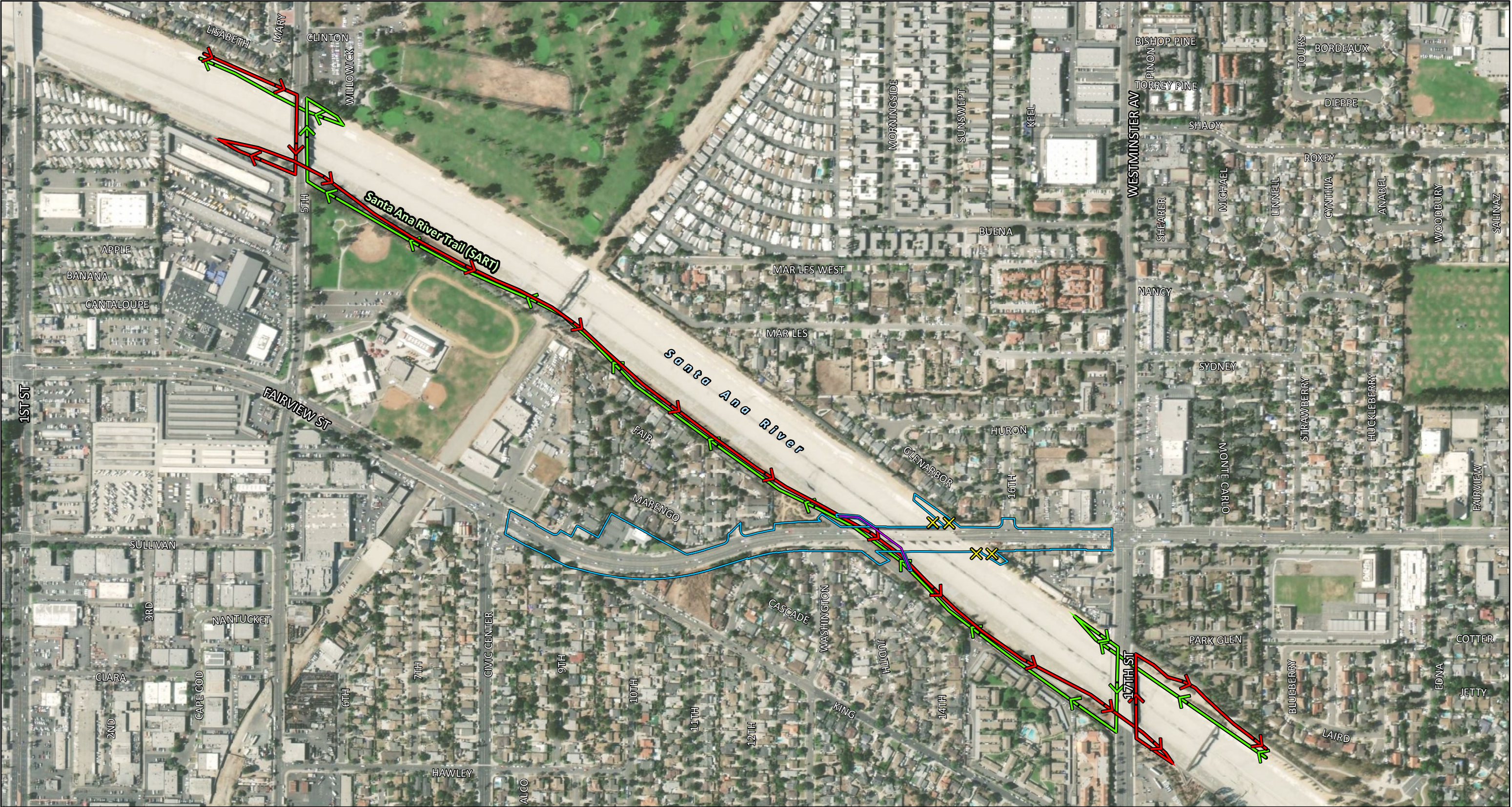
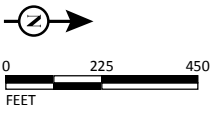


FIGURE 3B

- LEGEND
- Project Area
 - NB Detour
 - SB Detour
 - Potential Detour in River
 - Trail Closure



SOURCE: WKE (3/2018); Google (2016)
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*Fairview Street Improvements
from 9th Street to 16th
Street and Bridge Replacement Project
Detour for Western Trail Closure*