

Water Quality Assessment Report

State Route 99/120 Interchange Connector Project

*State Route 99/120 Interchange Connector Project
City of Manteca, San Joaquin County, California
Caltrans District 10, San Joaquin County, SR 99/120
10-SJ-99/120-(PM 3.1/6.2 PM R5.1/T7.2)
EA 10-1E740*

January 2018



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Federal Project No. BRLO-5942(210)

January 2018

STATE OF CALIFORNIA
Department of Transportation

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Executive Summary

This Water Quality Assessment Report (WQAR) evaluates potential effects the proposed State Route 99/120 Interchange Connector Project (project) may have on water quality in the project area. The project will add an additional lane to increase capacity on two connector ramps (eastbound SR-120 to southbound SR-99 and from northbound SR-99 to westbound SR-120), add auxiliary lanes on SR-99 and SR-120 to improve merging traffic movements, upgrade the existing interchange ramps at Austin Road, replace the Austin Road structure over SR-99 with a four-lane structure over both SR-99 and Union Pacific Railroad (UPRR), remove the existing at-grade crossing of the UPRR tracks at Austin Road and construct a new connector road from Austin Road to Woodward to Moffat Boulevard and widen the existing Woodward Avenue gated railroad crossing, relocate the SR-99 Frontage Road along the east side of SR-99 from Austin Road for approximately 0.8 miles and install new signing/signals/lighting improvements.

This report evaluates the proposed project, the physical setting of the project site, and the regulatory framework with respect to water quality. This report also provides data on surface water and groundwater resources within the project site and their water quality health describes water quality impairments, identifies potential water quality impacts associated with the proposed project, and recommends avoidance and or minimization measures for potentially adverse impacts.

The proposed project is located near the eastern-central border of the City of Manteca, on SR-99 between postmiles 3.1 and 6.2 and on SR-120 between postmiles R5.1 and T7.2 in the County of San Joaquin. Water features within the project site include several shallow basins and ditches, which total 0.7 acre. These water features lack connectivity to surface water resources outside of the project site and it is therefore assumed that stormwater generated within the project site remains within the project site until it percolates through the soil.

The proposed project would disturb 1 acre or more of land during construction and, therefore, the project proponent would be required to prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the Clean Water Act and associated federal regulations (Title 40 of the Code of Federal Regulations [CFR] 123.25(a)(9), 122.6 (b)(14)(x) and 122.26(b)(15) to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges.

A Notice of Termination (NOT) with the Regional Water Board must be filed when construction is complete and final stabilization has been reached or ownership has been transferred. The discharger must certify that all State and local requirements have been met in accordance with this General Permit. In order for construction to be found complete, the discharger must install post-construction storm water management measures and establish a long-term maintenance plan. This requirement is intended to ensure that the post-construction conditions at the project site do not cause or contribute to direct or indirect water quality impacts. Specifically, the discharger must demonstrate compliance with the post-construction standards set forth in the Construction General Permit (CGP) (Section XIII). The discharger is responsible for all compliance issues including all annual fees until the NOT has been filed and approved by the local Regional Board.

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CHAPTER 1 Introduction

The California Department of Transportation (Caltrans) District 10 with the cooperation of the City of Manteca and the San Joaquin Council of Governments (SJCOG) proposes to reconstruct the existing State Route (SR) 99/120 Interchange (project).

1.1 Project Description

The proposed project is located near the eastern-central border of the City of Manteca, on SR-99 between postmiles 3.1 and 6.2 and on SR-120 between postmiles R5.1 and T7.2 in the County of San Joaquin. Figures 1 and 2 show the location of the Study Area on a regional and local basis, respectively.

1.1.1 No Project Alternative

Through the Manteca area, State Route 120 is a four lane freeway with 12-foot-wide lanes, 10-foot-wide outside shoulders, 5-foot-wide inside shoulders, and a median 70 feet wide, while east of the SR-99/120 East interchange it continues as a four lane arterial road with a center turn lane, bicycle lanes, and sidewalks.

The interchange where SR-120 meets SR-99 includes a route break as SR-120 joins SR-99 as it jogs north approximately one mile and continues along to the east of Manteca on East Yosemite Ave. Therefore, the SR-99/120 West interchange is separated from the SR-99/120 East interchange by about a mile.

The existing SR-99/120 West interchange facility also includes the SR-99/Austin Road interchange. Austin Road runs north/south to the east of Manteca. The SR-99/120 interchange is a trumpet interchange, while the SR-99/Austin Ave interchange is a partial/modified diamond interchange. These two interchanges are separated by approximately one thousand feet. Current land uses surrounding the existing interchange include commercial, industrial, residential, and agricultural activity.

Under the No Project Alternative, the existing SR 99/120 Interchange would remain in as it currently exists.

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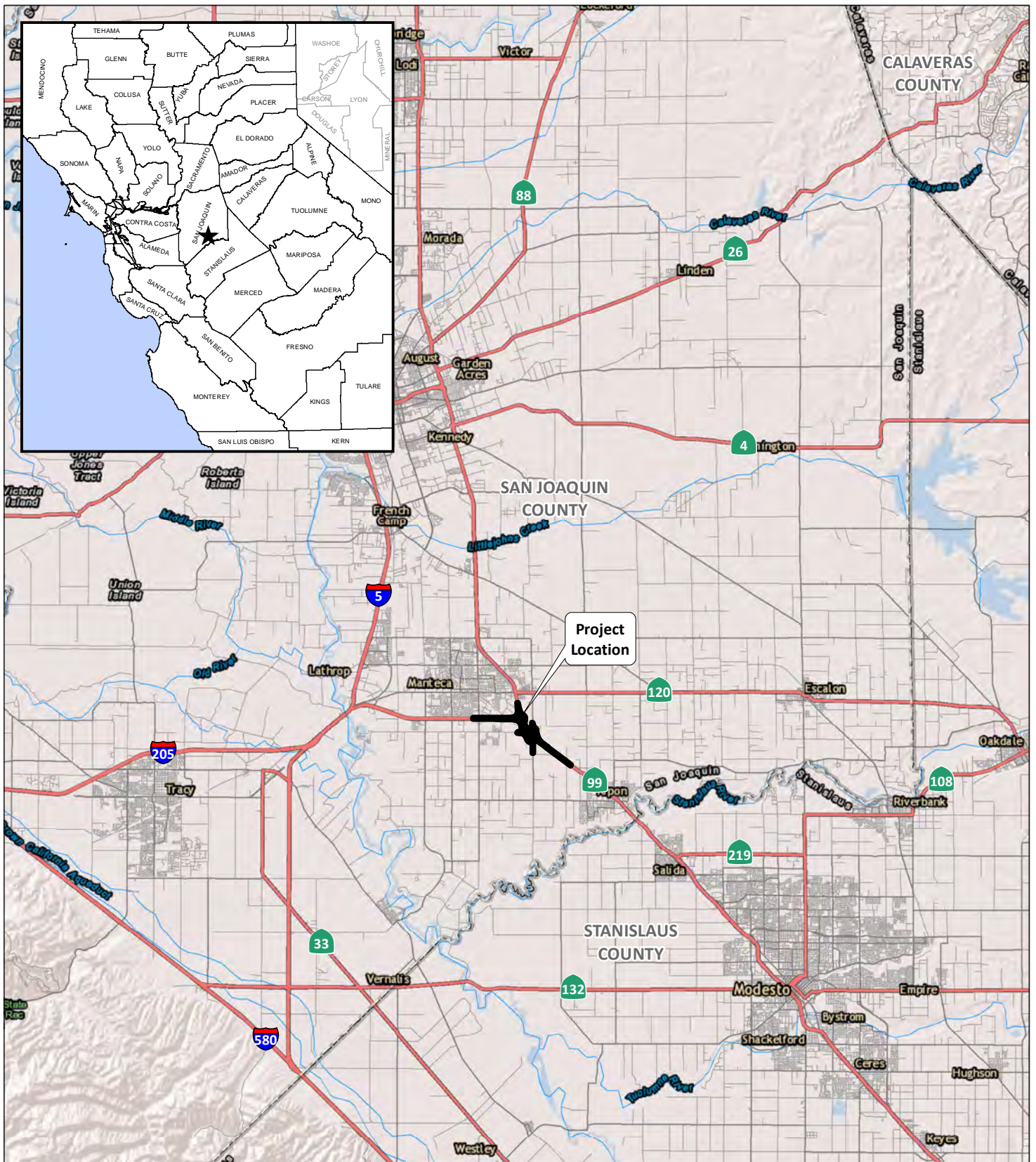
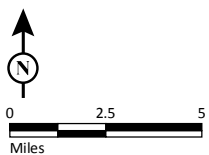


FIGURE 1



LEGEND

 Project Location



SOURCE: ESRI Imagery (2017)

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State Route 99/120 Interchange Connector
in Manteca, San Joaquin County, California
Caltrans District 10, P.M. 3.1/6.2
EA 10-1E740
Regional Location

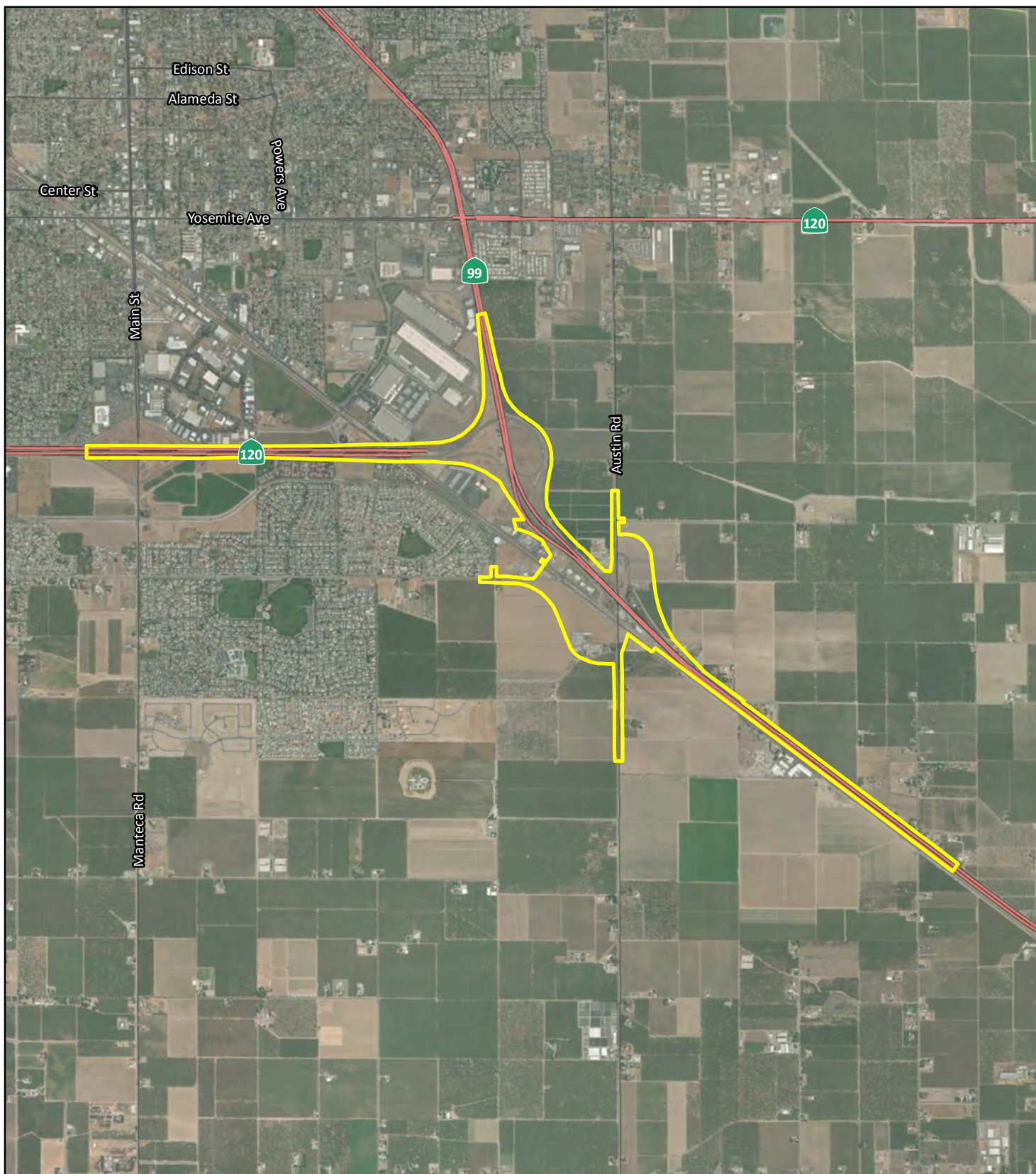
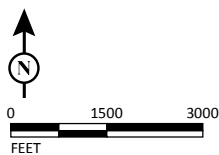


FIGURE 2



LEGEND

Project Boundary



SOURCE: NAIP (06/2016)

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State Route 99/120 Interchange Connector
in Manteca, San Joaquin County, California
Caltrans District 10, P.M. 3.1/6.2
EA 10-1E740
Project Vicinity Map

1.1.2 Proposed Project

The project will add an additional lane to increase capacity on two connector ramps (eastbound SR-120 to southbound SR-99 and from northbound SR-99 to westbound SR-120), add auxiliary lanes on SR-99 and SR-120 to improve merging traffic movements, upgrade the existing interchange ramps at Austin Road, replace the Austin Road structure over SR-99 with a four-lane structure over both SR-99 and Union Pacific Railroad (UPRR), remove the existing at-grade crossing of the UPRR tracks at Austin Road and construct a new connector road from Austin Road to Woodward to Moffat Boulevard and widen the existing Woodward Avenue gated railroad crossing, relocate the SR-99 Frontage Road along the east side of SR-99 from Austin Road for approximately 0.8 miles and install new signing/signals/lighting improvements. The project will also include the relocation of some existing utility poles, sewer, and water lines.

This project will provide traffic congestion relief and improved operations of the interchange. Foundations will be driven piles, either steel or concrete. Excavation for structure footings will be up to 5 feet deep. Excavation for new drainage culverts would be up to 6 feet deep. Other roadway excavation will be up to 2 feet deep. No dewatering is expected as part of the project. The project will be importing fill, no export.

1.1.2.1 PROJECT DESIGN ELEMENTS

The proposed project includes the following elements:

- Widen the eastbound SR-120 to southbound SR-99 connector ramp from one-lane to two-lanes;
- Widen the northbound SR-99 to westbound SR-120 connector ramp from one-lane to two-lanes;
- Construct a new structure over SR-99 to serve eastbound SR-120 to southbound SR-99 traffic and modify the existing structure over SR-99 to serve westbound SR-120 traffic;
- Add an auxiliary lane in the median in each direction of SR-120 from Main Street to SR-99;
- Add an auxiliary lane in each direction on SR-99 from SR-120 to approximately one mile south. This includes widening of the Moffat Overhead and Spreckles Underpass structures;

- Remove the Austin Road overcrossing and replace with a longer and wider structure spanning SR-99 and UPRR (removal consists of removing the structure and the fill located between SR-99 and Moffat Boulevard);
- Convert the Austin Road on-ramp to northbound SR-99 and to westbound SR-120 to a loop ramp that will provide separate traffic movements to SR-99 and SR-120;
- Replace the southbound exit ramp from SR-99 to Austin Road with a grade separated (braided) ramp to eliminate the weaving with SR-120 merging traffic;
- Add a new connector road from Austin Road to Woodward Avenue to Moffat Boulevard and widen the existing UPRR Woodward Avenue gated crossing; and
- Relocate the northbound SR-99 exit ramp to Austin Road to accommodate the loop on ramp and relocate the adjacent SR-99 Frontage Road for approximately 0.8 miles.

The Project would be constructed in three phases.

The Phase 1A project would be as follows:

- Widen the eastbound SR 120 to southbound SR 99 connector ramp from one-lane to two-lanes;
- Remove the Austin Road overcrossing and replace with a longer structure spanning SR 99 and UPRR;
- Add a new connecting road from Austin Road to East Woodward Avenue and Moffat Boulevard and modify the existing UPRR gated crossing at East Woodward Avenue to conform to the new connector road;
- Modify the existing northbound Austin Road exit ramp to conform to the higher overcrossing profile grade; and
- Temporarily close the Austin Road northbound entrance and southbound exit ramps on SR 99.

The Phase 1B project would be constructed concurrently or subsequent to the Phase 1A project:

- Widen the northbound SR 99 to westbound SR 120 connector ramp from one-lane to two-lanes;

- Convert the existing 99/120 separation structure to two lanes and construct a new separation structure to serve the eastbound 120 to northbound 99 connector ramp; and
- Add an auxiliary lane in the existing median of eastbound SR 120 from Main Street to SR 99.

Phase 1C would complete the project as planned by:

- Restore the southbound exit ramp from SR 99 to Austin Road by constructing a grade separated braided ramp to eliminate the weaving with SR 120 merging traffic;
- Construct the entrance ramp from Austin Road to northbound SR 99 and to westbound SR 120 as a loop ramp that will provide separate traffic movements to SR 99 and SR 120;
- Relocate the northbound SR 99 exit ramp to Austin Road to accommodate the loop on ramp
- Relocate the SR 99 frontage road for approximately 0.8 miles.
- Add an auxiliary lane in each direction on SR 99 from SR 120 to approximately 1.7 mile south of the Austin Road overhead by shifting the median away from the UPRR ROW and relocating the frontage road; and
- Add an auxiliary lane in the existing median of eastbound SR 120 from Main Street to SR 99 to provide a dedicated lane to connect to the new 99/120 separation structure.

1.2 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollution Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the physical setting of the project area, and the regulatory framework with respect to water quality; it also provides data on surface water and groundwater resources within the project area and the water quality of these waters, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the

proposed project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

CHAPTER 2 Regulatory Setting

Water resource protection in San Joaquin County is governed by a complex network of federal, state regulations, enforced by the State and under the supervision of the U.S. Environmental Protection Agency (USEPA). Both federal and State laws have been created to protect surface water and groundwater quality for use as domestic, agricultural, and industrial supply, for recreation, and for freshwater fish and aquatic invertebrate habitat. Water quality protection regulations relevant to this Project are summarized below, including local protective guidance from the City of Manteca and San Joaquin County.

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

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

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

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

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

There are also two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and 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

2.2.1 Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that

may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined and this definition is broader than the CWA definition of “pollutant”. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

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

2.2.2 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. RWCQB are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

2.2.2.1 NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM

- **Municipal Separate Storm Sewer Systems (MS4)**

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water dischargers, including MS4s. The U.S. EPA defines an MS4 as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 pursuant to federal regulations. The Department’s MS4 permit 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, currently under revision, 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 storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs.

The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

- **Construction General Permit**

Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014-DWG), adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

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

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

- **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 City of Manteca General Plan

The City of Manteca General Plan 2023 is a comprehensive, long-term policy framework that includes guidance for addressing water quality impacts to both ground and surface water. The following relevant policies and implementation measures would apply to the SR-99/120 Interchange Connector Project:

- **Policy RC-P-10:** Minimize soil erosion and loss of topsoil from land development activities, wind, and water flow.
 - **Implementation RC-I-18:** Require site-specific land management and development practices for proposed development projects, including appropriate mitigation measures for avoiding or reducing erosion.
- **Policy RC-P-11:** Minimize sedimentation and loss of topsoil from soil erosion.
- **Policy RC-P-12:** Minimize pollution of waterways and other surface water bodies from urban runoff.
- **Policy RC-P-13:** Protect the quality of Manteca's groundwater.
 - **Implementation RC-I-21:** The City shall regularly monitor water quality in City wells for evidence of toxics, saltwater intrusion, and other contaminants.
 - **Implementation RC-I-23:** Utilize cost-effective urban runoff controls, including BMPs, to limit urban pollutants from entering the water courses.
 - **Implementation RC-I-24:** Comply with the RWQCB regulations and standards to maintain and improve groundwater quality in Manteca.

2.3.2 San Joaquin County General Plan

The San Joaquin County General Plan 2035 is a comprehensive, long-term policy framework that includes guidance for addressing water quality impacts to both ground and surface water. The following relevant policy would apply to the SR-99/120 Interchange Connector Project:

- **NCR-3.5 Low Impact Development:** The County shall require new development to minimize or eliminate stormwater quality and hydro-modification impacts through site design, source controls, runoff reduction measures, BMPs, and Low Impact Development.

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CHAPTER 3 Affected Environment

3.1 Introduction

The quality of water in an area depends upon several factors, including population and land use, topography, geology and soils, surface and groundwater hydrology, and climate. Following is a brief description of these general characteristics in the project area and surroundings.

3.2 General Setting

3.2.1 Population and Land Use

Most of the project site is located within the City of Manteca, but the eastern portion of the project site along SR-99 is located within San Joaquin County. The City of Manteca adopted the General Plan in 2003. The City is currently in the process of updating its General Plan; however, as it has not yet been adopted, the 2003 General Plan is the guiding document for the City and is applicable to the Project. The City's General Plan provides a land use blueprint for long-term growth with a planning horizon of 20 years. Land uses in the project vicinity under the jurisdiction of the City primarily consist of General Commercial (GE), Light Industrial (LI), Heavy Industrial (HI), Commercial Mixed Use (CMU), Public/Quasi-Public (PGP), and High Density Residential (HDR). San Joaquin County adopted the General Plan in 2016. The County's General Plan provides a land use blueprint for long-term growth with a planning horizon of 20 years. Land uses in the project vicinity under the jurisdiction of the County primarily consist of Urban Reserve Agriculture (A/UR) and General Agriculture (A/G).

3.2.2 Topography

Topography within the project area is generally flat, with little to no change in elevation. The project area lies on elevations from 36 feet to 78 feet above mean sea level.

3.2.3 Hydrology

This section addresses the existing surface and groundwater hydrology, drainage, water quality, and potential flooding conditions that characterize the project site and surrounding area.

3.2.3.1 REGIONAL HYDROLOGY

San Joaquin County lies within the Central Valley Region (Region 5) of the SWRCB. The Central Valley relies heavily on groundwater, but uses surface water when it is available. The Central Valley Region can be further divided into basin areas, and the project area falls within the San Joaquin River Basin. The San Joaquin River Basin covers 15,880 square miles and includes the entire area drained by the San Joaquin River. It includes all watersheds tributary to the San Joaquin River and the Delta south of the Sacramento River and south of the American River watershed (Central Valley Regional Water Quality Control Board 2016).

3.2.3.2 LOCAL HYDROLOGY

The San Joaquin River runs approximately 4.2 miles west of the project site and is the primary receiving water in the area. Several shallow basins and ditches are present within the project site, which total 0.7 acre and are the only hydrologic features within the project site. Water features within the project site are limited and lack connectivity to surface water resources outside of the project site. Therefore, it is assumed that stormwater generated within the project site remains within the project site until it percolates through the soil to groundwater below.

Precipitation and Climate

San Joaquin County is subject to a Mediterranean climate that is characterized by warm, dry summers and cool winters. Most of the County's precipitation occurs between October and April while the summer months are typically absent of any precipitation (San Joaquin County 2014).

Average January temperatures in the City of Manteca are a maximum of 54°F and a minimum of 38°F. Average July temperatures are a maximum of 94°F and a minimum of 61°F. The record high temperature of 115°F was on July 23, 2006. The record low temperature of 16°F occurred on January 11, 1949 (The Weather Company 2017).

According to the Western Regional Climate Center (WRCC), the average annual rainfall for Manteca is 10.41 inches (WRCC n.d.). Snow is very rare in the project area.

Surface Water

The project area is in the Middle San Joaquin-Lower Merced-Lower Stanislaus watershed. The San Joaquin, Merced, and Stanislaus rivers are the principal rivers

within the watershed. The San Joaquin River is located approximately 4.2 miles west of the westernmost portion of the project area. Hydrologic features within the project site include approximately 0.7 acre of shallow basins and ditches. No other hydrologic features are present, and these shallow basins and ditches lack connectivity to the San Joaquin River.

Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), flood panels 06077C0640F and 06077C0645F indicate that the project site is located within Zone X, unshaded, which includes areas determined to be outside the 0.2% annual chance floodplain (FEMA 2009).

Municipal Supply

A majority of the project site is located within the City of Manteca. Water service within the City of Manteca is provided by the City of Manteca Public Works Department. The remaining portion of the project site and much of the surrounding agricultural land is located within the unincorporated area of San Joaquin County. Unincorporated areas within the County are served by other special districts and local agencies that are supplied by groundwater wells (San Joaquin County 2014).

3.2.3.3 GROUNDWATER HYDROLOGY

The project area is located within the Eastern San Joaquin Subbasin of the San Joaquin Valley Groundwater Basin. The Eastern San Joaquin Subbasin is bounded on the south, southwest, and west by the Modesto, Delta-Mendota, and Tracy Subbasins, respectively and on the northwest and north by the Solano, South American, and Cosumnes Subbasins (DWR 2006). The Eastern San Joaquin Subbasin is drained by the San Joaquin River and its major tributaries, including the Stanislaus, Calaveras, and Mokelumne Rivers (DWR 2006).

The majority of the groundwater in the basin is characterized by calcium-magnesium bicarbonate or calcium-sodium bicarbonate types (Sorenson 1981). Large areas of chloride type water occur along the western margin of the subbasin along the San Joaquin River (DWR 2006).

3.2.4 Geology and Soils

San Joaquin County is located within the Great Valley geomorphic province, which is characterized by a long alluvial plain that extends approximately 400 miles through central California (San Joaquin County 2014). San Joaquin County is located within

the San Joaquin Valley portion of the province. To the east of the San Joaquin River, geologic formations are composed of the Basement Complex, Ione Formation, Valley Springs Formation, Mehrten Formation, Tulare Formation, and recent alluvium (San Joaquin County 2014). The project site is located in an area of the Great Valley geomorphic province that is underlain by quaternary alluvium and marine deposits.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey database (2017), the project site contains seven different types of soil, including: Delhi loamy sand, 0 to 2 percent slopes, MLRA 17 (142); Delhi-Urban land complex, 0 to 2 percent slopes (143); Timor loamy sand, 0 to 2 percent slopes (254); Tinnin loamy coarse sand, 0 to 2 percent slopes (255); Veritas sandy loam, partially drained, 0 to 2 percent slopes (265); and Veritas fine sandy loam, 0 to 2 percent slopes (266).

The primary soil within the project site is Tinnin loamy coarse sand, which encompasses approximately 61 percent of the project site. According to the NRCS Web Soil Survey (NRCS 2017), Tinnin loamy coarse sand, 0 to 2 percent slopes soils are located on alluvial fans and were formed from alluvium derived from granitic rock sources. These soils are well drained and runoff is negligible.

- Delhi loamy sand, 0 to 2 percent slopes, MRLA 17 are located on alluvial fans, dunes, flood plains, and sand sheets and were formed from alluvium derived from granite. These soils are somewhat excessively drained and runoff is negligible.
- Delhi-Urban land complex, 0 to 2 percent slopes are located on dunes and were formed from wind-modified alluvium derived from granitic rock sources. These soils are somewhat excessively drained and runoff is negligible.
- Tinnin loamy sand, 0 to 2 percent slopes are located on fan skirts and were formed from alluvium derived from granitic rock sources. These soils are moderately well drained and runoff is negligible.
- Veritas sandy loam, partially drained, 0 to 2 percent slopes are located on fan skirts and were formed from alluvium derived from mixed rock sources. These soils are somewhat poorly drained and runoff is very low.
- Veritas fine sandy loam, 0 to 2 percent slopes are located on fan skirts and were formed from alluvium derived from mixed rock sources. These soils are moderately well drained and runoff is very low.

3.2.4.1 SOIL EROSION POTENTIAL

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. 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 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 (NRCS 2017). As shown in Table 1, the soils found within the project site range from 0.15 to 0.32, which indicates that soils within the project site are characterized by low to moderate erodibility.

Table 1: Erosion Factor for Soils within the Project Site

Soil Type	K Factor
Delhi loamy sand, 0 to 2 percent slopes, MRLA 17	.28
Delhi-Urban land complex, 0 to 2 percent slopes	.28
Tinnin loamy coarse sand, 0 to 2 percent slopes	.15
Veritas sandy loam, partially drained, 0 to 2 percent slopes	.24
Veritas fine sandy loam, 0 to 2 percent slopes	.32

Source: NRCS 2017

3.2.5 Biological Communities

3.2.5.1 AQUATIC HABITAT

A delineation of waters of the U.S. potentially subject to regulation by the Army Corps of Engineers (ACOE) was conducted on November 21st and 22nd, 2017, by LSA biologist Anna Van Zuuk.

All potential waters of the U.S. in the review area were delineated in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and the 2008 Regional Supplement – Arid West Region. A total of four formal observation points were described in the field. At each point, a pit was dug and soils and hydrology examined; vegetation was also characterized at each data point. A total of 0.712 acre of potential jurisdictional waters occur in the review area. There are no areas potentially meeting ACOE criteria for wetlands in the review area. Potential non-wetland waters in the review area, totaling 0.712 acre, include shallow basins and ditches which exhibit an ordinary high water mark and were determined not to be wetlands.

Special Status Species

Biological resource surveys were conducted as part of the Natural Environment Study throughout the entire Biological Study Area (BSA) on November 21 and 22, 2017. Based on these field surveys and the habitats mapped in the BSA, LSA determined that nine special-status species have the potential to occur within the project site. These nine special-status species are limited to bird species and include the following: pallid bat (*Antrozous pallidus*), Cooper's hawk (*Accipiter cooperii*), burrowing owl (*Athene cunicularia*), Aleutian cackling goose (*Branta hutchinsii leucopareia*), Swainson's hawk (*Buteo swainsonii*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), and loggerhead shrike (*Lanius ludovicianus*). Cooper's hawk, merlin, and California horned lark were observed within the BSA during the field survey.

Stream/Riparian Habitats

No stream or riparian habitats are located within the project site.

Wetlands

No wetlands are located within the project site.

3.3 Water Quality Objectives/Standards and Beneficial Uses

3.3.3 Surface Water Quality Objectives/Standards and Beneficial Uses

Surface water quality objectives for all inland waters within the Central Valley Region, as documented in the Water Quality Control Plan (Basin Plan), are listed in Table 2.

Given the lack of substantial water features within the project site, the well-drained nature of the soils within the project site, and the distance between the project site and the San Joaquin River, it is not anticipated that the proposed project would affect surface waters in the project vicinity.

Table 2: Water Quality Objectives for all Inland Surface Waters

Constituent	Concentration
Bacteria	Shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
Biostimulatory Substances	Shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
Chemical Constituents	Shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations.
Cryptosporidium and Giardia	Shall not contain <i>Cryptosporidium</i> and <i>Giardia</i> in concentrations that adversely affect the public water system component of the MUN beneficial use.
Color	Shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
Dissolved Oxygen	For surface water bodies outside the legal boundaries of the Delta, the dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time: Waters designated WARM 5.0 mg/l Waters designated COLD 7.0 mg/l Waters designated SPWN 7.0 mg/l
Floating Material	Shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.
Mercury	Shall be maintained free of mercury from anthropogenic sources such that beneficial uses are not adversely affected.
Methylmercury	Average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length.
Oil and Grease	Shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
pH	Shall not be depressed below 6.5 nor raised above 8.5.
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer. Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or MUN shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15. Waters designated for use as domestic or MUN shall not contain concentrations of thiobencarb (an herbicide) in excess of 1.0 µg/l.
Radioactivity	Shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.
Sediment	Shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Settleable Material	Shall not contain substances in concentrations that result in the deposition of

Table 2: Water Quality Objectives for all Inland Surface Waters

Constituent	Concentration
	material that causes nuisance or adversely affects beneficial uses.
Suspended Material	Shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Tastes and Odors	Shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
Temperature	Temperatures of COLD or WARM intrastate waters shall not be increased more than 5°F above natural receiving water temperature.
Toxicity	Shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Turbidity	Shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Source: CVRWQCB 2016.
 µg/L = micrograms per liter
 mg/L = milligrams per liter
 mL = milliliter
 pH = percentage of hydrogen
 kg = kilogram
 mm = millimeter

3.3.4 Groundwater Quality Objectives/Standards and Beneficial Uses

The groundwater quality objectives for the Central Valley Region as designated in the Basin Plan are provided in Table 3.

Table 3: Water Quality Objectives for Ground Waters

Constituent	Concentration
Bacteria	In ground waters used for domestic or MUN supply the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 mL.
Chemical Constituents	Shall not contain chemical constituents in concentrations that adversely affect beneficial uses.
Radioactivity	Ground waters designated for use as domestic or MUN shall not contain concentrations of radionuclides in excess of the MCLs specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.
Tastes and Odors	Shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
Toxicity	Shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s).

Source: CVRWQCB 2016.
 mL = milliliter
 MUN = municipal supply
 MCLs = maximum contaminant levels

3.4 Existing Water Quality

3.4.3 Regional Water Quality

Within the San Joaquin River Basin, significant portions of major rivers and the Delta are impaired, to some degree, by discharges from agriculture, mines, urban areas and industries. Upstream, small streams and tributaries to the Rivers are impaired or threatened because of discharges from mines, silviculture activities, and urban development activities. Control approaches may differ depending on the source of the problem (CVRWQCB 2016).

3.4.4 List of Impaired Waters

The portion of the San Joaquin River nearest to the project area is currently on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments and, therefore, does not currently meet state water quality standards. Chlorpyrifos, Electrical Conductivity, Dichlorodiphenyltrichloroethane (DDT), diazinon, Group A Pesticides, Invasive Species, Mercury, and Unknown Toxicity are known pollutants exceeding current standards for the river (SWRCB 2017).

3.4.5 Areas of Special Biological Significance (ASBS)

According to the Caltrans Water Quality Planning Tool, there are no Areas of Special Biological Significance in the vicinity of the project area (Caltrans 2012).

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CHAPTER 4 Environmental Consequences

4.1 Introduction

As the SR-99/120 Interchange is an existing interchange, much of the existing stormwater drainage system will be utilized for the project. However, new drainage ditches and culverts will be installed throughout the project site to collect stormwater generated by the increase in impervious surfaces. Vegetated bioswales would be developed in low-lying areas to filter stormwater before it reaches the groundwater.

4.2 Potential Impacts to Water Quality

Potential water quality effects from project-related construction activities can be minimized and reduced through implementation of Best Management Practices (BMPs) and compliance with existing regulatory requirements. Based on this analysis and the implementation of mitigation measures and BMPs specified below, the project would not substantially impact water quality within the project vicinity.

4.2.1 Short-Term (Temporary) Water Quality Impacts

Development of the proposed project would include improvements to and expansion of the SR-99/120 Interchange Connector. The project will add an additional lane to increase capacity on two connector ramps (eastbound SR-120 to southbound SR-99 and from northbound SR-99 to westbound SR-120), add auxiliary lanes on SR-99 and 120 to improve merging traffic movements, upgrade the existing interchange ramps at Austin Road, replace the Austin Road structure over SR-99 with a four-lane structure over both SR-99 and Union Pacific Railroad (UPRR), remove the existing at-grade crossing of the UPRR tracks at Austin Road and construct a new connector road from Austin Road to Woodward to Moffat Boulevard and widen the existing Woodward Avenue gated railroad crossing, relocate the SR-99 Frontage Road along the east side of SR-99 from Austin Road for approximately 0.8 miles and install new signing/signals/lighting improvements.

As discussed above, the project site does not include any water features with connectivity to surface water resources in the project vicinity, including the San Joaquin River. Soils within the project site are well drained and stormwater runoff from construction is likely to sheet flow to low-lying areas where it percolates toward the groundwater. Stormwater runoff (during construction activities) from the proposed project may transport pollutants to groundwater if BMPs are not properly

implemented. Generally, as the Disturbed Soil Areas increase, the potential for temporary water quality impacts also increases. Implementation of Mitigation Measures WQ-1 through WQ-4 would reduce short-term water quality impacts associated with construction of the project. Short-term impacts would not be substantial.

4.2.2 Long-Term (Permanent) Water Quality Impacts

Long-term water quality impacts are usually due to changes in stormwater drainage. The proposed project would increase the total amount of impervious surface at the SR-99/120 Interchange Connector. Stormwater from the existing roadway sheet flows off the impervious surfaces to roadside ditches and culverts along the roadway alignment. Stormwater that does not percolate just off the roadway is transported to low-lying areas within the medians where it percolates toward the groundwater. The proposed project would install stormwater drainage facilities to accommodate the increase in impervious surfaces, which may include drainage ditches and vegetated bioswales. These facilities would be designed and constructed to accommodate the increase in stormwater runoff associated with the project. It is anticipated that stormwater under project operation would flow similar to existing conditions, sheet-flowing from the roadways to ditches, where it is transported to low-lying areas where bioswales will be installed to filter water before it percolates through to the groundwater. Stormwater is not anticipated to reach any nearby surface waters. Implementation of Mitigation Measures WQ-2 and WQ-4 would include the use of Design Pollution Prevention and Treatment Control BMPs and sedimentation control measures to reduce stormwater drainage and water quality issues during operation of the proposed project.

With implementation of these mitigation measures, long-term water quality impacts associated with the proposed project would not be substantial.

4.3 Impacts of the No Project Alternative

Under the No Project Alternative, stormwater would continue to be collected and treated as under existing conditions. No substantial impacts to water quality are anticipated under the No Project Alternative.

4.4 Cumulative Impacts

Cumulative development in the project area could potentially impact water quality during both construction and operation. Similar to the proposed project, other

developments in the project area would be anticipated to implement BMPs to control stormwater during construction, reducing the potential for water quality impacts. It is also anticipated that cumulative projects would include stormwater improvements designed and constructed to accommodate the accompanying increase in impervious surfaces. With implementation of BMPs and water quality control measures for each individual project, substantial cumulative water quality impacts are not anticipated.

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CHAPTER 5 Avoidance and Minimization Measures

- WQ-1 Preparation and implementation of construction site temporary BMPs would comply with the provisions of the Caltrans Statewide National Pollutant Discharge Elimination System Permit and any subsequent permit as they relate to construction activities for the proposed project. These BMPs would include submission of a Notice of Intention to the Central Valley RWQCB at least 30 days before the start of construction and submission of a Notice of Termination to the RWQCB upon completion of construction and stabilization of the project site. The temporary BMPs would be installed prior to any construction operations and would be in place for the duration of the contract. The removal of these BMPs would be the final operation, along with the project site cleanup.
- WQ-2 Follow Design Pollution Prevention and Treatment Control BMPs for the proposed project in accordance with the procedures outlined in the Stormwater Quality Handbooks, Project Planning and Design Guide. Compliance with Design Pollution Prevention and Treatment Control BMPs would include coordination with the RWQCB with respect to feasibility, maintenance, and monitoring of Treatment Control BMPs as set forth in Caltrans' Statewide Stormwater Management Plan. A Water Pollution Control Program will need to be prepared by a Qualified Stormwater Pollution Prevention Plan Practitioner.
- WQ-3 The Contractor will be required to comply to the provisions specified in Section 13, "Water Pollution Control," and Section 14-11, "Hazardous Waste and Contamination," of the California State Standard Specifications, regarding spill prevention and control measures. All workers would be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- WQ-4 To control sedimentation during and after project implementation, the City of Manteca and SJCOG would implement BMPs outlined in any authorizations or permits, issued under the authorities of the CWA that it receives for the project. If best management practices are ineffective,

Caltrans would remedy the situation immediately, in consultation with the regulatory and resource agencies.

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