3.2 Physical Environment

3.2.1 Water Quality and Storm Water Runoff

Regulatory Setting

Federal 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 from any point source[1] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act 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. The following are important Clean Water Act sections:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires the 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 would comply with other provisions of the act. This is 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 United States. This permit program is administered by the U.S. Army Corps of Engineers.

The goal of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Standard permits. There are two types of General permits: 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 allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers’ Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S. Environmental Protection Agency’s Section 404 (b)(1) Guidelines (EPA Code of Federal Regulations 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the EPA in conjunction with the U.S. Army Corps of Engineers, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there

[1] A point source is any discrete conveyance such as a pipe or a human-made ditch.

is no practicable alternative which would have less adverse effects. The guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences.

According to the guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The guidelines also restrict permitting activities that violate water quality or toxic effluent[2] 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 U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 Code of Federal Regulations 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)

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 Clean Water Act 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 Clean Water Act 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 Clean Water Act.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act, 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 Regional Water Quality Control Board 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 State Water Resources Control Board identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with Clean Water Act 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-point source controls (NPDES permits or WDRs), the Clean Water Act 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.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water

[2] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the Clean Water Act requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). The 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 State Water Resources Control Board has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. The State Water Resources Control Board or the Regional Water Quality Control Board issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below).
2. Caltrans must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges.
3. Caltrans 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 State Water Resources Control Board determines to be necessary to meet the water quality standards.

Rapid Assessment of Channel Stability at Highway Crossing

Caltrans' Statewide MS4 Permit states that Caltrans "..shall ensure that all new development and redevelopment projects do not cause a decrease in lateral (bank) and vertical (channel bed) stability in receiving streams channels." Projects that create over 1 acre of Net New Impervious Area must deploy a threshold based analysis determining what measures are to be taken to prevent decrease in channel stability. This project is not required to perform a Rapid Assessment of Channel Stability because this project's Project Initiation Document was finalized before July 1, 2013.

To comply with the permit, Caltrans 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 Statewide Storm Water Management Plan assigns responsibilities within Caltrans 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 plan describes the minimum procedures and practices Caltrans 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 Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the latest Statewide Storm Water Management Plan to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. 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 Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, and 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 before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan is necessary for projects with Disturbed Soil Area of less than one acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, 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 would be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Boards, dependent on the project location, and are required before U.S. Army Corps of Engineers issues a 404 permit.

In some cases the Regional Water Quality Control Board may have specific concerns with discharges associated with a project. As a result, the Regional Water Quality Control Board 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.

Affected Environment

A Water Quality Assessment for the North County Corridor New SR-108 Project was completed in May 2015.

The project area is located in the lower San Joaquin Central Valley, which has elevation ranges fluctuating from near sea level to the peaks of nearby foothills at approximately 4,000 feet above mean sea level (amsl). The site topography is relatively flat throughout the western portion of the project and rises gently to the east toward the Sierra Nevada foothills. Ground elevation at the west end of the project near Tully Road is about 95 feet with low relief to Terminal Avenue (BNSF railroad crossing), which is at about elevation 130 feet. East of Terminal Avenue the topography becomes gently rolling and rises to about elevation 190 feet at Oakdale-Waterford Highway, with increasing relief to about elevation 250 feet near the east end of the project.

The area has an inland-Mediterranean-type climate, which is characterized by wet, moderate winters, and hot, dry summers. Annual precipitation ranges from 0.34 inch to 0.89 inch and occurs mainly between November and April. Average annual temperature is 61.7 degrees Fahrenheit. No sole source aquifers are at or near the project area.

The project lies in the Modesto subbasin, a subbasin of the San Joaquin Valley Groundwater Basin. The Modesto Subbasin is defined as that area of land lying between the Stanislaus River on the north, the Tuolumne River on the south, the Sierra Nevada Mountain foothills on the east and the San Joaquin River on the west. The surface area of the subbasin is approximately 247,000 acres. Discharges from the subbasin result from well pumping and groundwater seepage to the Tuolumne River. The main hydrogeologic units in the Modesto subbasin include both consolidated and unconsolidated sedimentary deposits.

Within the San Joaquin Valley Groundwater Basin area, both groundwater and surface water are important water sources for both urban and agricultural users. Impacts to water quality result from a variety of factors including runoff during wet weather events, direct discharges associated with industrial and commercial activities, leaking sewer infrastructure, and illegal dumping.

The proposed project lies within the designated Riverbank Hydrologic Sub-Area, which lies within the San Joaquin Valley Floor Hydrologic Unit. The Riverbank Sub-Area drains an area of approximately 162,000 acres and contains the four following water bodies: Lower Stanislaus River (between Goodwin Dam and the San Joaquin River), Dry Creek (a tributary to the Tuolumne River), Lower Tuolumne River (between Don Pedro Reservoir and the San Joaquin River), and San Joaquin River (between Tuolumne River and Stanislaus River). Both the Lower Stanislaus River and Lower Tuolumne River drain to the San Joaquin River, which eventually connects to the San Joaquin Delta and the Pacific Ocean.

Within the project area exists a combination of water features: irrigation canals, roadside ditches, perennial marshes, seasonal marshes, seasonal wetlands, ponds, and basins. The irrigation canals are the only water features that potentially outfall to the Lower Stanislaus River or Lower Tuolumne River (via Dry Creek). The remaining features retain the water and either recharge the groundwater through infiltration or lose it to evaporation. Each water feature is discussed below.

Irrigation Canals

Concrete-lined irrigation canals operate on a gravity flow system and transect the existing roadways that are used to provide water to irrigate livestock pastures and agricultural fields. The canals receive water either directly or indirectly from the Lower Stanislaus River, downstream of the Tulloch Reservoir and Goodwin Dam, about 10 miles northeast of the eastern edge of the project limits near Wamble Road and SR-108/SR-120. Most of the canals convey water back to the Lower Stanislaus River, and the remaining canals carry water to Dry Creek, which is a tributary to the Lower Tuolumne River. Most of the major canals are owned and maintained by Modesto Irrigation District and Oakdale Irrigation District. The 14 canals within the project limits are as follows:

- Lateral No. 6
- Modesto Main Canal
- Cavill Drain
- Mootz Drain
- Crane Lateral
- Brichetto Lateral
- Crane Drain
- Mootz Lateral
- Riverbank Lateral
- Claribel Lateral
- South Palmer Lateral
- Oakdale South Main Canal
- West Pump Lateral
- Kearney Lateral

Drainage Ditches

Drainage ditches are used to collect excess irrigation waters from agriculture parcels. The water in these drains is either reclaimed and pumped back into the canals or the water is discharged onto adjacent parcels.

Roadside Ditches

While most of the ditches are unvegetated, some dirt-lined ditches support seasonal wetland type vegetation such as nutsedge and rabbitsfoot grass, and small willows.

Perennial Marshes

Perennial marshes occur primarily in the central and eastern half of the project area. These wetlands contain water most or all of the year. Perennial marshes provide suitable conditions for many plant and wildlife species.

Seasonal Marshes

Seasonal marshes occur next to irrigated pastures and annual grassland in the western and central parts of the project area. These wetlands contain water during the wet season, but are dry at least part of the year. The seasonal marshes in the project area are being further studied to see if they would be considered suitable habitat for vernal pool branchiopods. Seasonal marshes provide suitable conditions for many plant and wildlife species.

Seasonal Wetlands

Seasonal wetlands typically occur in topographically low-lying areas within annual grasslands and ditches. Seasonal wetlands usually flood or are saturated for short periods and do not remain inundated for very long into the growing season. Seasonal wetlands provide suitable conditions for many plant and wildlife species.

Ponds and Basins

This water feature includes natural or created ponds that occur throughout the project area, most of which support wetlands. The ponds that support wetlands tend to be perennial in nature and are generally associated with irrigation and/or stock ponds for cattle.

Environmental Consequences

Build Alternatives 1A, 1B, 2A, and 2B

Substrate

Sediment along the bottoms of the canals, ditches, ponds, marshes, and wetlands is a natural substrate that accumulates as a consequence of erosion and agricultural surface water runoff in the project area. With the implementation of appropriate Best Management Practices during construction as outlined in the Storm Water Pollution Prevention Plan, in addition to permanent erosion control measures to stabilize fill slopes, the project is not expected to alter the existing substrates nor increase the amounts of sediment within the water features next to the project.

Currents, Circulation or Drainage Patterns

The project maintains the existing drainage patterns using culverts to convey runoff from offsite areas across the proposed roadway. However, surface flows will be reduced due to the proposed roadway runoff being routed to roadside longitudinal ditches and infiltration basins rather than discharged to existing surface waters. In situations where the project will encroach onto currently cultivated and graded parcels, drainage patterns will be restored. In areas where the proposed roadway will be crossing an existing canal, a clear span structure will be constructed over the canal as required by Modesto Irrigation District and Oakdale Irrigation District and the canal will not be impacted.

Suspended Particulates (Turbidity)

As a result of project construction and maintenance, sediment is likely to occur, particularly while the project is constructed. The turbidity (water cloudiness) in canals and ditches may increase temporarily due to roadway construction and the in-channel work constructing the hydraulic facilities to convey water underneath the proposed roadway. Turbidity in ponds, seasonal wetlands, irrigated wetlands, and perennial marshes may increase due to embankment construction when fill is placed in or near the affected water bodies.

The suspended solids, dissolved solids, and organic pollutants in all surface water bodies could also increase while nearby soils are disturbed and dust is generated. These conditions would likely persist until completion of construction activities and long-term erosion control measures have been implemented.

Oil, Grease and Chemical Pollutants

Runoff generated from the increased impervious area due to the widening of the travel way and construction of new roadway will be captured and contained in roadside longitudinal ditches and infiltration basins and so will not impair adjacent water bodies. However, accidental spills of petroleum hydrocarbons (fuels and lubricating oils), sanitary wastes, and/or concrete waste are a concern during construction activities. Also, disturbed soil areas in agricultural areas may cause elevated levels of pesticide pollutants during construction in surface runoff captured by downstream drainage ditches.

Erosion and Accretion Patterns

It is not expected that the project will cause a change to the erosion and accretion (accumulation) patterns because the proposed project anticipates maintaining the existing drainage patterns. The proposed slopes will be stabilized with appropriate temporary and permanent Best Management Practices. In general, the roadway slopes will be at a ratio of 4H:1V.

Aquifer Recharge/Groundwater

No changes to aquifer recharge or groundwater levels are anticipated as a result of the project. During construction, it is anticipated that water needs will be met using water trucks and not groundwater resources.

Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

Existing and Potential Water Supplies; Water Conservation

Throughout the project area, domestic wells are used to supply drinking water. As a transportation project, the project will not directly result in an increased need for drinking water and so no impact to water supplies is expected. Irrigation water provided by the Oakdale Irrigation District and Modesto Irrigation District for agricultural purposes may be temporarily affected during construction when new structures are built for the roadway. However, full functionality will be restored once construction is complete; no permanent impacts are anticipated.

Impact Assessment

The project alternatives were assessed for their potential impacts to the physical/chemical, biological and human use characteristics in the aquatic environment during construction (short term) and operation and maintenance (long term). Alternatives 1A, 1B, 2A, and 2B are essentially the same, and include elevated roadways, separated grade crossings, single-point urban interchanges, bridge structures or headwalls at various waterway crossings, and culverts. Table 3.2.1-4 summarizes the long-term construction, operation and maintenance activities that were evaluated for their potential impact on aquatic sites for all alternatives. No unique impacts were identified for any of the alternatives. Table 3.2.1-5 summarizes the short-term construction, activities evaluated for their potential impact on aquatic sites for all alternatives.

Table 3.2.1-4 Summary of Operation and Maintenance Impacts to Aquatic Environment

Summary of Impacts
Physical/Chemical Characteristics
• Potential existence of aquatic organisms and wildlife habitats may be impacted with the reconstruction of the remnants of seasonal wetlands, marshes and ponds.
• Drainage patterns on irrigated parcels being altered to restore agricultural integrity.
Biological Characteristics
• Placement of fill material, the disturbance and/or removal of existing vegetation, encroachment in special aquatic sites.
• Wildlife habitat will be impacted through the disturbance and/or removal of existing vegetation (including complete removal and encroachment).
Human Use Characteristics
• None

Source: Water Quality Study, 2015

Table 3.2.1-5 Summary of Construction (Short-Term) Impacts to Aquatic Environment

Summary of Impacts
Physical/Chemical Characteristics
• Grading, the demolition of existing facilities, and excavation could be sources of sediment.
• Demolition of existing facilities could be a source of solid waste/trash.
• Installation of new structures, concrete and/or asphalt applications could be a source of fine sediment, metals, and chemicals.
• Construction equipment engines could be a source of petroleum products and heavy metals.
• Temporary or portable sanitary facilities could be a source of sanitary waste.
Biological Characteristics
• Disturbance and encroachment into aquatic habitats such as seasonal wetlands, ponds, and perennial marshes.
• Potential dewatering of aquatic habitats.
Human Use Characteristics
• Irrigation water service in canals may be interrupted during construction of hydraulic facilities (bridges, headwalls, culverts).
• Traffic and transportation patterns for vehicles may be impacted during construction.

Source: Water Quality Study, 2015

Regulatory permits under the California Department of Fish and Game Code and the Clean Water Act would be obtained and any further avoidance or minimization measures would be coordinated with the issuing agencies. The proposed project would have permanent and temporary impacts to both waters of the U.S. and state including wetlands, canals, and riparian communities, so the following permits would be necessary. The project would require a Section 1602 Streambed Alteration Agreement issued by the California Department of Fish and Wildlife for impacts to waters of the state, including riparian communities. A Water Quality Certification (Section 401) and NPDES 402 Permit would be acquired prior to construction. If impacts to waters of the U.S. exceed half an acre, an Individual Permit (Section 404) would be obtained from the U.S. Army Corps of Engineers; if impacts are less than half an acre, a Nationwide Permit for waters of the U.S. (Section 404) would be acquired prior to construction in compliance with the Clean Water Act. Adherence to the requirements set forth in the permit would also minimize impacts to water quality and aquatic resources.

Temporary Construction Impacts

The construction activities (such as grading, the demolition of existing facilities, and excavation, concrete and/or asphalt applications, and installation of new facilities) and construction equipment associated with building the elements of Alternative 1A, 1B, 2A, or 2B will be potential sources of sediment and may impact adjacent seasonal wetlands or perennial marshes. When sediment enters a receiving water body, it can increase turbidity, smother bottom-dwelling organisms, and suppress aquatic vegetation growth. In addition, these activities may also be a source of other pollutants such as solid waste/trash, fine sediment, metals, petroleum products, sanitary waste, heavy metals and chemicals that could raise pH levels in adjacent seasonal wetlands or perennial marshes.

Under the Construction General Permit, the proposed project is required to prepare a Storm Water Pollution Prevention Plan and implement erosion and sediment control Best Management Practices to be implemented during construction. The following are recommended for inclusion on applicable plans prepared for this project: All Best Management Practices and other measures should be prepared in consultation with the project engineer, NCCTEA, Stanislaus County, the City of Riverbank, the City of Modesto, the City of Oakdale, Caltrans, the Regional Water Quality Control Board, U.S. Army Corps of Engineers, and other regulatory agencies. These would minimize/avoid potential effects that may occur during construction of the project. Construction Best Management Practices will be properly designed, implemented, and maintained, as presented:

- The area of construction and disturbance would be limited to as small an area as feasible to reduce erosion and sedimentation.

- Measures would be implemented during land-disturbing activities to reduce erosion and sedimentation. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment desilting basins, sediment traps, and check dams.

- Existing vegetation would be protected where feasible to reduce erosion and sedimentation.

- Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected.

- Exposed soils would be covered by loose bulk materials or other materials to reduce erosion and runoff during rainfall events.

- Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities.

- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution.

- All vehicle and equipment maintenance procedures would be conducted offsite. In the event of an emergency, maintenance would occur away from aquatic resources.

- All concrete curing activities would be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly.

- All construction materials, vehicles, stockpiles, and staging areas would be situated outside of the existing/constructed flow lines as feasible. All stockpiles would be covered, as feasible.

- Energy dissipaters and erosion control pads would be provided at the bottom of slope drains.

- Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. All erosion control measures and storm water control measures would be properly maintained until the site has returned to a preconstruction state.

- All disturbed areas would be restored to preconstruction contours and revegetated, either through hydroseeding or other means, with native plant species.

- All construction materials would be hauled offsite after completion of construction.

The identified construction (short-term) impacts must be addressed in the Storm Water Pollution Prevention Plan prepared for the proposed project to meet the Construction General Permit requirements. The temporary erosion and sediment control best management practices detailed in the Storm Water Pollution Prevention Plan must be implemented during construction.

No-Build Alternative

Under the No-Build Alternative, no construction would take place and there would be no changes to the drainage system, which currently functions properly and is not forecasted to fail without additional improvements. Consequently, there would be no impacts to water quality, and no improvements to the storm drainage system would occur.

Avoidance, Minimization and/or Mitigation Measures

Regulatory agencies may require additional measures that were not included in the Water Quality Assessment prepared for this project, to ensure acceptable water quality is maintained. Any lawful requirements for additional avoidance, minimization, and/or mitigation measures will be contained in the permits obtained from all required regulatory agencies and included in the project.

Measure WQ-1: The proposed project would require a Section 1602 Streambed Alteration Agreement through the California Department of Fish and Wildlife.

Measure WQ-2: The proposed project would require a Water Quality Certification (401) and a Discharge Permit for Waters of the U.S. (404).

Measure WQ-3: The proposed project would require a National Pollution Discharge Elimination System (NPDES) General Construction Permit for Discharges of storm water associated with construction activities (Construction General Permit 09-2009-DWQ). A Storm Water Pollution Prevention Plan would also be developed and implemented as part of the Construction General Permit.

3.2.2 Geology/Soils/Seismic/Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Caltrans Seismic Design Criteria (SDC), which provide the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Caltrans Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Affected Environment

A Natural Environment Study and Paleontological Evaluation Report for the North County Corridor New SR-108 Project were completed and are summarized here in Section 3.2.2 Geology/Soils/Seismic/Topography. The project lies in the Great Valley Range geomorphic province (California Geological Survey, 2002). The total project area comprises approximately 4,460 acres. The Natural Resources Conservation Service Soil Survey identifies the various soil types within the project area as shown in Table 3.2.2-1 and Figure 3.2.2-1, in Appendix A.

Table 3.2.2-1 Project Soil Types

Soil Symbol	Soil Name	Slope	Percent of Total Project Area
AcA	Alamo Clay	0 to 1 percent	0.2%
CyB	Corning gravelly sandy loam	3 to 8 percent	< 0.1%
CyD	Corning gravelly sandy loam	15 to 30 percent	0.1%
DhA	Delhi sand	0 to 3 percent	0.1%
DmA	Dinuba fine sandy loam	0 to 1 percent	0.1%
DrA	Dinuba sandy loam	0 to 1 percent	0.1%
GrA	Greenfield sandy loam	0 to 3 percent	0.3%
GsB	Greenfield sandy loam	3 to 8 percent	< 0.1%
GvA	Greenfield sandy loam, deep over hardpan	0 to 3 percent	0.1%
HbA	Hanford fine sandy loam	0 to 3 percent	0.7%
HdA	Hanford sandy loam	0 to 3 percent	4.7%
HdB	Hanford sandy loam	3 to 8 percent	0.1%
HdC	Hanford sandy loam	8 to 15 percent	0.2%
HdpA	Hanford sandy loam, moderately deep over silt	0 to 1 percent	3.9%
HdsA	Hanford sandy loam, deep over silt	0 to 1 percent	< 0.1%
HtA	Hopeton clay loam	0 to 3 percent	0.9%

Soil Symbol	Soil Name	Slope	Percent of Total Project Area
HtB	Hopeton clay loam	3 to 8 percent	0.4%
HuA	Hopeton loam	0 to 3 percent	2.6%
KeB	Keyes cobbly clay loam	0 to 8 percent	2.0%
KgB	Keyes gravelly clay loam	0 to 8 percent	0.1%
MaA	Madera loam	0 to 2 percent	1.9%
MdA	Madera sandy loam	0 to 2 percent	16.7%
MdB	Madera sandy loam	2 to 4 percent	1.3%
MkA	Meikle clay	0 to 1 percent	0.6%
MtA	Montpellier coarse sandy loam	0 to 3 percent	6.6%
MtB	Montpellier coarse sandy loam	3 to 8 percent	6.0%
MtC	Montpellier coarse sandy loam	8 to 15 percent	0.4%
MtC2	Montpellier coarse sandy loam	8 to 15 percent, eroded	1.7%
MtD2	Montpellier coarse sandy loam	15 to 30 percent, eroded	0.2%
MvA	Montpellier coarse sandy loam, poorly drained variant	0 to 1 percent	0.1%
OaA	Oakdale sandy loam	0 to 3 percent	0.4%
PeB	Pentz gravelly loam	3 to 8 percent	0.1%
PeD	Pentz gravelly loam	8 to 30 percent	< 0.1%
PmB	Pentz loam, moderately deep	3 to 8 percent	0.1%
PmC2	Pentz loam, moderately deep	8 to 15 percent, eroded	1.1%
PtB	Peters clay	0 to 8 percent	3.1%
PvB	Peters cobbly clay	0 to 8 percent	0.3%
RbB	Raynor cobbly clay	0 to 8 percent	0.1%
RcB	Redding cobbly loam	0 to 8 percent	0.2%
SaA	San Joaquin sandy loams	0 to 3 percent	27.7%
SaB	San Joaquin sandy loams	3 to 8 percent	0.2%
SmA	San Joaquin and Madera soils	0 to 3 percent	0.5%
SnA	Snelling sandy loam	0 to 3 percent	3.7%
SnB	Snelling sandy loam	3 to 8 percent	1.5%
SwA	Snelling sandy loam, poorly drained variant	0 to 1 percent	0.3%
TuA	Tujunga loamy sand	0 to 3 percent	5.9%
WmB	Whitney sandy loams	3 to 8 percent	0.1%
WmC	Whitney sandy loams	8 to 15 percent	0.8%
WmC2	Whitney sandy loams	8 to 15 percent, eroded	0.1%
WmD	Whitney sandy loams	15 to 30 percent	0.2%
WmD2	Whitney sandy loams	15 to 30 percent, eroded	0.7%
WrA	Whitney and Rocklin sandy loams	0 to 3 percent	< 0.1%
WrB	Whitney and Rocklin sandy loams	3 to 8 percent	0.7%

Source: Natural Resources Conservation Service, 2009

Seismic hazards in Stanislaus County are considered to be relatively minor compared to other areas of California. No Alquist-Priolo Earthquake Fault Zone is located in the county, and no areas subject to liquefaction, ground failure, or surface rupture are identified on state hazard maps. However, ground shaking has been felt in Stanislaus County from earthquakes with epicenters elsewhere. The western portions of the county may experience ground shaking from distant earthquakes to the west and east. Both the San Andreas fault and the closer Hayward fault have the potential for earthquake events with a greater than 6.7 magnitude. Although the

Department of Conservation's California Geological Survey shows that Stanislaus County has potential for ground shaking from earthquakes, structural damage from ground shaking has not historically been reported in Stanislaus County and is not considered a high-risk occurrence.

Seismic Settlement

During a seismic event, ground shaking can cause granular soil above the water table to compress, resulting in settlement of ground surface. Based on the geotechnical data, the potential for detrimental seismic settlement is considered to be generally low except for local, relatively loose fill and channel sediments within the upper 10-20 feet from ground surface.

Landslides and Slope Stability

Due to the low topographic relief along the project corridor, the potential for land sliding or failure of natural slopes is considered very low to non-existent. The potential for seismic slope instability is considered to be low for properly constructed embankments given the competent subsurface soil conditions and relatively low anticipated peak ground accelerations.

Expansive Soils

Based on geotechnical review of the soil survey and available boring logs (Geotechnical/ Geologic Summary Report, 2012), the near-surface soils throughout the corridor are generally sand and silt with low expansion potential. Some clay soils near the east end of the project may have higher expansion potential.

Environmental Consequences

Build Alternatives 1A, 1B, 2A, and 2B

Alternatives 1A, 1B, 2A, and 2B have the same environmental consequences, so they are discussed together below.

Based on the discussion in the Affected Environment section, the project area has a low probability of a major seismic event. Ground shaking from earthquakes could occur but is not expected to be severe to the point where structures would be damaged and loss of life could occur. As a result, the project is not expected to have any potentially significant impacts to geology, soils, seismicity, or topography.

Temporary Construction Impacts

Implementation of the project is not expected to have any impacts temporary construction impacts to geology, soils, seismicity, or topography.

No-Build Alternative

Under the No-Build Alternative, no construction would take place and there would be no changes to soils or topography. So, there would be no geologic, seismic, or soils-related impacts in the project area.

Avoidance, Minimization and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

3.2.3 Paleontology

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. The following federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects:

- 16 U.S. Code (USC) 431-433 (the "Antiquities Act") prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the Department of Government having jurisdiction over the land. Fossils are considered "objects of antiquity" by the Bureau of Land Management, the National Park Service, the Forest Service, and other federal agencies.

- 23 U.S. Code (USC) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.

- 23 U.S. Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by CEQA.

Affected Environment

A Paleontological Evaluation Report (PER) was completed in July 2014 for the project area. A Preliminary Paleontological Mitigation Plan (PPMP) was approved by Caltrans in February 2015 for the project area.

The Area of Potential Disturbance (APD) for the North County Corridor lies in the northeastern San Joaquin Valley, at the base of the Sierra Nevada foothills, within the Great Valley Geomorphic Province (California Geological Survey, 2002). This province is an alluvial valley in the central portion of California that is approximately 50 miles wide and over 400 miles long. Its northern part is drained by the Sacramento River and is known as the Sacramento Valley; the southern portion is drained by the San Joaquin River and is known as the San Joaquin Valley. The San Joaquin Valley is formed by a large structural trough between the Coast Ranges and the Sierra Nevada.

The San Joaquin Valley is filled with marine and alluvial sediments that are about 6 miles thick. These sediments have been deposited almost continuously since the Jurassic (201.3–145.0 million years ago [Ma]) (California Geological Survey, 2002) and overlie the westward-tilted block of the plutonic and metamorphic Sierra Nevada basement. The northern portion of the San Joaquin Valley was part of the Pacific Ocean and subject to submarine deposition from the Jurassic until the late Paleocene (59.2–56.0 Ma), when uplift of the Sierra Nevada relocated this portion of the San Joaquin Valley on or near the shore of the Pacific Ocean. Between the Paleocene (66.0–56.0 Ma) and the Pliocene (5.333–2.588 Ma), deposition alternated between

terrestrial and marine, depending on conditions. The entire valley did not become isolated from the Pacific Ocean until the Pliocene. During the Middle to Late Pleistocene (~781,000-11,700 years ago), changing climatic conditions resulted in the creation of a series of large alluvial fans on either side of the San Joaquin Valley, including the Area of Potential Disturbance.

The Area of Potential Disturbance contains three named formations from the Pleistocene: the Modesto Formation (ranges in age from 40,000 to 10,000 years before present (BP)), the Riverbank Formation (from 300,000 to 100,000 years BP), and the Turlock Lake Formation (from 700,000 to 500,000 years BP). In general, within the Area of Potential Disturbance, the Modesto Formation is in the western portion, the Riverbank Formation is in the central portion, and the Turlock Lake Formation is in the eastern end. These three formations are basically large, extensive alluvial fan complexes with their source in the Sierra Nevada to the east. They are lithologically similar but may be distinguished and subdivided on the basis of soil profile development, topographic position and expression, local lithologic differences, and unconformities associated with buried soils. In addition, though not mapped, artificial fill and unnamed Holocene deposits are likely to be present in the Area of Potential Disturbance. Figure 3.2.3-1, in Appendix A, shows the geology of the Area of Potential Disturbance and the surrounding areas.

Artificial Fill

This unit likely exists in many areas of the Area of Potential Disturbance, especially in areas with existing roads or development. Artificial fill is soil/dirt that is placed by humans and can be either unconsolidated and loosely compacted, or engineered and densely compacted. Composition varies and depends on the source. It is often mixed with modern debris such as bricks, concrete, asphalt, glass, or wood. Depending on the area, thickness can be less than 1 foot or less to several hundred feet.

Artificial fill can contain fossils, but they have been removed from their original location and are out of context. Therefore, they are not considered to be important for scientific study and are not considered to be paleontologically sensitive. If excavation extends through an area of artificial fill into a highly paleontologically sensitive formation listed below, the area will be considered to have high sensitivity.

Unnamed Holocene Deposits

Unnamed Holocene deposits are not mapped as being present. Surficial Holocene geology is often not included on geology maps especially in the San Joaquin and Sacramento valleys; otherwise the maps would solely consist of these shallow Holocene sediments.

These deposits are usually loosely consolidated and may consist of cobbles, sand, silt and/or clay deposited by wind, water, mass-wasting, and/or weathering. These deposits are less than 11,700 years old. They are likely present in the upper 5 to 10 feet of all areas of the Area of Potential Disturbance and likely overlie Pleistocene sediments. Although these sediments can contain remains of plants and animals, generally not enough time has passed for the remains to become fossilized. Also, the remains are contemporaneous with modern species, and these remains are usually not considered to be significant.

Unnamed Holocene deposits are usually assigned a sensitivity of “low” within the upper approximate 5 feet. At depths of over 5 feet, it is more likely that sediment from the Pleistocene will be encountered (which may contain scientifically significant paleontological resources); the

sensitivity of the Area of Potential Disturbance becomes “high” unless it can be shown that excavations in that particular area will be in artificial fill at depths greater than 5 feet.

Modesto Formation

The Modesto Formation is mapped on the surface mainly in the western portion of the Area of Potential Disturbance, but also in a small area on the eastern end of Alternatives 1A and 2A (see Figure 3.2.3-1, in Appendix A). The Modesto Formation is exposed for well over 400 miles extending from the northern end of the Sacramento River near Redding to the Kern River near Bakersfield in the south. The type section for the Modesto Formation is along the south bluff of the Tuolumne River, south of Modesto.

The Modesto Formation is essentially an alluvial fan deposit composed of gravel, sand, and silt deposited by streams carrying glacial outwash from the western side of the Sierra Nevada throughout the entire Great Valley Geomorphic Province. The formation becomes increasingly dense and consolidated with depth, with colors typically ranging from light grayish-brown to light brown, up to about 131 feet thick. The Modesto Formation can be further divided into an upper and lower member. The lower member of the Modesto Formation was deposited between about 75,000 and 27,000 years ago and the upper member of the Modesto Formation was deposited between about 14,000 and 9,000 years ago.

About 45 miles southeast of the project area, a very significant vertebrate collection from both the upper and lower Modesto Formation was found during grading for the SR-99 Arboleda Drive Project in Merced County. Over 1,600 fossils were collected from 39 project localities at depths ranging from 1.75 to 26.9 feet, with most between 11 to 20 feet. Fossil specimens included large and small mammals like Columbian mammoth ancient bison, deer, rabbits, and kangaroo rat, as well as birds and fish. Based on age, depositional environment and the presence of fossils from other areas, the Late Pleistocene sediments of the Modesto Formation have the potential to produce scientifically valuable fossils. Therefore, the Modesto Formation is considered to have “high” paleontological sensitivity.

Riverbank Formation

The Riverbank Formation is mapped on the surface in the central portion of the Area of Potential Disturbance. Sediments now known as the Riverbank Formation have been divided into three units (lower, middle, and upper) based on superposition, paleosols (buried soils), and geomorphic evidence. All these units appear to coarsen upward. The three units are similar, and not all are present in all areas because of erosion.

The Riverbank Formation in the northeastern San Joaquin Valley is composed of mostly arkosic sand with some scattered pebbles, gravel lenses, as well as some fine sand and silt. Sediment was derived from the Sierra Nevada, located to the east.

The Riverbank Formation has variable thickness depending on how close the deposit is to major rivers, and a total thickness range inclusive of all three units of this formation is about 66 to 262 feet.

Several fossils were found in the Riverbank Formation during construction and development of the ARCO Arena in Sacramento, California. Fossils from this formation included Harlan’s ground sloth, bison, horse, camel, squirrel and mammoth, as well as plant fossils. Based on the

age of the Riverbank Formation and the fact that it contains known paleontological resources, the Riverbank Formation is considered to have a "high" paleontological sensitivity.

Turlock Lake Formation

The Turlock Lake Formation is mapped as being present at the eastern portion of the Area of Potential Disturbance. In northeastern San Joaquin Valley, the Turlock Lake Formation is subdivided into two informally named units (lower unit and upper unit) that are separated by a buried, well developed soil horizon that marks a disconformity.

The Turlock Lake Formation consists of mostly arkosic alluvium composed of mostly fine sand, silt, and, in some places, clay that grades upward into coarse sand and occasional coarse pebbly sand or gravel. Pebbles and gravels are composed of granitic as well as metamorphic and volcanic rocks. The formation has a thickness range of between 295 feet and 1,033 feet based on previous studies, and the maximum age for this unit may be as old as 730,000 years BP based on the presence of the Bishop Tuff in a clay bed at the base of the formation.

The Fairmead Landfill Fossil locality (Madera County) contains examples of fossils from the Turlock Lake. Specimens include horse, camel, llama, deer, pocket gopher, coyote, pond turtle and tortoise. Fossils from the Turlock Lake Formation are very scientifically significant as they add to our understanding of vertebrate faunas from the Irvingtonian North American land mammal age (NALMA) which is 1.8 million to 240,000 years before the present. The Turlock Lake Formation is considered to have "high" paleontological sensitivity.

Table 3.2.3-2 shows the paleontological sensitivity of the project area.

Table 3.2.3-2 Geologic Units and Paleontological Sensitivity[1]

Geologic Units and Paleontological Sensitivity[1] within the North County Corridor New State Route 108 Project Area of Project Disturbance	
Geologic Unit	**Paleontological Sensitivity (Caltrans)**
Artificial Fill	None
Unnamed Holocene Deposits	Low 0 to 5 feet; High >5 feet
Modesto Formation	High
Riverbank Formation	High
Turlock Lake Formation	High

Source: Society of Vertebrate Paleontology and Caltrans Guidelines.
1 Also known as Paleontological Potential
Note: High sensitivity is based on formations or mappable rock units that are known to contain, or have the correct age and depositional conditions, to contain significant paleontological resources.

Environmental Consequences

Build Alternatives 1A, 1B, 2A, and 2B

Alternatives 1A, 1B, 2A, and 2B have the same environmental consequences, so they are discussed together below.

Ground disturbance associated with the North County Corridor project is anticipated to disturb sediments with high potential to contain scientifically significant, nonrenewable paleontological resources. Though it is not anticipated that special paleontological situations, such as

articulated skeletons or dense concentrations of bones, are present in the Area of Potential Disturbance that would require project redesign to avoid critical localities or strata, the entire Area of Potential Disturbance is located in sediments identified as having high paleontological sensitivity below a depth of about 5 feet beneath the original ground surface.

One Natural History Museum of Los Angeles County (NHM) fossil locality is within the 1-mile search radius around the Area of Potential Disturbance and could potentially be within the Area of Potential Disturbance near the city of Oakdale.

Research has documented numerous fossil localities from other areas in the San Joaquin and Sacramento valleys within the same three Pleistocene Formations that are present within the North County Corridor. The project-proposed excavation and grading may be up to 30 feet due to the changes in topography. This has the potential to significantly impact paleontological resources, if present within the excavation and grading limits. To address potential impacts to sensitive paleontological resources and reduce the impact to a less than significant level, Measure PER-1 will be implemented, which will require the Paleontological Mitigation Plan to be implemented.

Temporary Construction Impacts

Implementation of the project would include ground disturbance anticipated to disturb sediments with high potential to contain scientifically significant, nonrenewable paleontological resources. Implementation of Measure PER-1 below will be implemented to reduce the potential impact to less than significant during temporary construction impacts.

No-Build Alternative

Under the No-Build Alternative, no construction would take place and there would be no changes to paleontological resources, therefore, there would be no impacts related to paleontology in the project area.

Avoidance, Minimization and/or Mitigation Measures

Based on the discussion above and results of the Paleontological Evaluation Report, the following measure would be included to avoid impacts to potentially sensitive paleontological resources:

Measure PER-1: The Paleontological Mitigation Plan (PMP) shall be implemented to mitigate impacts to paleontological resources during ground-disturbing activities. The PMP includes a discussion of area geology, the types of paleontological resources that may be present, locations within the project that are likely to contain paleontological resources, recommended monitoring and laboratory methods, an estimated cost breakdown for the monitoring program, and recommendations.

The PMP incorporates the 'Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources' published by the Society of Vertebrate Paleontology (2010) along with conditions of receivership that the repository institution will require when receiving fossils recovered during construction of the project.

3.2.4 Hazardous Waste/Materials

Regulatory Setting

Hazardous materials, including hazardous substances and wastes are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The main federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include the following:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control Standards, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material are vital if material is found, disturbed, or generated during project construction.

Affected Environment

A *Hazardous Waste Initial Site Assessment* was completed in November 2016 and a *Hazardous Waste Initial Site Assessment Addendum* was completed in December 2019 for the project. The

purpose of the initial site assessment is to identify and assess the potential effects of known or potential hazardous materials and waste within the project area.

A record search of federal, state and local databases and map review were conducted in 2011 and 2014. Multiple site visits along the proposed Build Alternatives were completed in June 2014. The field review was conducted to visually confirm information gathered by aerial photos and database searches, and to ensure interviews were accurate and complete.

The entire project area (about 4,460 acres) was evaluated for potential hazardous materials and waste. Locations are mapped in Figure 3.2.4-1.

“High risk” is defined as a property with major hazardous waste issues that may require design changes to avoid impacts. “Medium risk” is defined as a property with moderate hazardous waste issues, which may require mitigation and/or minor design changes to avoid.

There were 2 high-risk, 82 medium-risk, and 614 low-risk Recognized Environmental Conditions parcels identified within or next to the project alignments (see Table 3.2.4-1). The high-risk parcels include an Army ammunitions manufacturing plant (within the limits of and next to all Build Alternatives), and a crop-dusting operation (next to Alternatives 1A and 1B).

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Project Area
Railroad Crossings - Medium Risk
Parcels - Medium Risk
Parcels - High Risk
Parcels - Low Risk
Road Outline (edge of pavement)
Local Road Access
Right of Way
Structure
Railroad
Existing State Route

Page 14
Page 9
1A, 2A
1B, 2B
Page 11
Page 13
1A, 1B
1B
Page 12
Page 8
Page 10
Page 7
1A, 1B, 2A, 2B
Patterson Rd
Page 6
Page 2
Page 3
Page 4
2B
Page 5
Claribel Rd
2A, 2B
Lancaster Rd
Wamble Rd
Fogarty Rd
S Stearns Rd
Warnerville Rd
Oakdale Waterford Highway
Tully Rd
McHenny Ave
Coffee Rd
Oakdale Rd
Roselle Ave
Terminal Ave
Claus Rd
Eleanor Ave
Langworth Rd
Bentley Rd
Albers Rd
108
120

\\wpsais\2046_NCC\EIR_EIS\F 3.2.4-1 Risk Level\F3.2.4-1Page1_ISA.mxd

Source: ESRI Maps Online March 2011; 1/30/2019.

0 0.5 1 1.5 2 Miles

FIGURE 3.2.4-1
Risk Level
Page 1 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Aerially Deposited Lead

The presence of aerially deposited lead next to heavily traveled roadways such as existing SR-108 and SR-120 is not uncommon. Based on review of aerial photos, topographical maps, and the prior technical reports by Caltrans, an aerially deposited lead study is not needed. But Caltrans may require some sampling given the size and scope of this corridor. As the project is mostly on land that does not currently have an existing roadway, aerially deposited lead is not expected to be a concern in Segments 2 and 3.

Transformers

Transformers were observed within the project limits during site visits. These may need to be considered during project design if the poles are removed or relocated during construction activities. The utility owner is responsible for the identification and remediation of old transformers. As Segment 1 is the most developed within the project area, it is the most likely to encounter transformers; Segments 2 and 3 have a reduced likelihood to encounter transformers.

Yellow Traffic Stripes

Yellow traffic stripes typically contain heavy metals, including lead and chromium, at concentrations in excess of the hazardous waste thresholds established by the California Code of Regulations and may produce toxic fumes when disturbed.

Asphalt

Proposed project improvements include removal of existing asphalt roadway and old asphalt road sections. Asphalt is not currently regulated as a hazardous material, but asphalt binders potentially contain contaminants that require offsite disposal restrictions imposed by the State of California Integrated Waste Management Board. Restrictions are burdensome for recently placed asphalt.

Septic Tanks

Rural areas typically have below-ground septic systems associated with commercial and residential properties. Septic tanks may be encountered within the new alignments during construction.

Building Materials

Existing structures such as irrigation canal crossings and housing are likely to be affected, so asbestos and lead-based paint associated with the demolition/modification of existing structures and/or bridges may be encountered.

Groundwater/Dewatering

Three contaminated groundwater issues were identified during the initial site assessment investigations. The only high risk site is the Army Ammunition Plant. The other two parcels are medium risk APN: 063-028-040 and 063-027-064. These two parcels are only affected by Build Alternatives 1A and 1B.

Railroad Crossings

All alternatives cross railroad lines throughout the project corridor. These railroad grade crossings are shown in Figure 2.3.1-3, in Appendix A. Railroad grade crossings can potentially contain heavy metals, petroleum hydrocarbon, and pesticides.

Environmental Consequences

Potential Hazardous Materials Sites

Parcels identified with known/potential Recognized Environmental Conditions are shown in Table 3.2.4-1, and Appendix A. The Assessor's Parcel Number (APN), findings, potential Recognized Environmental Conditions, figure page number, and Caltrans Risk Level are identified in the table.

General Hazardous Materials Issues

Agricultural Chemicals (Pesticides/Herbicides)

The project corridor has been historically used for agricultural production, so there is potential for the presence of residual environmentally persistent pesticides and/or herbicides in the soil. While the probability of residual environmentally persistent pesticides may be low, they are sometimes detected in soils on properties with a long agricultural history. The collection of representative samples for laboratory analysis will provide more certainty, and the information may be helpful in project planning (e.g., potential placement of impacted soil under new roadways or disposal requirements).

Aboveground and Belowground Fuel Storage Tanks

The potential to encounter identified and unidentified aboveground or belowground fuel storage tanks within or next to the project alignments is high given the size and historical use of the corridor. Historical rural commercial and residential structures often have associated aboveground or belowground fuel storage tanks. If storage tanks are associated with the structures, there is the potential for Recognized Environmental Conditions to be present.

Table 3.2.4-1: Recognized Environmental Conditions (REC) Evidence

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
062-027-018	Crop-dusting operation; three USTs; 5,000- and 10,000-gallon aviation gas; unknown size waste oil; tank location and status unknown. Toxic pit case closed in 1993; no contaminant information. Two ASTs onsite. Piles of metal pipe. High voltage electricity boxes along right-of-way.	PH, HP	5 ,10	HIGH	1A, 1B	None. Project avoids parcel.
062-031-005	Riverbank Army Ammunition Depot. Munitions manufacturing, active since 1940s. Federal superfund site undergoing remediation with oversight from EPA, DTSC, and CVRWQCB. Potential sources of contamination include abandoned landfill, percolation ponds, and industrial waste treatment plant. Cyanide and hexavalent chrome impacts to groundwater. Numerous historic USTs containing various hazardous materials, closed as of 1995. Also listed at this site: Dayton Superior, Harder Oil, Bulldog Oil, American Highway Tech. No pond observed from right-of-way. Sign posted: “RCRA permitted waste treatment/storage facility on site. Hazardous waste area. Unauthorized persons keep out.” A ditch between this property and Claribel Road may likely be contaminated. Properties on west: debris piles, truck storage, RV storage, old vehicles. Properties on north: Commercial industrial park.	HM, PH, HP, CS, GWC	4	HIGH	1A, 2A, 1B, 2B	Grading, partial parcel impact.
004-057-010	Former "Industrial Waste Ponds" identified on this parcel on USGS Topographic Map (Salida 1969). Ponds appear to be associated with the McHenry food processing plant (see listing for APN 046-001-002). Parcel has since been developed as commercial property with detention basin. Site is used as a storage area and RV parking.	HM, MC	2	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
004-057-011	Former "Industrial Waste Ponds" identified on this parcel on USGS Topographic Map (Salida 1976). Ponds appear to be associated with the McHenry food processing plant (see listing for APN 046-001-002). Parcel has since been developed as commercial property; no ponds remain. Site is used as a storage area and RV parking.	HM, MC	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, partial parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
004-094-039	Former "Industrial Waste Ponds" identified on this parcel on USGS Topographic Map (Salida 1976). Ponds appear to be associated with the McHenry food processing plant (see listing for APN 046-001-002). Parcel has since been developed as commercial property; no ponds remain. Currently Modesto Reprographics and The K Zone (sports complex) occupy the buildings.	HM, MC	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, minor grading, partial parcel impact.
004-097-019	Former "Industrial Waste Ponds" identified on this parcel on USGS Topographic Map (Salida 1976). Ponds appear to be associated with the McHenry food processing plant (see listing for APN 046-001-002). Parcel has since been developed as commercial property; no ponds remain. Several businesses are occupying the building but several spaces are vacant. There is a pole-mounted electrical transformer next to the parcel.	HM, MC	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, minor grading, partial parcel impact.
046-001-002	McHenry food processing plant is identified on USGS Topographic Map (Salida 1953) on this parcel. The 1969 topographic map and the 1976 photo revision show an extensive array of "Industrial Waste Ponds" on this and adjoining parcels in the vicinity. All ponds presumed to be associated with processing plant operations. Nature of waste discharge to ponds unknown. One 10,000-gallon gasoline UST is listed for this parcel, status unknown. According to "Hazardous Waste Investigation for SR-219 Widening (Caltrans 1999 - Appendix)", a UST was removed in 1986. Report states oil contaminated soil was excavated, spread onsite, and paved with asphalt. In addition, a couple of sheds covering water utilities within project study boundaries. Pole-mounted electrical transformer on the east end of the parcel.	HM, PH, MC	2	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
046-010-026	Operating service station; no reported releases. Gas station, car wash. Current business is Cruisers Gasoline.	PH	2	MEDIUM	1A, 2A, 1B, 2B	Minor grading, slight parcel impact.
082-006-033	Steelyard; appears established in 1970s. Two 550-gallon gasoline USTs, status unknown. Bambacigno Steel Company is currently operating the steelyard.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Minor grading, slight parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
004-057-006	Abandoned building and other debris. No cars noted but some debris remains onsite.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, partial parcel impact.
004-069-017	Abandoned cars and other debris. Pole-mounted electrical transformers within project area.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
004-071-028	Farm/Residence with one UST; 2,000-gallon gasoline; tank location and status unknown. Orchards and residence remain onsite. One pole-mounted electrical transformer within project area. AST in the backyard.	PH	2	MEDIUM	1A, 2A, 1B, 2B	Minor grading, slight parcel impact.
004-071-030	Ag barn with significant accumulation of debris.	HM, PH, HP	2	MEDIUM	1A, 2A, 1B, 2B	Minor grading, slight parcel impact.
004-094-012	Possible former service station. Old cars and machinery and abandoned shop building along Charity Road. Currently a farmer's store. Overhead utilities along Charity Road. Miscellaneous debris piles in property to the south. In addition, various pole-mounted electrical transformer within project area.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, partial parcel impact.
010-011-033	Farm/Residence with three USTs; two are 500-gallon gasoline and one 500-gallon diesel; tank location and status unknown. Orchard/open space on elevated land. Two ASTs observed from right-of-way. Three pieces of metal articles in the open space.	PH	9	MEDIUM	1B, 2B	Major grading, partial parcel impact.
010-016-019	Ag pond with concrete debris. Site does not seem managed. Lots of debris in neighbor's yard.	HM, CS	7	MEDIUM	2B	Grading, total parcel impact.
010-022-002	Ag operation with ponds in historic aerial photo. Currently an unfarmed open space. Pond is dry. Outlet pipe attached to highway.	HM, CS	14	MEDIUM	1A, 2A	Grading, total parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
010-022-003	Ag barn with significant accumulation of debris. No debris observed from right-of-way.	HM, PH, HP	14	MEDIUM	1A, 2A	Grading, total parcel impact.
010-022-005	Farm/Residence with one UST; 350-gallon gasoline; tank location and status unknown. No potential hazard observed from right-of-way.	HM, PH, CS	14	MEDIUM	1A, 2A	No parcel impact.
010-031-021	Farm/Residence with one UST; 350-gallon gasoline; tank location and status unknown. House and one AST, shed, ag barn. Farm equipment and several RVs/trucks in yard. Overhead utility.	PH	9	MEDIUM	1B, 2B	No parcel impact.
010-041-037	Historic ag barn.	HM, PH, HP	7	MEDIUM	1B, 2B	Structure impact, grading, partial parcel impact.
014-001-014	Pond or structure in historic aerial photo. Three ASTs, one small solid waste bin, concrete box and pipe, and utility control boxes onsite. No pond observed from right-of-way. Potential Hazardous Material Issues: Unspecified.	HM, PH, HP	4	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
014-001-025	Farm residence with AST. One AST observed from right-of-way. Piles of metal building materials in yard.	PH	4	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, partial parcel impact.
014-001-028	Historic debris piles along road. Several old cars, trucks, farm tractors along road. Large metal trailers/storage tins.	HM, PH, HP	4	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
014-049-001	Farm residence with AST. One AST that may have leak.	PH	4	MEDIUM	2A, 2B	Structure removal, grading, partial parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
014-049-003	Ag barn and orchard. Two ASTs onsite. Utility control boxes. Two ASTs on property to the west.	HM, PH, HP	4	MEDIUM	2A, 2B	Grading, partial parcel impact.
014-049-006	Farm/Residence with one UST; 350-gallon gasoline; tank location and status unknown. No tank/potential hazard observed from right-of-way.	PH	4, 5	MEDIUM	2A, 2B	Structure impact, grading, partial parcel impact.
046-006-006	Farm/Residence with two USTs; 550-gallon gasoline, 290-gallon diesel; tank location and status unknown. Parcel remains a farm/residence. Visible AST next to residence. A pole-mounted electrical transformer within project area.	PH, HP	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
046-006-011	Farm residence with AST. Two ASTs visible next to residence. Various pole-mounted electrical transformers within project area.	PH	2	MEDIUM	1A, 2A, 1B, 2B	Minor grading, slight parcel impact.
046-010-001	Commercial site with one UST; 500-gallon gasoline; tank location and status unknown. Current business at this location is Huber Engineered Materials.	PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, partial parcel impact.
046-010-020	Farm/Residence with one UST; 200-gallon gasoline; tank location and status unknown. Buildings and some orchard trees onsite. Pole-mounted electrical transformer was found within project area.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
062-027-008	Farm/Residence with one UST; 550-gallon gasoline; tank location and status unknown.	PH	4	MEDIUM	2A, 2B	Grading, partial parcel impact.
062-029-001	Composting/recycling operation; One AST near the house. Large open space and a ditch near right-of-way. Industrial operation and several ASTs inside the property. Chemical odor. Overhead utilities and control box.	PH	4	MEDIUM	1A, 1B	Grading, partial parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
062-030-009	Ag barn with significant accumulation of debris. One AST onsite. One AST on property to the north. One AST on property to the west. All propane tanks.	HM, PH, HP	4	MEDIUM	1A, 1B	Structure removal, grading, partial parcel impact.
063-027-008	Dairy farm with ASTs. Cattle, farm equipment, piles of dirt, debris, and old tires. Three ASTs observed. Two properties on the west have three ASTs.	PH	10	MEDIUM	1A, 1B	No parcel impact.
063-028-037	Farm/Residence with two USTs; 500-gallon and unknown size gasoline; tank location and status unknown. One AST observed from right-of-way. Neighboring property is an industrial/electricity yard.	PH	6	MEDIUM	1A, 1B	Grading, partial parcel impact.
063-029-024	Farm/Residence with one UST; 325-gallon gasoline; tank location and status unknown. Orchard, one AST near house and three ASTs near shed.	PH	5	MEDIUM	2A, 2B	Grading, partial parcel impact.
063-029-067	Cleared area with small building in historic (1957) aerial photo - area currently appears to have distressed vegetation. Site is planted with row crops, but there are some distressed spots (exposed soil). 2 short vertical concrete pipes along right-of-way. Overhead utility is present. No potential hazard observed from right-of-way.	HP	5	MEDIUM	2A, 2B	No parcel impact.
063-029-068	Cleared area with small building in historic (1957) aerial photo - area currently appears to have distressed vegetation. Site is planted with row crops, but there are some distressed spots (exposed soil). 2 short vertical concrete pipes along right-of-way. Overhead utility is present. No potential hazard observed from right-of-way.	HP	5	MEDIUM	2A, 2B	No parcel impact.
064-017-009	Farm property with AST. Piles of old tires and building materials. Old tank/gas containers. 5 ASTs observed from right-of-way. Adams lateral pump.	PH	13, 14	MEDIUM	1A, 2A	Grading, partial parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
064-029-002	Dairy farm with two USTs; 550-gallon gas and unknown size waste oil; tank location and status unknown. 2 ASTs next to residence. 2 large and 2 small ASTs next to storage house.	PH	6, 13	MEDIUM	1A, 2A, 1B	Structure removal, grading, partial parcel impact.
074-010-002	Farm/Residence with one UST; 350-gallon gasoline; tank location and status unknown. Currently an orchard. 1 old AST and some debris onsite. Storage tanks kept in the backyard.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
074-015-003	Farm/Residence with one UST; 220-gallon gasoline; tank location and status unknown. According to Phase I Environmental Site Assessment for Claribel Road Widening owner believed UST had been removed in early 1980s. Currently an orchard. No potential hazard observed from right-of-way. Various pole-mounted electrical transformers within project area.	PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, total parcel impact.
074-015-006	Ag welding shop.	HM	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, total parcel impact.
074-016-001	Farm/Residence with one UST; 150-gallon gasoline; tank location and status unknown. Currently an orchard. No potential hazard observed from right-of-way. Utility boxes located near McHenry/Crawford intersection.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
074-016-003	Farm/Residence with two USTs; both 550-gallon gasoline; tank location and status unknown. Currently an orchard. Some debris onsite. A couple RVs parked in the front of property.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
074-016-007	Miscellaneous debris piles (based on historical aerial photo). Some debris is still visible.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
074-016-008	Miscellaneous debris piles (based on historical aerial photo).	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
075-025-010	Miscellaneous debris piles. Several old vehicles. Two ASTs.	HM, PH	3	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
075-025-019	Historic ag buildings with present abandoned vehicles/equipment debris.	HM, PH, HP	3	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, total parcel impact.
082-004-004	Ag barn with significant accumulation of debris.	HM, PH, HP	3	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
082-004-024	Farm/Residence site with two USTs; 1,000-gallon gasoline and 1,000-gallon diesel; tank location and status unknown. Historical ag barns and extensive debris piles have been removed.	PH	3	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, total parcel impact.
082-004-025	Farm/Residence with one UST; 250-gallon gasoline; tank location and status unknown. No hazardous material observed from right-of-way.	PH	3	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
082-006-004	Farm residence with ASTs. According to Phase I Environmental Site Assessment for Claribel Road Widening owner indicated one 1,000-gallon and two 500-gallon ASTs are maintained on the property.	PH	2	MEDIUM	2A, 1B, 2B	Grading, partial parcel impact.
082-006-022	Miscellaneous debris piles (based on historical aerial photo). No debris piles were seen from right-of-way. Some concrete short walls along right-of-way, one with a sign: “warning, gas pipeline.” Another location has a sign: “Warning Buried Fiber Optic Cable.” Concrete and electrical pump structures seen at multiple locations onsite. Property is an orchard with a fruit stand at the corner of Claribel and Oakdale.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, grading, partial parcel impact.
082-006-040	Car dealership with LUST case; impacts to soil; case closed 1996.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
082-006-053	Car dealership with 2,575-gallon AST; tank content, location and status unknown.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
082-006-055	Car dealership with 3,200-gallon AST; tank content, location and status unknown.	PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
083-002-012	Commercial site with 1,670-gallon AST and possible USTs; tank location and status unknown. Sand and gravel supply company. Large storage yard for building material, gravel plant, trucks, piles of sand and gravel.	PH	3	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
083-002-016	Ag barn with significant accumulation of debris. Looks well-maintained from right-of-way.	HM, PH, HP	3	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
084-001-025	Farm/Residence with LUST case; diesel impact to soil; case closed in 1998.	PH	3	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
063-073-012	City of Oakdale Bridle Ridge Park, 1.9-acre parcel. One 500-gallon fuel tank installed 1958. Unspecified oil waste, 1995.	PH	11	MEDIUM	1A, 1B	No parcel impact.
064-030-006	Dairy milk farm with 7 lagoons. Potential ASTs for farm equipment.	PH	6, 12	MEDIUM	1A, 1B	No parcel impact.
064-028-005	Ross F. Carroll general contracting company, commercial building built in 1961 about 25,200 sq ft, 6.6-acre parcel. Significant changes noticed on 1987 aerial photo. Three 550-gallon unleaded gasoline tanks, not reported number of 3000-gallon diesel tanks, not reported number of 550-gallon diesel tanks. LUST, soil, gasoline, closed 1989.	PH, Lead	12	MEDIUM	1A, 1B	No parcel impact.
063-028-040	Composting site accepting: agricultural, ash, green materials, manure. Site is currently an open pasture.	GWC	12	MEDIUM	1A, 1B	Grading, partial parcel impact.
063-027-064	Composting site accepting: agricultural, ash, green materials, manure. Site is currently an open pasture.	GWC	12	MEDIUM	1A, 1B	Grading, partial parcel impact.
010-040-006	Foster Farms chicken ranch.	PH	7	MEDIUM	1B, 2B	Grading, partial parcel impact.
004-071-029	Farm/Residence with AST and debris.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, partial parcel impact.

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
004-071-006	Rural residence with AST and some old vehicles.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
004-094-014	California High Reach Equipment Rental location with AST potential.	HM, PH	2	MEDIUM	1A, 2A, 1B, 2B	Grading, partial parcel impact.
046-010-021	Auto shops in the complex with potential of AST.	PH	2	MEDIUM	1A, 2A, 1B, 2B	Structure removal, total parcel impact.
010-072-001	Ag fields with ASTs in the southeast corner of parcel.	PH, HP	8	MEDIUM	1B, 2B	Structure removal, total parcel impact.
010-011-038	Possible chicken ranch with associated ASTs.	PH	9	MEDIUM	1B, 2B	No parcel impact.
010-072-003	Dairy milk farm with 4 lagoons. Potential ASTs for farm equipment.	PH	3	MEDIUM	1B, 2B	Grading, partial parcel impact.
014-007-032	Ag fields with three USTs. EDR stated status is active.	PH, HP	4	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
084-003-001	Ag fields with one 300-gallon UST. EDR stated status is active.	PH, HP	4	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
075-025-005	Farm/Residence site with one UST. EDR stated status is inactive.	PH	3	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
084-001-006	The Oakdale Irrigation District ditch and pond property next to Rainbow Fields may have polychlorinated biphenyls (PCB) contamination based on our review of the “Draft Southern Parcels 1 & 1A and Oakdale Irrigation District Drainage Ditch” report by the Army Corps of Engineers dated February 2014. The report recommends further evaluation.	PCB	4	MEDIUM	1A, 2A, 1B, 2B	No parcel impact.
RR 1	Abandoned Tidewater Southern Railroad line. No APN, site is east of reference address. Previous site assessment identified low levels of pesticides and petroleum hydrocarbons. No further action application reviewed and approved by DTSC. The railroad ties from the portion of railroad removed are piled onsite.	HM, PH, HP	2	MEDIUM	1A, 2A, 1B, 2B	N/A
RR 2	Railroad crossing at grade. No APN, site is east of reference address.	HM, PH, HP	4	MEDIUM	1A, 2A, 1B, 2B	N/A

APN	Findings	Potential REC[1]	Figure Page #	Risk Level[2]	Build Alternative	Potential Parcel Impacts
RR 3	Abandoned railroad crossing. No APN, site is north of reference address. Railroad tracks are removed. A pile of waste soil, a pump, and utility towers onsite (Hetch-Hetchy to the south).	HM, PH, HP	6	MEDIUM	1A, 1B	N/A
RR 4	Abandoned railroad crossing. No APN, site is south of reference address. Railroad tracks are removed. Currently surrounded by an orchard. A pump and utility control box are on the canal.	HM, PH, HP	6	MEDIUM	2A, 2B	N/A
RR 5	Railroad crossing at grade. No APN, site is south of reference address.	HM, PH, HP	13	MEDIUM	1A, 2A	N/A
RR 6	Railroad crossing at grade. North of APN 010-072-001.	HM, PH, HP	8	MEDIUM	1B, 2B	N/A

Source: Hazardous Waste ISA 2015
1HM = Heavy Metals, PH = Petroleum Hydrocarbons, CS = Chlorinated Solvents, HP = Herbicides/Pesticides, MC = Misc. Chemical Waste,
GWC = Groundwater contamination, AST = Above Ground Storage Tank, UST = Underground Storage Tank, LUST = Leaky Underground Storage Tank,
DTSC = Department of Toxic Substances Control, EDR = Environmental Data Resources Inc.

High Risk Sites

Within or next to the proposed project alignments are 2 high-risk, 82 medium-risk and 614 low-risk Recognized Environmental Conditions parcels. The two high-risk parcels are described below.

Riverbank Army Ammunition Plant
APN 062-031-005
5300 Claus Road
Alternative: 1A, 1B, 2A, 2B
Figure 3.2.4-1, in Appendix A: page 4 of 14

Initial design consideration was given to avoid this parcel entirely by shifting initial alignments south of the Riverbank Army Depot; however, due to existing constraints, the proposed alignments had to impact the Riverbank Army Ammunition Plant parcel north of Claribel Road. Locating the alignment south of Claribel Road would impact the sports park complex, one church and eight to nine additional homes, depending on the location, and would also require relocating the Mid Main canal. In addition, the current vertical profile of the proposed alignment is set to provide standard vertical clearance over the BNSF railroad, conform close to existing grade at the Claus Road/Claribel Road intersection, and provide standard geometry. The distance between the railroad and the Claus Road/Claribel Road intersection decreases south of Claus Road, as the BNSF railroad runs in a southeast direction. Moving the alignment south would: 1) result in greater impact to the Claus Road/Claribel Road intersection due to the decreased distance between the facilities; 2) result in either raising profile of the Claus Road/Claribel Road intersection or moving the intersection east to accommodate the required vertical profile; and 3) result in greater impacts to surrounding homes to the east and west by raising or moving the intersection.

This parcel is currently a Federal Superfund Site and is undergoing remediation. The 173-acre Riverbank Army Ammunition Plant site was historically used to manufacture cartridge cases, grenades, and projectiles, since 1951. As a result of this manufacturing, a number of contaminants were identified on-site, including chromium and cyanide in the groundwater, chromium and arsenic in the landfill soils, and zinc and petroleum in the industrial waste treatment pond sediments.

In April 1990, the U.S. Army, the U.S. Environmental Protection Agency, and the State of California signed a Federal Facility Agreement, which established a procedural framework and schedule for the U.S. Army to carry out the necessary site cleanup actions. From this Federal Facility Agreement, a Record of Decision (SFUND Record CTR 3135-00032), was signed describing remedial actions necessary for mitigation in 1994 between the U.S. Environmental Protection Agency in consultation with the Department of Toxic Substances Control, Central Valley Regional Water Quality Control Board, and the U.S. Army. The Record of Decision determined the necessary remedial actions include a groundwater extraction and treatment system and landfill cover. The Record of Decision also identifies the U.S. Army as the responsible party for the superfund site cleanup who is required to implement the remediation conditions contained within the Record of Decision.

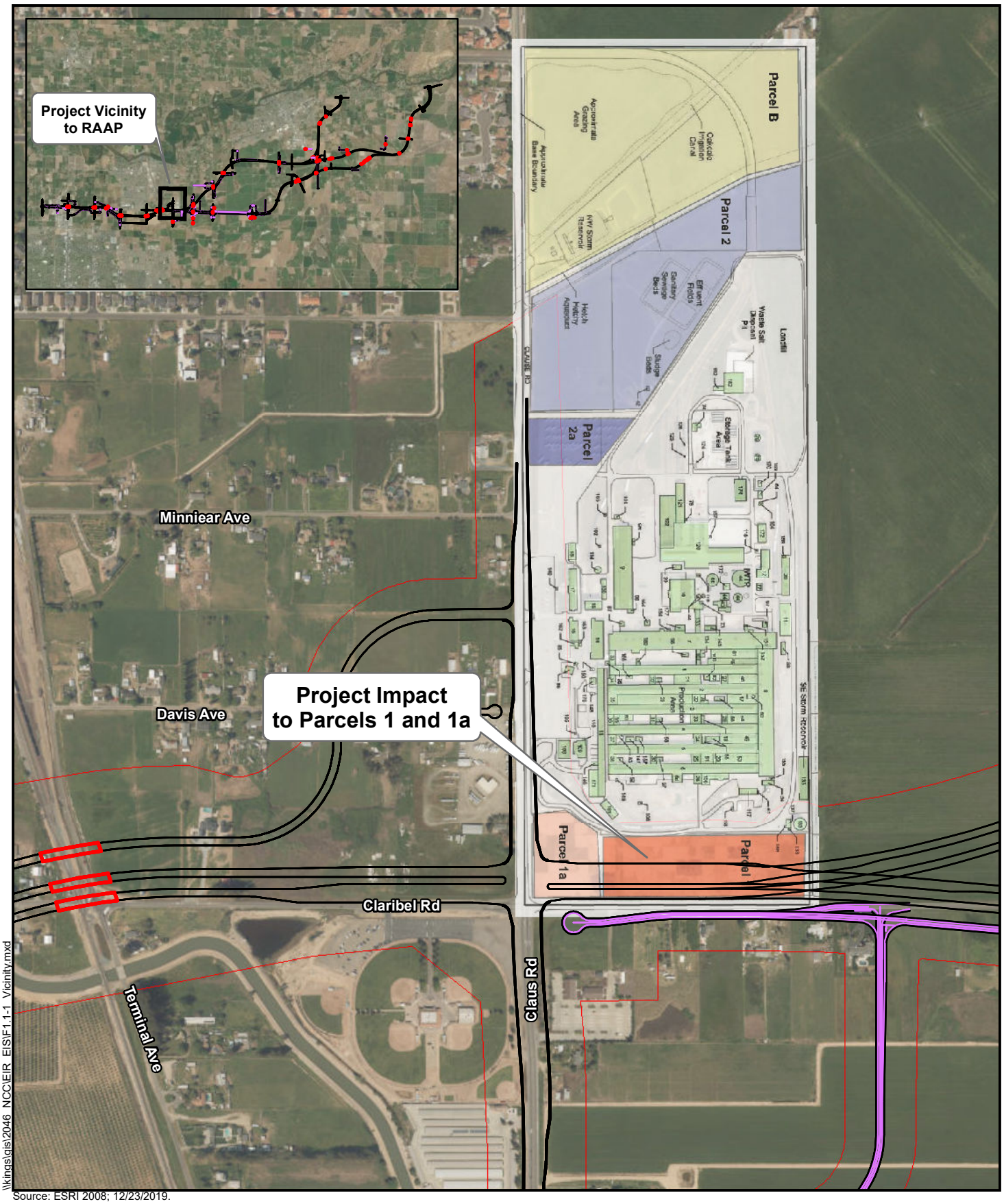
Riverbank Local Redevelopment Authority is leasing the Army Ammunition Plant through an Interim Master Lease executed in 2016, which allows for the Riverbank Local Redevelopment Authority to perform operations and maintenance functions on behalf of the U.S. Army until the property is formally transferred. A Finding of Suitability for Early Transfer was prepared between the U.S. Army and the regulatory agencies in 2010, which will allow for transfer of the property

from the U.S. Army to the Riverbank Local Redevelopment Authority prior to full remediation. Section 1.1 of the Finding of Suitability for Early Transfer states that the U.S. Army is obligated to continue remediation on the site and will complete all necessary remediation of the property, including remediation of contaminated groundwater, groundwater monitoring, and long-term monitoring of the landfill cap, even while Riverbank Local Redevelopment Authority is the manager of the property.

As efforts are completed on-site, the U.S. Army has slowly been disposing of remediated parcels via public sale. The portion of the Riverbank Army Ammunition Plant to be impacted by all alignments of the project, shown as Parcels 1 and 1a shaded pink and red in Figure 3.2.4-2 below, was originally set to be sold in 2015; however, public sale was delayed by the unanticipated discovery of oil- related polychlorinated biphenyl contamination. The U.S. Army awarded a construction contract in 2015 to remediate the contamination discovered in Parcels 1 and 1a. These open fields are currently undergoing remediation.

These parcels are not currently for sale by the U.S. Army as a Finding of Suitability for Transfer has not yet been completed nor has the parcel been granted regulatory and gubernatorial concurrence for an early transfer. Once they are available for sale, Stanislaus County will acquire these parcels and complete remediation in advance of construction. Once remediation is complete, Stanislaus County will grant a surface easement to Caltrans in order to construct the project through Parcels 1 and 1a. Stanislaus County will own the underlying fee on the parcels and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action.

Impacts to Parcels 1 and 1a will include minor improvements such as roadway widening, grading, and underground utility work. Roadway alignment through Parcels 1 and 1a of the site is common to all alignments being considered. The U.S. Army is currently under contract to have the PCB contaminated soil on Parcels 1 and 1a, the 8.5-acre portion of the Riverbank Army Ammunition Plant set to be acquired, removed down to the industrial maximum contamination level (MCL) of 0.99 mg/kg.



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Source: ESRI 2008; 12/23/2019.

0 250 500 750 1,000 Feet

FIGURE 3.2.4-2
Riverbank Army Ammunition Plant Parcel Boundaries
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Hawke Dusters
APN 062-027-018
5800 Langworth Road
Alternative: Nex to 1A, 1B
Figure 3.2.4-1, in Appendix A: page 4, 5, 10 of 14

The project's design has been revised and now avoids impacts to the Hawke Dusters parcel through the use of cul-de-sacs instead of a continuous access road through the parcel. While the Hawke Dusters parcel is within the project area, no direct impacts are anticipated and no measures are necessary. If unable to avoid direct impacts to this parcel, Stanislaus County will acquire this parcel and complete remediation in advance of construction. Once remediation is complete, Stanislaus County will grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcel and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action.

If unable to avoid direct impacts to this parcel Stanislaus County will acquire this parcel and complete remediation in advance of construction. Once remediation is complete, Stanislaus County will grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcel and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action.

Medium-Risk Sites

In the next risk level, 82 medium-risk parcels were identified within or next to the proposed project alignments. The medium-risk sites are shown in Figure 3.2.4-1. Medium-risk sites were identified by comparing historical land use to the Caltrans hazardous waste risk examples. Based on the proposed improvements, it is anticipated that impacts to parcels that are medium-risk sites will range from minimal impacts to major grading and structure removals. Below is the number of medium-risk parcels per alternative along with potential contaminates.

- Alternate 1A has 62 medium-risk parcels with the following potential contaminates; heavy metals, petroleum hydrocarbons, miscellaneous chemical waste, chlorinated solvents, herbicides/pesticides, and groundwater contamination.
- Alternate 1B has 64 medium-risk parcels with the following potential contaminates; heavy metals, petroleum hydrocarbons, miscellaneous chemical waste, chlorinated solvents, herbicides/pesticides, and groundwater contamination.
- Alternate 2A has 62 medium-risk parcels with the following potential contaminates; heavy metals, petroleum hydrocarbons, miscellaneous chemical waste, chlorinated solvents, herbicides/pesticides, and groundwater contamination.
- Alternate 2B has 66 medium-risk parcels with the following potential contaminates; heavy metals, petroleum hydrocarbons, miscellaneous chemical waste, chlorinated solvents, herbicides/pesticides, and groundwater contamination.

Prior to completion of 50% design, a Preliminary Site Investigation of all medium-risk sites identified in Table 3.2.4-1 having partial or total parcel impacts will be conducted. Depending on the impacts, the Preliminary Site Investigation may include a combination of owner interviews, additional site visits, and sampling and testing. Sampling and testing, if necessary may include asbestos, heavy metals, petroleum hydrocarbons, chlorinated solvents, herbicides/pesticides,

miscellaneous chemical waste, and groundwater contamination. Stanislaus County will acquire any parcel having groundwater contamination requiring mitigation and grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcels and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action.

Aerially Deposited Lead

Due to transferring of land in the urbanized areas, additional confirmation will be required to determine that adjacent parcels do not contain aerially deposited lead in isolated locations. Caltrans will confirm aerially deposited lead study requirements. As the project is mostly on land that does not currently have an existing roadway, aerially deposited lead is not expected to be a concern in Segments 2 and 3.

Transformers

If the relocation of power poles or high voltage power lines is required, existing transformers should be checked for the presence of polychlorinated biphenyls (PCBs) or other hazardous materials used by the utility owner, and if present, should be properly remediated and disposed. As Segment 1 is the most developed within the project area, it is the most likely to include transformers; Segments 2 and 3 have a reduced likelihood to include transformers.

Yellow Traffic Stripes

Yellow traffic striping within the project area will require proper disposal, which may include disposal at a Class 1 disposal facility. Removal of yellow striping and pavement marking materials would be performed in accordance with Caltrans Standard Special Provision 14-11.07 REMOVE YELLOW TRAFFIC STRIPE AND PAVEMENT MARKING WITH HAZARDOUS WASTE RESIDUE.

Asphalt

Proposed project improvements include removal of existing asphalt roadway and old asphalt road sections. Asphalt is not currently regulated as a hazardous material, but asphalt binders potentially contain contaminants that require offsite disposal restrictions imposed by the State of California Integrated Waste Management Board. Restrictions are burdensome for recently placed asphalt. Asphalt removal from the project will need to be disposed of in accordance with current regulations.

Septic Tanks

Septic tanks may be encountered within the new alignments during construction and should be disposed of in accordance with current local regulations.

Building Materials

Asbestos and lead-based paint associated with the demolition or modification of existing structures and/or bridges may be encountered. These structures should be properly assessed prior to demolition. Prior to the start of construction, asbestos surveys using a certified professional shall be conducted to identify presence of asbestos-containing materials within any structures that may be altered or demolished to accommodate the planned construction. Prior to

the start of construction, lead-based paint surveys using a certified consultant shall be conducted to identify the presence of lead-based paint within any structures that may be altered or demolished to accommodate the planned construction.

Groundwater/Dewatering

Two contaminated groundwater issues were identified during the Initial Site Assessment investigations. The first issue is the acquisition of parcels with known groundwater contamination and liability associated with groundwater: investigation, monitoring, and remediation.

The second issue is dewatering. Since the corridor design includes below-grade structures and construction requires dewatering, contaminated groundwater may impact construction operations. Dewatering has the potential to cause existing groundwater contamination to migrate toward the project area. The result can be contaminated groundwater encroaching into the construction operation areas, and/or changing the groundwater flow characteristics within the project area.

Railroad Crossings

Railroad grade crossings can potentially contain heavy metals, petroleum hydrocarbon, and pesticides. Railroad ties may contain creosote and pentachlorophenol. Sampling and additional assessments will be required where project alignments cross railroad lines.

Treated Wood

Wood materials treated with chemical preservatives may be present as utility poles, sign posts, guardrail posts or in other uses. Treated wood is considered a hazardous waste upon removal and will be segregated and disposed at an appropriately permitted landfill.

Temporary Construction Impacts

During demolition and construction phases of the project, there is a limited risk of accidental release of hazardous materials such as gasoline, oil or other fluids in the operation and maintenance of construction equipment. As a result of construction activities, asbestos, lead-based paint, and/or aerially-deposited lead may also be encountered. As is the case for any project that proposes excavation, the potential exists for unknown hazardous contamination to be revealed during project construction (such as previously undetected petroleum hydrocarbon contamination from former underground storage tanks or potential explosive threat if a natural gas transmission pipeline is ruptured during construction). If known or previously unknown hazardous waste/material is encountered during construction, the procedures outlined in the Caltrans Hazards Procedures for Construction shall be followed. Following the procedures outlined in the Caltrans Hazards Procedures for Construction in the event of an accidental release or other emergency involving hazardous waste and materials would ensure public safety and minimize the potential impact on the environment. Compliance with federal, state, and local regulation would also address worker safety handling such materials.

<u>No-Build Alternative</u>

The No-Build Alternative would not require any construction activities and would therefore have no chance of encountering hazardous waste or hazardous materials. Existing hazardous

materials, should they occur in the project area, would not be identified or remediated, and could cause environmental impacts in the future.

Avoidance Minimization and/or Mitigation Measures

As identified in the measures below, a Preliminary Site Investigation for Alternative 1B would be done to ensure that sites with potential contaminants are studied, cleanup methods are identified, and health and safety measures are addressed consistent with federal, state, and local requirements prior to completion of 50% design. Results of the site investigation will be incorporated into the final design. If hazardous materials/wastes are found as a result of the Preliminary Site Investigation, site clean-up will be conducted between the right-of-way acquisition and the project construction periods. Caltrans will avoid acquisition of contaminated parcels and comply with its policy with regard to acquisition of contaminated property as required by the project. Stanislaus County will acquire contaminated parcels with groundwater contamination or where residual regulated contamination will remain after construction. In the event that residual contamination will remain that represents a risk to future maintenance workers, the parcel or area of contamination will be avoided. Early coordination with relevant regulatory agencies such as, but not limited to, the California Environmental Protection Agency Department of Toxic Substances Control, the Central Valley Regional Water Quality Control Board, and the Stanislaus County Department of Environmental Resources, would be undertaken as soon as the results of the Preliminary Site Investigation are available to identify any necessary permits and approvals needed.

Based on the evaluation in the Initial Site Assessment (November 2016), a preliminary assessment of cost for remediation (cleanup) of hazardous materials is estimated to be $6,200,000 for Alternative 1A, $6,400,000 for Alternative 1B, $6,200,000 for Alternative 2A, and $6,600,000 for Alternative 2B. While no impacts or remediation costs are anticipated at the Hawke Dusters site, should the project be unable to avoid the site, it will cost approximately $300,000 for environmental remediation. No remediation costs are anticipated for the Riverbank Army Ammunition Plant as this site is currently under extensive remediation by the U.S. Army Corps of Engineers and is anticipated to be completed by the end of 2020. The cost estimate will be revisited after the Preliminary Site Investigation is complete. The cost to clean up hazardous materials is generally the property owner's responsibility. Any remedial activity would occur before property acquisition. Some costs, however, should be budgeted as part of the project. A reasonable estimate may be up to 25 percent of the total cleanup cost.

Measure HW-1: Any leaking transformers observed during the course of the project should be considered a potential polychlorinated biphenyl (PCB) hazard. Should leaks from electrical transformers (that will either remain within the construction limits or will require removal and/or relocation) be encountered during construction, the transformer fluid should be sampled and analyzed by qualified personnel for detectable levels of PCBs. Should PCBs be detected, the transformer should be removed and disposed of in accordance with the appropriate regulatory agency. Any stained soil encountered below electrical transformers with detectable levels of PCBs should also be handled and disposed of in accordance with the appropriate regulatory agency.

Measure HW-2: Prior to completion of 50% design, a Preliminary Site Investigation (PSI) of all high and medium-risk sites identified in Table 3.2.4-1 having partial or total parcel impacts will be conducted. Depending on the project impact to each parcel, the PSI will consist of subsurface sampling and laboratory analysis and be of sufficient quantity to define the extent and concentration of potential contamination within the area, extent and depths of planned

construction activities within and adjacent to the 64 medium-risk parcels, and whether groundwater has been impacted by released contaminants. Sampling and testing, if necessary may include asbestos, heavy metals, petroleum hydrocarbons, chlorinated solvents, herbicides/pesticides, miscellaneous chemical waste, and groundwater. Stanislaus County will acquire any parcel having groundwater contamination requiring mitigation or where residual contamination will remain in place and grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcel(s) and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action. Areas of parcels where residual contamination may remain in place that could represent an risk during future maintenance activities will be avoided and not acquired. If a PSI cannot be conducted prior to 50% design the parcel will be avoided.

Measure HW-3: Prior to completion of final design, a Preliminary Site Investigation (PSI) of all the Hawke Dusters parcel identified in Table 3.2.4-1 will be conducted if it is unable to avoid direct impacts to this parcel. The PSI will consist of subsurface sampling and laboratory analysis and be of sufficient quantity to define the extent and concentration of potential contamination within the areal extent and depths of planned construction activities within and adjacent to the 64 medium-risk parcels and whether groundwater has been impacted by released contaminants. Sampling and testing, if necessary may include asbestos, heavy metals, petroleum hydrocarbons, chlorinated solvents, herbicides/pesticides, miscellaneous chemical waste, and groundwater. Stanislaus County will acquire this parcel and grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcel(s) and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action. If a PSI is not conducted then this parcel will be avoided.

Measure HW-4: Treated Wood Waste. Utility poles and railroad ties may contain creosote and pentachlorophenol. During construction, Caltrans will ensure treated wood objects be handled as TWW and managed per the Alternative Management Standards for Treated Wood Waste, as required by Chapter 34 of the Title 22 California Code of Regulations Section 67386.1 through 67386.12. All TWW should be properly disposed at a landfill permitted to accept TWW.

Measure HW-5: Creosote and Pentachlorophenol. The soil surrounding wooden utility poles and railroad ties may contain creosote and pentachlorophenol. Therefore, the soil surrounding either poles or ties that would be disturbed by the project will be sampled for creosote and pentachlorophenol prior to completion of final design. Soils with regulated concentrations of creosote and pentachlorophenol will be removed and disposed in conformance with federal and state regulatory requirements at properly permitted disposal facilities.

3.2.5 Air Quality

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the main federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). National and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride.

The national and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the NEPA. In addition to this environmental analysis, a parallel "Conformity" requirement under the Federal Clean Air Act also applies.

Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or planning and programming—level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 Code of Federal Regulations 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), NO_2, O_3, PM_{10} and $PM_{2.5}$, and in some areas (although not in California), SO_2. California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at

least 20 years for the Regional Transportation Plan, and 4 years for the Federal Transportation Improvement Program.

Regional Transportation Plan and Federal Transportation Improvement Program conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the State Implementation Plan are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration, and Federal Transit Administration (FTA), make determinations that the Regional Transportation Plan and Federal Transportation Improvement Program are in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan and/or Federal Transportation Improvement Program must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the Regional Transportation Plan and Federal Transportation Improvement Program, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide (CO) and/or particulate matter (PM_{10} or $PM_{2.5}$). A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially re-designated to attainment by the EPA, and are then called "maintenance" areas.

"Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Affected Environment

An Air Quality Report (AQR) was completed in July 2016 and Air Quality Report Addendum was completed in October 2019 for the proposed project.

The project is set within the San Joaquin Valley Air Basin, which is about 250 miles long and averages 80 miles wide. The basin includes all of seven counties (San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare) and the western portion of Kern County.

The San Joaquin Valley has an "inland Mediterranean" climate, characterized by hot, dry summers and cool winters. On average, the valley experiences more than 260 sunny days per year. Summer high temperatures often exceed 100 degrees Fahrenheit, averaging in the low 90s in the northern valley and high 90s in the south. In the entire San Joaquin Valley, high daily temperature readings in summer average 95 degrees Fahrenheit. Over the last 30 years, the San Joaquin Valley averaged 106 days a year at 90 degrees Fahrenheit or hotter, and 40 days a year 100 degrees Fahrenheit or hotter. The daily summer temperature can vary as much as 30 degrees.

In winter, the high mountains to the east prevent the cold continental air masses of the interior from influencing the valley, so winters are mild and humid. Average high temperatures in the winter are in the 50s, but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low temperature is 45 degrees Fahrenheit.

Air pollution is influenced by a region's topographic features. The San Joaquin Valley Air Basin is defined by the Sierra Nevada mountains in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Straits where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The San Joaquin Valley could be characterized as a "bowl" open only to the north.

Although marine air generally flows into the basin from the San Joaquin River Delta, the region's topographic features restrict air movement through and out of the basin. The Coastal Range hinders wind access into the San Joaquin Valley from the west, the Tehachapi Mountains prevent southerly passage of airflow, and the high Sierra Nevada range is a significant barrier to the east. These topographic features result in weak airflow, which becomes blocked vertically by high barometric pressure over the valley. As a result, the San Joaquin Valley Air Basin is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

Table 3.2.5-1 shows the state and federal criteria air pollutant standards. The San Joaquin Valley Air Basin is in nonattainment for federal ozone and $PM_{2.5}$ standards.

Table 3.2.5-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[i] Standard	Federal[ii] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Ozone (O_3) [2]	1 hour	0.09 ppm[iii]	--- [iv]	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	1 hour: Severe Nonattainment 8 hour: Nonattainment	1 hour: No Federal Standard 8 hour: Extreme Nonattainment
	8 hours	0.070 ppm	0.070 ppm (4th highest in 3 years)				
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives	Combustion sources, especially gasoline-powered engines and motor		Attainment/ maintenance
	8 hours	9.0 ppm [1]	9 ppm				

	8 hours (Lake Tahoe)	6 ppm	---	sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	
Respirable Particulate Matter (PM_{10})[v]	24 hours	50 µg/m^3 [vi]	150 µg/m^3 (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Maintenance – Serious
	Annual	20 µg/m^3	--- [5]				
Fine Particulate Matter ($PM_{2.5}$)[5]	24 hours	---	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	Nonattainment	Nonattainment (Moderate)
	Annual	12 µg/m^3	12.0 µg/m^3				
	24 hours (conformity process[vii])	---	65 µg/m^3				
	Secondary Standard (annual; also for conformity process[5])	---	15 µg/m^3 (98th percentile over 3 years)				
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm[viii]	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Attainment/ Unclassified
	Annual	0.030 ppm	0.053 ppm				
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm[ix] (99th percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Unclassified
	3 hours	---	0.5 ppm[x]				
	24 hours	0.04 ppm	0.14 ppm (for certain areas)				
	Annual	---	0.030 ppm (for certain areas)				
Lead (Pb)[xi]	Monthly	1.5 µg/m^3	---			Attainment	

				Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.		Unclassified/ Attainment
	Calendar Quarter	---	1.5 µg/m^3 (for certain areas)				
	Rolling 3-month average	---	0.15 µg/m^3 [xii]				
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Unclassified	N/A
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.	Unclassified	N/A
Vinyl Chloride[11]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Attainment	N/A

Adapted from Sonoma-Marin Narrows Draft EIR and California ARB Air Quality Standards chart (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

Greenhouse Gases and Climate Change: Greenhouse gases do not have concentration standards for that purpose. Conformity requirements do not apply to greenhouse gases.

[1] State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise.

[2] Federal standards are "not to exceed more than once a year" or as described above.
ppm = parts per million
Prior to 6/2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still be in use in some areas where 8-hour ozone emission budgets have not been developed, such as the S.F. Bay Area.
Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. Annual $PM_{2.5}$ NAAQS tightened from 15 µg/m^3 to 12 µg/m^3 December 2012 and secondary annual standard set at 15 µg/m^3.

$\mu g/m^3$ = micrograms per cubic meter
The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. The 15 $\mu g/m^3$ annual $PM_{2.5}$ standard was not revoked when the 12 $\mu g/m^3$ standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.
Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause re-designation to nonattainment in some areas after 2016.
EPA finalized a 1-hour SO_2 standard of 75 ppb (parts per billion [thousand million]) in June 2010. Nonattainment areas have not yet been designated as of 9/2012.
Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.
The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.
Lead NAAQS are not considered in Transportation Conformity analysis.

Existing Air Quality Conditions

The California Environmental Protection Agency's (CalEPA) Air Resources Board (ARB) air quality monitoring program collects accurate real-time measurements of ambient level pollutants at over 40 sites located throughout the state. The data generated are used to define the nature and severity of pollution in California, determine which areas of California are in attainment or nonattainment, identify pollution trends in the state, support agricultural burn forecasting, and develop air models and emission inventories.

The closest ARB air quality monitoring station to the project is located on 14th Street in Modesto (see Figure 3.2.5-1: Air Quality Monitoring Stations). A summary of 2011-2015 monitoring data from this station is included in Table 2. Ambient nitrogen dioxide concentration is not monitored at the Modesto station. The nearest station that monitors nitrogen dioxide is in Turlock. Nitrogen dioxide data from the Turlock station is shown in Table 2. Ambient sulfur dioxide concentration is not monitored at the Modesto station. The nearest station that monitors sulfur dioxide is located in Fresno, which is not near the affected area of the project. Accordingly, Table 2 does not include sulfur dioxide data. The data in Table 2 were compiled from the California Air Resources Board's iADAM: Air Quality Data Statistics (CARB 2016).

As shown in Table 3.2.5-2, the area surrounding the project did not exceed the state or federal standards for nitrogen dioxide or 8-hour carbon monoxide in the period 2010–2014. Levels of ozone exceeded the state and federal 8-hour standards on multiple days in all five years. Levels of PM_{10} exceeded the state 24-hour standard on multiple days in the years for which data are available, and exceeded the state annual mean standard in those years as well. Levels of $PM_{2.5}$ exceeded federal annual mean standard in multiple years and exceeded the federal 24-hour standard on multiple days in all years in which data was available. Levels of $PM_{2.5}$ also exceeded the state standard in 2012 and 2013.

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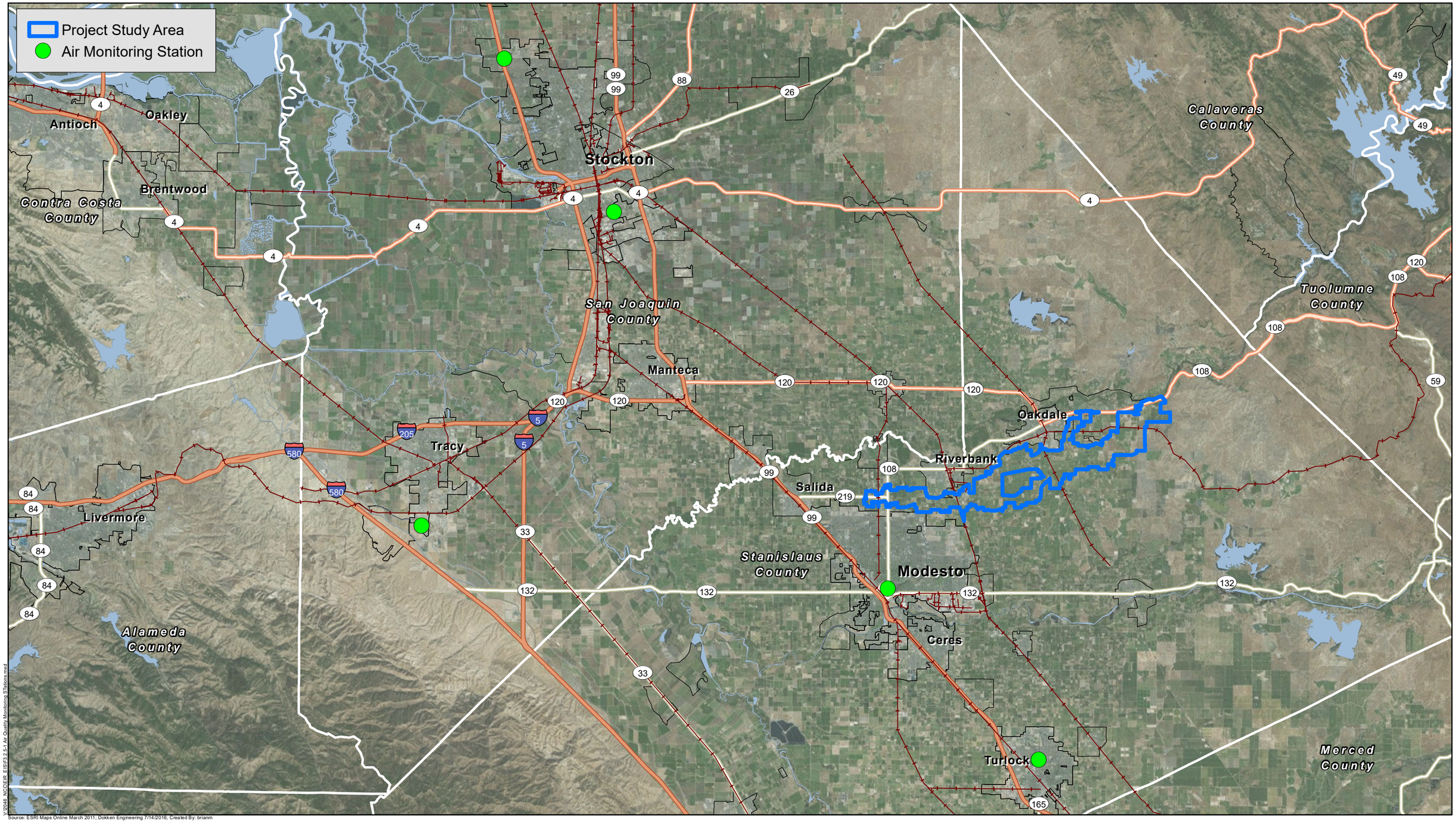


FIGURE 3.2.5-1
Air Quality Monitoring Stations
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Table 3.2.5-2: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Criteria Pollutant	Ambient Air Quality Standard	2011	2012	2013	2014	2015
Ozone (O_3)						
Maximum 1 Hour Concentration (ppm)	State	0.091	0.104	0.08	0.10	0.11
	Federal: N/A	--	--	--	--	--
Number of Days Exceeded	State: > 0.09	0	2	0	1	5
	Federal: N/A	--	--	--	--	--
Maximum 8 Hour Concentration (ppm)	State:	0.078	0.091	0.08	0.09	0.09
	Federal:	0.078	0.091	0.08	0.09	0.09
Number of Days Exceeded	Federal: >0.07	7	12	13	24	16
	Federal: >0.075	3	6	2	12	24
Respirable particulate Matter (PM10)						
Maximum 24-Hour Concentration ($\mu g/m^3$)	State	73.5	74.6	77.5	N/D	90.3
	National	69.4	74.1	73.0	122.	85.6
Number of Days Exceeded (Estimated)	State: >50	N/D	30.9	57.7	N/D	31.1
	Federal: >150	0	0	0	0	0
Annual Arithmetic Mean						
Exceeded for the Year	State: >20	N/D	25.6	30.9	N/D	277
	Federal: N/A	--	--	--	--	--
Fine Particulate Matter (PM2.5)						
Maximum 24-hour Concentration ($\mu g/m^3$)	State	71.7	62.3	83.2	58.2	46.4
	Federal	71.7	62.3	83.2	58.2	44.0
Number of Days Exceeded Standard	State: >12	N/D	30.9	57.7	N/D	N/D
	Federal: >12	25.0	13.0	37.6	17.0	N/D
Carbon Monoxide (CO)						
Maximum 1 hour Concentration (ppm)		N/D	N/D	N/D	N/A	N/A
Number of Days Exceeded Standard	State: >20	N/D	N/D	N/D	N/A	N/A
	Federal: >35	N/D	N/D	N/D	N/A	N/A
Maximum 8-Hour Concentration (ppm)		2.71	2.10	N/D	N/A	N/A
	State: >9	0	0	0	N/A	N/A
Number of Days Exceeded	Federal: >9	0	0	0	N/A	N/A
Nitrogen Dioxide (NO2)						
Maximum 1 Hour Concentration (ppb)		54	61	54	N/D	N/D
Number of Days Exceeded Standard	State: >180	0	0	0	N/A	N/A
	Federal: >100	0	0	0	N/A	N/A
Annual Arithmetic Mean		N/D	N/D	11	N/A	N/A
Exceeded for the Year	State: >30	N/D	N/D	11	N/D	N/D
	Federal:>53	N/D	N/D	N/D	N/D	N/D

Source: CARB 2016
N/D: No Data
N/A: Not Available

Potential Sensitive Receptors

"Sensitive receptors" are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. Air quality problems arise when sources of air pollutants and sensitive receptors are near one another. The project is not within 1,000 feet of a hospital, school, or convalescent facility. Land use within and around the project area includes commercial, industrial, residential, and open land/agricultural.

Environmental Consequences

Build Alternatives 1A, 1B, 2A, and 2B

Alternatives 1A, 1B, 2A, and 2B have the same environmental consequences, so they are discussed together below. Alternatives 1A, 1B, 2A, and 2B would each have a less than significant impact. These Build Alternatives are consistent with regional conformity requirements established by the federal Clean Air Act. These Build Alternatives also meet project-level conformity requirements. Mitigation measures are proposed for construction emissions as a result of ground disturbance, dust, and equipment emissions.

The project is in Stanislaus County in an area designated nonattainment for federal ozone and $PM_{2.5}$ standards (see Figures 3.2.5-2 and 3.2.5-3). The area is also designated maintenance for CO and PM_{10}. Therefore, the project is not exempt from conformity per 40 Code of Federal Regulations 93.126 or 40 Code of Federal Regulations 93.128. It is exempt from regional conformity per 40 Code of Federal Regulations 93.127.

Regional Conformity

The project is listed in the Stanislaus Council of Governments (StanCOG) financially constrained 2018 Regional Transportation Plan (RTP). The project is also included in the StanCOG financially constrained 2019 Federal Transportation Improvement Program (FTIP). The StanCOG 2018 Regional Transportation Plan and 2019 Federal Transportation Improvement Program were found to conform by StanCOG on August 15, 2018, and Federal Highway Administration and Federal Transit Administration completed the regional conformity determination on December 18, 2018 (see Appendix G). The design concept and scope of the proposed project are consistent with the project description in the 2018 Regional Transportation Plan, 2019 Federal Transportation Improvement Program, and the "open to traffic" assumptions of the StanCOG 2018 Air Quality Conformity Analysis (StanCOG 2018a).

The project was included in the regional emissions analysis conducted by StanCOG for the conforming 2018 Regional Transportation Plan (StanCOG 2018b). The plan is in conformity, and therefore the individual projects contained in the plan are conforming projects and will have air quality impacts consistent with those identified in the State Implementation Plans (SIPs) for achieving the National Ambient Air Quality Standards (NAAQS). Concurrence was received from the Environmental Protection Agency and Federal Highway Administration on January 29, 2015 that the project is not a Project of Air Quality Concern (POAQC). Caltrans also provided concurrence that the project is not a POAQC on January 22, 2015. The concurrence letters and e-mail correspondence are included in Appendix K.

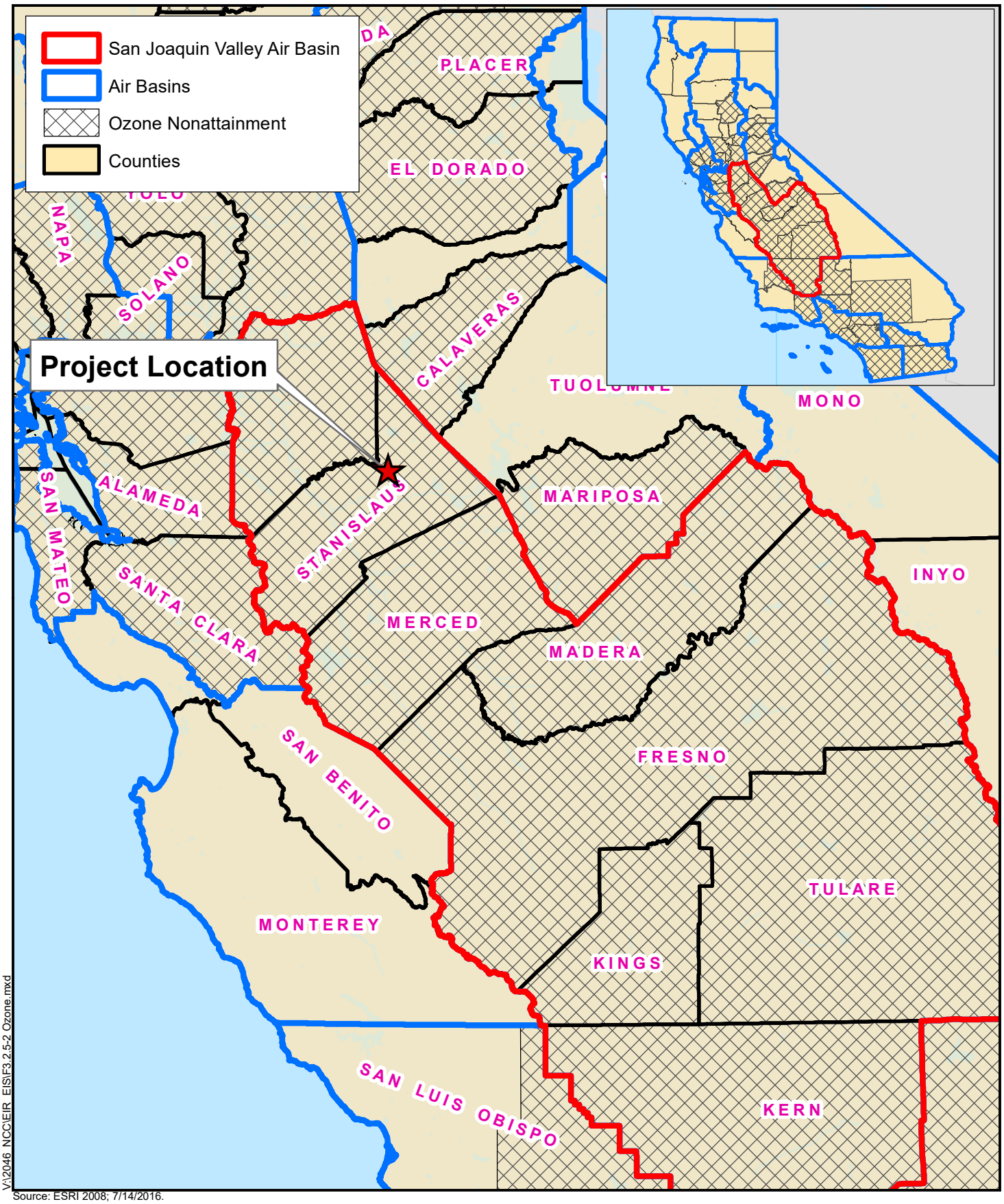
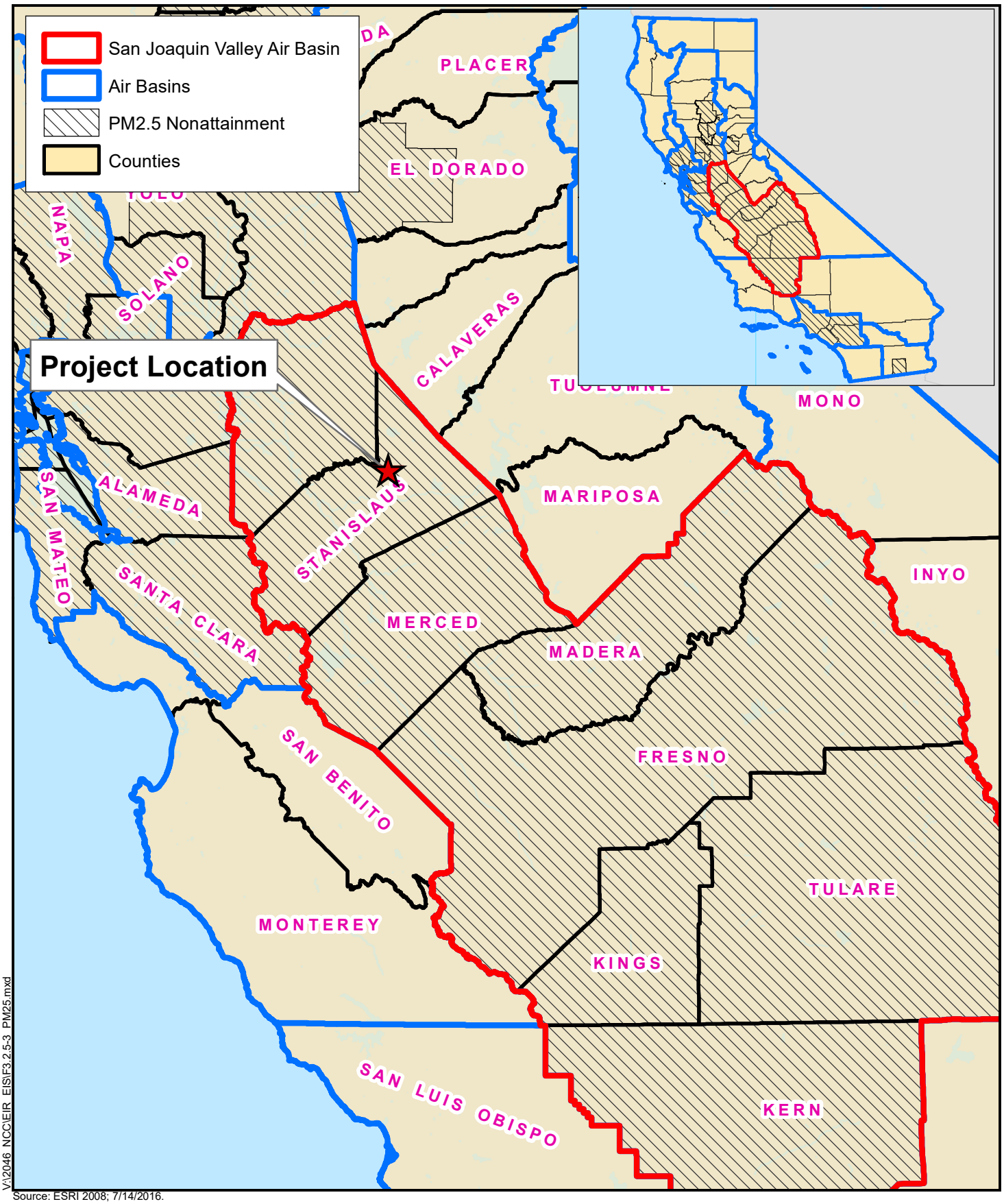


FIGURE 3.2.5-2
Ozone Nonattainment Area
EA: 10-0S8000, Project ID# 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



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Source: ESRI 2008; 7/14/2016.

0 50 100 Miles

FIGURE 3.2.5-3
$PM_{2.5}$ Nonattainment Area
EA: 10-0S8000, Project ID# 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Project-Level Conformity

Particulate Matter ($PM_{2.5}$/PM_{10})

The project is subject to particulate matter conformity analysis because it is located within a $PM_{2.5}$ nonattainment area. As the first step in demonstrating $PM_{2.5}$/PM_{10} conformity, Interagency Consultation will be conducted to determine if the project is a Project of Air Quality Concern (POAQC) as defined in 40 Code of Federal Regulations 93.116 and 93.123 and EPA's Hot-Spot Guidance. Concurrence was received from the EPA and Federal Highway Administration on January 29, 2015 that the project is not a Project of Air Quality Concern. Caltrans also provided concurrence that the project is not a Project of Air Quality Concern on January 22, 2015 (see Appendix K).

Table 3.2.5-3 shows why the project does not meet the definition of a Project of Air Quality Concern.

Table 3.2.5-3: Projects of Air Quality Concern

EPA Definition of Project of Air Quality Concern		Proposed Project
(i)	New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;	While the project is a new highway project, it does not involve a significant number of or significant increase in diesel vehicles. The most heavily traveled segment has a projected design year (2046) Average Daily Traffic count of 49,700, of which a projected 11 percent are trucks. This segment is thereby projected to have a truck Average Daily Traffic count of 5,467, which is well below the general threshold of 10,000 diesel trucks.
(ii)	Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;	The anticipated number of diesel vehicles is not significant (see above).
(iii)	New bus and rail terminals and transfer points than have a significant number of diesel vehicles congregating at a single location;	Bus and rail terminals and transfer points are not part of this project.
(iv)	Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and	Expanded bus and rail terminals and transfer points are not part of this project.
(v)	Projects in or affecting locations, areas, or categories of sites which are identified in the PM_{10} or $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.	The project is not in, nor will it affect, a location of violation or possible violation

Source: Air Quality Report, 2016

Carbon Monoxide Hot-Spot Analysis

The Transportation Project-Level Carbon Monoxide Protocol (University of California, Davis, Institute of Transportation Studies (UCD ITS) (1997) was used to determine the analysis needed regarding potential project-level CO impacts. The guidelines in the protocol comply with the Clean Air Act, federal and state conformity rules, NEPA, and CEQA. Two conformity-requirement decision flow charts are provided in the protocol. Below is a discussion of the steps used to determine the conformity requirements for new projects.

3.1.1 Is the project exempt from all emissions analyses? **NO.** The proposed project is not exempt from all emissions analyses.

3.1.2 Is the project exempt from regional emissions analysis? **NO.** The proposed project is a roadway construction project, which is not exempt from regional emissions analysis per CFR 93.127.

3.1.3 Is the project locally defined as regionally significant? **YES.** The proposed project will construct a new 2- to 6-lane expressway. The project was listed as a capacity enhancing project in the StanCOG Air Quality Conformity Analysis for the 2018 Regional Transportation Plan. As such, the project is locally defined as regionally significant in accordance with 40 CFR 93.101.

3.1.4 Is the project in a federal attainment area? **NO.** The project is located within an attainment/maintenance area for the federal CO standard.

3.1.5 Are there a currently conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP)? **YES.** The current Regional Transportation Plan and TIP have been found to conform by StanCOG, and a conformity determination from FHWA and FTA is was issued by the end of the year 2018.

3.1.6 Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP? **YES.** The project is included in the StanCOG 2018 Regional Transportation Plan and 2019 Federal Transportation Improvement Program (Project ID: SC03; Description: North County Corridor, Tully Road to SR-120/108, Construct 2-6 lane expressway).

3.1.7 Has the project design/concept and/or scope changed significantly from that in the regional analysis? **NO.** The proposed Build Alternatives are consistent with the project description in the 2018 Regional Transportation Plan/2019 Federal Transportation Improvement Program.

3.1.9 Examine local impacts. (Proceed to Section 4.)

Section 4 of the protocol assesses local analysis. Assessment of the project's effect on localized ambient air quality is based on analysis of CO and PM_{10} emissions, with the focus on CO. Localized emissions of CO and PM_{10} may increase with implementation of the proposed project. CO is used as an indicator of a project's direct and indirect impact on local air quality, because CO does not readily disperse in the local environment in cool weather when the wind is fairly still. As stated in the protocol, the determination of project-level CO impacts should be carried out according to the Local Analysis flow chart of the protocol. The following explains the local analysis in the protocol.

Level 1: Is the project in a CO nonattainment area? **NO.** The project site is located in a federal attainment/maintenance area.

Level 1 (Continued): Was the area redesignated as "attainment" after the 1990 Clean Air Act? **YES.** EPA approved the maintenance plans and redesignation request in 1998.

Level 1 (Continued): Has "continued attainment" been verified with the local Air District, if appropriate? **YES.** The project area continues to be in attainment for CO. (Proceed to Level 7).

Level 7: Does the project worsen air quality? **YES.** The proposed project will construct a new roadway. Therefore, the proposed project would potentially worsen air quality:

a. *Does the project significantly increase the percentage of vehicles operating in cold start mode? Increasing the number of vehicles operating in cold start mode by as little as 2 percent should be considered potentially significant.*

   No, the project does not significantly increase the percentage of vehicles operating in cold start. It is anticipated that all vehicles in the project intersections are in a fully warmed-up mode.

b. *Does the project significantly increase traffic volumes? Increases in traffic volumes in excess of 5 percent should be considered potentially significant. Increasing the traffic volume by less than 5 percent may still be potentially significant if there is a corresponding reduction in average speeds.*

   Yes, as indicated in Tables 3.2.5-4 through 3.2.5-7, the project would significantly increase traffic volumes along Claribel Road and the proposed North County Corridor.

c. *Does the project worsen traffic flow? For uninterrupted roadway segments, higher average speeds (up to 50 mph) should be regarded as an improvement in traffic flow. For intersection segments, higher average speeds and a decrease in average delay should be considered an improvement in traffic flow.*

   No, as shown in Tables 3.2.5-8 and 3.2.5-9, the project would improve the LOS at most intersections in the project area.

Level 7 (Continued): Is the project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration? **NO.** The 2004 Revision to the California State Implementation Plan for Carbon Monoxide (ARB, July 22, 2004) shows that the 8-hour CO concentration in Modesto was 3.7 parts per million (ppm) in 2003, 61 percent below the federal standard. Between 2010 and 2012, the maximum 8-hour CO concentration in Modesto was 2.7 ppm, 71 percent below the federal standard. Therefore, it is unlikely the project would result in a new exceedance of the CO standards. To show that the project would not result in any new exceedances, CO concentrations at the most congested intersections in the project area were modeled. Tables 3.2.5-10 through 3.2.5-13 list the 1-hour and 8-hour CO concentrations under the build-out year (2046) conditions. As shown, none of the intersections would result in any concentrations exceeding the 1-hour or 8-hour CO standards.

Table 3.2.5-4: 2026 Traffic Data (ADT/Truck ADT) for Alternatives 1A and 1B

Roadway Segment	Without Project	With Project Alternative 1A	Project Related Increase in Traffic	With Project Alternative 1B	Project Related Increase in Traffic
Patterson Road between existing SR-108 and Oakdale Road	17,300 / 1,211	15,400 / 1,078	-1,900 / -133	15,700 / 1,099	-1,600 / -112
Atchison Street West of 1st Street	22,600 / 1,582	19,700 / 1,379	-2,900 / -203	20,200 / 1,414	-2,400 / -168
Atchison Street between 1st Street and Claus Road	18,700 / 1,309	13,800 / 966	-4,900 / -343	14,300 / 1,001	-4,400 / -308
Existing SR-108 between Langworth Road and Crane Road	19,400 / 1,358	11,400 / 798	-8,000 / -560	12,500 / 875	-6,900 / -483
F Street East of Crane Road	19,100 / 1,337	15,100 / 1,057	-4,000 / -280	16,300 / 1,141	-2,800 / -196
F Street West of Yosemite Avenue	18,500 / 1,295	14,300 / 1,001	-4,200 / -294	15,500 / 1,085	-3,000 / -210
F Street East of Yosemite Avenue	25,600 / 1,792	14,600 / 1,022	-11,000 / -770	17,600 / 1,232	-8,000 / -560
Existing SR-108 West of Wamble Road	18,200 / 1,274	18,200 / 1,274	0 / 0	11,700 / 819	-6,500 / -455
Claribel Road West of McHenry Avenue	20,900 / 1,463	23,600 / 1,652	2,700 / 189	23,600 / 1,652	2,700 / 189
Claribel Road between McHenry Avenue and Coffee Road	16,600 / 1,162	30,800 / 2,156	14,200 / 994	30,800 / 2,156	14,200 / 994
Claribel Road between Coffee Road and Oakdale Road	14,800 / 1,036	28,700 / 2,009	13,900 / 973	28,300 / 1,981	13,500 / 945
Claribel Road between Oakdale Road and Roselle Avenue	17,000 / 1,190	27,200 / 1,904	10,200 / 714	26,800 / 1,876	9,800 / 686
Claribel Road between Roselle Avenue and Claus Road	17,000 / 1,190	27,200 / 1,904	10,200 / 714	26,800 / 1,876	9,800 / 686
Claribel Road West of Langworth Road	11,300 / 791	6,400 / 448	-4,900 / -343	6,400 / 448	-4,900 / -343
Claribel Road West of Albers Road	8,000 / 560	4,900 / 343	-3,100 / -217	4,900 / 343	-3,100 / -217
North County Corridor between Claus Road and Langworth Road	N/A	25,500 / 2,805	25,500 / 2,805	24,600 / 2,706	24,600 / 2,706
North County Corridor between Langworth Road and Albers Road	N/A	18,400 / 2,024	18,400 / 2,024	16,700 / 1,837	16,700 / 1,837
North County Corridor East of Albers Road	N/A	12,200 / 1,342	12,200 / 1,342	9,000 / 990	9,000 / 990
North County Corridor South of Existing SR-108	N/A	7,100 / 781	7,100 / 781	5,100 / 561	5,100 / 561

Source: Air Quality Report, 2016, and TOR Addendum, 2019

Note: Daily trucks on existing roadways were based on 7 percent of the average daily traffic and daily trucks on the North County Corridor were based on the projected 11 percent of the average daily traffic.

Table 3.2.5-5: 2026 Traffic Data (ADT/Truck ADT) for Alternatives 2A and 2B

Roadway Segment	Without Project	With Project Alternative 2A	Project Related Increase in Traffic	With Project Alternative 2B	Project Related Increase in Traffic
Patterson Road between Existing SR-108 and Oakdale Road	17,300 / 1,211	16,700 / 1,169	-600 / -42	17,000 / 1,190	-300 / -21
Atchison Street West of 1st Street	22,600 / 1,582	22,400 / 1,568	-200 / -14	22,900 / 1,603	300 / 21
Atchison Street between 1st Street and Claus Road	18,700 / 1,309	16,800 / 1,176	-1,900 / -133	17,400 / 1,218	-1,300 / -91
Existing SR-108 between Langworth Road and Crane Road	19,400 / 1,358	18,200 / 1,274	-1,200 / -84	19,500 / 1,365	100 / 7
F Street East of Crane Road	19,100 / 1,337	15,000 / 1,050	-4,100 / -287	16,200 / 1,134	-2,900 / -203
F Street West of Yosemite Avenue	18,500 / 1,295	13,400 / 938	-5,100 / -357	14,600 / 1,022	-3,900 / -273
F Street East of Yosemite Avenue	25,600 / 1,792	15,200 / 1,064	-10,400 / -728	19,000 / 1,330	-6,600 / -462
Existing SR-108 West of Wamble Road	18,200 / 1,274	18,200 / 1,274	0 / 0	13,100 / 917	-5,100 / -357
Claribel Road West of McHenry Avenue	20,900 / 1,463	22,700 / 1,589	1,800 / 126	22,700 / 1,589	1,800 / 126
Claribel Road between McHenry Avenue and Coffee Road	16,600 / 1,162	28,200 / 1,974	11,600 / 812	28,200 / 1,974	11,600 / 812
Claribel Road between Coffee Road and Oakdale Road	14,800 / 1,036	24,200 / 1,694	9,400 / 658	24,000 / 1,680	9,200 / 644
Claribel Road between Oakdale Road and Roselle Avenue	17,000 / 1,190	25,100 / 1,757	8,100 / 567	24,600 / 1,722	7,600 / 532
Claribel Road between Roselle Avenue and Claus Road	17,000 / 1,190	24,800 / 1,736	7,800 / 546	24,300 / 1,701	7,300 / 511
Claribel Road West of Langworth Road	11,300 / 791	20,600 / 1,442	9,300 / 651	19,200 / 1,344	7,900 / 553
Claribel Road West of Albers Road	8,000 / 560	20,600 / 1,442	12,600 / 882	19,200 / 1,344	11,200 / 784
North County Corridor between Albers Road and Oakdale Waterford Highway	N/A	17,700 / 1,947	17,700 / 1,947	15,300 / 1,683	15,300 / 1,683
North County Corridor East of Oakdale Waterford Highway	N/A	9,200 / 1,012	9,200 / 1,012	5,100 / 561	5,100 / 561
North County Corridor South of Existing SR-108	N/A	5,300 / 583	5,300 / 583	3,500 / 385	3,500 / 385

Source: Air Quality Report, 2016, and AQR Addendum, 2019

Note: Daily trucks on existing roadways were based on 7 percent of the average daily traffic and daily trucks on the North County Corridor were based on the projected 11 percent of the average daily traffic.

Table 3.2.5-6: 2046 Traffic Data (ADT/Truck ADT) for Alternatives 1A and 1B

Roadway Segment	Without Project	With Project Alternative 1A	Project Related Increase in Traffic	With Project Alternative 1B	Project Related Increase in Traffic
Patterson Road between existing SR-108 and Oakdale Road	19,200 / 1,344	17,100 / 1,197	-2,100 / -147	17,400 / 1,218	-1,800 / -126
Atchison Street West of 1st Street	25,000 / 1,750	21,800 / 1,526	-3,200 / -224	22,400 / 1,568	-2,600 / -182
Atchison Street between 1st Street and Claus Road	21,400 / 1,498	15,800 / 1,106	-5,600 / -392	16,400 / 1,148	-5,000 / -350
Existing SR-108 between Langworth Road and Crane Road	22,400 / 1,568	13,200 / 924	-9,200 / -644	14,500 / 1,015	-7,900 / -553
F Street East of Crane Road	21,200 / 1,484	16,800 / 1,176	-4,400 / -308	18,100 / 1,267	-3,100 / -217
F Street West of Yosemite Avenue	20,900 / 1,463	16,100 / 1,127	-4,800 / -336	17,500 / 1,225	-3,400 / -238
F Street East of Yosemite Avenue	31,200 / 2,184	17,800 / 1,246	-13,400 / -938	21,500 / 1,505	-9,700 / -679
Existing SR-108 West of Wamble Road	23,400 / 1,638	23,400 / 1,638	0 / 0	15,100 / 1,057	-8,300 / -581
Claribel Road West of McHenry Avenue	35,200 / 2,464	40,200 / 2,814	5,000 / 350	40,200 / 2,814	5,000 / 350
Claribel Road between McHenry Avenue and Coffee Road	38,200 / 2,674	49,700 / 3,479	11,500 / 805	49,500 / 3,465	11,300 / 791
Claribel Road between Coffee Road and Oakdale Road	18,600 / 1,302	46,100 / 3,227	27,500 / 1,925	45,600 / 3,192	27,000 / 1,890
Claribel Road between Oakdale Road and Roselle Avenue	21,000 / 1,470	36,700 / 2,569	15,700 / 1,099	35,900 / 2,513	14,900 / 1,043
Claribel Road between Roselle Avenue and Claus Road	21,000 / 1,470	36,700 / 2,569	15,700 / 1,099	35,900 / 2,513	14,900 / 1,043
Claribel Road West of Langworth Road	18,700 / 1,309	10,600 / 742	-8,100 / -567	10,600 / 742	-8,100 / -567
Claribel Road West of Albers Road	11,000 / 770	6,700 / 469	-4,300 / -301	6,700 / 469	-4,300 / -301
North County Corridor between Claus Road and Langworth Road	N/A	34,300 / 3,773	34,300 / 3,773	33,100 / 3,641	33,100 / 3,641
North County Corridor between Langworth Road and Albers Road	N/A	24,700 / 2,717	24,700 / 2,717	23,800 / 2,618	23,800 / 2,618
North County Corridor East of Albers Road	N/A	16,400 / 1,804	16,400 / 1,804	12,300 / 1,353	12,300 / 1,353
North County Corridor South of Existing SR-108	N/A	9,600 / 1,056	9,600 / 1,056	7,200 / 792	7,200 / 792

Source: Air Quality Report, 2016, and AQR Addendum, 2019
Note: Daily trucks on existing roadways were based on 7 percent of the average daily traffic and daily trucks on the North County Corridor were based on the projected 11 percent of the average daily traffic.

Table 3.2.5-7: 2046 Traffic Data (ADT/Truck ADT) for Alternatives 2A and 2B

Roadway Segment	Without Project	With Project Alternative 2A	Project Related Increase in Traffic	With Project Alternative 2B	Project Related Increase in Traffic
Patterson Road between Existing SR-108 and Oakdale Road	19,200 / 1,344	18,500 / 1,295	-700 / -49	18,800 / 1,316	-400 / -28
Atchison Street West of 1st Street	25,000 / 1,750	24,800 / 1,736	-200 / -14	25,300 / 1,771	300 / 21
Atchison Street between 1st Street and Claus Road	21,400 / 1,498	19,200 / 1,344	-2,200 / -154	19,900 / 1,393	-1,500 / -105
Existing SR-108 between Langworth Road and Crane Road	22,400 / 1,568	21,000 / 1,470	-1,400 / -98	22,500 / 1,575	100 / 7
F Street East of Crane Road	21,200 / 1,484	16,600 / 1,162	-4,600 / -322	17,900 / 1,253	-3,300 / -231
F Street West of Yosemite Avenue	20,900 / 1,463	15,100 / 1,057	-5,800 / -406	16,500 / 1,155	-4,400 / -308
F Street East of Yosemite Avenue	31,200 / 2,184	18,500 / 1,295	-12,700 / -889	23,100 / 1,617	-8,100 / -567
Existing SR-108 West of Wamble Road	23,400 / 1,638	23,400 / 1,638	0 / 0	16,800 / 1,176	-6,600 / -462
Claribel Road West of McHenry Avenue	35,200 / 2,464	38,200 / 2,674	3,000 / 210	38,200 / 2,674	3,000 / 210
Claribel Road between McHenry Avenue and Coffee Road	38,200 / 2,674	48,400 / 3,388	10,200 / 714	48,400 / 3,388	10,200 / 714
Claribel Road between Coffee Road and Oakdale Road	18,600 / 1,302	40,600 / 2,842	22,000 / 1,540	40,300 / 2,821	21,700 / 1,519
Claribel Road between Oakdale Road and Roselle Avenue	21,000 / 1,470	31,100 / 2,177	10,100 / 707	29,900 / 2,093	8,900 / 623
Claribel Road between Roselle Avenue and Claus Road	21,000 / 1,470	31,000 / 2,170	10,000 / 700	29,800 / 2,086	8,800 / 616
Claribel Road West of Langworth Road	18,700 / 1,309	25,500 / 1,785	6,800 / 476	24,100 / 1,687	5,400 / 378
Claribel Road West of Albers Road	11,000 / 770	25,500 / 1,785	14,500 / 1,015	24,100 / 1,687	13,100 / 917
North County Corridor between Albers Road and Oakdale Waterford Highway	N/A	21,100 / 2,321	21,100 / 2,321	19,300 / 2,123	19,300 / 2,123
North County Corridor East of Oakdale Waterford Highway	N/A	16,200 / 1,782	16,200 / 1,782	10,300 / 1,133	10,300 / 1,133
North County Corridor South of Existing SR-108	N/A	8,800 / 968	8,800 / 968	6,700 / 737	6,700 / 737

Source: Air Quality Report, 2016, and AQR Addendum, 2019

Note: Daily trucks on existing roadways were based on 7 percent of the average daily traffic and daily trucks on the North County Corridor were based on the projected 11 percent of the average daily traffic.

Table 3.2.5-8: Intersection Analysis – 2026 Conditions

Intersection	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3. McHenry Avenue/Ladd Road	AM	34	C	29	C	29	C	32	C	30	C
	PM	39	D	41	D	44	D	40	D	40	D
5. Existing SR-108/Patterson Road	AM	10	A	8	A	8	A	9	A	8	A
	PM	14	B	12	B	12	B	14	B	13	B
6. McHenry Avenue/Kiernan Avenue	AM	26	C	14	B	14	B	14	B	14	B
	PM	28	C	15	B	14	B	15	B	14	B
7. McHenry Avenue/Claratina Avenue	AM	33	C	30	C	30	C	31	C	29	C
	PM	53	D	39	D	42	D	36	D	37	D
9. Coffee Road/Claratina Avenue	AM	24	C	23	C	23	C	25	C	23	C
	PM	25	C	23	C	23	C	23	C	23	C
13. 1st Street/ Existing SR-108	AM	48	D	23	C	23	C	27	C	30	C
	PM	56	E	31	C	32	C	37	D	38	D
16. Claus Road/Claribel Road	AM	31	C	20	C	20	C	18	B	17	B
	PM	38	D	25	C	27	C	19	B	21	C
17. Crane Road/Patterson Road	AM	5	A	3	A	3	A	3	A	3	A
	PM	14	B	3	A	3	A	3	A	9	A
20. SR-108/SR-120	AM	56	E	28	C	28	C	28	C	35	C
	PM	74	E	32	C	36	D	32	C	36	D
22. Albers Road/Patterson Road	AM	28	C	18	B	18	B	23	C	23	C
	PM	26	C	25	C	25	C	26	C	25	C
27. Albers Road/North County Corridor	AM	--[1]	--	19	B	19	B	20	C	20	B
	PM	--	--	35	C	18	B	18	B	17	B
31. McHenry Ave/Galaxy Way	AM	--	--	5	A	5	A	6	A	6	A
	PM	--	--	29	C	10	A	10	A	10	A
38. Claus Road/Claribel Realigned (S)	AM	--	--	7	A	7	A	2	A	2	A
	PM	--	--	19	B	2	A	2	A	4	A

Source: Air Quality Report, 2016, and AQR Addendum, 2019

Notes: Results in bold represent unacceptable levels of service as determined based on applicable standards of relevant jurisdictions.

[1] Not applicable under No Build conditions.

Table 3.2.5-9: Intersection Analysis – 2046 Conditions

Intersection	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3. McHenry Avenue/Ladd Road	AM	30	C	39	D	38	D	32	C	32	C
	PM	28	C	47	D	47	D	37	D	37	D
5. Existing SR-108/Patterson Road	AM	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
	PM	**>100**	**F**	17	B	16	B	53	D	39	D
6. McHenry Avenue/Kiernan Avenue	AM	**>100**	**F**	12	B	12	B	12	B	12	B
	PM	**58**	**E**	18	B	18	B	17	B	17	B
7. McHenry Avenue/Claratina Avenue	AM	**> 100**	**F**	89	**F**	**85**	**F**	**>100**	**F**	**90**	**F**
	PM	**> 100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
9. Coffee Road/Claratina Avenue	AM	**>100**	**F**	39	D	40	D	**75**	**E**	45	D
	PM	**>100**	**F**	**64**	**E**	**66**	**E**	52	D	47	D
13. 1st Street/Existing SR-108	AM	**>100**	**F**	31	C	32	C	44	D	48	D
	PM	**>100**	**F**	55	D	**65**	**E**	**83**	**F**	**>100**	**F**
16. Claus Road/Claribel Road	AM	**61**	**E**	33	C	35	C	27	C	28	C
	PM	**59**	**E**	**49**	**D**	**47**	**D**	**38**	**D**	**38**	**D**
17. Crane Road/Patterson Road	AM	17	B	14	B	13	B	11	B	11	B
	PM	**>100**	**F**	14	B	14	B	21	C	21	C
20. SR-108/SR-120	AM	**>100**	**F**	37	D	**98**	**F**	36	D	51	D
	PM	**>100**	**F**	50	D	**>100**	**F**	53	D	**66**	**E**
22. Albers Road/Patterson Road	AM	**52**	**D**	25	C	26	C	37	D	38	D
	PM	**37**	**D**	35	C	35	C	**38**	**D**	**41**	**D**
27. Albers Road/North County Corridor	AM	--[1]	--	39	D	34	C	38	D	33	C
	PM	--	--	34	C	30	C	29	C	28	C
31. McHenry Ave/Galaxy Way	AM	--	--	13	B	12	B	12	B	12	B
	PM	--	--	25	C	25	C	22	C	22	C
38. Claus Road/Claribel Realigned (S)	AM	--	--	11	B	11	B	7	A	7	A
	PM	--	--	17	B	23	C	8	A	8	A

Source: Air Quality Report, 2016, and AQR Addendum, 2019

Notes: Results in bold represent unacceptable levels of service as determined based on applicable standards of relevant jurisdictions.

[1] Not applicable under No Build conditions.

Table 3.2.5-10: 2046 CO Concentrations, Alternative 1A

Intersection	Receptor Distance to Road Centerline (meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)[1]	Without/With Project 8-Hour CO Concentration (ppm)[1]	Exceeds State Standards?	
					1-Hr (20 ppm)	8-Hr (9.0 ppm)
Existing SR-108 and Patterson	12 / 12	0.0 / 0.0	3.3 / 3.3	3.0 / 3.0	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 14	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	14 / 14	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
McHenry and Claratina	17 / 17	0.0 / 0.0	3.9 / 3.9	3.4 / 3.4	No	No
	17 / 17	-0.1 / -0.1	3.9 / 3.8	3.4 / 3.3	No	No
	17 / 17	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
Coffee and Claratina	14 / 14	0.0 / 0.0	3.8 / 3.8	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
1st and Atchison	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
Claus and Claribel	14 / 14	0.4 / 0.2	3.4 / 3.8	3.1 / 3.3	No	No
	14 / 14	0.3 / 0.2	3.4 / 3.7	3.1 / 3.3	No	No
	14 / 14	0.3 / 0.2	3.4 / 3.7	3.1 / 3.3	No	No
	14 / 14	0.3 / 0.2	3.4 / 3.7	3.1 / 3.3	No	No
Yosemite and F	13 / 13	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	8 / 8	-0.2 / -0.2	3.4 / 3.2	3.1 / 2.9	No	No
	8 / 8	-0.2 / -0.2	3.4 / 3.2	3.1 / 2.9	No	No
	12 / 12	-0.2 / -0.2	3.4 / 3.2	3.1 / 2.9	No	No

Source: Air Quality Report, 2016, and AQR Addendum, 2019

[1] Includes ambient one-hour concentration of 2.9 ppm and ambient eight-hour concentration of 2.7 ppm. Measured at the 14th Street, Modesto, CA Air Quality Station in Stanislaus County.

Table 3.2.5-11: 2046 CO Concentrations, Alternative 1B

Intersection	Receptor Distance to Road Centerline (meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)[1]	Without/With Project 8-Hour CO Concentration (ppm)[1]	Exceeds State Standards?	
					1-Hr (20 ppm)	8-Hr (9.0 ppm)
Existing SR-108 and Patterson	12 / 12	0.0 / 0.0	3.3 / 3.3	3.0 / 3.0	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 14	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	14 / 14	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
McHenry and Claratina	17 / 17	0.0 / 0.0	3.9 / 3.9	3.4 / 3.4	No	No
	17 / 17	-0.1 / -0.1	3.9 / 3.8	3.4 / 3.3	No	No
	17 / 17	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
Coffee and Claratina	14 / 14	0.0 / 0.0	3.8 / 3.8	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
1st and Atchison	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
Claus and Claribel	14 / 14	0.4 / 0.2	3.4 / 3.8	3.1 / 3.3	No	No
	14 / 14	0.3 / 0.2	3.4 / 3.7	3.1 / 3.3	No	No
	14 / 14	0.3 / 0.2	3.4 / 3.7	3.1 / 3.3	No	No
	14 / 14	0.2 / 0.1	3.4 / 3.6	3.1 / 3.2	No	No
Yosemite and F	13 / 13	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	8 / 8	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	8 / 8	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	12 / 12	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No

Source: Air Quality Report, 2016, and AQR Addendum, 2019

[1] Includes ambient one-hour concentration of 2.9 ppm and ambient eight-hour concentration of 2.7 ppm. Measured at the 14th Street, Modesto, CA Air Quality Station in Stanislaus County.

Table 3.2.5-12: 2046 CO Concentrations, Alternative 2A

Intersection	Receptor Distance to Road Centerline (meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)[1]	Without/With Project 8-Hour CO Concentration (ppm)[1]	Exceeds State Standards?	
					1-Hr (20 ppm)	8-Hr (9.0 ppm)
Existing SR-108 and Patterson	12 / 12	0.0 / 0.0	3.3 / 3.3	3.0 / 3.0	No	No
	12 / 12	0.0 / 0.0	3.3 / 3.2	3.0 / 3.0	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	14 / 14	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
McHenry and Claratina	17 / 17	-0.1 / -0.1	3.9 / 3.9	3.4 / 3.3	No	No
	17 / 17	-0.1 / -0.1	3.9 / 3.8	3.4 / 3.3	No	No
	17 / 17	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
Coffee and Claratina	14 / 14	0.0 / 0.0	3.8 / 3.8	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
1st and Atchison	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
Claus and Claribel	14 / 14	0.2 / 0.1	3.4 / 3.8	3.1 / 3.2	No	No
	14 / 14	0.2 / 0.1	3.4 / 3.7	3.1 / 3.2	No	No
	14 / 14	0.2 / 0.1	3.4 / 3.7	3.1 / 3.2	No	No
	14 / 14	0.2 / 0.1	3.4 / 3.7	3.1 / 3.2	No	No
Yosemite and F	13 / 13	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	8 / 8	-0.1 / -0.1	3.4 / 3.2	3.1 / 3.0	No	No
	8 / 8	-0.1 / -0.1	3.4 / 3.2	3.1 / 3.0	No	No
	12 / 12	-0.2 / -0.2	3.4 / 3.2	3.1 / 2.9	No	No

Source: Air Quality Report, 2016, and AQR Addendum, 2019

[1] Includes ambient one-hour concentration of 2.9 ppm and ambient eight-hour concentration of 2.7 ppm. Measured at the 14th Street, Modesto, CA Air Quality Station in Stanislaus County.

Table 3.2.5-13: 2046 CO Concentrations, Alternative 2B

Intersection	Receptor Distance to Road Centerline (meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration (ppm)[1]	Without/With Project 8-Hour CO Concentration (ppm)[1]	Exceeds State Standards?	
					1-Hr (20 ppm)	8-Hr (9.0 ppm)
Existing SR-108 and Patterson	12 / 12	0.0 / 0.0	3.3 / 3.3	3.0 / 3.0	No	No
	12 / 12	0.0 / 0.0	3.3 / 3.3	3.0 / 3.0	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	14 / 14	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
McHenry and Claratina	17 / 17	-0.1 / -0.1	3.9 / 3.8	3.4 / 3.3	No	No
	17 / 17	-0.1 / -0.1	3.9 / 3.8	3.4 / 3.3	No	No
	17 / 17	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
Coffee and Claratina	14 / 14	0.0 / 0.0	3.8 / 3.8	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	-0.1 / 0.0	3.8 / 3.7	3.3 / 3.3	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	3.3 / 3.3	No	No
1st and Atchison	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	-0.1 / -0.1	3.3 / 3.2	3.0 / 2.9	No	No
	12 / 12	0.0 / 0.0	3.2 / 3.2	2.9 / 2.9	No	No
Claus and Claribel	14 / 14	0.2 / 0.1	3.4 / 3.6	3.1 / 3.2	No	No
	14 / 14	0.2 / 0.1	3.4 / 3.6	3.1 / 3.2	No	No
	14 / 14	0.2 / 0.1	3.4 / 3.6	3.1 / 3.2	No	No
	14 / 14	0.1 / 0.0	3.4 / 3.5	3.1 / 3.1	No	No
Yosemite and F	13 / 13	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	8 / 8	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	8 / 8	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No
	12 / 12	-0.1 / -0.1	3.4 / 3.3	3.1 / 3.0	No	No

Source: Air Quality Report, 2016, and AQR Addendum, 2019

[1] Includes ambient one-hour concentration of 2.9 ppm and ambient eight-hour concentration of 2.7 ppm. Measured at the 14th Street, Modesto, CA Air Quality Station in Stanislaus County.

Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

An Air Quality Conformity Analysis was prepared and submitted to FHWA on October 8, 2019 to request a project-level conformity determination. Caltrans cannot approve the Final EIR/EIS without the determination by FHWA. Following FHWA's review, FHWA provided a project-level conformity determination for the project on November 1, 2019. Appendix K provides a copy of the project-level conformity determination by FHWA.

Naturally Occurring Asbestos (NOA)

Based on review of *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (California Department of Conservation, Division of Mines and Geology, 2000), ultramafic rock is not mapped in north-central Stanislaus County, so naturally occurring asbestos is not expected to occur at the project site.

Mobile Source Air Toxics (MSAT)

The following discussion is based on the FHWA Memorandum, Subject: INFORMATION: Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, issued October 18, 2016. This guidance is interim because MSAT science is rapidly evolving. As the science progresses, the Federal Highway Administration updates the guidance.

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS). In addition, the EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment. These priority MSAT pollutants are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.

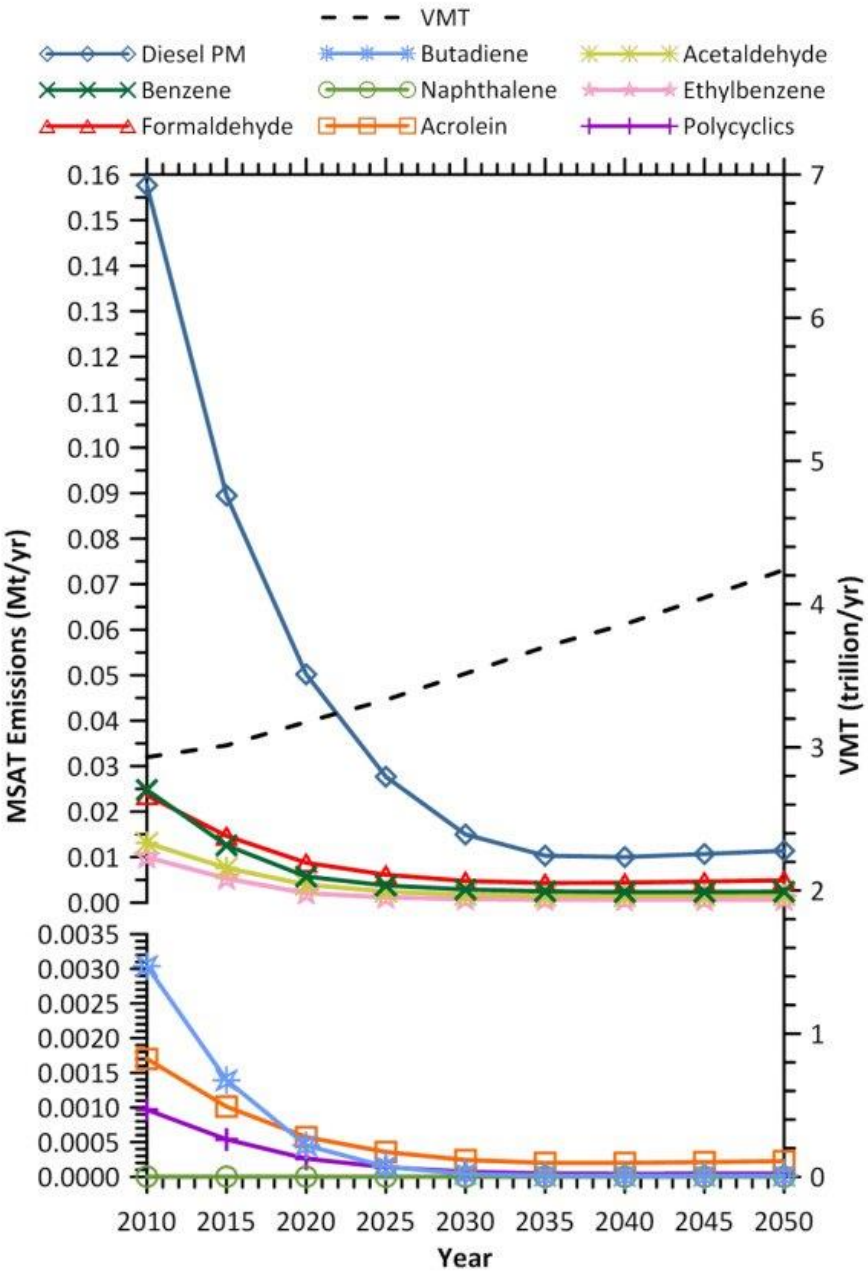
Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new Federal emissions standards rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015 MOVES2014a Questions and Answers Guide (https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NNR0.txt), EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local vehicle miles traveled (VMT), includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

Based on Federal Highway Administration analysis using the EPA's MOVES2014a model, as shown in Figure 3.2.5-4, even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

However, California does not use the EPA model for emissions analysis. EMFAC, not MOVES, is to be used for emission analysis in California. For air quality conformity analysis, projects are to use EMFAC 2014 as documented in the latest EPA quantitative hot-spot analysis guidance. For environmental analysis other than conformity, the California Air Resources Board's 2011 tools or CT-EMFAC 2014 is to be used.

Figure 3.2.5-4: National MSAT Emissions Trends



Source: FHWA 2016

Qualitative Analysis

In addition to an evaluation of the potential environmental effects, the need for safe and efficient transportation should be taken into account in reaching a decision that is in the best overall public interest. The Federal Highway Administration has developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

Category 1 – no analysis for projects with no potential meaningful MSAT effects
Category 2 – Qualitative analysis for projects with low potential MSAT effects
Category 3 – Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects

Category 1 projects are those that qualify as a categorical exclusion under 23 CFR 711.117(c); exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or have no meaningful impacts on traffic volumes or vehicle mix. The proposed North County Corridor State Route 108 project does not meet Category 1 requirements.

Category 2 are types of projects that serve to improve operations of highway, transit or freight without adding substantial new capacity. This category covers a broad range of projects, such as minor widening projects and new interchanges. These are also projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic. A qualitative assessment of emissions projects should be conducted for these type projects.

Category 3 includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. Since a limited number of projects are expected to fall into this category, projects should:

- Create or significantly alter a major intermodal freight facility involving or accommodating a significant number of diesel vehicles for the new project, or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the annual average daily traffic is projected to be in the range of 140,000 to 150,000 or greater by the design year.
- Also is proposed to be located in proximity to populated areas.

Category 3 projects should be more rigorously assessed for impacts.

Although the project would create new capacity, given that design-year traffic volume is predicted to be 49,700 Average Daily Traffic count or less (Traffic Operations Report for the North County Corridor, 2015, and TOR Addendum, 2019), the proposed project falls within Category 2, a project with low potential MSAT effects. As such, a qualitative MSAT analysis is appropriate.

For each alternative, the amount of MSAT emitted would be proportional to the vehicle-miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The vehicle-miles traveled estimated for each of the Build Alternatives is slightly higher (approximately 2.5 percent) than that for the No-Build Alternative, because the new facility attracts re-routed trips that would not otherwise occur in the area. This increased vehicle-miles traveled amount means MSAT, under the Build Alternatives, would probably be higher

than the No-Build Alternative in the project area. There could also be localized differences in MSAT from indirect effects of the project such as associated access traffic. Travel to other destinations would be reduced with corresponding reductions in emissions at those locations.

Because the estimated vehicle-miles traveled count under each of the Build Alternatives is nearly the same, varying by less than 0.5 percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various Build Alternatives. Regardless of which alternative is selected, emissions are virtually certain to be lower than present levels in the design year as a result of the EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle-miles traveled growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for vehicle-miles traveled growth) that MSAT emissions in the project area are likely to be lower in the future than they are today.

Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In the Federal Highway Administration's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the Clean Air Act and its amendments and has specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. It maintains the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts—each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel particulate matter. The EPA and the Health Effects Institute has not established a basis for quantitative risk assessment of diesel particulate matter in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld the EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

MSAT Conclusion

What we know about mobile source air toxics is still evolving. As the science progresses, the Federal Highway Administration will continue to revise and update the guidance on MSAT analysis in NEPA. The Federal Highway Administration is working with Stakeholders, the EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project-level decision documentation process.

No-Build Alternative

Under the No-Build Alternative, because no construction activities would occur, no impacts of any kind would occur to air quality in the project area.

Temporary Construction Impacts

Construction air quality impacts are generally attributable to dust generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth-moving activities are major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate substantial dust emissions. Also, dust generation depends on soil type and soil moisture. Construction induced dust would be minimized through compliance with Caltrans' Standard Specifications Section 14-9.03 Dust Control, Section 7-1.02 Emissions Reduction and Section 18 Dust Palliative by the construction contractor.

Adverse effects of construction activities include dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the project area and may require frequent washing during the construction period. Also, asphalt-paving materials used during construction will present temporary, minor sources of hydrocarbons that are precursors of ozone. In an effort to further reduce the effects of construction, the Wind Erosion Control BMP (WE-1) from Caltrans' Construction Site Best Management Practices Manual will be implemented as follows:

- Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment shall be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit shall be available at all times to apply water or dust palliative to the project.
- If reclaimed water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality Control Board requirements. Non-potable water shall not be conveyed in tanks or drain pipes that will be used to convey potable water and there shall be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances shall be marked "NON-POTABLE WATER – DO NOT DRINK."
- Materials applied as temporary soil stabilizers and soil binders will also provide wind erosion control benefits.

The project's construction is expected to take two years. The project's construction emissions were estimated using the Roadway Construction Emissions Model by the Sacramento Metropolitan Air Quality Management District (SMAQMD 2013), which is the accepted model for all CEQA roadway projects throughout California. As summarized in Table 3.2.5-14, construction activities from the project are similar for all Build Alternatives.

Table 3.2.5-14: Construction Emissions and Local Levels

Pollutant	Project Construction Emissions (tons/yr)				San Joaquin Valley Air Pollution Control District Air Quality Levels (tons per year)
	1A	1B	2A	2B	
NO_x	19.8	21.3	19.3	22.1	10
ROG	2.0	2.2	2.0	2.2	10
PM_{10}	12.1	12.2	12.1	12.2	15
$PM_{2.5}$	3.1	3.1	3.1	3.1	15
CO	13.4	14.7	13.5	14.7	100
SO_x	not available	not available	not available	not available	27

Source: Air Quality Report, 2016

Due to the scale of this project, construction emissions of NO_x are expected to exceed the levels established by the San Joaquin Valley Air Pollution Control District. Furthermore, any transportation project within the San Joaquin Valley Air Basin that is expected to generate construction emissions of greater than or equal to 2.0 tons of NO_x or 2.0 tons of PM_{10} is subject to San Joaquin Valley Air Pollution Control District Rule 9510. This project is therefore subject to San Joaquin Valley Air Pollution Control District Rule 9510, so it will be subject to Indirect Source Review and an Air Impact Assessment. The results of the Indirect Source Review-Air Impact Assessment will determine the appropriate mitigation for construction emissions. Measure AQ-4 will be required to ensure compliance with San Joaquin Valley Air Pollution Control District Rule 9510.

Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 Code of Federal Regulations 93.123(c)(5)).

Avoidance, Minimization and/or Mitigation Measures

Construction impacts to air quality are short term in duration and, therefore, would not result in long-term adverse conditions. Implementation of the following measure would reduce air quality impacts resulting from construction-related emissions to a less than significant level:

Measure AQ-1: Per San Joaquin Valley Air Pollution Control District Rule 9510, an Indirect Source Review application will be submitted prior to seeking final discretionary approval for the project.

Climate Change

Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in Chapter 4 of this document. The CEQA analysis may be used to inform the National Environmental Policy Act (NEPA) determination for the project.

3.2.6 Noise

Regulatory Setting

CEQA and NEPA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between CEQA and NEPA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA 23 Code of Federal Regulations (CFR) 772 noise analysis; please see Chapter 4 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with Federal Highway Administration (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis.

Table 3.2.6-1 shows the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Table 3.2.6-1: Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (for example, water resources, water treatment, electrical), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

[1] Includes undeveloped lands permitted for this activity category.

Figure 3.2.6-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

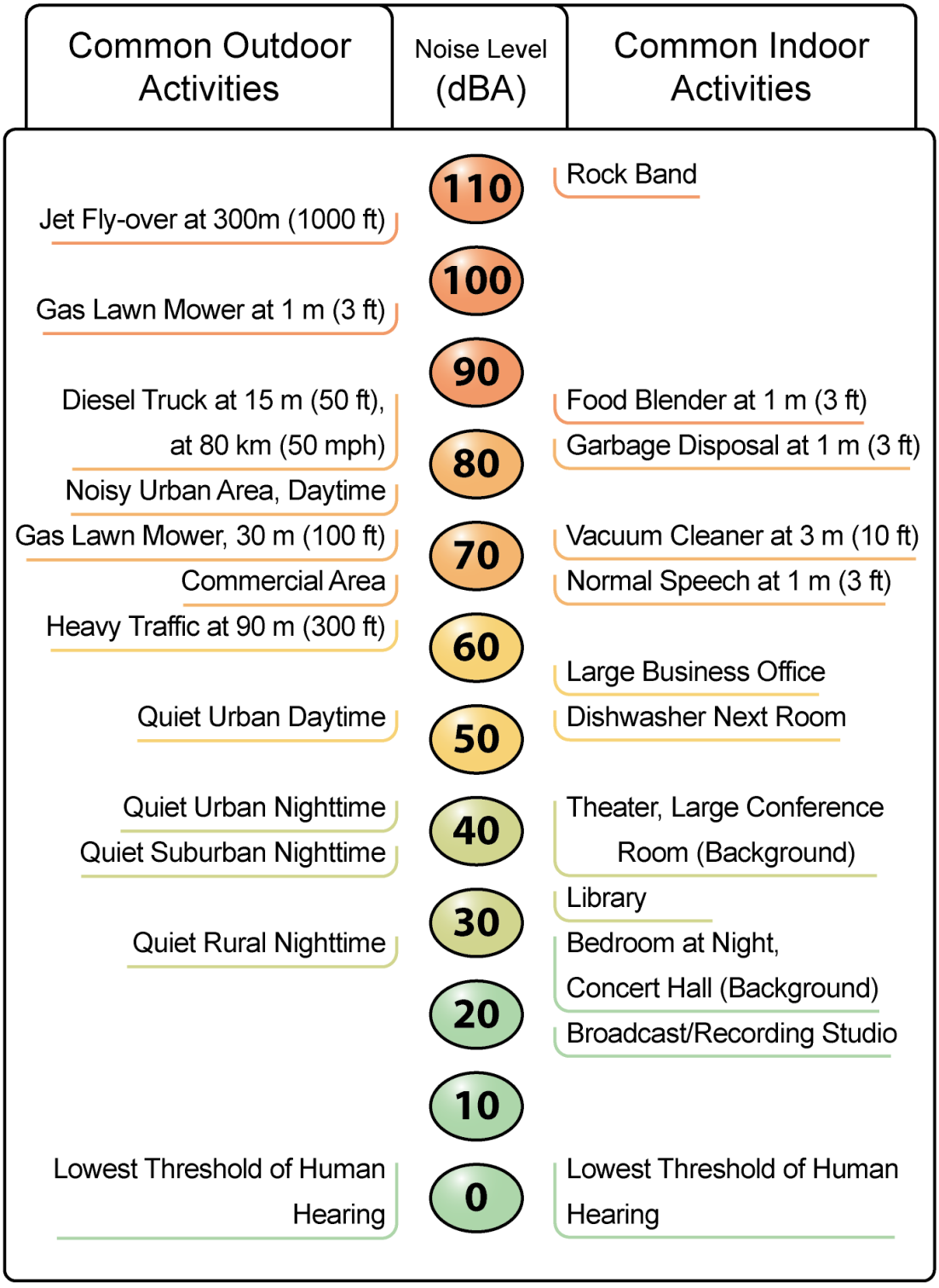


Figure 3.2.6-1: Noise Levels of Common Activities

According to the Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects (May 2011), a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. Approaching the noise abatement criteria is defined as coming within 1 dBA of the noise abatement criteria.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses proposed noise abatement measures.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5dBA in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

Affected Environment

A Noise Study Report (February 2017), Noise Abatement Decision Report (February 2017), and Noise Study Report Addendum (October 2019) were prepared for this project. The Noise Study Report analyzed existing and future noise at sensitive receptors in the project vicinity. The following information is from the Noise Study Report for the proposed project.

Developed and undeveloped land uses in the project vicinity were identified through inspection of aerial photography and a detailed field investigation. Within each land use category, sensitive noise receptors were then identified. Land uses in the project vicinity include single-family residences on farmland and commercial properties. Additional single-family residences are located within master-planned developments.

The generalized land use data and location of particular sensitive receptors were the basis for the selection of representative analysis sites. Receptor locations were selected to represent the existing noise environment in the project vicinity. Existing noise levels within the project vicinity were generated by modeling using existing peak hour traffic data (Traffic Operations Report for the North County Corridor, 2015, and TOR Addendum, 2019). Noise measurements taken at receptors identified near adjacent roadways were compared to existing peak hour noise levels to validate the model.

Short-term and long-term measurement locations and modeled receptor locations are shown in Figure 3.2.6-2 in Appendix A.

The proposed project is a Type I project. The Federal Highway Administration defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. The proposed project is a Type I project because it will construct a new highway on a new location.

To evaluate the potential noise impact of the project, existing noise levels were measured to calibrate the modeled Existing Peak Hour noise levels, future noise levels were modeled for each alternative, and noise abatement was considered for areas in which the increase was either substantial, or approached or exceeded the Caltrans noise abatement criteria (see noise measurement locations, modeled receptor locations in Figure 3.2.6-2).

Environmental Consequences

Long-term measurements were taken to determine the “noisiest hour.” Short-term measurements were then taken to calibrate the model to determine the existing noise levels during the noisiest hour.

Permanent Impacts

A model of existing conditions was developed to aid in establishing existing ambient noise levels for all modeled receptors based on ambient noise measurements taken during the hour of highest traffic noise. Tables 3.2.6-2 through 3.2.6-5 display modeled noise levels with project conditions to identify traffic noise impacts under 23 CFR 772.

Noise levels for Alternative 1A are shown in Table 3.2.6-2. Noise levels for Alternative 1B are shown in Table 3.2.6-3. Noise levels for Alternative 2A are shown in Table 3.2.6-4. Noise levels for Alternative 2B are shown in Table 3.2.6-5.

Noise levels for Alternative 1A in the design year would range between 43 and 70 Leq (h) dBA with noise levels approaching or exceeding the noise abatement criteria at receptors 19.1, 19.3, 19.4, and 21.1. Noise levels for Alternative 1B in the design year would range between 48 and 76 Leq (h) dBA with noise levels approaching or exceeding the noise abatement criteria at receptors 2.6, 3.1, 19.1, 19.3, 19.4, 21.1, 29.2, and 30.11. Noise levels for Alternative 2A in the design year would range between 47 and 70 Leq (h) dBA with noise levels approaching or exceeding the NAC at receptors 2.6, 3.1, 19.1, 19.3 and 19.4. Noise levels for Alternative 2B would range between 40 and 70 dBA. Receptors that would approach or exceed the NAC are R2.6, R3.1, R19.1, R19.3, and R19.4. Noise abatement is considered for those receptors that either approach or exceed the noise abatement criteria (approach would be within 1 dBA of the noise abatement criteria), or for those receptors that experience what is considered a substantial noise increase of 12 dBA compared to existing levels.

Segment 1-Tully Road to Claus Road.

Noise levels within this segment are identical for each Build Alternative so changes in noise levels are considered to be similar for each Build Alternative.

Tully Road and Kiernan Avenue. Except for Receptor 2.1, receptors located near Tully Road and Kiernan Avenue, represented by 1.1 through 2.6, experience an increase in noise levels due to the widening of Tully Road and Kiernan Avenue and an increase in traffic volumes under Build conditions. Receptor 2.1 experiences a decrease because the new alignment is shifted away from this receptor. Noise levels for the other receptors will remain below 67 dBA for NAC Activity Category B. At this location, the difference in noise levels between existing vs Build is between 3 and 7 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Kiernan Avenue and McHenry Avenue. A single-family residence represented by Receptor 3.1 will experience a slight decrease in noise levels under future Build conditions due to the right of way acquisition from the realigning and widening of McHenry Avenue. Traffic is shifted away from this receptor. Noise levels for this receptor would exceed 67 dBA for NAC Activity Category B. At this location, the difference in noise levels between existing vs Build is 1 dBA. As this noise level difference does not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is exceeded at this location, a barrier is considered.

Receptor 3.2 represents the McHentry Golf Center, an outdoor golf driving range, and is classified as a NAC Activity Category E. At this location, the difference in noise levels between existing vs Build is 0 dBA. As this noise level difference does not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. Further, noise levels for this receptor would not exceed 72 dBA for NAC Activity Category E. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Receptor 3.3 represents a commercial businesses, Bar El Atrancon, and is classified as a NAC Activity Category C. At this location, the difference in noise levels between existing vs Build is 1 dBA. As this noise level difference does not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. Additionally, noise levels for this receptor would not exceed 67 dBA for NAC Activity Category C. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Between McHenry Avenue and Coffee Road. Receptor 4.1 represents a single-family residence that would become a first row receptor under future Build conditions due to right of way acquisition for the realignment of Kiernan Avenue. Receptors 4.2 through 4.5 move farther away from the realigned roadway; therefore, noise levels do not approach or exceed 67 dBA for NAC Activity Category B. Receptor 4.5 is located adjacent to the new alignment near Coffee Road and experiences an increase over existing noise levels, yet noise levels remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 2 and 7 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Receptor 4.6 represents undeveloped land, and is classified as a NAC Activity Category G, and Receptor 4.7 represents an agricultural field, and is classified as a NAC Activity Category F. Neither NAC Activity Category G nor F have noise thresholds. While the NAC Activity Category G and F difference between existing and build noise levels is 12 dBA and 14 dBA respectively, no substantial increase thresholds exist for these NAC Activity Categories. No substantial increase in noise is identified at these locations and no barrier is considered.

South of Claribel Road along Coffee Road. Receptor 5.1 represents the single-family residences on Coffee Road, south of Claribel Road. This receptor does not experience a change in noise levels over No-Build noise levels. Build condition noise levels do not exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is 4 dBA. As this noise level difference does not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

North of Claribel Road along Coffee Road. Receptor 6.1 represents single-family residences along Coffee Road, north of Claribel Road. This receptor also does not experience a change in noise levels over No-Build noise levels. Build condition noise levels do not exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is 6 dBA. As this noise level difference does not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Morningside Mobile Home Park adjacent to Claribel Road. Receptors 7 through 8.1 represent receptors located within the Morningside Mobile Home Park. These receptors experience a decrease over No-Build noise levels resulting from the realigned roadway moving farther away from these receptors. Noise levels for these receptors are below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between -2 and 0 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

South of Claribel Road along Oakdale Road. The new alignment brings traffic noise closer to sensitive receptors 10.1 through 10.5. These receptors were not previously near major roadways. Under Build conditions, increases in noise levels over No-Build conditions are attributed to the proposed Project shifting traffic closer to these sensitive receptors. The traffic volumes on the new alignment and the close proximity to these sensitive receptors increases noise levels above No-Build noise levels.

At this location, the difference in noise levels between existing vs Build is between 1 and 10 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Claribel Road and Roselle Avenue. Receptors 11.1, 12.1 through 12.3, 13.1, 13.2, 14.1 and 14.2 are adjacent to widening occurring on Roselle Avenue and the new alignment. The receptors that have the greatest increase in noise levels are receptors 13.1 and 13.2 due to traffic under the Build Alternative conditions increases on Roselle Avenue. However, traffic decreases on Claribel Road near receptor 14.2 therefore, this receptor experiences a decrease in noise levels. Noise levels for this area remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between -6 and 4 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from

existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Terminal Avenue to Claus Road. Receptors 15.1, 15.2, 16.1, 17.3 and 18.1 experience increases in noise levels from future No-Build to Build conditions due to increases in traffic volumes and the new realignment; however, noise levels remain below 67 dBA for NAC Activity Category B. Receptors 16.2 through 16.5 and 17.2, represent residences along Claus Road, and do not experience increases in noise levels over Build conditions. The greatest increase in noise levels occurs at receptors 19.1, 19.3 and 19.4. Receptors 19.1 and 19.2 represent the single-family residences in the Olive Lane Trailer Park. Receptors 19.3 through 19.6 represent individual single-family residences near Plainview Road. Under Build conditions, Claus Road south of the proposed alignment would widen causing an increase for receptors along Claus Road that exceed 67 dBA for NAC Activity Category B. As the NAC is exceeded at this location, a barrier is considered at this location.

At this location, the difference in noise levels between existing vs Build is between 3 and 11 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location.

Receptor 17.1, the Rainbow Sports Park, classified as a NAC Activity Category C, does not experience increases in No-Build noise levels over Build conditions, and noise levels for this area remain below 67 dBA for NAC Activity Category C. This location does experience an increase of 4 dBA from existing condition to Build conditions; however, as this noise level difference does not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location and no barrier is considered.

Segment 2 Claus Road to Albers Road

The Build Alternatives diverge near Claus Road. Alternatives 1A and 1B veer north, while Alternatives 2A and 2B follow Claribel Road heading east. Different receptors are affected by Alternatives 1 and 2. Therefore, noise levels would be discussed for each receptor by alternative within this segment.

Alternative 1A and 1B. A majority of these receptors are individual single-family residences on farmland not located near heavily travelled roadways. Under the Existing and No-Build conditions, these receptors experience a serene noise environment. However, under Build conditions, Receptors 21.1 through 21.6 and Receptors 25.3 through 26.2 experience the greatest substantial noise increases in noise levels due to the new alignment shifting traffic closer to these receptors, causing some of these receptors to experience noise levels that exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 1 and 16 dBA. As these noise level differences do exceed 12 dBA, a substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is exceeded at this location, and a substantial increase in noise is identified, barriers are considered at this location.

Alternative 2A and 2B. A majority of these receptors are individual single-family residences on farmland not located near roadways. Under the existing conditions, Receptors 21.1 through 23.9 experience a serene noise environment, but traffic under No-Build conditions increases noise levels in the area resulting in higher noise levels. Under Build conditions, traffic volumes

increase; however, the new alignment moves traffic away from some of the receptors in the area causing decreases in noise levels. Noise levels for this area remain below 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 1 and 7 dBA. As these noise level differences do not exceed 12 dBA, no substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is not approached or exceed for any receptor at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Segment 3 Albers Road to SR-120/108

Alternative 1A and 2A. A majority of these receptors are individual single-family residences on farmland not located near heavily travelled roadways. Under the Existing and No-Build conditions, these receptors experience a serene noise environment. However, under Build conditions, Receptors 30.12 through 33.9 experience noise level increases due to increases in traffic volumes and the new alignment shifting traffic closer to these receptors. The greatest increases occur at receptors 30.12, 32.1, and 33.3 where noise levels substantially increase, and/or approach or exceed 67 dBA for NAC Activity Category B. However, Receptors 35.1 through 35.6, which represent single-family residences near the end of this alignment, experience decreases in noise levels over No-Build condition and Existing conditions due to decreased traffic volumes and the alignment moves traffic away from receptors in this area.

At this location, the difference in noise levels between existing vs Build is between -2 and 21 dBA. As these noise level differences do exceed 12 dBA, a substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is exceeded at this location, and a substantial increase in noise is identified, barriers are considered at this location.

Alternative 1B and 2B. A majority of the receptors in this area are individual single-family residences on farmland not located near roadways. Receptors 27.1 through 42.3 experience noise level increases due to increases in traffic volumes and the new alignment shifting traffic closer to these receptors. Under the existing and No-Build conditions, these receptors experience a serene noise environment. However, under Build conditions, noise levels at some receptors within this area have substantial increases, approach and or exceed 67 dBA for NAC Activity Category B.

At this location, the difference in noise levels between existing vs Build is between 0 and 35 dBA. As these noise level differences do exceed 12 dBA, a substantial increase from existing noise levels to build noise levels is anticipated at this location. As the NAC is exceeded at this location, and a substantial increase in noise is identified, barriers are considered at this location.

Alternative 1A

Traffic noise modeling results indicate noise levels are predicted to be in the range of 43 to 70 dBA Leq(h) in the design year, with an increase over existing peak hour noise levels of up to 23 dBA. Some receptors along Kiernan Avenue will experience increases in noise levels from the new alignment due to increases in traffic volumes under build conditions and the new alignment moving closer to these receptors and other receptors becoming first-row receptors as a result of right-of-way acquisitions. However, a few receptors experience a decrease in noise levels as the new alignment moves away from these receptors.

As Alternative 1A continues east, it goes south of Claribel Road where new receptors that were not previously located near roadways will experience substantial increases over existing conditions. Similarly, receptors east of Claus Road to the Oakdale near the end of Alternative 1A are in remote rural communities, where receptors will experience substantial increases over existing conditions. Some of the substantial increases at these receptors will also result in exceedances of the noise abatement standard (67 dBA Leq[h]). Because the predicted noise levels in the future design year would approach or exceed the noise abatement standard (67 dBA Leq[h]) and/or result in a substantial increase in noise levels over existing conditions (over 12 dBA), barriers are considered at this location.

A total of eight soundwalls were analyzed for Alternative 1A. Four of the eight soundwalls were found to be feasible for Alternative 1A. Four soundwalls meet the Caltrans design goal of 7 dBA. As shown in Table 3.2.6-6, SW-3 and SW-5 were found to be feasible and reasonable and are recommended for inclusion as abatement. SW-9 was not found to be feasible at any evaluated height due to the length of the wall being limited by the surrounding local roadways.

Alternative 2A

The traffic noise modeling results indicate traffic noise levels are predicted to be in the range of 47 to 69 dBA Leq(h) in the future design year, with an increase over existing peak hour levels of up to 15 dBA. Similarly to Alternatives 1A and 1B, Alternative 2A shares the same receptor locations in Segment 1 along Kiernan Avenue to Claus Road. Therefore, noise levels within this area for Alternative 2A are similar to the other Build Alternatives. However, Alternative 2A breaks east near Claribel Road and continues along Claribel Road within Segment 2 affecting new receptors in this segment. These receptors are single-family residences on large farmlands and are currently not exposed to heavily traveled roadways. These receptors currently experience a serene existing noise environment. Under build conditions, these receptors will experience substantial increases over existing noise levels, with some receptors experiencing exceedances of the noise abatement standard (67 dBA Leq[h]).

Alternative 2A then continues to Alternative 1A near Stearns Road in Segment 3 and heads north toward the community of Riverbank at existing SR-108. Noise levels at these receptors will be similar to Alternative 1A. Because the predicted noise levels in the future design year would approach or exceed noise abatement criterion (67 dBA Leq[h]) and result in a substantial increase in noise over existing conditions, abatement was considered.

A total of six soundwalls were analyzed for Alternative 2A. Three of the six soundwalls were found to be feasible. Three soundwalls meet the Caltrans Design Goal of 7 dBA for Alternative 2A. As shown in Table 3.2.6-6, SW-3 and SW-5 were found to be feasible and reasonable and are recommended for inclusion as abatement.

Alternative 1B

Traffic noise modeling results indicate traffic noise levels are predicted to be in the range of 48 to 76 dBA Leq(h) in the design year, with an increase over existing peak hour levels of up to 35 dBA. Alternative 1B is similar to Alternative 1A between the western project end near Kiernan Avenue to Claus Road. Similar noise levels occur at the same receptor locations as mentioned previously for Alternative 1A. However, under Alternative 1B, new receptors are affected within Segment 3 where Alternative 1B continues east of Stearns Road and goes north near Fogarty Road, toward Oakdale near Lancaster Road. Receptors in this area are single-family residences

on large farmland and are currently not exposed to heavily traveled roadways. These receptors experience a serene existing noise environment.

Under build conditions, these receptors will experience substantial increases, which will result in exceedances of the noise abatement standard (67 dBA Leq[h]). Because predicted noise levels in the future design year approach or exceed noise abatement criterion (67 dBA Leq[h]) and result in a substantial increase in noise over existing conditions, abatement was considered.

A total of eight soundwalls were analyzed for Alternative 1B. Six of the eight soundwalls were found to be feasible. Four soundwalls meet the Caltrans Design Goal of 7 dBA for Alternative 1B. As shown in Table 3.2.6-6, only SW-3 and SW-5 were found to be feasible and reasonable and are recommended for inclusion as abatement.

Alternative 2B

Traffic noise modeling results indicate traffic noise levels are predicted to be in the range of 40 to 69 dBA Leq(h) in the design year, with an increase over existing peak hour levels of up to 20 dBA. Similarly, Alternative 2B shares the same receptor locations in Segment 1 along Kiernan Avenue to Claus Road as all of the other Build Alternatives. Therefore, noise levels within this area for Alternative 2B are similar to the other Build Alternatives. Similar to Alternative 2A, Alternative 2B breaks east near Claribel Road and continues along Claribel Road within Segment 2. Receptors affected within Segment 2 for Alternative 2B are similar to those in Alternative 1B. These receptors are single-family residences on large farmlands currently not exposed to heavily traveled roadways. These receptors experience a serene existing noise environment. Alternative 2B then correspondingly follows the same alignment as Alternative 1B affecting similar receptors. Alternative 2B heads north of Fogarty Road to Oakdale near Lancaster Road. Because the predicted noise levels in the future design year would approach or exceed noise abatement criterion (67 dBA Leq[h]) and result in a substantial increase over existing conditions, abatement was considered.

A total of seven soundwalls were analyzed for Alternative 2B. Five of the seven soundwalls were found to be feasible. Four soundwalls were analyzed to meet the Caltrans Design Goal of 7 dBA for Alternative 2B. As shown in Table 3.2.6-6, SW-3 and SW-5 were found to be feasible and reasonable and are recommended for inclusion as abatement.

No-Build Alternative

Under no-build conditions, no improvements would be made, but traffic volumes would increase. The traffic noise modeling results for the design year No-Build Alternative range from 35 to 69 dBA Leq(h). These noise levels result in an increase of up to 7 dBA under no-build conditions. Also, No-Build noise levels at Receptors 3.1, 8.1, 10.5, 19.1, 19.4, 23.3, 29.2, and 35.6 approach or exceed 67 dBA for noise abatement criteria Activity Category B

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Table 3.2.6-2: Predicted Future Noise and Soundwall Analysis: Alternative 1A

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																													
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																							
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet					
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR			
1.1	No Barrier	--	1	SFR	5236 Tully Rd, Modesto	49	54	55	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.2	No Barrier		1	SFR	5211 Tully Rd, Modesto	60	64	65	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	3	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.3	No Barrier		1	SFR	4885 Tully Rd, Modeseto	56	61	62	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.4	No Barrier		1	SFR	4767 Tully Rd, Modeseto	53	59	60	6	7	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	6	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	7	2	B (67)	A/E	--	65	1	1	--	64	2	1	--	64	2	1	--	64	3	1	--	63	3	1	--	63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-1	-2	B (67)	A/E	--	64	3	1	--	64	3	1	--	63	4	1	--	63	4	1	--	63	4	1	--	63	4	1
3.2	No Barrier	--	1	COM	5298 McHenry Ave, Modesto, CA	64	66	65	1	0	-1	E (72)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3.3	No Barrier		1	COM	5150 McHenry Ave, Modesto, CA	60	62	61	2	1	0	C (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.1	No Barrier		1	SFR	5045 McHenry Ave, Modesto	56	57	60	1	4	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	64	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.5	No Barrier		1	SFR	4929 Coffee Road, Modesto	60	64	62	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.6	No Barrier		1	UND	501 Kiernan Avenue, Modesto, CA	58	63	70	5	12	7	G (N/A)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.7	No Barrier		1	AG	801 Claribel Rd, Modesto, CA	53	57	67	4	14	10	F (N/A)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5.1	No Barrier	--	1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.1	No Barrier		4	SFR	1509 Cabo Dr, Modesto	62	65	60	3	-2	-5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	0	-3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-2	-6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.1	No Barrier		1	SFR	2030 Claribel Rd, Modesto	51	55	61	4	10	6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	2	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	2	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.5	No Barrier		1	SFR	4500 Oakdale Rd, Modesto	64	66	65	2	1	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	50	2	-5	-7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	50	2	-3	-5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																																			
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																														
														6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
														$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR	
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	51	2	0	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	53	3	3	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.1	No Barrier		1	SFR	4881 Rosselle Ave, Modesto	61	65	65	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	59	2	2	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	55	5	-6	-11	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	54	6	9	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	53	5	8	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	58	7	11	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	57	7	7	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	62	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	63	4	3	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	REC	3800 Claribel Rd, Modesto	55	59	59	4	4	0	C (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier		1	SFR	4824 Claus Rd, Modesto	56	61	61	5	5	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	59	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	4936 Terminal Ave, Modesto	57	61	63	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	70	5	7	2	B (67)	A/E	--	65	5	5	--	64	6	5	--	62	8	5	--	61	9	5	--	61	10	5	--	60	10	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	57	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	69	1	6	5	B (67)	A/E	--	65	4	1	--	63	6	1	--	61	8	1	--	60	9	1	--	59	10	1	--	59	10	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	69	4	7	3	B (67)	A/E	--	65	4	1	--	63	6	1	--	62	7	1	--	61	8	1	--	61	8	1	--	61	8	1
19.5	No Barrier	--	1	SFR	4510 Claus Rd, Modesto	42	46	49	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	48	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	SW-6	ROW	1	SFR	4601 Claribel Rd, Modesto	52	56	68	4	16	12	B (67)	A/E/S	--	64	4	1	--	62	6	1	--	60	8	1	--	59	9	1	--	58	10	1	--	57	11	1
24.1	No Barrier		1	SFR	6153 Langworth Rd, Oakdale	53	53	57	0	4	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24.2	No Barrier		1	SFR	5459 Langworth Rd, Oakdale	49	49	54	0	5	5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.1	No Barrier		1	SFR	5732 Langworth Rd, Oakdale	52	52	59	0	7	7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.2	No Barrier		1	SFR	5918 Patterson Rd, Oakdale	61	61	64	0	3	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.3	No Barrier	--	1	SFR	6399 Crane Rd, Oakdale	57	62	62	5	5	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.5	No Barrier		1	SFR	6236 Crane Rd, Oakdale	53	58	61	5	8	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.6	No Barrier		1	SFR	1750 Lexington Ave, Oakdale	51	56	59	5	8	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26.3	No Barrier[4]		2	SFR	7041 Patterson Rd, Oakdale	41	36	57	-5	16	21	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28	No Barrier		0	SFR	6224 Kaufman Rd, Oakdale	41	41	43	0	2	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																													
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																							
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet					
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR			
28.1	No Barrier[4]		1	SFR	3160 Kaufman Rd, Oakdale	41	39	51	-2	10	12	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.2	No Barrier		1	SFR	6751 Albers Rd, Oakdale	67	68	68	1	1	0	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.12	SW-9	ROW	1	SFR	9625 Warnerville Rd, Oakdale	41	35	62	-6	21	27	B (67)	S	--	57	5	1	--	54	8	1	--	51	11	1	--	50	12	1	--	49	13	1	--	48	14	1
30.13	No Barrier[4]		1	SFR	8877 Warnerville Rd, Oakdale	41	35	56	-6	15	21	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
32.1	No Barrier[4]	--	1	SFR	1918 Sierra Rd, Oakdale	42	42	56	0	14	14	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.1	No Barrier		1	SFR	308 S Stearns Rd, Oakdale	57	57	64	0	7	7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.2	No Barrier		1	SFR	336 S Stearns Rd, Oakdale	46	46	54	0	8	8	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.3	SW-10	EOP	1	SFR	448 S Stearns Rd, Oakdale	42	42	57	0	15	15	B (67)	S	--	54	3	1	--	54	3	1	--	53	4	1	--	53	5	1	--	52	5	1	--	52	5	1
33.5	No Barrier		1	SFR	337 S Stearns Rd, Oakdale	49	49	59	0	10	10	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.6	No Barrier		1	SFR	401 S Stearns Rd, Oakdale	52	53	59	1	7	6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.7	No Barrier		1	SFR	279 S Stearns Rd, Oakdale	51	51	62	0	11	11	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.8	No Barrier		1	SFR	249 S Stearns Rd, Oakdale	52	52	61	0	9	9	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.9	No Barrier		1	SFR	211 S Stearns Rd, Oakdale	45	46	56	1	11	10	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.1	No Barrier	--	1	SFR	10008 Plaza De Oro Dr, Oakdale	56	58	54	2	-2	-4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.2	No Barrier		1	SFR	10306 Rio Sombra Ct, Oakdale	59	61	58	2	-1	-3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.3	No Barrier		1	SFR	10318 Rio Sombra Ct, Oakdale	65	67	65	2	0	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.4	No Barrier		1	SFR	10468 St Andrews Ct, Oakdale	61	62	62	1	1	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.6	No Barrier		1	SFR	10529 California 108, Oakdale	64	66	65	2	1	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way
1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC), S - Substantial Increase of 12 dBA or more, N/A - No abatement necessary based on land use.
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receptor. No feasible location to place a soundwall.
5. SFR = Single Family Residence, COM = Commercial, REC = Recreation, UND = Undeveloped Land, AG = Agriculture
6. Noise levels for Existing and No-Build for receptors 26.3, 28, 28.1, 30.12, 30.13 are representative of background noise sites. No traffic near receptors under Existing and No-Build conditions.

Table 3.2.6-3: Predicted Future Noise and Soundwall Analysis: Alternative 1B

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA								Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																			
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	6 feet				8 feet			10 feet			12 feet			14 feet			16 feet			
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
1.1	No Barrier	--	1	SFR	5211 Tully Rd, Modesto	49	54	55	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	3	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.3	No Barrier		1	SFR	4885 Tully Rd, Modesto	56	61	64	5	8	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.4	No Barrier		1	SFR	4767 Tully Rd, Modesto	53	59	61	6	8	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	6	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	7	2	B (67)	A/E	--	65	1	1	--	64	2	1	--	64	2	1	--	64	3	1	--	63	3	1	--	63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-1	-2	B (67)	A/E	--	64	3	1	--	64	3	1	--	63	4	1	--	63	4	1	--	63	4	1	--	63	4	1
3.2	No Barrier	--	1	COM	5298 McHenry Ave, Modesto, CA	64	66	65	1	0	-1	E (72)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3.3	No Barrier		1	COM	5150 McHenry Ave, Modesto, CA	60	62	61	2	2	0	C (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.1	No Barrier		1	SFR	5045 McHenry Ave, Modesto	56	57	60	1	4	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	64	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.5	No Barrier		1	SFR	4929 Coffee Road, Modesto	60	64	62	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.6	No Barrier		1	UND	501 Kiernan Avenue, Modesto, CA	58	63	70	5	12	7	G (N/A)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.7	No Barrier		1	AG	801 Claribel Rd, Modesto, CA	53	57	67	4	14	10	F (N/A)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5	No Barrier		4	SFR	4824 Coffee Rd, Modesto	68	71	73	3	5	2	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.1	No Barrier		4	SFR	1509 Cabo Dr, Modesto	62	65	60	3	-2	-5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	0	-3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA								Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																			
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	6 feet			8 feet			10 feet			12 feet			14 feet			16 feet					
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-2	-6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.1	No Barrier		1	SFR	2030 Claribel Rd, Modesto	51	55	61	4	10	6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	2	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	2	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.5	No Barrier		1	SFR	4500 Oakdale Rd, Modesto	64	66	64	2	0	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	51	2	-4	-6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	51	2	-2	-4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	52	2	1	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	53	3	3	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.1	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	61	65	65	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.1	No Barrier		1	SFR	4881 Rosselle Ave, Modesto	57	59	59	2	2	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	60	5	-1	-6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	55	6	10	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	54	5	9	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	58	7	11	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	57	7	7	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	62	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	63	4	3	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	REC	3800 Claribel Rd, Modesto	55	59	59	4	4	0	C (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier	--	1	SFR	4824 Claus Rd, Modesto	56	61	60	5	4	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	58	5	5	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	4936 Terminal Ave, Modesto	57	61	63	4	6	2	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																															
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																									
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet					
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR			
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	70	5	7	2	B (67)	A/E	--	64	6	5	--	62	9	5	--	60	10	5	--	59	11	5	--	58	12	5	--	57	13	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	57	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	69	1	6	5	B (67)	A/E	--	64	5	1	--	63	6	1	--	61	8	1	--	60	9	1	--	59	10	1	--	59	10	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	69	4	7	3	B (67)	A/E	--	65	4	1	--	63	6	1	--	62	7	1	--	61	8	1	--	60	9	1	--	60	9	1
19.5	No Barrier		1	SFR	4510 Claus Rd, Modesto	42	46	49	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	48	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	SW-6		1	SFR	4601 Claribel Rd, Modesto	52	56	68	4	16	12	B (67)	A/E/S	--	64	4	1	--	64	5	1	--	63	5	1	--	62	7	1	--	61	6	1	--	61	7	1
21.3	No Barrier		1	SFR	5303 Eleanor Ave, Oakdale	49	50	65	1	16	15	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.4	No Barrier		1	SFR	5307 Eleanor Ave, Oakdale	44	46	56	2	12	10	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.5	No Barrier		1	REC	5354 Eleanor Ave, Oakdale	40	44	57	4	17	13	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24.1	No Barrier		1	SFR	6153 Langworth Rd, Oakdale	53	53	57	0	4	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24.2	No Barrier	--	1	SFR	5459 Langworth Rd, Oakdale	49	49	54	0	5	5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.1	No Barrier		1	SFR	5732 Langworth Rd, Oakdale	52	52	59	0	7	7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.2	No Barrier		1	SFR	5918 Patterson Rd, Oakdale	61	61	64	0	3	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.3	No Barrier		1	SFR	6399 Crane Rd, Oakdale	57	62	62	5	5	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.5	No Barrier		1	SFR	6236 Crane Rd, Oakdale	53	58	61	5	8	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25.6	No Barrier		1	SFR	1750 Lexington Ave, Oakdale	51	56	59	5	8	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28.1	No Barrier		1	SFR	3160 Kaufman Rd, Oakdale	37	39	50	2	13	11	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.2	No Barrier		1	SFR	6751 Albers Rd, Oakdale	67	68	68	1	1	0	B (67)	A/E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.9	SW-8	EOP	1	SFR	9684 Warnerville Rd, Oakdale	41	41	55	0	14	14	B (67)	S	--	54	2	1	--	53	2	1	--	53	2	1	--	51	4	1	--	50	5	1	--	49	6	1
30.11	No Barrier		1	SFR	9600 Warnerville Rd, Oakdale	41	41	76	0	35	35	B (67)	A/E/S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
37.2	SW-12	ROW	1	SFR	11955 Warnerville Rd, Oakdale	41	41	57	0	16	16	B (67)	S	--	55	2	1	--	53	4	1	--	52	5	1	--	52	5	1	--	51	6	1	--	51	6	1
39.1	No Barrier	--	1	SFR	13949 California 108, Oakdale	58	59	58	1	0	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
39.2	No Barrier		1	SFR	13460 Lancaster Rd, Oakdale	54	55	55	1	1	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														6 feet: $L_{eq}(h)$ / I.L.[3] / NBR
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	4	B (67)	N/A	- / -- / -- / --
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	- / -- / -- / --
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	2	B (67)	N/A	- / -- / -- / --
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	2	B (67)	N/A	- / -- / -- / --
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	1	B (67)	N/A	- / -- / -- / --

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														8 feet: $L_{eq}(h)$ / I.L.[3] / NBR
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	4	B (67)	N/A	- / -- / -- / --
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	- / -- / -- / --
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	2	B (67)	N/A	- / -- / -- / --
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	2	B (67)	N/A	- / -- / -- / --
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	1	B (67)	N/A	- / -- / -- / --

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														10 feet: $L_{eq}(h)$ / I.L.[3] / NBR
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	4	B (67)	N/A	- / -- / -- / --
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	- / -- / -- / --
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	2	B (67)	N/A	- / -- / -- / --
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	2	B (67)	N/A	- / -- / -- / --
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	1	B (67)	N/A	- / -- / -- / --

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														12 feet: $L_{eq}(h)$ / I.L.[3] / NBR
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	4	B (67)	N/A	- / -- / -- / --
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	- / -- / -- / --
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	2	B (67)	N/A	- / -- / -- / --
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	2	B (67)	N/A	- / -- / -- / --
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	1	B (67)	N/A	- / -- / -- / --

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														14 feet: $L_{eq}(h)$ / I.L.[3] / NBR
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	4	B (67)	N/A	- / -- / -- / --
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	- / -- / -- / --
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	2	B (67)	N/A	- / -- / -- / --
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	2	B (67)	N/A	- / -- / -- / --
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	1	B (67)	N/A	- / -- / -- / --

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA1	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														16 feet: $L_{eq}(h)$ / I.L.[3] / NBR
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	56	0	4	4	B (67)	N/A	- / -- / -- / --
42	No Barrier		0	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	- / -- / -- / --
42.1	No Barrier		1	SFR	13614 Lancaster Rd, Oakdale	52	52	54	0	2	2	B (67)	N/A	- / -- / -- / --
42.2	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	59	0	2	2	B (67)	N/A	- / -- / -- / --
42.3	No Barrier	--	1	SFR	13760 Lancaster Rd, Oakdale	59	59	60	0	1	1	B (67)	N/A	- / -- / -- / --

Notes:EOP=Edge of Pavement, ROW=Right of Way
1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC), S - Substantial Increase of 12 dBA or more, N/A - No abatement necessary based on land use.
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receptor. No feasible location to place a soundwall.
5. SFR = Single Family Residence, COM = Commercial, REC = Recreation, UND = Undeveloped Land, AG = Agriculture
6. Existing and No-Build noise levels for Receptors 30.9, 30.11, 37.2 are representative of background field measurement. No traffic near receptors under Existing and No-Build conditions.

Table 3.2.6-4: Predicted Future Noise and Soundwall Analysis: Alternative 2A

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	6 feet				8 feet				10 feet				12 feet				14 feet				16 feet			
														$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR		$L_{eq}(h)$	I.L.[3]	NBR
1.1	No Barrier	--	1	SFR	5211 Tully Rd, Modesto	49	54	55	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.1	No Barrier		1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	3	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.3	No Barrier		1	SFR	4885 Tully Rd, Modeseto	56	61	62	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.4	No Barrier		1	SFR	4767 Tully Rd, Modeseto	53	59	60	6	7	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	6	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	7	2	B (67)	A/E	--	65	1	1	--	64	2	1	--	64	2	1	--	64	2	1	--	63	3	1	--	63	3	1
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-1	-2	B (67)	A/E	--	64	3	1	--	64	3	1	--	64	3	1	--	63	4	1	--	63	4	1	--	63	4	1
3.2	No Barrier	--	1	COM	5298 McHenry Ave, Modesto, CA	64	66	65	1	0	-1	E (72)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3.3	No Barrier		1	COM	5150 McHenry Ave, Modesto, CA	60	62	61	2	1	0	C (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.1	No Barrier		1	SFR	5045 McHenry Ave, Modesto	56	57	60	1	4	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	63	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.5	No Barrier		1	SFR	4929 Coffee Road, Modesto	60	64	62	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.6	No Barrier		1	UND	501 Kiernan Avenue, Modesto, CA	58	63	70	5	11	6	G (N/A)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4.7	No Barrier		1	AG	801 Claribel Rd, Modesto, CA	53	57	67	4	14	10	F (N/A)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.1	No Barrier	--	4	CH	1509 Cabo Dr, Modesto	62	65	60	3	-2	-5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	0	-3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-2	-6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.1	No Barrier		1	SFR	2030 Claribel Rd, Modesto	51	55	60	4	9	5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	2	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	2	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10.5	No Barrier		1	SFR	4500 Oakdale Rd, Modesto	64	66	65	2	1	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	50	2	-5	-7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	49	2	-4	-6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	50	2	-1	-3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	52	3	2	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																																			
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																													
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet									
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
13.1	No Barrier		1	SFR	4881 Rosselle Ave, Modesto	61	65	65	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	59	2	2	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	55	5	-6	-11	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	54	6	9	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	52	5	7	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	57	7	10	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	56	7	6	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	62	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	64	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.1	No Barrier		1	REC	3800 Claribel Rd, Modesto	55	59	58	4	3	-1	C (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.2	No Barrier		1	SFR	4824 Claus Rd, Modesto	56	61	59	5	3	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	59	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	4936 Terminal Ave, Modesto	57	61	62	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	69	5	6	1	B (67)	A/E	--	64	5	5	--	62	7	5	--	62	7	5	--	60	9	5	--	60	9	5	--	59	10	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	56	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	67	1	4	3	B (67)	A/E	--	63	4	1	--	62	5	1	--	62	5	1	--	60	7	1	--	59	8	1	--	58	9	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	68	4	6	2	B (67)	A/E	--	64	4	1	--	62	7	1	--	62	7	1	--	60	8	1	--	60	8	1	--	59	9	1
19.5	No Barrier		1	SFR	4510 Claus Rd, Modesto	42	46	48	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	47	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	No Barrier		1	SFR	4718 McGee Ave, Modesto	42	46	48	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.1	No Barrier		1	SFR	4877 McGee Ave, Modesto	47	51	53	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.2	No Barrier		1	SFR	4663 McGee Ave, Modesto	43	47	50	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.3	No Barrier		1	SFR	4896 McGee Ave, Modesto	47	51	54	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.4	No Barrier		1	SFR	4642 McGee Ave, Modesto	42	46	48	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.5	No Barrier	--	1	REC	4906 McGee Ave, Modesto	49	53	57	4	8	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	No Barrier		1	SFR	4601 Claribel Rd, Modesto	52	56	59	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.2	No Barrier		1	SFR	4737 Claribel Rd, Modesto	60	65	64	5	4	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.7	No Barrier		1	SFR	4951 Claribel Rd, Modesto	53	58	57	5	4	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.1	No Barrier		1	SFR	4854 Langworth Rd, Modesto	59	60	60	1	1	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.2	No Barrier		1	SFR	4660 Langworth Rd, Modesto	49	50	53	1	4	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.1	No Barrier		1	SFR	5233 Claribel Rd, Modesto	59	63	61	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier Location	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																																			
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																														
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet											
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR									
23.2	No Barrier		1	SFR	5315 Claribel Rd, Modesto	57	61	59	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.3	No Barrier		1	SFR	5553 Claribel Rd, Modesto	63	68	64	5	1	-4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.4	No Barrier		1	SFR	5125 Langworth Rd, Oakdale	40	44	45	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.5	No Barrier		1	SFR	5931 Claribel Rd, Oakdale	51	56	57	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.6	No Barrier		1	SFR	500 Bentley Rd, Oakdale	55	60	60	5	5	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.7	No Barrier		1	SFR	7131 Claribel Rd, Oakdale	41	43	47	2	6	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.8	No Barrier		1	SFR	7321 Claribel Rd, Oakdale	55	59	59	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.9	No Barrier		1	SFR	7319 Claribel Rd, Oakdale	54	59	60	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27.1	No Barrier		1	SFR	5773 Valk Rd, Oakdale	47	47	49	0	2	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27.2	No Barrier[4]		1	SFR	8500 Valk Rd, Oakdale	41	41	50	0	9	9	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.1	No Barrier		1	SFR	6085 Albers Rd, Oakdale	56	58	59	2	3	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.1	No Barrier		1	SFR	6107 Bender Rd, Oakdale	41	41	44	0	3	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.12	No Barrier[4]		0	SFR	9625 Warnerville Rd, Oakdale	41	41	50	0	9	9	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
32.1	No Barrier[4]		2	SFR	1918 Sierra Rd, Oakdale	42	42	56	0	14	14	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.1	No Barrier		1	SFR	308 S Stearns Rd, Oakdale	57	57	64	0	7	7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.2	No Barrier		1	SFR	336 S Stearns Rd, Oakdale	46	46	54	0	8	8	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.3	SW-10	EOP	1	SFR	448 S Stearns Rd, Oakdale	42	42	57	0	15	15	B (67)	S	--	55	2	1	--	55	3	1	--	55	3	1	--	54	3	1	--	52	5	1	--	52	5	1			
33.5	No Barrier		1	SFR	337 S Stearns Rd, Oakdale	49	49	59	0	10	10	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
33.6	No Barrier		1	SFR	401 S Stearns Rd, Oakdale	52	53	58	1	6	5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.1	No Barrier		1	SFR	10008 Plaza De Oro Dr, Oakdale	56	58	54	2	-2	-4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.2	No Barrier	--	1	SFR	10306 Rio Sombra Ct, Oakdale	59	61	57	2	-2	-4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.3	No Barrier		1	SFR	10318 Rio Sombra Ct, Oakdale	65	67	64	2	-1	-3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.4	No Barrier		1	SFR	10468 St Andrews Ct, Oakdale	61	62	61	1	0	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
35.6	No Barrier		1	SFR	10529 California 108, Oakdale	64	66	65	2	1	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way
1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC), S - Substantial Increase of 12 dBA or more, N/A - No abatement necessary based on land use.
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receptor. No feasible location to place a soundwall.
5. SFR = Single Family Residence, COM = Commercial, REC = Recreation, UND = Undeveloped Land, AG = Agriculture
6. Existing and No-Build noise levels for receptors 27.2, 30.1, 30.12 are representative of background noise sites. No traffic near receptors under Existing and No-Build conditions.

Table 3.2.6-5: Predicted Future Noise and Soundwall Analysis: Alternative 2B

Receptor I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA							
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)
														6 feet: $L_{eq}(h)$ / I.L.[3] / NBR
														8 feet: $L_{eq}(h)$ / I.L.[3] / NBR
														10 feet: $L_{eq}(h)$ / I.L.[3] / NBR
														12 feet: $L_{eq}(h)$ / I.L.[3] / NBR
														14 feet: $L_{eq}(h)$ / I.L.[3] / NBR
														16 feet: $L_{eq}(h)$ / I.L.[3] / NBR
1.1	No Barrier		1	SFR	5211 Tully Rd, Modesto	49	54	55	5	6	1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
1.2	No Barrier		1	SFR	5089 Tully Rd, Modesto	60	64	65	4	5	1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
1.3	No Barrier		1	SFR	5080 Tully Rd, Modesto	56	60	62	4	6	2	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
2.1	No Barrier	--	1	SFR	1394 Kiernan Ave, Modesto	59	63	62	4	3	-1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
2.2	No Barrier		1	SFR	1248 Kiernan Ave, Modesto	57	62	63	5	6	1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
2.3	No Barrier		1	SFR	4885 Tully Rd, Modeseto	56	61	62	5	6	1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
2.4	No Barrier		1	SFR	4767 Tully Rd, Modeseto	53	59	60	6	7	1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
2.5	No Barrier		1	SFR	4823 Tully Rd, Modeseto	52	58	58	6	6	0	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
2.6	SW-1	EOP	1	SFR	4744 Tully Rd, Modeseto	59	64	66	5	7	2	B (67)	A/E	- / 65 / 1 / 1 / - / 64 / 2 / 1 / - / 64 / 2 / 1 / - / 63 / 3 / 1 / - / 63 / 3 / 1 / - / 63 / 3 / 1
3	No Barrier		1	SFR	201 Crawford Rd, Modesto	68	69	67	1	-1	-2	B (67)	A/E	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
3.1	SW-2	EOP	1	SFR	177 Chow Chow Ln, Modesto	68	69	67	1	-1	-2	B (67)	A/E	- / 64 / 3 / 1 / - / 64 / 3 / 1 / - / 63 / 4 / 1 / - / 63 / 4 / 1 / - / 63 / 4 / 1 / - / 63 / 4 / 1
3.2	No Barrier		1	COM	5298 McHenry Ave, Modesto, CA	64	66	65	1	0	-1	E (72)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
3.3	No Barrier		1	COM	5150 McHenry Ave, Modesto, CA	60	62	61	2	1	0	C (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4	No Barrier		1	COM	5150 McHenry Ave, Modesto	73	74	73	1	0	-1	C (67)	A/E	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.1	No Barrier		1	SFR	5045 McHenry Ave, Modesto	56	57	60	1	4	3	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.2	No Barrier		1	SFR	254 Claribel Road, Modesto	59	63	64	4	5	1	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.3	No Barrier		1	SFR	630 Claribel Road, Modesto	57	61	64	4	7	3	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.4	No Barrier		1	SFR	830 Claribel Road, Modesto	55	59	61	4	6	2	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.5	No Barrier		1	SFR	4929 Coffee Road, Modesto	60	64	62	4	2	-2	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.6	No Barrier		1	UND	501 Kiernan Avenue, Modesto, CA	58	63	70	5	11	6	G (N/A)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
4.7	No Barrier		1	AG	801 Claribel Rd, Modesto, CA	53	57	68	4	14	11	F (N/A)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
5	No Barrier		4	SFR	4824 Coffee Rd, Modesto	68	71	73	3	5	2	B (67)	A/E	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --
5.1	No Barrier		1	SFR	4854 Coffee Rd, Modesto	56	60	60	4	4	0	B (67)	N/A	- / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / -- / - / -- / --

Receptor I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																															
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																										
														6 feet				8 feet			10 feet			12 feet			14 feet			16 feet					
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
6.1	No Barrier		1	SFR	5330 Coffee Rd, Modesto	53	57	59	4	6	2	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
7.1	No Barrier		4	SFR	1509 Cabo Dr, Modesto	62	65	60	3	-2	-5	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
7.2	No Barrier		1	SFR	1532 Cabo Dr, Modesto	59	62	59	3	0	-3	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
8.1	No Barrier		5	SFR	1609 Cabo Dr, Modesto	62	66	60	4	-2	-6	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
10.1	No Barrier		1	SFR	2030 Claribel Rd, Modesto	51	55	60	4	9	5	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
10.2	No Barrier		1	SFR	5036 Oakdale Rd, Modesto	59	60	61	1	2	1	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
10.4	No Barrier		1	SFR	4780 Oakdale Rd, Modesto	60	61	62	1	2	1	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
10.5	No Barrier		1	SFR	4500 Oakdale Rd, Modesto	64	66	65	2	1	-1	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
11.1	No Barrier		1	SFR	5007 Gold River Ct, Riverbank	55	57	50	2	-5	-7	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
12.1	No Barrier		1	SFR	5008 Riverbed Ct, Riverbank	53	55	50	2	-3	-5	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
12.2	No Barrier		1	SFR	5015 Prospectors Pkwy, Riverbank	51	53	51	2	0	-2	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	53	3	3	0	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
13.1	No Barrier		1	SFR	4881 Rosselle Ave, Modesto	61	65	65	4	4	0	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
13.2	No Barrier		1	SFR	4955 Rosselle Ave, Modesto	60	64	62	4	2	-2	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
14.1	No Barrier		1	SFR	5230 Roselle Ave, Riverbank	57	59	60	2	3	1	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
14.2	No Barrier		1	SFR	3212 Claribel Rd, Modesto	61	66	61	5	0	-5	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
15.1	No Barrier		1	SFR	3728 Davis Ave, Modesto	45	51	54	6	9	3	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
15.2	No Barrier		1	SFR	3761 Davis Ave, Modesto	45	50	53	5	8	3	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
16.1	No Barrier		1	SFR	3874 Davis Ave, Modesto	47	54	58	7	11	4	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
16.2	No Barrier		1	SFR	3932 Davis Ave, Modesto	50	57	56	7	6	-1	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
16.3	No Barrier		1	SFR	3973 Davis Ave, Modesto	58	62	63	4	5	1	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
16.4	No Barrier		1	SFR	5361 Claus Rd, Modesto	60	64	64	4	4	0	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
16.5	No Barrier		1	SFR	3973 Minniear Ave, Modesto	60	64	64	4	4	0	B (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--
17.1	No Barrier		1	REC	3800 Claribel Rd, Modesto	55	59	57	4	2	-2	C (67)	N/A	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--	- -	--	--	--

Receptor I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																														
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																								
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet					
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR			
17.2	No Barrier		1	SFR	4824 Claus Rd, Modesto	56	61	59	5	3	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17.3	No Barrier		1	SFR	4380 Claribel Rd, Modesto	53	58	59	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18.1	No Barrier		1	SFR	4936 Terminal Ave, Modesto	57	61	62	4	5	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.1	SW-3	EOP	5	SFR	4650 Claus Rd, Modesto	63	68	69	5	6	1	B (67)	A/E	--	64	5	5	--	62	7	5	--	60	9	5	--	60	9	5	--	59	10	5	--	59	11	5
19.2	No Barrier	--	1	SFR	4672 Claus Rd, Modesto	52	56	56	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.3	SW-4	EOP	1	SFR	4527 Claus Rd, Modesto	63	64	67	1	4	3	B (67)	A/E	--	63	4	1	--	62	5	1	--	62	5	1	--	59	8	1	--	58	9	1	--	57	10	1
19.4	SW-5	EOP	1	SFR	4548 Claus Rd, Modesto	62	66	68	4	6	2	B (67)	A/E	--	64	4	1	--	62	6	1	--	62	6	1	--	60	8	1	--	59	9	1	--	59	9	1
19.5	No Barrier		1	SFR	4510 Claus Rd, Modesto	42	46	48	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19.6	No Barrier		1	SFR	4500 Claus Rd, Modesto	41	45	47	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	No Barrier		1	SFR	4718 McGee Ave, Modesto	42	46	48	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.1	No Barrier		1	SFR	4877 McGee Ave, Modesto	47	51	54	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.2	No Barrier		1	SFR	4663 McGee Ave, Modesto	43	47	50	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.3	No Barrier		1	SFR	4896 McGee Ave, Modesto	47	51	54	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.4	No Barrier		1	SFR	4642 McGee Ave, Modesto	42	46	48	4	6	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20.5	No Barrier		1	SFR	4906 McGee Ave, Modesto	49	53	58	4	9	5	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.1	No Barrier	--	1	SFR	4601 Claribel Rd, Modesto	52	56	59	4	7	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.2	No Barrier		1	SFR	4737 Claribel Rd, Modesto	60	65	64	5	4	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21.7	No Barrier		1	SFR	4951 Claribel Rd, Modesto	53	58	57	5	4	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.1	No Barrier		1	SFR	4854 Langworth Rd, Modesto	59	60	60	1	1	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22.2	No Barrier		1	SFR	4660 Langworth Rd, Modesto	49	50	53	1	4	3	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.1	No Barrier		1	SFR	5233 Claribel Rd, Modesto	59	63	61	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.2	No Barrier		1	SFR	5315 Claribel Rd, Modesto	57	61	59	4	2	-2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.3	No Barrier		1	SFR	5553 Claribel Rd, Modesto	63	68	64	5	1	-4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.4	No Barrier		1	SFR	5125 Langworth Rd, Oakdale	40	44	51	5	12	7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receptor I.D.	Barrier I.D.	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA[1]	North County Corridor New State Route 108 Project Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																															
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus Existing Conditions	Design Year Noise Level with Project minus No Project	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																										
														6 feet			8 feet			10 feet			12 feet			14 feet			16 feet							
														$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR						
23.5	No Barrier		1	SFR	5931 Claribel Rd, Oakdale	51	56	57	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.6	No Barrier		1	SFR	500 Bentley Rd, Oakdale	55	60	61	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.7	No Barrier		1	SFR	7131 Claribel Rd, Oakdale	41	43	47	3	6	4	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.8	No Barrier		1	SFR	7321 Claribel Rd, Oakdale	55	59	59	4	4	0	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23.9	No Barrier		1	SFR	7319 Claribel Rd, Oakdale	54	59	60	5	6	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27.1	No Barrier		1	SFR	5773 Valk Rd, Oakdale	47	47	49	0	2	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27.2	No Barrier		1	SFR	8500 Valk Rd, Oakdale	41	41	49	0	8	8	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29.1	No Barrier		1	SFR	6085 Albers Rd, Oakdale	56	58	60	2	4	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.1	No Barrier		1	SFR	6107 Bender Rd, Oakdale	41	41	42	0	1	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.2	No Barrier[4]		1	SFR	6355 Bender Rd, Oakdale	41	41	45	0	4	4	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.3	No Barrier[4]		1	SFR	6466 Bender Rd, Oakdale	41	41	52	0	11	11	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.4	SW-7	ROW	1	SFR	6729 Smith Rd, Oakdale	41	41	61	0	20	20	B (67)	S	--	58	3	1	--	56	5	1	--	55	6	1	--	54	7	1	--	54	7	1	--	53	8	1
30.5	No Barrier		1	SFR	6739 Smith Rd, Oakdale	55	55	62	0	7	7	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.6	No Barrier[4]		1	SFR	6680 Smith Rd, Oakdale	41	41	51	0	10	10	B (67)	S	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.7	No Barrier	--	1	SFR	10022 Warnerville Rd, Oakdale	56	56	62	0	6	6	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.8	No Barrier		1	SFR	9979 Warnerville Rd, Oakdale	44	45	54	1	10	9	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30.12	No Barrier		1	SFR	9625 Warnerville Rd, Oakdale	41	41	40	0	-1	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
37.1	SW-11	EOP	1	SFR	6954 Stoddard Rd, Oakdale	41	41	57	0	16	16	B (67)	S	--	55	2	1	--	55	2	1	--	54	3	1	--	52	5	1	--	52	5	1	--	51	6	1
39.1	No Barrier		1	SFR	13949 California 108, Oakdale	58	59	58	1	0	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
39.2	No Barrier	--	1	SFR	13460 Lancaster Rd, Oakdale	54	55	54	1	0	-1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
39.3	No Barrier		1	SFR	13542 Lancaster Rd, Oakdale	52	52	53	0	1	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42	No Barrier		1	SFR	13712 Lancaster Rd, Oakdale	57	57	58	0	1	1	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:EOP=Edge of Pavement, ROW=Right of Way
1. Short Term measurements were used for calibrating the TNM models and do not represent a frequently used outdoor area within the proposed project area.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC), S - Substantial Increase of 12 dBA or more, N/A - No abatement necessary based on land use.
3. I.L. = Insertion Loss
4. '-- A soundwall was not analyzed for this receptor. No feasible location to place a soundwall.
5. SFR = Single Family Residence, COM = Commercial, REC = Recreation, UND = Undeveloped Land, AG = Agriculture
6. Existing and No-Build noise levels for receptors 23.7,27.2,30.1,30.2,30.3,30.4,30.6, 30.12, 37.1 are representative of background noise sites. No traffic near receptors under Existing and No Build conditions.

The potential for noise impacts was studied for each Build Alternative. Because the Build Alternatives are new alignments, future noise levels approach or exceed the noise abatement criteria, as well as result in substantial noise increases over existing conditions. It is not uncommon for an alternative to result in traffic noise increases of up to 30 dBA over existing noise levels. These types of increases occur in areas where receptors under existing conditions are not near roadways and are located in a serene noise environment. Each Build Alternative would result in areas where traffic noise impacts are expected due to the effect of new alignments bringing traffic closer to sensitive receptors.

Twelve soundwalls were considered in areas where noise impacts occur for sensitive receptors. The soundwalls are shown in Figure 3.2.6-3, with additional detail provided in Appendix A. Five of the soundwalls were found to be not feasible. Soundwalls 3, 4, 5, 6, 7, 11, and 12 were evaluated and the results are shown in Table 3.2.6-6. SW-9 was not found to be feasible at any evaluated height due to the length of the wall being limited by the surrounding local roadways.

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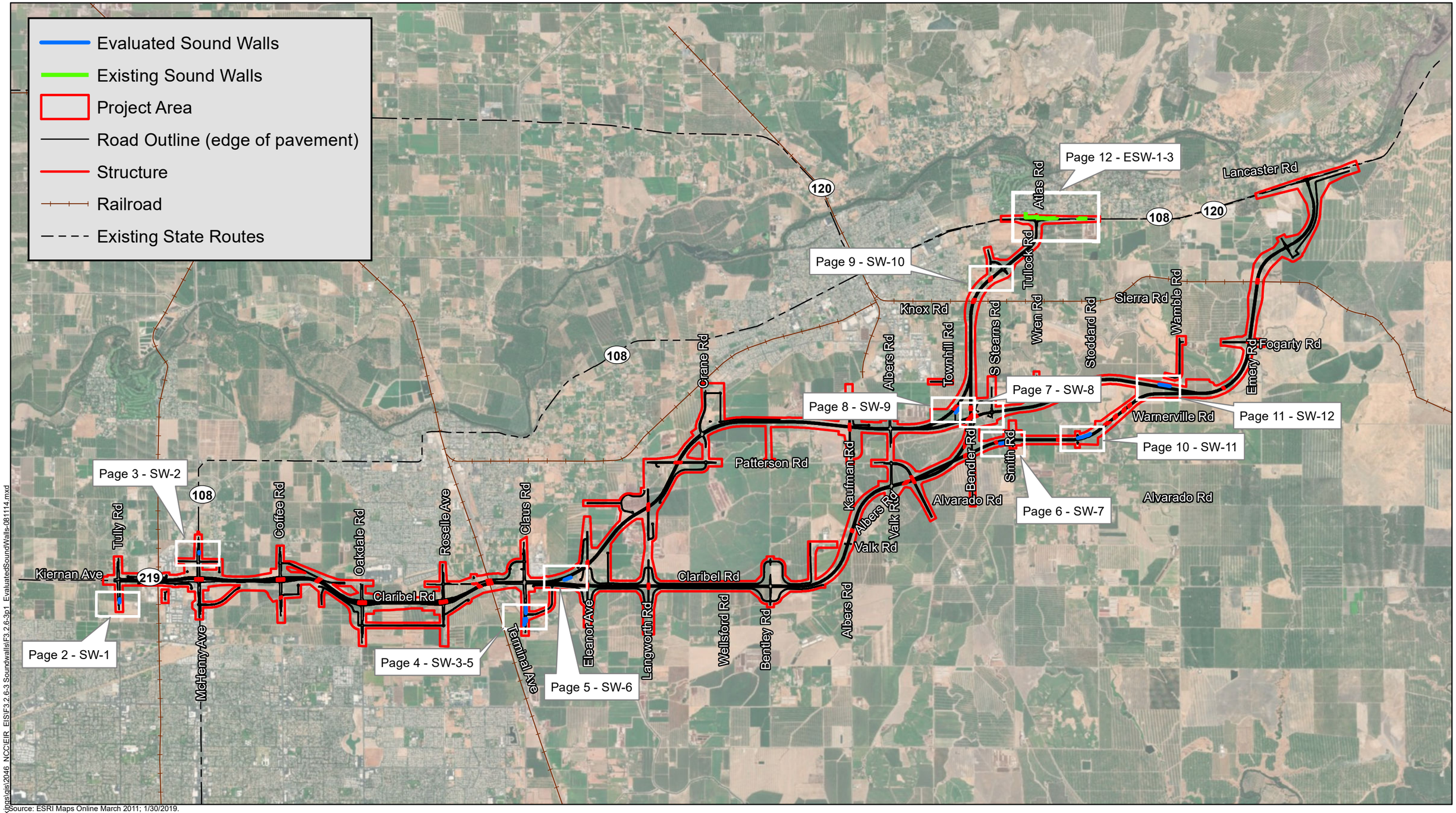


Source: ESRI Maps Online March 2011; 1/30/2019.

0 1 2 3 4 Miles

Figure 3.2.6-3
Evaluated Soundwall Locations
Page 1 of 12
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

\\ingnslsis\2046_NCC\EIR_EIS\F3.2.6-3 Soundwalls\F3.2.6-3p1_EvaluatedSoundWalls-081114.mxd

Table 3.2.6-6: Summary of Abatement Key Information

Barrier	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved ?	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance? (within 10%)
SW-3	6	Yes	5	No	$355,000	$98,400	YES
	8	Yes	5	No	$355,000	$131,200	YES
	10	Yes	5	Yes	$355,000	$164,000	YES
	12	Yes	5	Yes	$355,000	$196,800	YES
	14	Yes	5	Yes	$355,000	$229,600	YES
	16	Yes	5	Yes	$355,000	$262,400	YES
SW-4	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$128,640	NO
	10	Yes	1	Yes	$71,000	$160,800	NO
	12	Yes	1	Yes	$71,000	$192,960	NO
	14	Yes	1	Yes	$71,000	$225,120	NO
	16	Yes	1	Yes	$71,000	$257,280	NO
SW-5	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$56,000	YES
	10	Yes	1	Yes	$71,000	$70,000	YES
	12	Yes	1	Yes	$71,000	$84,000	NO
	14	Yes	1	Yes	$71,000	$98,000	NO
SW-6	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$146,880	NO
	10	Yes	1	Yes	$71,000	$183,600	NO
	12	Yes	1	Yes	$71,000	$220,320	NO
	14	Yes	1	Yes	$71,000	$257,040	NO
	16	Yes	1	Yes	$71,000	$293,760	NO
SW-7	6	No	-	No	-	-	-
	8	Yes	1	No	$71,000	$134,720	NO
	10	Yes	1	Yes	$71,000	$168,400	NO
	12	Yes	1	Yes	$71,000	$202,080	NO
	14	Yes	1	Yes	$71,000	$235,760	NO
	16	Yes	1	Yes	$71,000	$269,440	NO
SW-11	6	No	-	No	-	-	-
	8	No	-	No	-	-	-
	10	No	-	No	-	-	-
	12	Yes	1	No	$71,000	$412,320	NO
	14	Yes	1	No	$71,000	$481,040	NO
	16	Yes	1	No	$71,000	$549,760	NO
SW-12	6	No	-	No	-	-	-
	8	No	-	No	-	-	-
	10	Yes	1	No	$71,000	$281,200	NO
	12	Yes	1	No	$71,000	$337,440	NO
	14	Yes	1	No	$71,000	$393,680	NO
	16	Yes	1	No	$71,000	$449,920	NO

Source: NADR 2015

Receptor 19.1 represents 5 homes at Olive Lane Trailer Park along Claus Road. The existing modeled noise levels at Receptor 19.1 is 63 Leq (h) dBA. The future noise level at Receptor 19.1 is 70 Leq (h) dBA. Because the predicted future noise level exceeds the noise abatement criteria for residential uses (67 dBA), the 5 homes represented by Receptor 19.1 would be adversely affected by noise. To achieve a 5-dBA reduction for feasibility and a 7-dBA reduction to meet the design goal of 7 dBA for at least 1 receptor, a 10-foot wall at a length of 410 feet would be needed. A 12-foot wall would also meet Caltrans line-of-sight criteria (breaks the line-of-sight between truck exhaust and receptor). If the total cost of the wall at this location is less than the total cost allowance, then the wall would likely be incorporated into the project. The total cost allowance, calculated as directed by the Caltrans Traffic Noise Analysis Protocol, is $355,000. The current estimated cost of SW-3 at a 12-foot height is $196,800.

Receptor 19.4 represents 1 home on Claus Road near Planview Road. The existing modeled noise level at Receptor 19.4 is 62 Leq (h) dBA. The future noise level at Receptor 19.4 is 69 Leq (h) dBA. Because the predicted future noise level exceeds the noise abatement criteria for residential uses (67 dBA), the 1 home represented by Receptor 19.4 would be adversely affected by noise. To achieve a 5-dBA reduction for feasibility and a 7-dBA reduction to meet the design goal of 7 dBA for at least 1 receptor, a 10-foot wall at a length of 175 feet would be needed. The total cost allowance, calculated as directed by the Caltrans Traffic Noise Analysis Protocol, is $71,000. The current estimated cost of SW-5 at a 10-foot height is $70,000. While a 12-foot wall would also meet Caltrans line-of-sight criteria, the cost of a 12-foot wall ($84,000) would be above the total cost allowance ($71,000).

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a barrier at SW-3, with a length of 410 feet and an average height of 12 feet, and a barrier at SW-5, with a length of 175 feet and an average height of 10 feet. Calculations based on preliminary design data show that SW-3 will reduce noise levels by 5 to 7 dBA for 5 residences at a cost of $196,800. Calculations based on preliminary design data show that SW-5 will reduce noise levels by 5 to 7 dBA for 1 residence at a cost of $70,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement will be made upon completion of the project design and public involvement processes.

Temporary Construction Impacts

Build Alternatives

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 3.2.6-7 shows the noise levels produced by equipment commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dBA at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dBA per doubling of distance.

Table 3.2.6-7: Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 1995.

Construction of the project is expected to take two years. Pile drivers, excavators, and pavers may be used. No substantial adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Standard Specification 14-8.02, SSP14-8.02 and applicable local noise standards per NOI-1, which would avoid and minimize noise impacts during construction. Construction noise would be short term, intermittent, and overshadowed by local traffic noise. In addition, the local county noise ordinance and city municipal code are in place for noise impacts during construction.

Avoidance, Minimization and/or Abatement Measures

Temporary Construction Impacts

Noise control would conform to the provisions in Section 14-8.01 of Caltrans Noise and Vibration Requirements (2015). To minimize construction-related noise impacts, sound control should also conform to the Standard Special Provision SSP 14-8.01. Implementation of the following measures will minimize temporary construction noise impacts:

Measure NOI-1: Standard Special Provision (SSP 14-8.02) will be edited specifically for this project during the PS&E phase and included to reduce noise impacts during construction.

Measure NOI-2: Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a barrier at SW-3, with a length of 410 feet and an average height of 12 feet, and a barrier at SW-5, with a length of 175 feet and an average height of 10 feet. Calculations based on preliminary design data show that SW-3 will reduce noise levels by 5 to 7 dBA for 5 residences at a cost of $196,800. Calculations based on preliminary design data show that SW-5 will reduce noise levels by 5 to 7 dBA for 1 residence at a cost of $70,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement will be made upon completion of the project design and public involvement processes.

3.2.7 Energy

Regulatory Setting

NEPA (42 U.S. Code Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts. CEQA Guidelines, Appendix F, Energy Conservation, state that Environmental Impact Reports are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

The California Environmental Quality Act (CEQA) Guidelines section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

Affected Environment

Energy consumption can be measured in direct and indirect energy use. Direct energy use is the energy consumed in the actual propulsion of a vehicle using the facility. It can be measured in terms of the thermal value of the fuel [usually measured in British thermal units (BTUs) or Joules], the costs of the fuel, or the quantity of electricity used in the engine or motor. Indirect energy is defined as all the remaining energy consumed to run a transportation system, including construction energy, maintenance energy, and any substantial impacts to energy consumption related to project induced land use changes and mode shifts, and any substantial changes in energy associated with vehicle operation, manufacturing or maintenance due to increased automobile use.

Direct Energy Consumption

Most existing energy consumption is traffic related. As indicated in Section 3.1.6 for Traffic, existing traffic is operating at mostly LOS E during peak periods within the proposed project limits. These stop-and go traffic conditions decrease fuel efficiency, thus increasing fuel consumption. As vehicles require more fuel, there is in increase in fuel shipments (via tanker trucks) on existing SR-108 to the many gas stations along the corridor.

Some of the existing energy consumption, albeit a small amount, may be attributed to the facility itself. The existing SR-108 lacks sidewalks and bike lanes for pedestrian and bicycle use. As a result, some people may feel that it is not safe to walk or ride a bicycle on roads without sidewalks and bike lanes, and may therefore choose to drive, adding to traffic and, in turn, increasing fuel consumption.

Indirect Energy Consumption

The indirect consumption of energy for transportation system materials and processes competes with other important energy needs. One such use includes the routine wear and replacement of vehicles and vehicle parts, especially during periods of traffic congestion. Driving during peak traffic conditions increases the "wear and tear" on vehicles, which then require more maintenance (such as, for example, oil changes, tire and brake pad replacement).

Another competing energy use includes maintenance. To maintain safe and efficient traffic operations, the existing SR-108 pavement requires periodic maintenance. Pavement grinding operations, for example, include the use of water to grind existing pavement, which is then exported to an approved facility, such as a slurry pit, so the grindings can then be properly disposed of. Heavy equipment is needed to perform this work, as well as setting up lane closures and detours, which can negatively affect traffic conditions. Caltrans Maintenance Division also performs routine litter cleanup and graffiti abatement. These activities expose highway workers to dangerous conditions when work is next to live traffic. This work often requires lane closures for worker safety, which could also negatively affect traffic conditions.

Environmental Consequences

Impacts Common to All Build Alternatives

When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

Congested traffic conditions decrease fuel efficiency, and thus can increase fuel consumption. Because the project is anticipated to improve traffic operations and relieve congestion, fuel consumption and energy impacts would not be substantially increased.

As shown in table 3.2.7-1 below, the build alternatives in 2026 would slightly increase vehicle-miles traveled by up to 3 percent compared to the no project conditions, while vehicle hours of delay decrease considerably. All of the Build Alternatives would result in fewer vehicle hours of delay compared to the No-Build Alternative. Alternative 1A would have approximately 21 percent fewer, Alternative 1B would have 21 percent fewer, Alternative 2A would have 11 percent fewer, and Alternative 2B would have 8 percent fewer vehicle hours of delay.

Similarly in 2046, the build alternatives would slightly increase vehicle-miles traveled by up to 3 percent in comparison to the no-project conditions, while vehicle hours of delay decrease considerably. All of the Build Alternatives would result in fewer vehicle hours of delay compared to the No-Build Alternative. Alternative 1A would have approximately 34 percent fewer, Alternative 1B would have 32 percent fewer, Alternative 2A would have 17 percent fewer, and Alternative 2B would have 12 percent fewer vehicle hours of delay (Traffic Operations Report, 2015, and TOR Addendum, 2019).

Table 3.2.7-1: Regional Measures of Effectiveness for Project Area

Measure	Year 2026				
	No Project	**Alt. 1A**	**Alt. 1B**	**Alt. 2A**	**Alt. 2B**
Daily Vehicle Miles of Travel (VMT)	2,497,408	2,572,913 (3.0%)	2,572,019 (3.0%)	2,562,813 (2.6%)	2,562,740 (2.6%)
Daily Vehicle Hours of Delay (VHD)[2]	1,873	1,477 (-21.1%)	1,505 (-19.7%)	1,676 (-10.5%)	1,722 (-8.0%)
Year 2046					
Daily Vehicle Miles of Travel (VMT)	3,174,063	3,262,350 (2.8%)	3,255,592 (2.6%)	3,253,685 (2.5%)	3,246,040 (2.3%)
Daily Vehicle Hours of Delay (VHD)[2]	7,159	4,736 (-33.8%)	4,903 (-31.5%)	5,952 (-16.9%)	6,300 (-12.0%)

Notes:

1 Percent change from No Project conditions is presented in parentheses.

2 Only includes roadway delay (intersection delay is not included).

Source: Fehr & Peers, 2015, and TOR Addendum, 2019

As shown in table 3.2.7-2 below, the build alternatives in 2026 would decrease travel times between Keirnan Avenue/Tully Road intersection by up to 17.0 percent compared to the no project conditions. All of the Build Alternatives would result in faster travel times compared to

the No-Build Alternative. Alternative 1A would be approximately 17.0 percent faster, Alternative 1B would be approximately 16.3 percent faster, Alternative 2A would would be approximately 16.1 percent faster, and Alternative 2B would be approximately 15.6 percent.

Similarly, the build alternatives in 2046 would decrease travel times between Keirnan Avenue/Tully Road intersection by up to 20.2 percent compared to the no project conditions. All of the Build Alternatives would result in faster travel times compared to the No-Build Alternative. Alternative 1A would be approximately 20.2 percent faster, Alternative 1B would be approximately 19.7 percent faster, Alternative 2A would would be approximately 19.4 percent faster, and Alternative 2B would be approximately 19.1 percent faster (Traffic Operations Report, 2015, and TOR Addendum, 2019).

Table 3.2.7-2: Travel Times In Minutes Between Kiernan Avenue/Tully Intersection And Stanislaus County/Tuolumne County Border

Year 2026								
No Build	**Alt. 1A**		**Alt. 1B**		**Alt. 2A**		**Alt. 2B**	
Travel Time	**Travel Time**	**% Change**	**Travel Time**	**% Change**	**Travel Time**	**% Change**	**Travel Time**	**% Change**
32.5	27.0	-17.0%	27.2	-16.3%	27.3	-16.1%	27.5	-15.6%
Year 2046								
34.1	27.2	-20.2%	27.4	-19.7%	27.5	-19.4%	27.6	-19.1%

Temporary Construction Impacts

Construction activity, such as the use of heavy machinery, detours, lane closures, and the import and export of materials and equipment, could substantially increase energy consumption, and is an unavoidable impact. However, post-construction and operational requirements of the facility should be less with the proposed project as opposed to the No-Build Alternative. The savings in operation energy requirements would offset construction energy requirements and, in the long term, result in a net savings in energy usage. When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

No-Build Alternative

The energy requirements of the No-Build Alternative, such as fuel consumption, and routine wear and replacement, may be somewhat greater than the requirements of the proposed project, and may even require larger quantities of energy in the future as traffic conditions worsen and level of service degrades.

Avoidance, Minimization and/or Mitigation Measures

Measure EN-1: Efforts to minimize energy consumption during construction include the following:

- Public awareness campaigns to encourage carpooling and commuting during non-peak traffic hours.

- Recycling of materials, such as damaged metal beam/guardrail and used rebar salvaged as metal scrap.
- Use of recycled materials, such as asphalt and concrete roadway materials through creation of road-base materials after crushing and grinding.
- Use of energy-efficient construction vehicles.

3.3 Biological Environment

The following sections summarize the Natural Environment Study (NES) that was prepared for the proposed project in June 2016. The project study area was established as the area within which permanent and temporary project impacts (e.g., proposed right-of-way, cut slopes, fill areas, local access roads, temporary access roads, construction staging areas) for the four build alternatives (1A, 1B, 2A, 2B) could potentially occur plus an additional 250-foot buffer. All potential impacts from the proposed Build Alternatives are included in this area.

The biological environment section of this document is divided into the following sections: natural communities, wetlands and other waters, plant species, animal species, threatened and endangered species, and invasive species. Biological investigations for the proposed project were guided by correspondence with the relevant resource agencies.

In addition to field work, literature research was conducted to identify what types of sensitive plant and animal wildlife would be likely to occur within or nearby the project area. This literature research included review of U.S. Fish and Wildlife Service Species List, NOAA Fisheries West Coast Region website, California Department of Fish and Wildlife *California Natural Diversity Database* and the California Native Plant Society *Electronic Inventory of Rare and Endangered Plants.*

3.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species Section 3.3.1. Wetlands and other waters are also discussed in Section 3.3.2.

Affected Environment

The project study area includes six natural communities of special concern: interior live oak woodland, blue oak savannah, perennial marsh, seasonal marsh, riparian scrub, and seasonal wetland. Oak woodland/savannah and riparian communities are considered sensitive under CEQA, and riparian communities may also be regulated by the California Department of Fish and Wildlife pursuant to Section 1602 of the California Fish and Game Code. Riparian communities may also be regulated by the U.S. Army Corps of Engineers and/or Regional Water Quality Control Boards if the community is determined to be waters of the U.S. or waters of the State.

Interior live oak woodland, blue oak savannah, and riparian scrub are described below. Marshes, wetlands, and other potential Waters of the U.S. are discussed in Section 3.3.1, Wetlands and Other Waters. Two other natural communities—annual grasslands and Himalayan blackberry bramble—are also found here, but are not considered to be of special concern (see Figure 3.3.1-1, Natural Communities and Land Use, in Appendix A).

Other vegetation communities in the project area, but that are not natural communities, include ponds/basin, ruderal, agricultural, orchard, irrigated wetlands, canal and ditch, dairy and poultry

farms, landscaped, rural residential and urban (see Figure 3.3.1-1 Natural Communities and Land Use, in Appendix A). Some of these may provide suitable foraging habitat or habitat for some species.

The project study area, totaling about 5,435 acres, is in northern Stanislaus County in the San Joaquin Valley. The western end of the North County Corridor begins about 4 miles east of SR-99 and approximately 0.75 mile north of Modesto. The North County Corridor extends about 18 miles to the east and ends at SR-108/SR-120 east of Oakdale. The project study area consists mostly of developed and agricultural lands (orchards, irrigated pasture), but also includes areas of natural vegetation.

The western and central portions of the project study area are generally flat; the topography begins trending upward in the eastern portion of the project study area. The elevation within the project study area ranges from about 100 feet above sea level at the western end to about 250 feet above sea level at the eastern end. The area has cool, wet winters and hot, dry summers. Rainfall totals about 12 inches, with most falling between November and April.

Interior Live Oak Woodland

Interior live oak woodland occurs in two locations at the east end of the project study area and is also mapped in one location near the west end. This community is dominated by interior live oak (*Quercus wislizeni*) but valley oaks *(Quercus lobata*) are found in a ditch that occurs where the woodland adjoins with the existing SR-108. The understory is dominated by invasive grasses. There are about 12.01 acres of this oak woodland in the project area. Interior live oak woodland occurs on the east end of the project study area, where Alternatives 1B and 2B abut SR-120. Interior live oak woodland also occurs about 1 mile south of where Alternatives 1B and 2B meet with SR-120.

Interior live oak woodland provides suitable nesting habitat for the white-tailed kite (*Elanus leucurus*), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), and other birds. Oak trees may be used by the pallid bat *(Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*), and the western mastiff bat (*Eumops perotis*). Mammals such as coyote (*Canis latrans*) and red fox (*Vulpes vulpes*) may also be observed in this community.

Blue Oak Savannah

Blue oak savannah occurs at one location at the east end of the project study area, where Alternatives 1B and 2B abut SR-120. The dominant overstory species is blue oak (*Quercus douglasii*). The understory is dominated by native saxifrage (*Lithophragma affine*), elegant clarkia (*Clarkia unguiliculata*), and other annual forbs and grasses. Blue oak savannah covers about 5.08 acres of the project area. The habitat value is similar to the interior live oak woodland.

Riparian Scrub

Riparian scrub occurs in one location along a concrete canal, next to orchards, near the west end of the project study area. The community consists entirely of dense narrow-leaf willow (*Salix exigua*). Riparian scrub covers 0.36 acre of the project area. Riparian scrub provides suitable nesting habitat for small passerine birds.

Himalayan Blackberry Bramble

Himalayan blackberry bramble occurs in many areas of the project study area, often associated with irrigated pasture. Large patches of Himalayan blackberry (*Rubus armeniacus*) bramble occur west of Stearns Road and north of Sierra Road. Himalayan blackberry is the dominant species in this community. The project area includes 7.06 acres of Himalayan blackberry bramble. Large areas of blackberry bramble provide suitable nesting habitat for tricolored blackbirds (*Agelaius tricolor*).

Annual Grassland

Annual grasslands occur throughout much of the project study area, but are found in larger areas in the eastern third of the project study area. This community includes annual brome grassland, wild oat grassland and perennial rye grass fields. Dominant species include wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), perennial rye grass (*Festuca perenne*), foxtail barley (*Hordeum murinum*), and rattail six weeks grass (*Festuca myuros*). Menzie's fiddleneck (*Amsinckia menziesii*), Italian thistle (*Carduus pycnocephalus*), field chickweed (*Cerastium arvense*), cutleaf geranium (*Geranium dissectum*), and milk thistle (*Silybum marianum*) also occur in this community.

Annual grasslands can provide suitable habitat for the western burrowing owl to utilize as breeding, feeding, and for shelter, if suitable burrows are present. Several bird species may forage in the annual grasslands, including Swainson's hawk and other raptors. If suitable aquatic habitat is nearby, Pacific pond turtles (*Emys marmorata*) may use annual grasslands as upland habitat for nesting and aestivation.

Migration Corridors

Wildlife movement corridors are linear habitats that connect two or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between regionally significant habitats (e.g., deer movement corridors). Wildlife corridors typically include vegetation and topography that facilitate the movements of wild animals from one area of suitable habitat to another to fulfill foraging, breeding, and territorial needs. These corridors often provide cover and protection from predators that may be lacking in surrounding habitats. Wildlife corridors generally include riparian zones and similar linear expanses of linked habitat.

No established migration corridors or other movement areas were identified in the project study area. Before development of the Oakdale and Riverbank communities, it is likely that local wildlife movements trended in a general north-south direction to access the Stanislaus River. However, urban development has largely eliminated potential migration routes to the river from the south (in the vicinity of the project study area). In addition, though the eastern portion of the project study area is less developed than the western and central portions, existing SR-108 and the adjacent residential development to the north prohibit substantial wildlife movements in this area.

Local wildlife movement within and next to the project study area likely occurs along the irrigation canals, but this is not considered a substantial movement area due to the relatively low habitat value associated with the canals.

Environmental Consequences

No impacts to migration corridors are anticipated as migration corridors or other movement areas were not identified within the project study area. Implementation of the project is not anticipated to alter existing local wildlife movements along irrigation canals as the habitat value associated with these canals would continue to remain low.

Build Alternatives 1A, 2A, 1B and 2B

Direct impacts, discussed below, were calculated based on the footprint of each Build Alternative as determined by the limits of cut and fill. Direct impacts include the permanent removal of vegetation and associated wildlife within the project footprint, as well as temporary access resulting from construction access and staging. Indirect impacts were calculated based on the proposed limits of right-of-way for each alternative minus the area of the footprint. Indirect impacts include, for example, changes to hydrology, sedimentation, shading, increased disturbance and noise that would occur at some time after the project is constructed.

Impacts to interior live oak woodland would range from 1.00 acre of direct impacts and 0.32 acre of indirect impacts if either Alternative 1A or 2A is selected to 3.07 acres of direct impacts and 0.37 acre of indirect impacts if either Alternative 1B or 2B is selected. Impacts to blue oak savannah are anticipated to be 0.23 acre direct and 0.77 acre indirect for Alternative 1B or 2B, and no impacts are anticipated under Alternative 1A or 2A. Perennial marsh impacts under Alternative 1A are anticipated to be 1.07 acre direct and 0.2 acre indirect, impacts under 1B are anticipated to be 0.28 acre direct and 0.46 acre indirect, impacts under 2A are anticipated to be 0.79 acre direct and 0.13 acre indirect, and impacts under 2B are anticipated to be 0.08 acre direct and 0.4 acre indirect. Himalayan blackberry bramble impacts under Alternative 1A are anticipated to be 0.91 acre direct, impacts under 1B are anticipated to be 1.26 acre direct, impacts under 2A are anticipated to be 1.72 acre direct, and impacts under 2B are anticipated to be 0.74 acre direct. Seasonal marsh impacts under under Alternative 1A and 2A are anticipated to be 0 acre direct and 0.08 acre indirect, impacts under 1B are anticipated to be 0.11 acre direct and 0.3 acre indirect, and impacts under 2B are anticipated to be 0.28 acre direct and 1.28 acre indirect. Impacts to riparian scrub would be the same for all four alternatives: 0.13 acre of direct impacts and 0.35 acre of indirect impacts. Seasonal wetland impacts under Alternative 1A are anticipated to be 0.36 acre direct and 0.07 acre indirect, impacts under 1B are anticipated to be 0.27 acre direct and 0.15 acre indirect, impacts under 2A are anticipated to be 0.74 acre direct and 0.49 acre indirect, and impacts under 2B are anticipated to be 0.66 acre direct and 0.9 acre indirect. Annual grassland impacts under Alternative 1A are anticipated to be 12.34 acre direct, impacts under 1B are anticipated to be 31.45 acre direct, impacts under 2A are anticipated to be 13.44 acre direct, and impacts under 2B are anticipated to be 41.66 acre direct. Table 3.3.1-2 provides a breakdown of impacts to interior live oak by Build Alternative. Impacts to the natural communities of concern are listed in the table by alternative.

Table 3.3.1-2: Summary of Impacts to Natural Communities of Concern (Acres)

	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
	Direct	**Indirect**	**Direct**	**Indirect**	**Direct**	**Indirect**	**Direct**	**Indirect**
Interior Live Oak Woodland	1.00	0.32	3.07	0.37	1.00	0.32	3.07	0.37
Blue Oak Savannah	0.0	0.0	0.23	0.77	0.0	0.0	0.23	0.77
Perennial Marsh	1.07	0.2	0.28	0.46	0.79	0.13	0.08	0.4
Himalayan blackberry bramble	0.91	0.0	1.26	0	1.72	0	0.74	0
Seasonal Marsh	0	0.08	0.11	0.3	0	0.08	0.28	1.28
Riparian Scrub	0.13	0.35	0.13	0.35	0.13	0.35	0.13	0.35
Seasonal Wetlands	0.36	0.07	0.27	0.15	0.74	0.49	0.66	0.9
Annual grasslands	12.34	0.0	31.45	0	13.44	0	41.66	0

Source: Natural Environment Study, 2015

Impacts to tricolored blackbird nesting habitat (Himalayan blackberry bramble and perennial marsh) range from 0.82 ac of direct impacts with alternative 2B, 1.54 ac with alternative 1B, 1.98 ac with alternative 1A, and 2.51 ac with alternative 2A.

Impacts to interior live oak woodland would consist of 3.07 acre of direct impacts and 0.37 acre of indirect impacts for Alternative 1B. Impacts to blue oak savannah would consist of 0.23 acre of direct impacts and 0.77 acre of indirect impacts for Alternative 1B. Impacts to riparian scrub would consist of 0.13 acre of direct impacts and 0.35 acre of indirect impacts for Alternative 1B.

Temporary Construction Impacts

Implementation of the project would temporarily disturb natural communities of concern during construction of the project. Per Measure BIO-2, during construction natural communities of concern adjacent to the project would be protected using high visibility environmentally sensitive area fencing to ensure construction impacts to not exceed the estimates above in Table 3.3.1-2. Additionally, per BIO-3, construction staging and actual construction areas will occur outside of natural communities of concern. With implementation of these measures, temporary construction impacts to natural communities of concern are anticipated to be minimal.

No-Build Alternative

Under the No-Build Alternative, no impacts to natural communities are expected because no construction would occur. No trees would be removed, and no biological habitats would be affected.

Avoidance, Minimization, and/or Mitigation Measures

Measure BIO-1: Impacts to natural communities will be minimized to the greatest extent possible, through careful design, ensuring that only the minimum acreage needed to accommodate the project is acquired. The preferred Build Alternative shall include design features including, for example, retaining walls or non-standard slope gradients that would avoid and minimize impacts to interior live oak woodland, blue oak savannah, and riparian scrub, to the maximum extent practicable.

Measure BIO-2: Any areas of interior live oak woodland, blue oak savannah, and riparian scrub adjacent to the project footprint shall be designated as an Environmentally Sensitive Area (ESA) and protected during construction using brightly colored fencing. ESA fencing shall be placed along the limits of project work and maintained in good condition for the duration of construction activities.

Measure BIO-3: Staging areas, access routes, and construction areas shall be located outside of areas of interior live oak woodland, blue oak savannah, and riparian scrub.

Measure BIO-4: Prior to the start of work, a Service-approved biologist(s) will provide worker environmental awareness training for all construction personnel, including contractors, subcontractors, and contractors' representatives, covering the status of all listed species; how to identify these species and their habitats; the importance of avoiding impacts to the species; the laws that protect them; and what to do if an individual is encountered during construction. New construction personnel who are added to the project after the training is first conducted also will be required to take the training. Documentation of the training, including sign-in sheets, will be kept on-file.

3.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 U.S. Code 1344), is the main law regulating wetlands and surface waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (EPA).

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Standard permits. There are two types of General permits: 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 allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of U.S. Army Corps of Engineers' Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with EPA's Section 404(b)(1) Guidelines (EPA 40 CFR Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the EPA in conjunction with the U.S. Army Corps of Engineers, 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 the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practical alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

Affected Environment

A Preliminary Jurisdictional Delineation was completed in March 2015, and the Natural Environment Study was completed in May 2017. The same types of wetlands and other waters are included in all four Build Alternatives.

Potential wetlands and other waters of the U.S. in the project study area include seasonal wetlands, perennial marsh, ditches, ponds, canals, and irrigated wetlands. Potentially jurisdictional aquatic resources in the project study area, totaling 82.85 acres, are shown in Figure 3.3.1-1, in Appendix A, and listed in Table 3.3.2-1. They are further described below. These resources potentially meet U.S. Army Corps of Engineers criteria for wetlands or other waters of the U.S. For the purposes of this Environmental Impact Report/Environmental Impact Statement, all waters mapped within the project study area are being considered jurisdictional. Additional right-of-entry requests were sent to property owners in August 2018 to complete the preliminary jurisdictional delineation for any unsurveyed parcels; however, no additional access was granted and additional surveys were not conducted. Consequently, a qualified biologist will perform a final delineation of waters of the U.S. within the Alternative 1B project impact area after right-of-entry to the remaining parcels which have not yet been surveyed has been obtained. The final delineation will be submitted to the U.S. Army Corps of Engineers for verification and a request for an Approved Jurisdictional Determination.

Table 3.3.2-1: Potential Wetlands and Other Waters of the U.S in the Project Study Area (Acres)

Feature Class	Wetlands	Non-Wetland Waters	Total
Seasonal Wetland	10.23	----	**10.23**
Perennial Marsh	14.14	----	**14.14**
Ditches	7.31	4.76	**12.07**
Ponds	10.12	5.83	**15.95**
Canals	----	26.71	**26.71**
Irrigated Wetlands	3.75	----	**3.75**
Total	**45.55**	**37.30**	**82.85**

Source: Natural Environment Study, 2017 and the Preliminary Jurisdictional Delineation, 2015

Seasonal Wetland

Seasonal wetlands typically occur in topographical depressions within annual grasslands. This community may also occur in shallow ditches. Dominant species observed were water starwort (*Callitriche sp.*), nutsedge, threespike goosegrass (*Eleusine tristachya*), creeping spikerush (*Eleocharis macrostachya*), coyote thistle (*Eryngium sp*.), low manna grass, and velvet grass (*Holcus lanatus*). Additional species include Italian ryegrass, water primrose, hyssop loosestrife (*Lythrum hyssopifolia*), annual bluegrass, rabbitsfoot grass (*Polypogon monspeliensis*), buttercup (*Ranunculus sp*.), Himalayan blackberry, and fiddle dock (*Rumex pulcher*).

Seasonal wetlands do not remain inundated for extended periods during the growing season. These wetlands are more prevalent in the eastern portion of the study area. There is a total of 10.23 acres of seasonal wetlands within the project area.

Some seasonal wetlands may provide suitable habitat for vernal pool invertebrates including the vernal pool tadpole shrimp (*Lepidurus packardi*) and vernal pool fairy shrimp (*Branchinecta lynchi*). Larger features may provide suitable California tiger salamander habitat (based on the negative 2014/2015 and 2015/2016 protocol breeding survey results) and suitable habitat for western spadefoot, depending on the duration of inundation.

Perennial Marsh

Perennial marsh occurs mostly in the central and eastern half of the project study area. Dominant species include low manna grass, soft rush (*Juncus effusus*), knotweed (*Polygonum* sp.), Himalayan blackberry, curly dock (*Rumex crispus*), tule (*Schoenoplectus acutus*), narrowleaf cattail (*Typha angustifolia*), and broadleaf cattail (*Typha latifolia*).

Perennial marsh habitat, with sufficient open water, may provide suitable habitat for the western spadefoot toad and Pacific pond turtle. This habitat is also suitable for California tiger salamander. The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) and other bird species may forage in the perennial marsh habitat.

Most of this feature class occurs along Stearns Road north of Warnerville Road in wide marshy areas dominated by broad-leafed cattail–obligate wetland and common tule (*Schoenoplectus*

acutus)–obligate wetland. The fringes of this community are often dominated by narrow-leaved willow (*Salix exigua*)–facultative wetland. Perennial marsh also occurs in a few other isolated locations to the east and west of the main area along Stearns Road. Perennial marsh was typically inundated or saturated to the surface. A total of 14.14 acres of perennial marsh occur in the project area.

Canal and Ditch

Canals and ditches occur throughout the project study area and include concrete-lined canals and dirt-lined ditches. The features range from large agricultural irrigation canals to small roadside ditches. The canals and most of the ditches are unvegetated; however, some dirt-lined ditches support seasonal wetland vegetation. Species include nutsedge, rabbitsfoot grass and small willows (*Salix* sp.).

Most canals and ditches do not provide quality habitat for wildlife species; however, Pacific pond turtles and other aquatic species could use the canals and larger ditches.

Canals consist of all human-made linear water conveyance features that are contained within levees. Canals are generally much larger than features identified as ditches. None of the canal features in the project area support wetlands. Canals are throughout the project area. A total of 26.71 acres of canals occur in the project area. The canals can also support riparian vegetation, and one location supports 0.36 acres of riparian scrub habitat. This habitat is not considered a wetland and is addressed in Section 3.3.1 – Natural Communities.

Ditches consist of all non-leveed water conveyance channels and include roadside, agricultural, and natural drainage features. Several of these ditches support wetland vegetation that may vary from perennial (i.e., cattail marsh) to seasonal (i.e., rushes, nutsedges, knotweed, and a mix of annual grasses). These ditches occur throughout the project area, but are more heavily concentrated in the central portions. Soils in these ditches tend to be consistent with seasonally wet soils. However, a few were deeply inundated at the time of the surveys, and soils were too wet to identify any color variations in the soil. A total of 12.20 acres of ditches occur in the project area.

Pond and Basin

This community consists of natural and created ponds or basins that occur throughout the project study area. Some ponds are used as detention basins; however, many are catfish or other fish-rearing ponds as well as dairy ponds. Dominant vegetation consists of Bermuda grass, ryegrass and knotweed.

Some ponds within the project study area may provide suitable habitat for the Pacific pond turtles. These ponds may also provide habitat for California tiger salamander (*Ambystoma californiense*). If fish are present, osprey (*Pandion haliaetus*) may be observed foraging in this community.

The pond feature class consists of human-made ponds, most of which support wetlands. Several large ponds associated with dairy and poultry farms, and ponds associated with the irrigation districts, are not included in the mapping. The ponds that support wetlands tend to be perennial in nature and are generally associated with irrigation and/or stock ponds for cattle. Similar to the ditch feature class, ponds can be found throughout the project area, but are more concentrated in the central portion. A total of 15.95 acres of ponds occur in the project area.

Irrigated Wetlands

Irrigated wetlands occur throughout the project study area and are grassland areas that receive irrigated water to support pastures for livestock. Dominant plants include Bermuda grass (*Cynodon dactlyon*), tall fescue (*Festuca arundinacea*), English plantain (*Platago lanceolata*), annual bluegrass (*Poa annua*), knotroot bristle grass (*Setaria parviflora*) and subterranean clover (*Trifolium subterraneum*).

Several bird species may forage in irrigated pasture. This community is not considered suitable for fossorial mammals or other species that use burrows due to the flooding that occurs from early spring through fall.

Irrigated wetlands consist of features within irrigated pasture that meet U.S. Army Corps of Engineers wetlands criteria. A total of 3.75 acres of irrigated wetlands occur in the project area.

Environmental Consequences

Direct impacts, discussed below, were calculated based on the footprint of each Build Alternative as determined by the limits of cut and fill. Direct impacts include the permanent removal of vegetation and associated wildlife within the project footprint, as well as temporary access resulting from construction access and staging. Indirect impacts were calculated based on the proposed limits of right-of-way for each alternative minus the area of the footprint. Indirect impacts include, for example, changes to hydrology, sedimentation, shading, increased disturbance and noise that would occur at some time after the project is constructed.

Build Alternatives 1A, 2A, 1B and 2B

Wetlands and Other Waters Coordination Summary

Army Corps of Engineers

On April 10, 2012, a field meeting to discuss the approach to the jurisdictional delineation was held with staff from the U.S. Army Corps of Engineers, EPA, and Caltrans. The U.S. Army Corps of Engineers and EPA provided several recommendations (verification approach, mapping irrigated pasture wetlands). These recommendations were carried out during the preparation of the Natural Environment Study and the Preliminary Jurisdictional Delineation documents.

Impacts to potential waters of the U.S. differ between Build Alternatives. All alternatives would have less than two acres of direct impact. Alternative 2A would have the greatest direct impact (1.53 acres) and Alternative 1B would have the least (0.66 acres). Indirect impacts would be less than 3 acres for all alternatives. Alternative 2B would have then greatest indirect impacts (2.58 acres) and Alternative 1A would have the least (0.35 acres). Table 3.3.2-2 shows impacts to potential waters of the U.S. for the Build Alternatives.

Table 3.3.2-2: Summary of Impacts to Potential Waters of the U.S. by Build Alternative (acres)

	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
	Direct	**Indirect**	**Direct**	**Indirect**	**Direct**	**Indirect**	**Direct**	**Indirect**
Seasonal Marsh	0.0	0.08	0.11	0.30	0.0	0.08	0.28	1.28
Perennial Marsh	1.07	0.20	0.28	0.46	0.79	0.13	0.08	0.40
Seasonal Wetland	0.36	0.07	0.27	0.15	0.74	0.49	0.66	0.90
Totals	1.43	0.35	0.66	0.91	1.53	0.70	1.02	2.58

Source: Natural Environment Study, 2017

A qualified biologist will perform a final delineation of waters of the U.S. within the Alternative 1B project impact area after right-of-entry to the remaining parcels which have not yet been surveyed has been obtained. The final delineation will be submitted to the U.S. Army Corps of Engineers for verification and a request for an Approved Jurisdictional Determination.

If it is determined that the preferred alternative would result in permanent impacts to waters of the U.S. in excess of 0.5 acre, an Individual 404 Permit would likely be required to authorize impacts to waters of the U.S.

Regional Water Quality Control Board

Discharges into waters of the U.S. under Section 404 of the Clean Water Act also require a Water Quality Certification from the Regional Water Quality Control Board pursuant to Section 401 of the Clean Water Act. Also, the preferred alternative may impact some features that are determined exempt from U.S. Army Corps of Engineers jurisdiction pursuant to Section 404 of the Clean Water Act; these features could be regulated by Regional Water Quality Control Board as waters of the State pursuant to its authority under the Porter-Cologne Water Quality Control Act. The extent of waters of the State impacted by the preferred alternative, if any, would be determined following verification of the Approved Jurisdictional Determination.

California Department of Fish and Wildlife

The total California Department of Fish and Wildlife jurisdictional waters in the project study area may be less than impacts to waters of the U.S. because the California Department of Fish and Wildlife typically does not regulate canals. Impacts to these resources from the preferred alternative would require a Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife, pursuant to Sections 1600-1616 of the Fish and Game Code.

Least Environmental Damaging Practicable Alternative

Alternative 1B has been selected as the Least Environmentally Damaging Practicable Alternative (LEDPA). Alternative 1B has fewer direct and indirect impacts on waters of the U.S. and has fewer impacts on wetland features. See Table 3.3.2-2 for a full comparison of all alternatives. Design features, such as bridges and open bottomed culverts, have been

incorporated into Alternative 1B to reduce impacts to waters and wetlands where possible. During the final design and permitting phase of the project, the project team will continue to refine the design to reduce impacts.

Executive Order 11990 – Protection of Wetlands

The project would result in permanent and temporary impacts to wetlands. The project has been designed to avoid impacts to wetlands, where feasible, using various design elements such as retaining walls, non-standard slope gradients, and bridges (versus culverts). The measures would also minimize impacts to wetlands during and after construction.

Executive Order 11988 – Floodplain Management

The proposed project includes sufficient design features to ensure it would not have significant adverse impacts to the existing floodplain or significantly alter the hydraulics of the project site. Therefore, the project would not increase the risk of flooding.

Temporary Construction Impacts

Implementation of the project would temporarily impact Waters of the U.S. and State. No temporary construction impacts to wetlands is anticipated as a result of the project. Temporary impacts anticipated include temporary access resulting from construction access and staging, as well as construction of culverts and bridges within Waters of the U.S. and State. Measures below will avoid and minimize temporary impacts to wetlands and other waters.

No-Build Alternative

Under the No-Build Alternative, no impacts to waters of the U.S. or State are expected because no construction would occur. The existing condition of water features in the project area would remain unchanged.

Avoidance, Minimization and/or Mitigation Measures

The project has been designed to minimize temporary and permanent impacts to wetlands and waters. Project measures and Best Management Practices incorporated into the design would minimize the effects of construction activities on these features. The project would comply with the following measures:

Measures BIO-1, BIO-2 and BIO-4 from Section 3.3.1 would also apply to wetlands and waters discussed here.

Measure BIO-5: Construction best management practices (BMPs) that are consistent with the most recent Caltrans manuals (including the Construction Site BMP Manual and the Stormwater Pollution Prevention Plan and Water Pollution Control Program Manuals) will be developed for the project and will be implemented throughout the course of construction in order to avoid adverse effects to water quality. BMPs associated with an erosion control plan will be prepared for avoiding discharge of pollutants from vehicle/equipment cleaning into aquatic habitats. Caltrans personnel and the contractor will perform routine inspections of the construction area to verify that BMPs are being properly implemented and maintained, and are operating effectively as designed. A water quality inspector will inspect the site before and after a rain event to ensure that stormwater BMPs are adequate.

a) An Emergency Spill Prevention Plan (ESPP) will be prepared to minimize the risk of fluids or other materials (oils, transmission and hydraulic fluids, cement, fuel) from entering water features and sensitive upland habitats. The ESPP will be kept on-site and will be easily accessible throughout the course of construction.
b) Vehicle and equipment fueling and maintenance operations will occur at least 50 ft. away from watercourses, except at established commercial gas stations or vehicle maintenance facilities. All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents.
c) Water trucks and dust palliatives will be used to control dust in excavation and fill areas, and for covering temporary stockpiles of dirt or other loose construction materials when weather conditions require.

Measure BIO-6: In order to control erosion and restore habitat value, all areas within the action area that are disturbed during construction (e.g., graded, denuded) will be re-contoured if necessary and stabilized as soon as possible; following the completion of construction, areas will be revegetated via hydro-seeding with an appropriate, weed-free native plant seed mixture. The County, in coordination with Caltrans, proposes to use the following native seeds (though this list may be updated at a later time): California mugwort (*Artemisia douglasiana*), Coyote brush (*Baccharis pilularis*), California poppy (*Eschscholzia californica*), and bicolored lupine (*Lupinus bicolor*). Regreen (*Elymus x Triticum*), which is a sterile hybrid between non-native wheatgrass and common wheat (and therefore won't reseed), will be used in the mix as a temporary bank stabilizer.

Mitigation Measure BIO-7: A qualified biologist will perform a final delineation of waters of the U.S. within the Alternative 1B project impact area after right-of-entry to the remaining parcels that have not yet been surveyed has been obtained. The final delineation will be submitted to the U.S. Army Corps of Engineers for verification and a request for an Approved Jurisdictional Determination.

Impact to waters of the U.S. shall be mitigated using one of the following methods, or by using a combination of the methods. An appropriate mitigation ratio shall be established to ensure no net loss of waters of the U.S. acreage or value.

1. Purchase of credits at an approved mitigation bank.
2. Payment of in-lieu fees pursuant to an approved in-lieu fees program.
3. Preservation, creation, and/or restoration in accordance with the U.S. Army Corps of Engineers Mitigation Monitoring Program (MMP) Guidelines, dated December 30, 2004. The MMP shall address, at minimum, the following:
    a. Project Site Impact Assessment
    b. Compensatory Mitigation Site Selection
    c. Compensatory Mitigation Site Design
    d. Compensatory Mitigation Site Construction
    e. Long-Term Compensatory Mitigation Site Maintenance and Monitoring
    f. Long-Term Site Management

3.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service and California Department of Fish and Wildlife have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species section (3.3.5) in this document for information on these species.

This section of the document discusses all the other special-status plant species, including California Department of Fish and Wildlife species of special concern, U.S. Fish and Wildlife Service candidate species, and California Native Plant Society rare and endangered plants.

The regulatory requirements for FESA can be found at 16 U.S. Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the CEQA, California Public Resources Code, Sections 2100-21177.

Affected Environment

The project study area is dominated by agricultural land uses, which make up more than 70 percent of the land in the study area. Developed land uses are the next largest group, composing over 15 percent of the land in the study area. Natural communities are one of the smallest groups, making up less than 5 percent of the land in the study area. Special-status plant species that could occur in the project area are discussed below. Threatened and endangered plant species are discussed in Section 3.3.5, Threatened and Endangered Species.

Surveys conducted on March 20, April 10, and July 24, 2014 included a focused plant survey during the normal blooming period of the special-status plant species. Focused surveys were limited to natural communities within the project study area that supported potentially suitable habitat for the target species. All plant species observed were identified to a sufficient taxonomic level to determine if it was the target species. No special-status plant species were observed in the project study area, but potential habitat was present for several special-status species within seasonal wetlands, which is considered to be vernal pool plant habitat. After evaluation of the special-status wildlife species potentially occurring in the project study area, the following plant species were determined to have a slight potential to occur in the project study area.

Dwarf Downingia

The dwarf downingia (*Downingia humilis*) is a species listed as 2B.2 on the California Native Plant Society list. This species is found in vernal pools and roadside ditches in valley and foothill grasslands. This species is limited to the North Coast Ranges, Sacramento Valley, San Joaquin Valley, and north San Francisco Bay area where elevation is between sea level and 1,082 feet. There are 11 *California Natural Diversity Database* occurrences for the dwarf downingia in the search area. Ten of these records are more than 10 miles southeast of the project study area

and are dated before 1978. The closest occurrence, dated 1937, is about 5.5 miles east of the project study area.

Legenere

Legenere (*Legenere limosa*) is a species listed as 1B.1 on the California Native Plant Society list. This species is found in vernal pools, wet areas, and ponds, generally in valley grasslands. This species is found in areas of the southern North Coast Ranges, southern Sacramento Valley, northern San Joaquin Valley, and San Francisco Bay area in elevations ranging from 3 to 2,887 feet. There is only one *California Natural Diversity Database* occurrence for legenere within the search area. The occurrence, dated 1936, is about 6 miles north of the project study area. Follow-up surveys done in 1986 show that the land was converted, and there were no vernal pools within 5 miles of the record. This species is considered to be extirpated (completely gone) from the area.

Environmental Consequences

Impacts to vernal pool plant habitat (seasonal wetlands) would be 0.07 acre of direct impacts and 2.22 acres of indirect impacts due to Alternative 1B. Table 3.3.3-1 shows the impacts to vernal pool plant habitat by Build Alternative.

Table 3.3.3-1: Summary of Impacts to Habitat for Vernal Pool Plants (acres)*

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Direct Impacts	n/a	0.07	n/a	n/a
Indirect Impacts	n/a	2.22	n/a	n/a
Total	n/a	2.29	n/a	n/a

Source: Natural Environment Study 2015 and Natural Environment Study Addendum 2019.
Impacts to vernal pool plants was refined after Alternative 1B was identified, and impacts for Alternative 1B, 2A, and 2B are no longer applicable for the Final EIR/EIS.
* Summary of impacts covers both special-status plant species and threatened and endangered plant species.

Temporary Construction Impacts

Implementation of the project may temporarily disturb sensitive plant species habitat. If it is determined that sensitive plant species are within the temporary construction footprint once protocol surveys are conducted, these species will be protected with the establishment of Environmentally Sensitive Areas and protective fencing during construction.

Avoidance, Minimizations and/or Mitigation Measures

The following avoidance and minimization efforts would be incorporated into the project to reduce impacts to plant species:

Measure BIO-8: A qualified biologist or botanist shall conduct focused surveys for vernal pool plants including Dwarf Downingia and Legenere. The surveys shall be conducted in accordance with the California Department of Fish and Wildlife Plant Survey Protocol (2009) or the current accepted guidance. The surveys will be conducted no more than 1 year prior to onset of construction at the appropriate time of year necessary to identify the target species.

Measure BIO-9: If any of the target species are identified during the surveys, a plan shall be prepared to address potential impacts the identified plant species. The plan shall include measures to account for the type of impact to the species, potentially ranging from establishment of Environmentally Sensitive Areas and protective fencing if the target plant were to be located near the project footprint but would not be directly impacted, to a comprehensive salvage and replacement program if target plant would be removed during project construction.

Compensatory mitigation would be required if any of the vernal pool plants described above would be removed during project construction. Compensation shall consist of one of the following two options, or combination of the two.

Measure BIO-10: Preservation of suitable habitat at an offsite location (enhancement of the habitat at the offsite location may also be a component of the compensation). The compensation habitat shall be of commensurate or higher ecological value than the habitat that would be removed. The compensation area shall be protected in perpetuity by a conservation easement or equivalent means.

Measure BIO-11: Credits shall be purchased at a mitigation bank approved by U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate based on the species in question, to compensate for the loss of habitat as a result of project implementation.

3.3.4 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service), and the California Department of Fish and Wildlife are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act.

Species listed or proposed for listing as threatened or endangered are discussed in Section 3.3.5. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern, and U.S. Fish and Wildlife Service or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600–1603 of the Fish and Game Code
- Sections 3503, 3503.5, and 3513 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

Affected Environment

A Natural Environment Study was completed in June 2016 for the proposed project and is summarized in this section. The most common animal species within the project study area are listed in Table 3.3.4-1.

Table 3.3.4-1: Common Animal Species Observed or Likely to Occur in the Project Study Area

Scientific Name	Common Name
ANURA	AMPHIBIANS
Pseudacris sierra	Pacific chorus frog
Anazyrus boreas halophilus	California toad
REPTILIA	REPTILES
Thamnophis elegan elegans	western terrestrial garter snake
Crotalus oregaus	western rattlesake
Pituophis catenifer	common gopher snake
Sceloporus occidentalis	western fence lizard
AVES	BIRDS
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
Columba livia	rock dove
Corvus brachyrhynchos	American crow
Euphagus cyancophalus	Brewer's blackbird
Mimus polyglottos	northern mockingbird
Sturmus vulgaris	European starling
Turdus migratorius	American robin
Zenaida macroaura	mourning dove
Sturnella neglecta	western meadowlark
MAMMALIA	MAMMALS
Otos beecheyi	California ground squirrel
Procyon lotor	raccoon
Mephitis mephitis	striped skunk
Didelphis virginiana	opossum
Odocoileus hemionus	mule deer

Source: Natural Environment Study, 2017

Table 3.3.4-2 provides a list of special-status species that could potentially occur in the region and therefore in the project study area. A review was conducted of the specific habitats required by each species listed in Table 3.3.4-2, and the specific habitats and habitat conditions present in the project study area. Based on this evaluation, it was determined whether the species listed in Table 3.3.4-2 had potential to occur in the project study area. Special-status species that were observed, or determined to potentially occur in the project study area based on availability of suitable habitat or other factors, including plucking posts, scat, nests, or dens, are discussed more fully in Section 3.3.5. Species determined unlikely to occur in the project study area based

on these same factors are documented accordingly in the table and not discussed further in this report. In addition, though not included, the northern harrier (*Circus cyaneus*), white-tailed kite, and loggerhead shrike (*Lanius ludovicianus*) were included in Table 3.3.4-2 due to the presence of suitable habitat.

Table 3.3.4-2: Special-Status Species Potentially Occurring in the Project Study Area

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Mammals					
Antrozous pallidus	Pallid Bat	CSC	Found in a variety of habitats, including grassland, chaparral, woodland and forest. Most common in open, dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, hollow trees and buildings.	HaP	The live oak woodland, barns, and other urban structures provide potential roosting habitat for this species. Irrigated pastures and annual grasslands provide suitable foraging habitat.
Corynorhinus townsendii	Townsend's big-eared bat	CSC	Occurs in a variety of habitats including valley oak savannah, riparian forest, and prairie. Roosts in caves, tunnels, buildings, mines, or other human-made structures, such as bridges. Requires roosting, maternity sites free from human disturbance.	HaP	The live oak woodland provides suitable foraging and roosting habitat. This species may also roost in barns and other man-made structures.
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE	Endemic to alkali sink shrubland, seasonally flooded wetlands, and uncultivated, native grasslands of Fresno County.	A	Suitable habitat is not present; there are no alkali sink shrublands in the project study area.
Eumops perotis californicus	Greater western mastiff bat	CSC	Found in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	HaP	This species may roost in riparian, oak woodlands, or other areas with suitable trees. Suitable habitat may also be found in barns and other structures within the project study area.
Lasioncycteris noctivagans	Silver-haired bat	CA SA	Primarily a coastal and montane forest dweller. Foraging habitat includes streams, ponds, and open brushy areas. Roosts in tree hollows such as tree bark cracks, woodpecker holes and other openings.	A	Suitable habitat is not present; there are no coastal or montane forests in or near the project study area.
Lasiurus blossevilli	Western red bat	CSC	Roosts primarily in trees, 2–40 feet above the ground. Feeds over a wide variety of habitats including grasslands, shrub land, open woodland, and croplands.	HaP	The live oak woodland, barns, and other urban structures provide potential roosting habitat for this species. Irrigated pastures and annual grasslands provide suitable foraging habitat.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Lasiurus cinereus	Hoary bat	CA SA	Found in open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees.	HaP	The live oak woodland and areas of dense landscape trees provide potential roosting habitat for this species. Irrigated pastures and annual grasslands provide suitable foraging habitat.
Myotis yumanensis	Yuma myotis	CA SA	Found in a variety of habitats, especially open forests and woodlands, near permanent sources of water. Roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	HaP	The live oak woodland, barns, and other urban structures provide potential roosting habitat for this species.
Neotoma fuscipes riparia	Riparian (San Joaquin Valley) woodrat	FE	Generally found in riparian areas with dense cover, often in willow thickets with oak, preferably in moist habitats. Food sources include plant parts and fungus.	A	Suitable habitat is not present; no dense riparian habitat is present within the project study area.
Sylvilagus bachmani riparius	Riparian brush rabbit	FE; SE	This species inhabits dense areas of Valley riparian forests with thickets of rose and blackberry. Grazing includes grasses and forbs, always near cover. The only remaining population occurs in the Caswell Memorial State Park along the Stanislaus River at the San Joaquin/Stanislaus Counties border.	A	No suitable habitat is present, no dense riparian habitat is present within the project study area.
Vulpes macrotis mutica	San Joaquin kit fox	FE; ST	Annual grasslands or grassy open stages with scattered vegetation; need loose-textured soils for burrowing, and a suitable prey base.	A	Although there is one CNDDB record in the search area, located about 19 miles west, the project study area is outside the range of this species.
Birds					
Agelaius tricolor	Tricolored blackbird	ST	Nests in freshwater marshes with tules or cattails, or in other dense vegetation such as thistle or blackberry thickets, in close proximity to open water. Forages in a variety of habitats including pastures, agricultural fields, rice fields, and feedlots within a mile or two of nesting area.	HaP	Suitable nesting habitat for this species may be found in in blackberry bramble. Suitable foraging habitat is found in annual grasslands, irrigated pastures, and other agricultural areas.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Ardea herodias	Great blue heron	CA SA (nesting colony)	Colonial nester in large trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	HaP	While this species may forage in the marshes and wetlands in the project study area, no potential rookery sites were observed. Since protection is only afforded to nesting colonies, no further discussion is required.
Athene cunicularia	Western burrowing owl	CSC	Burrow sites in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, California ground squirrel.	HaP	Suitable burrows were observed along irrigated pastures and annual grasslands in the eastern portion of the project study area.
Buteo swainsoni	Swainson's hawk	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannahs. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	HaP	Swainson's hawk was observed nesting and foraging in the project study area.
Charadrius montanus	Mountain plover	CSC	Winters in California, prefers alkali flats and native grasslands. If native habitat is not available they use agricultural fields, primarily alfalfa.	A	Although the grasslands provide suitable habitat, the project study area is outside the range for this species.
Circus cyaneus	Northern harrier	CSC	Frequently in meadows, grasslands, open areas, desert sinks, and wetlands. Occurs from sea level to alpine habitats.	HaP	Suitable nesting and foraging habitat is present in the grasslands, irrigated pastures, and wetlands. This species was observed foraging in the project study area.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FT; SE	Nests in shallow platform of twigs, lined with dried leaves or bark. Preferred habitats include moist thickets, willows, overgrown pastures and orchards.	A	Suitable habitat is not present; the project study area is outside the current range of this species.
Egretta thula	Snowy egret	CA SA (nesting colony)	Locally common in the Central Valley all year. Feeds in shallow water or along shores of wetlands or aquatic habitats. Nests in protected beds of dense tules.	HaP	While this species may forage in the marshes and wetlands in the project study area, no potential rookery sites were observed. Since protection is only afforded to nesting colonies, no further discussion is required.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Elanus leucurus	White-tailed kite	SFP	Found in savannah, open woodlands, grasslands, cleared lands and agriculture fields. Nests in shallow bowls in trees that are in isolation or within a forest.	HaP	Suitable habitat is present in annual grasslands, irrigated pastures and other communities within the project study area. This species was observed foraging in the project study area.
Eremophila alpestris actia	California horned lark	SWL	Coastal regions and in the main part of the San Joaquin Valley and east to the foothills. Found in open habitats, usually where trees and large shrubs are absent: short-grass prairie, bald hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats.	HaP	This species may be observed in the annual grasslands, ruderal areas and agricultural fields within the project study area.
Falco columbarius	Merlin	SWL (Wintering)	An uncommon winter migrant that frequents coastlines, open grasslands, woodlands, wetlands and savannahs.	HaP	This species only winters in California, but the grasslands, woodlands and pasture provide suitable wintering habitat. This species may occur within the project study area.
Haliaeetus leucocephalus	Bald eagle	SE	Requires large bodies of water; occurs near ocean shore, lakes, reservoirs, and rivers. Usually nests within 1 mile of water, in large, dominant trees with open branches.	A	There is no large body of water in or adjacent to the project study area. The closest potential habitat for this species is the Stanislaus River about 1 mile north of the project study area (at the farthest extent north, near existing SR-108) It is unlikely that this species will occur within the project study area.
Icteria virens	Yellow-breasted chat	CSC	Preferred habitats include dense thickets and brush, often with thorns, streamside tangles, and dry brushy hillsides.	A	Suitable habitat is not present. This project study area is outside the range for this species.
Lanius ludovicianus	Loggerhead shrike	CSC	Found in open country with short vegetation and well spaces trees. Frequently observed in agricultural fields, pastures, orchards and riparian areas.	HaP	Suitable habitat is present in the annual grasslands, irrigated pastures, orchards, and other vegetation communities.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Melospiza melodia	Song sparrow (Modesto population)	CSC	Occurs in the northern Central Valley, high populations near the Butte sink area and Sacramento-San Joaquin river delta. Found frequently along riparian corridors, particularly the Stanislaus and Cosumnes rivers. Sometimes observed near vegetated irrigation canals and levees. In the winter, this species may be found far from water, in open habitats with shrubs or tall herbs.	A	The project study area is not located within the normal range of this population. A song sparrow was observed in the project study area but considered the common subspecies *M. heermanni*.
Vireo bellii pusillus	Least Bell's vireo	FE	Summer resident (nesting) of California in low riparian habitat, or in dry river bottoms; below elevations of 2,000 feet. Needs structurally diverse canopy for foraging and dense shrub cover for nesting, often in the active floodplain of a water way.	A	Suitable habitat is not present for this species.
Reptiles					
Emys marmorata	Pacific pond turtle	CSC	Occurs in permanent or nearly permanent water sources, ponds, marshes, rivers, streams and irrigation ditches with emergent vegetation and basking sites. Lay eggs in upland habitat consisting of sandy banks or grassy, open fields.	HaP	The marshes, ponds, and irrigation ditches in the project study area provide suitable habitat for this species.
Gambelia silus	Blunt-nosed leopard lizard	FE	Current habitat includes undeveloped land in the San Joaquin Valley and foothills of the Coast Range; most frequently found in Valley sink scrub.	A	Suitable habitat is not preset; there is no Valley sink scrub in the project study area.
Thamnophis gigas	Giant garter snake	FT; ST	Streams and sloughs, usually with mud bottom. One of the most aquatic of garter snakes; usually in areas of freshwater marsh and low-gradient streams with emergent vegetation, also drainage canals, irrigation ditches, ponds, and small lakes.	A	This species is believed to be extirpated from Stanislaus County. It is not expected to occur in the project study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Amphibians					
Ambystoma californiense	California tiger salamander	FT; ST	Most commonly found in annual grassland habitat, but also occurs in grassy understory of valley-foothill hardwood habitats, and uncommonly along stream courses in valley-foothill riparian habitats. Requires vernal pools or other seasonal water bodies for breeding. Needs underground refuges, especially ground squirrel burrows.	HaP	Some seasonal wetlands and ponds in the project study area provide suitable aquatic habitat for California tiger salamander, and adjacent vegetation communities provide potential upland habitat. Although the protocol surveys during 2014/2015 and 2015/2016 for California tiger salamander were negative, habitats within the BSA are still anticipated to potentially support the species.
Rana draytonii	California red-legged frog	FT, CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	A	This species is believed to be extirpated from the valley floor. This species is not expected to occur within the project study area.
Spea hammondii	Western spadefoot toad	CSC	Occurs primarily in grassland habitats but also found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	HaP	Some seasonal wetlands and ponds in the project study area provide suitable aquatic habitat for this species, and adjacent vegetation communities provide potential upland habitat.
Anniella pulchra	Northern California legless lizard	CSC	Beach dunes, chaparral, pine-oak woodlands, desert scrub, and sandy washes, predominately in dunes stabilized with bush lupine from sea level to around 5,900 ft.	A	No habitat is present for this species, as this species is mostly located along the coast. There is no potential for this species to occur within the BSA.
Fish					
Acipenser medirostris	Green sturgeon	FT	Most often in marine waters; estuaries, lower reaches of large river, salt or brackish water off river mouths.	A	Suitable habitat is not present; no rivers or streams occur in the project study area.
Hypomesus transpacificus	Delta smelt	FT	With the exception of spawning season, delta smelt generally inhabits the freshwater-saltwater mixing zone of an estuary. Spawning occurs in river channels upstream from the mixing zone.	A	Suitable habitat is not present; no rivers or streams occur in the project study area.
Mylopharadon conocephalus	Hardhead	CSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Found in clear deep pools with sand/gravel/boulder bottoms and slow water velocity.	A	Suitable habitat is not present; no rivers or streams occur in the project study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Oncorhynchus mykiss	Central Valley steelhead	FT	Populations occur and spawn in the Sacramento and San Joaquin rivers and their tributaries.	A	Suitable habitat is not present; no rivers or streams occur in the project study area.
Oncohynchus tshawystscha	Central Valley spring-run Chinook salmon	FT	Sacramento and San Joaquin rivers and tributaries. Primarily found in Butte, Big Chico, Deer and Mill creeks. Adult numbers depend on pool depth and volume, amount of clover, and proximity to gravel.	A	Suitable habitat is not present; no rivers or streams occur in the project study area.
Invertebrates					
Branchinecta conservatio	Conservancy fairy shrimp	FE	Endemic to California and is known to occur in several disjunct populations ranging from Tehama to Ventura counties. The conservancy fairy shrimp occurs in vernal pools found on several different landforms, geologic formations and soil types. They have been observed in vernal pools ranging in size from 323 to 3,834,675 square feet. Observations suggest this species is often found in pools that are relatively large and turbid.	A	The seasonal wetlands in the project study area are generally small, which is atypical of the pool characteristics where this species typically occurs. In addition, this species was not observed during focused wet season surveys in 2012-2013 and 2014. Consequently, this species is not expected to occur in the project study area.
Branchinecta lynchi	Vernal pool fairy shrimp	FT	Endemic to the grasslands of the Central Valley, Central Coast Mountains and South Coast Mountains. Typically associated with small, shallow vernal pools with relatively short periods of inundation. Found in larger pools in southern extent of range.	HaP	This species was observed in several seasonal wetlands within the project study area during wet season surveys in 2014.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers branches greater than 1 inch in diameter.	HaP	Several blue elderberry shrubs were observed within the project study area.
Linderiella occidentalis	California linderiella	CA SA	Occurs in seasonal pools (e.g., vernal pools) in unplowed grasslands with old alluvial soils underlain by hardpan or heavy clay or in sandstone depressions. Tolerant of wide temperature range and pool size.	HaP	This species was observed in several seasonal wetlands within the project study area during wet season surveys in 2014.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Lepidurus packardi	Vernal pool tadpole shrimp	FE	Found in a variety of natural, and artificial, seasonally ponded habitat types including: vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities. Within the Sacramento Valley.	HaP	This species was not observed during wet season surveys in 2014, but could potentially occur in the project study area.
Plants					
Atriplex cordulata var *cordulata*	Heartscale	List 1B.2	Chenopod scrub, valley grassland, wetland-riparian, likely to occur in wetlands or non-wetlands (0-1,000 feet). Blooms April–October.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in April or July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Atriplex coronata var. *coronata*	Crownscale	List 4.2	Chenopod scrub, valley and foothill grassland, vernal pools, alkaline, often clay (0–56 feet). Blooms March–October.	A	Suitable habitat is not present; project study area is outside the range of this species.
Atriplex minuscula	Lesser saltscale	List 1B.1	Alkali sink, chenopod scrub, valley and foothill grassland, alkaline soils (49–325 feet). Blooms May–October.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Atriplex subtilis	Subtle orache	List 1B.2	Valley and foothill grasslands, saline depressions (0–230 feet). Blooms June–September.	A	Suitable habitat is not present; saline soils not known from the project study area.
Blepharizonia plumosa	Big tarplant	List 1B.1	Valley and foothill grasslands, often on dry hills and plains, clay to clay loam soils (0–650 feet) Blooms July–October.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Brodiaea pallida	Chinese Camp brodiaea	FT; List 1B.1	Intermittent streams, serpentine or not (525–1,280 feet.). Blooms May–July.	A	Suitable habitat is not present; there are no intermittent streams in the project study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
California macrophylla	Round-leaved filaree	List 1B.1	Open areas, grasslands, scrub, (50–4,000 feet). Blooms March–May.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in March or April 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Calycadenia hooveri	Hoover's calycadenia	List 1B.3	Cismontane woodland, valley and foothill grassland; exposed rock (210–1080 feet). Blooms July–September.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Castilleja campestris var. succulanta	Succulent owl's-clover	FT, SE, List 1B.2	Vernal pools and swales within grasslands (80–2,460 feet). Blooms April–May.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. However, due to below average rainfall this species may not have bloomed and is unable to be eliminated from potentially occurring in the project study area.
Caulanthus lemmonii	Lemmon's jewel-flower	List 1B.2	Valley and foothill grassland, pinyon and juniper woodland, chaparral and scrub in southwest San Joaquin Valley (270–4,000 feet). Blooms March–May.	A	The project study area is not within the elevation or geographic range for this species.
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	List 4.2	Valley grasslands, vernal pools, edge of marshes and wetland-riparian (20–4,800 feet). Blooms May–October.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Clarkia rostrata	Beaked clarkia	List 1B.3	Annual grassland; dry slopes of valley and foothill woodland (213–1,640 feet). Blooms April–May.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Chamaesyce hooveri	Hoover's spurge	FT, List 1B.2	Vernal pools (65–885 feet). Blooms July–September.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. However, due to below average rainfall this species may not have bloomed and is unable to be eliminated from potentially occurring in the project study area.
Cryptantha hooveri	Hoover's cryptantha	List 1A	Dry, coarse sand, flat and hills, valley grasslands and inland dunes (0–260 feet). Blooms April–May.	A	Habitat not present; no sandy habitat or sand dunes occur within the project study area.
Delphinium recurvatum	Recurved larkspur	List 1B.2	Poorly drained alkaline soils in grasslands, shadscale and chenopod scrub, generally in wetlands (98–1,960 feet). Blooms March–June.	A	Marginal habitat is present for this species, but this species was not observed during focused surveys in March or April 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Downingia pusilla	Dwarf downingia	List 2B.2	Vernal pools, freshwater wetlands, valley grasslands and riparian areas (0–1,082 feet). Blooms March–May.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. However, due to below average rainfall, this species may not have bloomed and is unable to be eliminated from potentially occurring in the project study area.
Eryngium racemosum	Delta-button celery	SE, List 1B.1	Riparian scrub, seasonally inundated floodplain on clay soils (9–245 feet). Blooms June–October.	A	The riparian scrub community in the project study area is associated with an agricultural ditch and does not support the natural floodplain characteristics required for this species. Consequently, this species is presumed absent from the project study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Eschscholzia rhombipetala	Diamond petaled California poppy	List 1B.1	Fallow fields and open spaces, valley and foothill grasslands with alkali and clay (0–984 feet). Blooms March–April.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in March or April 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Fritillaria agrestis	Stinkbells	List 4.2	Foothill woodland, valley grasslands, chaparral and wetland-riparian, sometimes serpentinite (0–1,640 feet). Blooms March- June.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in March or April 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Juncus nodosus	Knotted rush	List 2B.3	Stream banks, lakeshores and meadow edges, marshes and swamps (2,230–5,510 feet). Blooms July–September.	A	The project study area is not within the elevation range for this species.
Lagophylla dichotoma	Forked hare-leaf	List 1B.1	Grassland and open woodlands, cismontane woodlands, sometimes clay (65–3,150 feet). Blooms April–July.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in April or July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Legenere limosa	Legenere	List 1B.1	Vernal pools (3–2,887 feet). Blooms April–June.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. However, due to below average rainfall this species may not have bloomed and is unable to be eliminated from potentially occurring in the project study area.
Monardella leucocephala	Merced monardella	List 1A	Sandy soil in grassland and interior dunes (130–330 feet). Blooms May–August.	A	Habitat not present, no sandy soils or dunes occur within the project study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Neostapfia colusana	Colusa grass	FT, SE, List 1B.1	Vernal pools (16–360 feet). Blooms May–August.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. However, due to below average rainfall this species may not have bloomed and is unable to be eliminated from potentially occurring in the project study area.
Orcuttia inaequalis	San Joaquin Valley orcutt grass	FT, SE, List 1B.1	Vernal pools, acidic souls with clay to sandy loam texture (32–2,477 feet). Blooms April–September.	A	This species is considered to be extirpated from Stanislaus County.
Orcuttia pilosa	Hairy orcutt grass	FE, SE, List 1B.1	Vernal pools (147–3,510 feet). Blooms May–September.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April or July 2014 within the normal blooming period of this species. However, due to below average rainfall this species is unable to be eliminated from potentially occurring in the project study area.
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE, SE, List 1B.1	Cismontane woodland, valley and foothill grassland, predominately on bare rock and along shady creeks; clay soils (98–1,148 feet). Blooms March–April.	HaP	Marginal habitat is present for this species; however, this species was not observed during focused surveys in March or April 2014 within the normal blooming period of this species. However,, this species is still considered to be potentially occurring within the project study area.
Sidalcea keckii	Keck's checker-mallow	FE; List 1B.1	Grassy slopes (245–2,130 feet.). Blooms April–May.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in April or May 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Sphenopholis obtusata	Prairie wedge grass	List 2B.2	Wetland riparian habitat within cismontane foothill woodland (984–6,500 feet). Blooms April–June.	A	The project study area is not within the elevation range for this species.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Symphyotrichum lentum	Suisun Marsh aster	List 1B.2	Brackish and freshwater marshes and swamps (<985 feet). Blooms May–November.	A	Marginal habitat is present for this species, but this species was not observed during focused surveys in July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.
Tuctoria greenei	Greene's tructoria	FE, List 1B.1	Vernal pools in valley and foothill grasslands (98–3510 feet). Blooms May–July.	HaP	Potential habitat is present for this species, but this species was not observed during focused surveys in April 2014 within the normal blooming period of this species. However, due to below average rainfall this species may not have bloomed and is unable to be eliminated from potentially occurring in the project study area.
Verbena californica	Red Hills vervain	FT; List 1B.1	Wet places, seeps, generally serpentine soils (985–1,300 feet.). Blooms May–September.	A	Potential habitat is present for this species, but this species was not observed during focused surveys in July 2014 within the normal blooming period of this species. Consequently, this species is presumed absent from the project study area.

Federal
FE: Federally listed; Endangered
FT: Federally listed, Threatened
FPE: Federally Proposed for Listing as Endangered
FPT: Federally Proposed for Listing as Threatened
FC: Federal Candidate
NMFS SC: National Marine Fisheries Service Species of Concern

California Native Plant Society designations:
List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list

State
ST: State listed; Threatened
SE: State listed; Endangered
SFP: State Fully Protected
SPT: State Proposed for Listing as Threatened
SPE: State Proposed for Listing as Endangered
SWL: State Watch List
SC: State Candidate
CSC: California Species of Special Concern

Habitat Presence:
HaP: Habitat is, or may be present
SP: Species is present
A: No habitat present and no further work needed
CH: Project footprint is located within a designated critical habitat unit.

CA SA: Special Animal: General term that refers to taxa that the California Natural Diversity Database is interested in tracking regardless of legal or protection status: Includes the following categories in addition to those listed above:

- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
- Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, or vernal pools).

Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).
Source: NES 2015

Bats

The literature search resulted in six species of bats with special status that could occur in the project study area: pallid bat, greater western mastiff bat, western red bat, and Townsend's big-eared bat (*Corynorhinus townsendii*) which are all listed as state species of concern; and the hoary bat and Yuma myotis (*Myotis yumanensis*), both state special species, that may also occur in the project study area. None of these species has any formal federal status. In addition, colonial roosting bats (including species with and/or without special status) can form significant local breeding populations in roosts of sufficient size.

The pallid bat is a locally common species of low elevations and is a yearlong resident through most of its range. It uses a wide variety of habitats from sea level up through mixed conifer forests, but is most common in open, dry habitats with rocky areas for roosting. This bat forages among trees and shrubs and over open ground, and often takes prey on the ground. Its diet is a variety of insects and spiders, including large hard-shelled prey, which is often carried to a perch or night roost for consumption. Caves, crevices, and sometimes hollow trees and buildings are used for day roosts. Roosts must protect bats from high temperatures. Night roosts may be in more open sites, such as porches and open buildings. Pallid bats are social, and most roost in groups of 20 or more. Maternity colonies form in early April and may have 10 to 100 individuals. Males may roost separately or in the nursery colony.

Townsend's big-eared bat is widely distributed in North America and occurs in a variety of habitats from sea level to about 10,000 feet in elevation. This species is found throughout California but specific details of its distribution are not well known. It is most abundant in mesic habitat. It roosts in colonies and prefers cave-like habitat but has also been reported to use buildings, bridges, rock crevices and human-made structures as roost sites. Foraging habitat includes edges along streams next to and within wooded habitats, in addition to open areas such as pastures. Small moths and beetles are primary food sources. Echolocation (sound waves reflected back) is generally used to capture prey while in flight.

The western mastiff bat is the largest species of bat in North America. It roosts mainly in building crevices and vertical cliffs. The species feeds on insects, with moths accounting for 80 percent of its diet. This species is an aerial predator, soaring at great lengths all night to forage over wide areas. It occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban.

The western red bat is a common species in the Central Valley Basin and ranges up into the lower reaches of the Sierra Nevada mountains. Forests and woodlands, especially on the edge of streams, fields or urban areas provide potential roosting habitat. This species roosts mainly in trees, but occasionally shrubs as well. It is mostly a solitary species and roosts mostly in trees at the edge of streams, fields, or urban areas. This species is an aerial predator, foraging on a variety of insects over open terrain.

Hoary bats are one of America's largest bats. Hoary bats are not attracted to houses or other human structures, and they stay well hidden in foliage throughout the day. They typically roost singly, 10-15 feet up in trees along forest borders. In the summer, hoary bats do not emerge to feed until after dark, but during migration, they may be seen soon after sundown. Hoary bats forage on flying insects that are caught along woodland openings and riparian corridors. These bats sometimes make round trips of up to 24 miles on the first foraging flight of the night, and then make several shorter trips, returning to the day roost about an hour before sunrise.

Between late summer and early fall, they migrate south to subtropical and tropical areas to spend the winter.

The Yuma myotis bat is common and widespread in California. It is usually associated with permanent sources of water, typically rivers and streams. Optimal foraging habitat for this species generally consists of open forest or woodland areas near a water source. These bats feed on insects close to the water surface. They can be found roosting in a variety of areas including the underside of bridges, caves, mines, and other human-made structures. This species hibernates in winter and may make short elevational migrations according to the season. Yuma myotis roost in large groups and may roost with other bat species.

The *California Natural Diversity Database* lists multiple records for the pallid bat, Townsend's big-eared bat, greater western mastiff bat, western red bat, hoary bat and Yuma myotis within the search area. All *California Natural Diversity Database* records for these species occur northeast of the project study area. And, all records for each species, except for the pallid bat, occur within about 8 miles of the project study area.

The closest *California Natural Diversity Database* record for the pallid bat and greater western mastiff bat is about 2.5 miles northeast of the project study area, both recorded in 2001. The closest *California Natural Diversity Database* record for the Townsend's big-eared bat, dated 2001, is about 4.5 miles northeast of the project study area. The closest records for the western red bat and Yuma myotis, both dated 1999, are on existing SR-108, in between the two northern points of the project study area. The western red bat, hoary bat and Yuma myotis bat have also been recorded as occurring about half a mile north of the project study area.

A bat habitat assessment was conducted consisting of an aerial photo analysis and a field assessment (on May 12-13, 2014). Figure 3.3.5-1, in Appendix A, shows the potential bat roosting habitat in the project study area. Potentially suitable roost habitat was present in many areas of the project study area and generally consisted of structures (buildings) or trees. Structures that provided potential roost habitat were of suitable construction and condition to permit access by bats into suitable roost cavities, crevices in walls, roof areas, or other suitable locations

Trees that could potentially support colonial bats had cavities, deep crevices, large patches of exfoliating bark, dense, down-facing palm fronds. Trees that could potentially support solitary tree-roosting bats included any trees with sufficiently dense foliage such as palms, some oaks, cottonwoods, and dense orchard tree canopy.

In general, potentially suitable bat roosting habitat was most densely distributed in the western portion of the project study area and consisted mostly of potentially suitable buildings with some potentially suitable orchards and/or individual trees. The central portion of the project study area also provided substantial density and distribution of potentially suitable tree and building roost habitat. The north-central portion of the project study area, along Alternatives 1A and 2A, supported potential roost habitat similar to the central portion of the project study area. However, potential roost habitat decreased in density in the eastern portion of the project study area along Alternatives 1B and 2B.

Seasonality of Roost Use

As discussed in the bat habitat assessment, use of roosts by bats varies throughout annual, seasonal and daily cycles. Roost types are generally referred to as day roosts (used during breeding season by males and/or non-reproductive females), day maternity roosts (used for

pup-rearing by females), night roosts (used by all flying bats during seasonal periods of bat activity, such as when foraging), dispersal roosts (where breeding occurs, or en route to winter roosts), and winter roosts (used either for hibernation or torpor).

Bats in this region of California are not active year-round. During the maternity season, non-flying young of colonial bats remain in the roost until late summer (end of August), when they then disperse from the natal roost or remain into or throughout the winter. During winter months, roosting bats typically enter torpor (inactivity period), rousing only occasionally to drink water or opportunistically feed on insects. The onset of torpor depends on environmental conditions, primarily temperature and rainfall.

Western Burrowing Owl

The western burrowing owl is a California species of concern and protected under the Migratory Bird Treaty Act. It has no federal status. Burrowing owls occur in warmer valleys, open, dry grasslands, deserts, and scrublands associated with agriculture and urban areas that support populations of California ground squirrels. Burrowing owls nest below ground, in areas with short grass. Western burrowing owls depend on the presence of fossorial (most commonly ground squirrel) to use their abandoned burrows. Burrowing owls feed on insects and small mammals in grassland, pastures, fallow fields, and cropland. This species will occasionally forage in areas with taller vegetation that is suitable for nesting habitat.

The following is based on the *Habitat Assessment for Western Burrowing Owl* (2014).

The *California Natural Diversity Database* record search found 13 records within the search area. The closest documented record, dated 1994, is about half a mile north of the project study area. The record is in the west side of the project study area, between Terminal Avenue and Oakdale Road. Previous surveys, in 2012, resulted in positive sign of burrowing owl presence (e.g., whitewash, pellet casting, prey remains) at two locations in the project study area. One observation was in annual grassland at the northeast corner of Claribel Road and Claus Road; the second was in an agricultural field near the eastern end of the project study area.

The annual grassland at the corner of Claribel Road and Claus Road was surveyed multiple times in spring 2014, but no burrowing owl or sign of burrowing owls was observed. The vegetation in the annual grassland was not managed and, therefore, was taller (at least 3 feet) than areas where burrowing owls typically occur. Because of the tall vegetation, this annual grassland did not provide suitable nesting habitat for burrowing owls. The agricultural field near the eastern end of the project study area, where burrowing owl sign was observed during previous surveys, has been converted to orchards; burrows are no longer present on the property.

During spring 2014, ruderal areas, annual grasslands, canal levees, and irrigated pastures were surveyed for suitable habitat and sign of burrowing owl presence. The surveys of the canal levees were limited to areas next to suitable foraging habitat (annual grasslands and ruderal areas). Canals next to orchards and vineyards were not surveyed because these areas do not provide a suitable prey base for the owls, so the adjacent levees are unsuitable. In addition, crop-dusting was observed over many of the canals; this practice also reduces the prey base for burrowing owls, further reducing the value of levees as habitat. Canals and levees that contain suitable burrows and adjacent foraging habitat were surveyed for burrowing owl and evidence of burrowing owls; no sign of burrowing owl presence was observed.

Numerous irrigated pastures were surveyed that contained burrows of suitable size for burrowing owls. Per discussion with several local ranchers, the standard irrigation practice involves flooding the fields beginning in March and ending in September or October (weather depending). The local water district allocates 50 hours of water every 10 days. Although the frequency and length of watering depends on the hydrology of the pasture, the fields generally remain flooded for multiple days at a time. As a result, any suitable-sized burrows would be flooded and unusable for most of the year. In addition, flooded fields do not provide suitable habitat for burrowing owl prey. The lack of prey base in irrigated pastures decreases the likelihood of burrowing owls using burrows in irrigated pastures.

Some irrigated pastures throughout the project area contain elevated embankments or levees, generally in the back of the pasture. Some of these embankments, which are elevated above the flooded pastures, contain burrows suitable for burrowing owls. However, due to the regular flooding of the irrigated pastures, it is unlikely that there is sufficient prey base for the owls. No burrowing owl or sign of burrowing owls was observed in irrigated pastures within project study area.

Overall, the project study area provides marginally suitable habitat for burrowing owls due to the irrigation and agricultural practices described above. There are, however, small areas of ruderal vegetation and annual grasslands that provide suitable habitat for this species; consequently, there is moderate potential for this species to occur in the project study area. Potentially suitable burrowing owl habitat is shown in Figure 3.3.5-1, in Appendix A.

Northern Harrier

The northern harrier is a state species of concern; it has no federal status. This species breeds in wide-open habitats that range from arctic to grasslands to marshes. Nests are placed on the ground, usually in a dense clump of vegetation such as willows, grasses, sedges and cattails. This species is most commonly found in large undisturbed areas of wetlands and grasslands. Flying low over the ground, harriers eat small mammals, reptiles, birds and amphibians.

There are no *California Natural Diversity Database* records of this species in the search area; however, the project study area provides suitable foraging and nesting habitat for the northern harrier. Suitable nesting habitat may be present in the grasslands in the project study area. The annual grasslands, ruderal vegetation, marshes and agricultural fields provide suitable foraging habitat. Focused surveys were not conducted for the northern harrier in the project study area, but suitable habitat for this species was observed during other site surveys and it is expected that active nests or individuals would have been identified during surveys for the Swainson's hawk or other species. No northern harriers were observed in the project study area during site surveys in 2014, but there is moderate potential for this species to occur in the project study area due to the presence of suitable habitat.

White-tailed Kite

The white-tailed kite is a California fully protected species; it has no federal listing. This species is known to occur in open country and farmlands with scattered trees in California, Arizona and Texas. During breeding season, kites nest in a small nest in the upper canopy of large trees. During nonbreeding season, they will roost communally, with up to 100 individuals at a roost. This species generally feeds on small mammals, as well as some birds, lizards and insects.

There are no *California Natural Diversity Database* occurrences within the search area, however, the project study area provides suitable habitat for this species. The live oak woodlands, landscape vegetation and trees around rural residences provide suitable nesting habitat for the white-tailed kite. Suitable foraging habitat can be found in annual grasslands, ruderal vegetation, irrigated pastures, and perennial and seasonal marshes.

Focused surveys were not conducted for white-tailed kite in the project study area, but suitable habitat for this species was observed during other site surveys and it is expected that active nests or individuals would have been identified during surveys for the Swainson's hawk. No white-tailed kites were observed in the project study area during site surveys in 2014, but there is moderate potential for this species to occur in the project study area due to the presence of suitable habitat.

No active white-tailed kite nest trees were identified during surveys. However, suitable raptor nest trees that were not active or observed active during surveys in 2014, but could support future nesting, occur in all of the Build Alternatives and could be removed during construction.

California Horned Lark

The California horned lark (*Eremiphila alpestris actia*) is on the California Environmental Species Act Watch List. This species is known from coastal regions and the San Joaquin Valley, inhabiting short-grass prairie, bald hills, and fields where trees and shrubs are present. The California horned lark is less common in mountain regions and coniferous or chaparral habitats. They nest on the ground in cup-shaped depressions in open grassy areas. During breeding season this species feeds on insects, snails and spiders, but will add plant matter and forbs to its diet during the rest of the year.

There is only one *California Natural Diversity Database* records for this species in the search area, about 8.5 miles east of the project study area. The annual grasslands provide suitable nesting and foraging habitat; irrigated pasture and agriculture lands also provide foraging habitat. Focused surveys were not conducted for the California horned lark in the project study area, but suitable habitat for this species was observed during other site surveys. No California horned larks were observed in the project study area during site surveys in 2014, but there is moderate potential for this species to occur in the project study area due to the presence of suitable habitat.

Merlin (Wintering)

The merlin (*Falco columbarius*) is on the California Environmental Species Act Watch List; it has no federal status. Merlins range from annual grasslands to ponderosa pine and montane hardwood conifer habitats. This species breeds in Canada and Alaska and migrates south to winter in the southern U.S. Eating mostly birds, merlins will forage in grasslands and open forests.

There is only one *California Natural Diversity Database* record in the search area. This occurrence, dated 1991, is about 12.5 miles west of the project study area. The male bird was observed wintering at the confluence of the San Joaquin and Stanislaus rivers. Suitable wintering habitat is throughout the open agricultural fields, irrigated pasture, and grasslands in the project study area. Focused surveys were not conducted for merlin in the project study area, but suitable habitat for this species was observed during other site surveys. No merlins were observed in the project study area during site surveys in 2014, but there is moderate potential for this species to occur in the project study area due to the presence of suitable habitat.

Loggerhead Shrike

The loggerhead shrike is a state species of concern; it has no federal status. This species is generally found in open areas with scattered shrubs and trees, particularly with vegetation that has spines and thorns. Shrikes frequently hunt in agricultural fields, scrublands, savannas, golf courses and cemeteries. This species feeds on small reptiles, amphibians and reptiles.

There are no *California Natural Diversity Database* records for this species in the search area, but suitable habitat is present in the project study area. The interior live oak woodland and blue oak savannah provide suitable nesting habitat for this species and ruderal vegetation, annual grasslands, and irrigated pastures provide suitable foraging habitat. Focused surveys were not conducted for the loggerhead shrike in the project study area, but suitable habitat for this species was observed during other site surveys. No loggerhead shrikes were observed in the project study area during site surveys in 2014, but there is moderate potential for this species to occur in the project study area due to the presence of suitable habitat.

Pacific Pond Turtle

The Pacific pond turtle is a state species of concern; it has no federal status. The Pacific pond turtle ranges from western Washington State south to northwestern Baja California. Two subspecies occur in California: the north Pacific pond turtle (*E.m. marmorata*) and the south Pacific pond turtle (*E.m. pallida*). The pond turtle is a highly aquatic species, found in ponds, marshes, rivers, streams, and irrigation ditches that typically have rocky or muddy bottoms and support aquatic vegetation. Eggs are laid at upland sites, away from the water, from April through August.

There are three *California Natural Diversity Database* records of the Pacific pond turtle in the search area. Two of the records are about 2 miles north of the project study area. The ponds, marshes and canals in the project study area that are perennially inundated provide suitable habitat for this species. Focused surveys were not conducted for the Pacific pond turtle in the project study area, but suitable aquatic habitat for this species was observed during other site surveys. No pond turtles were observed in the project study area during site surveys in 2014, but this species is likely to occur in the project study area due to the presence of suitable habitat.

Western Spadefoot Toad

The western spadefoot toad is a state species of concern; it has no federal status. Historically, the western spadefoot toad ranged from Redding to northwest Baja California. In California, this species was found throughout the Central Valley and in the Coast Ranges from San Francisco to Mexico. Breeding habitat for this species includes temporary pools or ephemeral drainages; breeding occurs from January to May. Water temperatures within these pools must stay between 48 to 86 degrees Fahrenheit and be inundated for greater than three weeks to serve as suitable breeding habitat. Eggs are deposited on emergent vegetation or plant debris. Once pools begin to dry, western spadefoot toads use their hind feet to burrow into the ground. Once fully concealed, these toads enter a period of subterranean hibernation until the following wet season, often 8 to 9 months.

Western spadefoot toads eat a variety of beetles, moths, crickets and flies. This species consumes enough food within several weeks to survive a long dormancy period.

There are nine *California Natural Diversity Database* records for the western spadefoot toad within the search area. The closest record to the project study area is about 2 miles east of the project study area. Seasonal wetlands in the project study area provide potential habitat for this species. Due to the low rainfall totals during the 2013-14 winter season, most potential aquatic habitat for the western spadefoot toad did not remain inundated for a sufficient amount of time to support reproduction. Consequently, aquatic surveys were determined infeasible and the western spadefoot toad is presumed present in potential habitat within the project study area.

Migratory Birds

Native birds, protected under the Migratory Bird Treaty Act and similar provisions under California Department of Fish and Game code, currently nest or have the potential to nest within the project study area and the project impact area. During the 2014 biological surveys, habitat was determined to be favorable to canopy-, cavity- and structural-nesting birds.

Environmental Consequences

Direct impacts, as discussed below, were calculated based on the footprint of each Build Alternative as determined by the limits of cut and fill. Direct impacts include the permanent removal of vegetation and associated wildlife within the project footprint, as well as temporary access resulting from construction access and staging. Indirect impacts were calculated based on the proposed limits of right-of-way for each alternative minus the area of the footprint. Indirect impacts include, for example, changes to hydrology, sedimentation, shading, increased disturbance and noise that would occur at some time after the project is constructed.

Build Alternatives 1A, 2A, 1B and 2B

Bats

Impacts to bat roost habitat are divided by the type of potential roost habitat (tree, building):

- Impacts from 1B to potential tree roost habitat would be 5 tree roosting sites.
- Impacts from 1B to potential building roost habitat would be 8 building roosting sites.

Table 3.3.4-3 provides a breakdown of impacts to potential bat roost habitat by Build Alternative. Impacts to potential bat roost habitat are also shown in Figure 3.3.5-1, in Appendix A.

Table 3.3.4-3: Summary of Impacts to Potential Bat Roost Habitat (Acres)

Impacts	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
	Tree	Building	Tree	Building	Tree	Building	Tree	Building
Total	26	29	5	8	17	17	5	5

Source: Natural Environment Study, 2017

Townsend's big-eared bat is state species of concern; it has no federal status. The species was previously considered for listing under California Endangered Species Act; however, on October 20, 2016, the California Department of Fish and Wildlife adopted the finding that the Townsend's big-eared bat does not warrant listing of threatened or endangered under the California Endangered Species Act. All of the Build Alternatives may result in impacts to this species.

Additional right-of-entry requests were sent to property owners in August 2018 to complete bat surveys for any unsurveyed parcels; however, no additional access was granted and additional surveys were not conducted. Consequently, additional surveys will be conduced along Alignment 1B during final design to assess impacts to roosting bats and mitigation would be identified based on type of impact, types of roost, location of roost, and roosting structure type.

Western Burrowing Owl

Direct impacts to potential habitat for the western burrowing owl (grasslands) would be 12.34 acres with Alternative 1A, 13.44 acres with Alternative 2A, 31.45 acres with Alternative 1B, and 41.66 acres with Alternative 2B (see Table 3.3.4-4). Impacts to potential burrowing owl habitat are also shown in Figure 3.3.5-1, in Appendix A.

Table 3.3.4-4: Summary of Impacts to Potential Habitat for Western Burrowing Owl by Alternative (Acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Potential Habitat (Grassland)	12.34	31.45	13.44	41.66

Source: Natural Environment Study, 2017

Northern Harrier

Direct impacts to potential nesting habitat for the northern harrier (grasslands) would be 12.34 acres with Alternative 1A, 13.44 acres with Alternative 2A, 31.45 acres with Alternative 1B, and 41.66 acres with Alternative 2B (see Table 3.3.4-5).

Impacts to northern harrier foraging habitat (grassland, irrigated pasture, agricultural) would range from 330.04 acres of direct impacts if Alternative 2A were selected to 409.29 acres of direct impacts if Alternative 1B were selected. Table 3.3.4-5 provides a breakdown of impacts to northern harrier foraging habitat for each alternative. The project could also directly affect nesting northern harriers if individuals are nesting within or near the project footprint during construction.

Table 3.3.4-5: Summary of Impacts to Habitat for Northern Harrier by Alternative (Acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Potential Nesting Habitat (Grassland)	12.34	31.45	13.44	41.66
Foraging Habitat (Grassland, Irrigated Pasture, Agriculture)	335.96	409.29	330.04	405.43

Source: Natural Environment Study, 2017

White-tailed Kite

Impacts to white-tailed kite foraging habitat (grassland, irrigated pasture, agricultural) would range from 330.04 acres of direct impacts if Alternative 2A were selected to 409.29 acres of direct impacts if Alternative 1B were selected. See Table 3.3.4-5 (impacts for northern harrier), which provides a breakdown of impacts to foraging habitat grassland, irrigated pasture,

agricultural land for each alternative. Impacts for the white-tailed kite are the same as those for the northern harrier and bats.

California Horned Lark

Impacts to California horned lark nesting habitat (grassland) would range from 12.34 acres of direct impacts if Alternative 1A were selected to 41.66 acres of direct impacts if Alternative 2B were selected. Impacts to California horned lark foraging habitat (grassland, irrigated pasture, agricultural) would range from 330.04 acres of direct impacts if Alternative 2A were selected to 409.29 acres of direct impacts if Alternative 1B were selected. See Table 3.3.4-5 (impacts for northern harrier), which provides a breakdown of impacts to foraging habitat grassland, irrigated pasture, agricultural land for each alternative. Impacts for the California horned lark as the same as those for the white-tailed kite, and northern harrier.

Merlin (Wintering)

Impacts to merlin wintering habitat (grassland, irrigated pasture, and agricultural) would range from 330.04 acres of direct impacts if Alternative 2A were selected to 409.29 acres of direct impacts if Alternative 1B were selected. Table 3.3.4-5 provides a breakdown of impacts to merlin foraging habitat for each alternative which is the same as the northern harrier.

No permanent impacts would occur to merlin nesting activities or habitat as a result of the project since merlin would not nest in the project study area.

Loggerhead Shrike

Impacts to loggerhead shrike nesting habitat (interior live oak woodland, blue oak woodland) would range from 1.00 acres of direct impacts if either Alternative 1A or 2A were selected to 3.30 acres of direct impacts if either Alternative 1B or 2B were selected (see Table 3.3.4-6).

Impacts to loggerhead shrike foraging habitat (grassland, irrigated pasture, and agricultural) would range from 330.04 acres of direct impacts if Alternative 2A were selected to 409.29 acres of direct impacts if Alternative 1B were selected.

Table 3.3.4-6 provides a breakdown of impacts to loggerhead shrike foraging habitat for each alternative.

Table 3.3.4-6: Summary of Impacts to Habitat for Loggerhead Shrike by Alternative (Acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Potential Nesting Habitat (Interior Live Oak Woodland, Blue Oak Woodland)	1.00	3.30	1.00	3.30
Foraging Habitat (Grassland, Irrigated Pasture, Agriculture)	335.96	409.29	330.04	405.43

Source: Natural Environment Study, 2017

The project could also directly affect nesting loggerhead shrikes if individuals are nesting within or near the project footprint during construction.

Pacific Pond Turtle

Direct impacts to Pacific pond turtle aquatic habitat (some ponds) would be 0.29 acre with Alternative 2A, 8.42 acres with Alternative 1A, 5.82 acres with Alternative 2B, and 0.86 acre with Alternative 1B (see Table 3.3.4-7).

Table 3.3.4-7: Summary of Impacts to Pacific Pond Turtle Aquatic Habitat (Acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Potential Aquatic Habitat (Ponds)	8.42	0.86	0.29	5.82

Source: Natural Environment Study, 2017

Western Spadefoot Toad

Impacts to western spadefoot toad aquatic habitat would range from 0.27 acre of direct impacts as a result of Alternative 1B and 0.74 acre direct impacts as a result of Alternative 2A. Indirect impacts to western spadefoot toad habitat will vary from 0.07 acre for Alternative 1A to 0.90 acre for Alternative 2B (see Table 3.3.4-8).

Table 3.3.4-8: Summary of Impacts to Western Spadefoot Toad by Alternative (acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Direct Impacts (Seasonal Wetlands)	0.36	0.27	0.74	0.66
Indirect Impacts (Seasonal Wetlands)	0.07	0.15	0.49	0.90

Source: Natural Environment Study, 2017

Temporary Construction Impacts

Implementation of the proposed project could potential impact the following special status animal species during construction:

Loss of bat roost habitat could directly affect individual bats or colonies of bats if they are present in tree or building roosts during construction. Impacts would vary depending on the type of roost (i.e., day roosts, day maternity roosts, night roosts, dispersal, or winter roosts).

The project could also directly affect nesting western burrowing owl if individuals are nesting within or near the project footprint during construction.

The project could also directly affect nesting northern harriers if individuals are nesting within or near the project footprint during construction.

The project could also directly affect nesting white-tailed kite if individuals are nesting within or near the project footprint during construction

The project could also directly affect nesting California horned larks if individuals are nesting within or near the project footprint during construction.

No temporary construction impacts would occur to merlin nesting activities or habitat as a result of the project since merlin would not nest in the project study area.

The project could also directly affect nesting loggerhead shrikes if individuals are nesting within or near the project footprint during construction.

The project could also directly affect Pacific pond turtles if individuals are present in the project footprint during construction.

The project could also directly affect western spadefoot toads if individuals are present in the project footprint during construction.

Implementation of the measures below will avoid and minimize potential temporary construction impacts to the above special status animal species.

No-Build Alternative

Under the No-Build Alternative, because no construction activities would occur, no impacts of any kind would occur to animal species in the project area.

Avoidance, Minimization and/or Mitigation Measures

No mitigation will be required with implementation of avoidance and minimization measures.

Bats

The following measures shall be implemented after right-of-entry to the entirety of the project area has been obtained.

Measure BIO-12: A qualified bat biologist shall conduct a detailed survey of all structures that would be removed during construction and that could provide potential roost habitat for bats. If any structure exhibits signs of bat use, the structure shall not be demolished until bats can be humanely evicted as described below.

a. Structure Option 1. All potential, but currently unused entry points into the structure are sealed. The active entry points are fitted with one-way exits, which are left in place 7-10 days to allow all bats to emerge normally during nightly feeding flights. The one-way exits are then removed and the remaining openings sealed until demolition if it will occur more than 30 days after demolition. If the interval between successful eviction and demolition will be short (less than 4 weeks), the one-way exits may often be left in place until demolition. This work shall be conducted by a biologist or other individual qualified in humane bat eviction methods and materials, or be conducted under the supervision a biologist or other individual with these qualifications.

b. Structure Option 2. In some cases, the physical condition of the structure is so poor that humane eviction as described above is not possible. If that occurs, the building shall be carefully and selectively dismantled in such a way that the internal environment is altered to a degree sufficient to cause bats to abandon the roost and not return. Dismantling shall occur under the guidance of a biologist or other individual qualified in partial dismantling of structures for bat eviction.

Measure BIO-13: A qualified bat biologist shall conduct a detailed survey of all trees that would be removed during construction and that could provide potential roost habitat for bats. Following the survey, any trees that can be determined unsuitable for bats roosts (e.g., shallow crevices in bark or wood) or the absence of bats can be determined through visual inspection of the roost features (e.g., accessible by boom truck, man lift, a visual inspection using fiber optic or video probes), shall not be subject to further restrictions for removal. If any tree exhibits signs of bat use or cannot be visually inspected, the following two-step method shall be followed to remove the tree.

a. On the first day, all non-habitat branches and limbs shall be cut from habitat trees using chainsaws only (no excavators or other heavy machinery). This activity shall be supervised by a biologist or other individual qualified in two-step tree removal of potential bat roost trees for sufficient length of time to train all tree cutters. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed, to not return to the roost that night.
b. On the second day, the remainder of the tree is removed. Supervision by a qualified biologist or other qualified individual shall not be required on the second day unless a very large cavity is present and a large colony is suspected.

Measure BIO-14: The bat eviction methods described above in Measures BIO-12, and BIO-13 shall only be conducted during seasonal periods of bat activity (see below), but shall avoid the period of April 16 to August 31 when non-volant young could be present. In this region, the two primary active periods are from March 1 to April 15 (or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs), or between September 1 and October 15 (or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs).

Measure BIO-15: If determined necessary by a qualified bat biologist, acoustical sampling and/or emergence surveys shall be conducted to provide an index of the bat species and relative abundance for a specific potential roost. The methodology for the acoustical sampling and emergence surveys (including location, frequency, and duration) shall be developed by a qualified bat biologist in coordination with the California Department of Fish and Wildlife.

Mitigation Measure BIO-16: To the extent practicable, the Build Alternative 1B shall be designed to avoid and minimize impacts to potential day or maternity bat roost habitat.

If a significant maternity roost site is identified within the project footprint and cannot be avoided, replacement maternity roost habitat shall be required via an artificial bat roost (e.g., bat house, bridge structure, etc.). The design, siting, and placement of replacement roost habitat shall be implemented by, or under the supervision of, a qualified bat biologist possessing a Memorandum of Understanding with the California Department of Fish and Wildlife.

Replacement roost habitat shall be monitored annually for 3 consecutive years following installation. The survey protocol shall be determined by a qualified bat biologist based on the target roost type for the replacement roost (e.g., day maternity roost).

Northern Harrier, California Horned Lark, and Loggerhead Shrike

The following avoidance and minimization measures will be implemented to reduce potential impacts to the northern harrier, California horned lark, and loggerhead shrike:

Measure BIO-17: If construction begins during the nesting season (February 15 to September 15), a survey for nesting birds (with a particular focus on sensitive bird species) shall be conducted within the project footprint and within a 100-foot radius by a qualified biologist. The survey shall be conducted a maximum of 14 days prior to the start of construction.

Measure BIO-18: If nesting birds are found within 100 feet of the project footprint during the survey, an initial setback of 100 feet from nesting areas shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall consist of brightly colored fencing and shall be maintained in good condition during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-19: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 100-foot setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest to the work limits, the line of sight between the nest and the work limits, and the description of the proposed work.

Measure BIO-20: If the qualified biologist determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with the reduced setback, work can proceed. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 100 feet of a nest shall be halted until the biologist can establish an appropriate setback.

White-tailed Kite

Measure BIO-21: If construction begins during the nesting season (February 15 to September 15), a survey for nesting white-tailed kites shall be conducted within the project footprint and within a 600-foot radius by a qualified biologist. The survey shall be conducted a maximum of 14 days prior to the start of construction.

Measure BIO-22: If nesting white-tailed kites are found within 600 feet of the project footprint during the survey, an initial setback of 600 feet from nesting areas shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall consist of brightly colored fencing and shall be maintained in good condition during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-23: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 600-foot setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest to the work limits, the line of sight between the nest and the work limits, and the description of the proposed work.

Measure BIO-24: If the qualified biologist determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with the reduced setback, work can proceed. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 600 feet of a nest shall be halted until the biologist can establish an appropriate setback.

Western Burrowing Owl

Measure BIO-25: After right-of-entry to the entirety of the project area has been obtained, breeding and non-breeding season surveys shall be conducted for the western burrowing owl by a qualified biologist in all suitable habitat within the project study area in accordance with California Department of Fish and Wildlife requirements. Four surveys would be required during the breeding season (February 15–July 15) and four surveys during the non-breeding season (December 1–January 31).

Measure BIO-26: If surveys indicate occupied burrows occur within the project footprint, measures to avoid, minimize, and/or mitigate impacts to burrowing owl shall be implemented in accordance with California Department of Fish and Wildlife requirements.

Merlin (Wintering)

Because the merlin is not expected to occur in the project study area during the nesting season, no avoidance, minimization, or mitigation measures are proposed.

Pacific Pond Turtle

Measure BIO-27: Prior to the start of construction activities that would affect ponds, canals, or other perennial water features, a qualified biologist shall survey the subject water feature for the presence of Pacific pond turtles. If any Pacific pond turtles are observed in the work area, they shall be allowed to leave on their own. If any pond turtles still remain in the work area after 24 hours, they shall be relocated outside of the work area by a qualified biologist in coordination with the California Department of Fish and Wildlife.

Measure BIO-28: Measures consistent with the current Caltrans' Best Management Practices Manual (including the Storm Water Pollution Prevention Plan and Water Pollution Control Plan Manuals) shall be implemented to minimize effects to aquatic habitats resulting from erosion and siltation during construction.

Measure BIO-29: Following completion of construction, all graded slopes, temporary impact and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the standard Caltrans native seed mix.

Western Spadefoot Toad

The following avoidance and minimization measures will be implemented to reduce potential impacts to the western spadefoot toad:

Measure BIO-30: To the extent practicable, Build Alternative 1B shall include design features such as retaining walls and non-standard slope gradients to avoid and minimize impacts to western spadefoot toad habitat.

Measure BIO-31: Western spadefoot toad habitat adjacent to the project footprint shall be designated as an Environmentally Sensitive Area (ESA) and protected with ESA fencing. ESA fencing shall be maintained in good condition until construction is complete.

Measure BIO-32: A biological monitor approved by the California Department of Fish and Wildlife shall be present during initial ground-disturbing activities within western spadefoot toad upland habitat that is located within 0.5 mile of western spadefoot toad aquatic habitat.

Measure BIO-33: If western spadefoot toads are found during construction, the individual(s) shall be relocated to suitable habitat outside the project footprint, in coordination with the California Department of Fish and Wildlife.

Measure BIO-34: All work in western spadefoot toad aquatic habitat shall be conducted during the dry season (June 1 through October 31) when western spadefoot toads are estivating and unlikely to enter the work area.

Measure BIO-35: Between November 1 and May 31, no construction activities shall occur in western spadefoot toad upland habitat, within 0.5 mile of western spadefoot toad aquatic habitat and within 24 hours following a rain event. Prior to resuming construction, any active work areas within western spadefoot toad upland habitat and within 0.5 mile of western spadefoot toad aquatic habitat shall be visually surveyed by the approved biological monitor prior to the start of construction to avoid affecting western spadefoot toad that may be present in upland habitat.

Measure BIO-36: Provided sufficient rainfall occurs, larval surveys will be conducted in potential western spadefoot toad aquatic habitat, in 2015 and 2016, by a qualified biologist approved by California Department of Fish and Wildlife. If approved by California Department of Fish and Wildlife, larval surveys may begin as early as January in low rainfall years in order to detect juvenile western spadefoot toad that may not persist if the water features dry out due to lack of rainfall.

Measure BIO-37: If western spadefoot toads are not detected in potential aquatic habitat after two seasons of larval surveys, Measure BIO-30, -31, -32, -34 and -35 would not apply.

Measure BIO-38: Between June 1 and October 31, if a substantial rain event (i.e., at least 0.25 inch) occurs during construction, any active work areas within western spadefoot toad habitat shall be visually surveyed by the approved biological monitor prior to the start of construction to avoid affecting western spadefoot toads that may have emerged from their burrows and relocated in the work area (e.g., under equipment).

Measure BIO-39: Following completion of construction, all graded slopes, temporary impact and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the standard Caltrans native seed mix.

Migratory Birds

Measure BIO-17 will be implemented to protect migratory birds as well.

Measure BIO-4 for worker environmental awareness training that is found in Section 3.3.1, Natural Communities, also applies to special status species.

3.3.5 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 U.S. Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the NOAA Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife. For species listed under both the FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the California Department of Fish and Wildlife may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Affected Environment

A Natural Environment Study for the project was completed and approved in June 2016, a Biological Assessment was completed and approved in February 2019, and an Addendum to the Natural Environment Study was completed and approved in October 2019. They are summarized in this section.

A list of sensitive wildlife and plant species potentially occurring within the project study area and vicinity was compiled to evaluate potential impacts resulting from project construction. See

Table 3.3.4-2: Special-Status Species Potentially Occurring in the Project Study Area. Sources used to compile the list include the *California Natural Diversity Database*, the U.S. Fish and Wildlife Service online special-status species list and NOAA Fisheries Species List (See Appendix I), and the California Native Plant Society.

The list includes each species' protection status, habitat information, status in the project study area, and supporting comments as necessary. The determination of whether a species could potentially occur within the project study area was based on the availability of suitable habitat within and adjacent to the project study area, as well as known occurrences of the species in or adjacent to the project study area according to the *California Natural Diversity Database*. Species requiring specific habitat not present in the vicinity of the project (e.g., riparian forest) were eliminated as potentially occurring and are not discussed further. Those species that could potentially occur in the project study area from habitat suitability or on known occurrences in or within the vicinity of the project study area are discussed below.

In May 2012, Caltrans contacted the U.S. Fish and Wildlife Service regarding the potential for San Joaquin kit fox (*Vulpes macrotis mutica*) to occur in the project area. The U.S. Fish and Wildlife Service found that the San Joaquin kit fox was likely not an issue for the project, so focused surveys for San Joaquin kit fox would not be necessary.

In January 2014, a biological resources coordination meeting was held to discuss the approach to special-status species. Attendees included staff from the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, Caltrans, and Stanislaus County. Following the discussion, concurrence was reached on the approach to all special-status species. Later, additional coordination with others occurred regarding the approach to bat surveys. The approaches to special-status species agreed to during the January meeting and subsequent coordination were implemented during the field investigation and data evaluation phases of the project.

Special-status wildlife species listed as state or federally listed as threatened or endangered that may occur in the project study area, or the vicinity, include Greene's tructoria (*Tuctoria greenei*), Succulent owl's clover (*Castilleja campestris ssp. succulent*), Hoover's spurge (*Chamaesyce hooveri),* Colusa grass (*Neostapfia colusana*), Hartweg's golden sunburst (*Pseudobahia bahiifolia*), Hairy orcutt grass (*Orcuttia pilosa*), Swainson's hawk (*Buteo swainsoni*), vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*), and valley elderberry longhorn beetle (*Desmocerus californicus dimporphus*), and California tiger salamander (*Ambystoma californiense*).

Greene's Tuctoria

Greene's tuctoria is a federally endangered species, listed as 1B.1 on the California Native Plant Society list. This species is found in vernal pools and wetlands in valley grasslands. This species is limited to the Great Central Valley and the Modoc Plateau; with elevation ranging from 98 to 3,510 feet. There are seven *California Natural Diversity Database* occurrences for Greene's tuctoria in the search area. The closest and most recent record, dated 1980, is about 4.5 mile east of the project study area. However, according to the *California Natural Diversity Database*, this site was planted with barley and worked by tillage tool and no habitat remains. The next closest record, dated 1973, is about 5.5 miles southeast of the project study area. Follow-up surveys were conducted in 1986, 1987, and 2011; all were negative for this species.

Of the 3.26 acres of seasonal wetland habitat features, eight individual features totaling approximately 0.70 acre can be further classified as vernal pools (based on vegetation associations and presence of hardpan), and may provide potential habitat for this plant species. These eight seasonal wetlands ranged in size from 0.005 acre to 0.41 acre; only one of the features was 0.25 acre or larger, which is documented as the typical minimum size feature where these species occur.

Three focused plant surveys were conducted in Spring 2014 pursuant to the California Department of Fish and Wildlife *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (November 2009). Of the three focused plant surveys, only the July survey coincided with the normal blooming period for Greene's tuctoria, with negative results. In addition to the negative survey findings, the majority of species identified in the seasonal wetlands during the surveys were not members of the same species (the exception was coyote thistle, *Eryngium* sp., which was identified during the surveys).

Although the seasonal wetlands in the project area could potentially provide marginally suitable habitat for Greene's tuctoria, due to lack of recent or nearby occurrences, the overall small size of the seasonal wetlands, and the negative results from 2014 surveys, it is unlikely that these species will occur in the project area. However, as a result of low rainfall in previous years, survey area restrictions due to lack of property access, and because no reference populations were visited during the surveys, there is still a limited potential for these species to occur within the Action Area.

Succulent Owl's Clover

The succulent owl's clover is a federally threatened and state endangered species, listed as 1B.2 on the California Native Plant Society list. This species is found in vernal pools and other moist habitats within valley grasslands, foothill woodlands, and freshwater wetlands. This species is found only in the southern Sierra Nevada foothills, southeast Sacramento Valley, and eastern San Joaquin Valley with an elevation between 80 and 2,460 feet. There are five *California Natural Diversity Database* occurrences for the succulent owl's clover in the search area; all are over 10 miles east of the project study area. There have been no records of this species since 1978 within the search area.

Hoover's Spurge

Hoover's spurge is a federally threatened species, listed as 1B.2 on the California Native Plant Society list. This species is found in vernal pools and wetlands within valley grasslands and wetland-riparian habitat. This species' population is limited to Butte, Colusa, Glenn, Merced, Stanislaus, Tehama, and Tulare counties where elevation is between 65 and 885 feet. There are two *California Natural Diversity Database* occurrences for Hoover's spurge within the search area. The closest location, dated 1974, is about 12.5 miles southeast. Additional surveys were conducted in 1986, where very few to no plants were observed in various pools, and in 2011, where no Hoover's spurge was in any of the pools in the vicinity. The other occurrence was observed in 1986; however; it was noted that most of the pools were being converted to agriculture. Therefore, it is likely that this habitat is gone.

Although potentially suitable habitat exists for these plants species exists within the seasonal wetlands in the project study area, due to lack of recent or nearby occurrences and the negative results from 2014 surveys, this species is presumed absent from the project study area.

However, due to the below-average rainfall during the winter of 2013-2014, this species may not have bloomed and is unable to be definitely eliminated from potentially occurring in the project study area.

Colusa Grass

Colusa grass (*Neostapfia colusana*) is a federally threatened and state endangered species that is listed as 1B.1 on the California Native Plant Society list. This species is found in vernal pools in valley grasslands and riparian habitat. This species is limited to Colusa, Merced, Solano and Stanislaus counties in elevations ranging between 16 and 360 feet.

Of the 3.26 acre of seasonal wetland habitat features, eight individual features totaling approximately 0.70 acre can be further classified as vernal pools (based on vegetation associations and presence of hardpan), and may provide potential habitat for this plant species. These eight seasonal wetlands ranged in size from 0.005 acre to 0.41 acre; only one of the features was 0.25 acre or larger, which is documented as the typical minimum size feature where these species occur.

Three focused plant surveys were conducted in Spring 2014 pursuant to the California Department of Fish and Wildlife *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (November 2009). Of the three focused plant surveys, only the July survey coincided with the normal blooming period for Colusa grass, with negative results. In addition to the negative survey findings, the majority of species identified in the seasonal wetlands during the surveys were not members of the same species (the exception was coyote thistle, *Eryngium* sp., which was identified during the surveys).

Although the seasonal wetlands in the project area could potentially provide marginally suitable habitat for Colusa grass, due to lack of recent or nearby occurrences, the overall small size of the seasonal wetlands, and the negative results from 2014 surveys, it is unlikely that these species will occur in the project area. However, as a result of low rainfall in previous years, survey area restrictions due to lack of property access, and because no reference populations were visited during the surveys, there is still a limited potential for these species to occur within the project area.

Hartweg's golden sunburst

The Hartweg's golden sunburst (*Pseudobahia bahiifolia*) is a state and federally endangered species that is listed as 1B.1 on the California Native Plant Society list. This species is found in grasslands and open woodlands in the Central Valley. Typically, the species grows in grasslands in the southern portion of its range and within the transition zone between grasslands and blue oak woodlands in the northern part of its range. Optimum habitat is associated with non-native annual grasslands and the upland portions of vernal pool habitat, with the majority of occurrences within Mima mound topography. Mima mounds are small hillocks a few feet in height, which have formed in dense concentrations. Plants are nearly always found on upper slopes with north or north-east facing relief. Hartweg's golden sunburst is confined to clay soils and Pentz series soils in Stanislaus County. This species is limited to the eastern San Joaquin Valley, with remaining populations primarily located in Fresno, Madera, Merced, and Stanislaus counties; elevation ranges between 50 and 656 feet. Hartweg's golden sunburst blooms March through May.

Although portions of the annual grasslands in the project area could potentially provide suitable habitat for Hartweg's golden sunburst, due to lack of recent or nearby occurrences and the negative results from 2014 surveys, it is unlikely that this species occurs in the project area; however, there is still a limited potential for the species to occur within the project area.

Hairy Orcutt Grass

The hairy orcutt grass (*Orcuttia pilosa*) is a state and federally endangered species that is listed as 1B.1 on the California Native Plant Society list. This species is found in vernal pools and wetlands in valley grasslands. This species population is limited to Madera, Merced, Stanislaus, and Tehama counties in elevations ranging from 147 to 3,510 feet. There are six *California Natural Diversity Database* occurrences for the hairy orcutt grass in the search area. The habitat at five of the locations has been altered, and the species is considered extirpated from the area. The only location that has not been altered, as of 2010, is more than 15 miles southwest of the project study area.

Swainson's Hawk

The Swainson's hawk is a state threatened species and has no formal federal status. Swainson's hawks are long-distance migrants, wintering primarily in South America and returning north to breed. In California, Swainson's hawks occur in the northeastern portion of the state, in the Great Basin Province, and in the Central Valley. They return to the Central Valley in mid-March to nest, then begin migrating south in August. Nests are built in the tops of large trees, often those associated with riparian habitats. They are known to forage up to 10 miles from their nest sites.

Swainson's hawks are very social raptors and are generally found in large groups with other species. During the breeding season, Swainson's hawks generally feed on rodents, rabbits and reptiles. However, when not breeding, their diet tends to consist mostly of insects.

There are 78 *California Natural Diversity Database* records for the Swainson's hawk within the search area. The closest record, from 2011, is within half a mile of the southeast boundary of the project study area. Trees within the landscaped areas and oak woodland communities provide suitable nesting habitat. Suitable foraging habitat runs throughout the project study area, in the irrigated pasture, ruderal, and agricultural communities.

Multiple Swainson's hawks were observed foraging and nesting in the project study area. A total of four active Swainson's hawk nests were identified within or near the project study area; three of the nests were in the central portion of the project study area; one nest was outside of the project study area, near the eastern end. Figure 3.3.5-1, in Appendix A, shows the location of active Swainson's hawk nests.

Tricolored Blackbird

The tricolored blackbird is a state threatened species. The threatened status is the result of a vote by the California Fish and Game Commission and the species was listed under the California Endangered Species Act on April 19, 2018. This species is also a U.S. Fish and Wildlife Service Migratory Non-game Bird of Management Concern.

Tricolored blackbirds are highly colonial, gregarious in all seasons, and nomadic in fall. They are largely found in the lowlands of California and prefer to nest in freshwater marshes with dense

growths of herbaceous vegetation, such as mustard, blackberry, and thistle. Willow and cottonwood riparian areas are also used for nesting. A nesting area must be large enough to support a minimum colony of about 50 pairs. They feed in flocks even when breeding, foraging in grassy fields, crops, flooded areas and edges of ponds, and eating insects, seeds, and cultivated grains.

There are 16 *California Natural Diversity Database* records for tricolored blackbird within the search area. The closest record is within 0.15 mile of the project study area, dated 1980. The Himalayan blackberry bramble and tules associated with marshes and ponds provide suitable nesting habitat for this species, while the grasslands and open agriculture fields provide suitable foraging habitat.

Focused surveys were not conducted for tricolored blackbirds in the project study area, but suitable habitat for this species was observed during other site surveys. Foraging tricolored blackbirds were observed in the eastern portion of the project study area during several site visits; however, no sign of nesting tricolored birds was found in the project study area.

California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*) is both state and federally listed as a threatened species. Critical habitat has been designated for the California tiger salamander, but the project study area is not located within designated critical habitat. The closest California tiger salamander critical habitat is about 1.7 miles north of the project study area; another unit is about 11 miles north of the project study area, on the border of San Joaquin and Stanislaus counties.

California tiger salamanders are large terrestrial salamanders, commonly found in annual grassland habitat. They may also occur in the grassy understory of valley-foothill hardwood habitats and uncommonly along stream courses in valley-foothill riparian habitats. They range from Sonoma, Colusa, and Yolo counties south through the Central Valley to Tulare County, and through the Coast Range into Santa Barbara County. An isolated population also occurs in Butte County.

California tiger salamanders are associated with vernal pools or similar habitats consisting of seasonal pools or ponds (including human-made ponds that dry out in summer) surrounded by grasslands. Adult California tiger salamanders spend most of their lives underground in small mammal burrows, which are a required habitat element. These salamanders are relatively poor burrowers and require refuges provided by ground squirrels and other burrowing mammals. They estivate in burrows during the dry months. After the onset of winter rains, adult salamanders move to larger, longer-lasting vernal pools and other seasonal pools to breed. Breeding season is November through February; timing depends on rainfall. The larval stage of the California tiger salamander usually lasts three to six months. Following metamorphosis, juveniles emigrate at night from drying breeding sites up to 1 mile to refuge sites.

There are 22 *California Natural Diversity Database* records for the California tiger salamander within the search area; five of these records are within 5 miles of the northeast corner of the project study area.

Depressional aquatic features in the project study area that support seasonal inundation include seasonal wetlands, ponds, and basins that provide potential aquatic habitat for the California tiger salamander. Surrounding undeveloped uplands (within about 1 mile of aquatic habitat),

including some agricultural lands, provide potential upland habitat. Irrigated pastures are not considered suitable upland habitat for the California tiger salamander due to the regular flooding that occurs in these areas starting in March and ending in September or October.

Due to the low rainfall totals during the 2013-14 winter season, most potential aquatic habitat for the California tiger salamander did not remain inundated for a sufficient duration (about 4 months) to support salamander reproduction. Focused surveys were conducted in the study area for California tiger salamander in 2014-2015 winter/spring and in the 2015-2016 winter/spring. The second survey conducted during 2015-2016 winter/spring had adequate rainfall during the course of the survey. No California tiger salamander, California tiger salamander larvae, or California tiger salamander eggs were observed during the 2014-2015 and 2015-2016 breeding season surveys conducted within the study area; however, three features were unsurveyed between 2014 and 2016 and may provide potentially suitable aquatic habitat.

Vernal Pool Invertebrates

The vernal pool tadpole shrimp is federally listed as endangered and the vernal pool fairy shrimp is federally listed as threatened; none of these species have formal state status.

Vernal pool crustaceans depend on the seasonal nature of their habitat, which consists of depressions that become inundated during winter rains and dry up completely by summer. These crustaceans generally have an accelerated life cycle timed to the duration of ponding. They hatch, mature and reproduce in a matter of weeks, producing specialized eggs that mature as cysts. The cysts lie dormant during the dry season and are able to withstand heat, cold, and desiccation. When the depressions become inundated the following season, some of the cysts hatch and some continue to lie dormant in the dry pool sediments; the cycle begins again. Most rely on passive means of dispersal (e.g., transport from to a new pool via waterfowl or large scale flooding). Fragmentation and isolation of their habitat negatively affects their populations by reducing dispersal and genetic diversity.

Vernal pool tadpole shrimp inhabit vernal pools containing clear to highly turbid (cloudy) water, ranging in size from less than 10 feet across to the 89 acres Olcott Lake at Jepson Prairie. The vernal pool tadpole shrimp has a patchy distribution across the Central Valley of California, from Shasta County southward to northwestern Tulare County, with isolated occurrences in Alameda and Contra Costa counties. Although spread over a wide geographic range, their habitat is highly fragmented and they are uncommon where they are found. Vernal pool tadpole shrimp require a minimum of 25 days to mature; the average age of first reproduction is close to 8 weeks. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Hatching and maturation rates are somewhat temperature-dependent; pools in which this species is found range in temperature from 50 to 84 degrees Fahrenheit.

Three designated critical habitats for vernal pool invertebrates are 6 miles southeast of the project study area.

Vernal pool fairy shrimp are endemic to vernal pools and similar ephemeral freshwater habitats and ranges in the Central Valley from Shasta County to Merced County and northern Fresno County. Vernal pool fairy shrimp are known to occur in disjunct populations within various-sized vernal pools and swales throughout most of the length of the Central Valley. Vernal pool fairy shrimp inhabit vernal pools with clear to tea-colored water, most commonly in grass- or mud-bottomed swales, or basalt flow depressions; they are also found in other seasonally ponded

areas. These areas can be road-side tire tracks in soft dirt shoulders, livestock ponds, road-side puddles, or other artificially created areas that hold water.

This species can mature in three to four weeks and is tolerant of variation in water temperature. These characteristics allow populations to persist in short-lived, shallow pools; vernal pool fairy shrimp will also persist later into the spring where pools are longer lasting. Vernal pool fairy shrimp appear to have a sporadic distribution within vernal pool complexes, often only inhabiting a few pools.

There are eight *California Natural Diversity Database* records for vernal pool tadpole shrimp and six records for vernal pool fairy shrimp within the search area. The closest record for both of these species is about half a mile south of the project study area, in a seasonal wetland along the railroad tracks near Plainview Road. There are four *California Natural Diversity Database* records for California linderiella fairy shrimp in the search area, with the closest record about 2.5 miles southeast of the project study area. Seasonal wetlands in the project study area provide potential habitat for these three invertebrate species.

Surveys for vernal pool invertebrates included two dry season surveys (soil analysis) and two wet season survey (dipnet sampling). Surveys were conducted in accordance with the U.S. Fish and Wildlife Service requirements.

Dry season surveys were conducted in 2012 and 2014. Wet season surveys were conducted in 2012-2013 and 2014.

Aquatic features surveyed were throughout the project study area, but most were concentrated in an area of annual grassland north of Warnerville Road near the eastern end of the project study area.

The 2012-2013 wet season surveys were negative for vernal pool fairy shrimp and vernal pool tadpole shrimp, but did identify the non-listed California linderiella fairy shrimp (*Linderiella occidentalis*) in two features. The 2014 wet season surveys resulted in positive findings for vernal pool fairy shrimp in three seasonal wetlands in the annual grassland area north of Warnerville Road mentioned above.

Figure 3.3.5-2, in Appendix A, shows the location of vernal pool fairy shrimp and California linderiella fairy shrimp identified in the project study area. Although not observed, vernal pool tadpole shrimp could also occur in these features.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is federally listed as threatened. This species ranges from Redding to Bakersfield, into the western foothills of the Sierra Nevada, and into the eastern foothills of the Coast Range. Critical habitat was designated for the valley elderberry longhorn beetle in Sacramento County, and essential habitat for the recovery of the species also exists in Solano County; both are outside of the project study area. The valley elderberry longhorn beetle is typically found in mature riparian vegetation associated with large river systems, but its range extends from the valley floor to 3,000 feet elevation.

The beetle is dependent on its host plant, the blue elderberry, which is a common component of Central Valley riparian forests. Valley elderberry longhorn beetle larvae feed and mature within elderberry stems 1 inch or larger in diameter, and exit prior to metamorphosing to the pupal

stage. The life cycle takes 1 to 2 years to complete. The beetle spends most of its life in the larval stage, living within the stems of an elderberry plant. Adults emerge from late March through June, about the same time the elderberry produces flowers. The larval beetles cannot be detected within the stems, and the adult stage is short-lived; generally the only evidence of beetle use is the exit holes in the stems created by the emerging larvae. Consequently, valley elderberry longhorn beetles are assumed to be present within stems of sufficient size anywhere within the beetle's known range.

There are nine *California Natural Diversity Database* records for the valley elderberry longhorn beetle within the search area; three records occur within 5 miles of the project study area. Focused surveys were not conducted for valley elderberry longhorn beetles in the project study area, but elderberry shrubs were observed during other site surveys. At total of four elderberry shrubs were observed throughout the project study area.

Of the three elderberry shrubs identified within the project study area, only one shrub is located within 165 feet of the project footprint, which is the limit of potential effects pursuant to the U.S. Fish and Wildlife Service May 2017 VELB Framework. The southernmost shrub along Fogarty Road is located approximately 105 feet from the project footprint. The remaining elderberry shrub along Fogarty Road is located approximately 250 feet from the project footprint and the elderberry shrub near Bentley Road is located approximately 190 feet from the project footprint. Figure 3.3.5-1, in Appendix A, shows the location of the elderberry shrubs.

None of the shrubs within the project study area are associated with riparian vegetation or are located within 2,625 feet of riparian habitat. However, since the elderberry shrubs were surveyed for exit holes, the valley elderberry longhorn beetle is presumed present in the project study area. There is potential for additional elderberry shrubs to occur in areas where access permission was not granted and visual from roadways or adjacent lands was not available. There is a low likelihood for additional shrubs to be present in the Action Area, as the most prevalent land uses are agricultural and residential areas.

Environmental Consequences

Direct impacts, as discussed below, were calculated based on the footprint of each Build Alternative as determined by the limits of cut and fill. Direct impacts include the permanent removal of vegetation and associated wildlife within the project footprint, as well as temporary access resulting from construction access and staging. Indirect impacts were calculated based on the proposed limits of right-of-way for each alternative minus the area of the footprint. Indirect impacts include changes to hydrology, sedimentation, shading, increased disturbance and noise, and so on that would occur at some time after the project is constructed.

Swainson's Hawk

All of the Build Alternatives could potentially remove a maximum of two known nest trees (one known Swainson's hawk nest tree and one unidentified raptor nest tree). However, no take of an occupied, active Swainson's hawk nest (eggs or young) or Swainson's hawk individuals is anticipated. In addition, suitable raptor nest trees that were not active or observed active during surveys in 2014 but could support future nesting occur in all of the Build Alternatives and could be removed during construction. Known Swainson's hawk and other raptor nest trees in the project footprint and the immediate vicinity are shown in Figure 3.3.5-1, in Appendix A.

Impacts to Swainson's hawk foraging habitat (grassland, irrigated pasture, agricultural) would range from 330.04 acres of direct impacts for Alternative 2A to 409.29 acres of direct impacts for Alternative 1B. Table 3.3.5-1 provides a breakdown of impacts to Swainson's hawk foraging habitat by Build Alternative.

Table 3.3.5-1: Summary of Impacts to Swainson's Hawk Foraging Habitat by Alternative (Acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Foraging Habitat (Grassland, Irrigated Pasture, Agriculture)	335.96	409.29	330.04	405.43

Source: Natural Environment Study, 2017

Swainson's hawk is a state listed species under the jurisdiction of the California Department of Fish and Wildlife and protected under the federal Migratory Bird Treaty Act. All build alternatives require the removal of the two known nests, which will occur when the nests are unoccupied, and no occupied nests will be removed prior to or during construction. Should an occupied nest be identified within 0.5 miles of the project area prior to or during construction, a 600-foot no-work buffer around the occupied nest will be implemented. The project biologist will coordinate with the California Department of Fish and Wildlife for modification to any identified no-work buffers. If it is determined there will be take under the California Endangered Species Act, an Incidental Take Permit pursuant to Section 2081 of the State Fish and Game Code would be obtained before construction.

With implementation of BIO-40 to BIO-44, effects to Swainson's hawk would be minimized.

Tricolored Blackbird

Impacts to tricolored blackbird nesting habitat (Himalayan blackberry bramble and perennial marsh) would be 0.82 acre of direct impacts with Alternative 2B, 1.54 acres with Alternative 1B, 1.98 acres with Alternative 1A, and 2.51 acres with Alternative 2A.

Impacts to tricolored blackbird foraging habitat (grassland, irrigated pasture, agricultural) would range from 330.04 acres of direct impacts if Alternative 2A were selected to 409.29 acres of direct impacts if Alternative 1B were selected. Table 3.3.5-2 provides a breakdown of impacts to tricolored blackbird foraging habitat by Build Alternative.

Table 3.3.5-2: Summary of Impacts to Tricolored Blackbird Foraging Habitat by Alternative (Acres)

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Foraging Habitat (Grassland, Irrigated Pasture, Agriculture)	335.96	409.29	330.04	405.43
Nesting Habitat	1.98	1.54	2.51	0.82

Source: Natural Environment Study, 2017

With implementation of BIO-45 to BIO-48, effects to tricolored blackbird would be minimized.

Hartweg's Golden Sunburst

Hartweg's golden sunburst could be buried, crushed, or removed from potential habitat areas in annual grasslands, if present in the project area. The net result would be loss of habitat. Grading and other soil disturbance in suitable annual grasslands could result in increased erosion and/or introduction of invasive plant species, thereby reducing the quality of the suitable annual grassland habitat. The effects of the exposure would be essentially the same regardless of the time of year and life stage (i.e., plant or seed).

Construction-related disturbance to annual grasslands associated with Alternative 1B would result in potential effects to suitable habitat for Hartweg's golden sunburst, if this species was present, totaling 3.28 acres of direct permanent effects and 0.57 acre of direct temporary effects in the project footprint and 11.73 acres of indirect effects in areas protected by ESA fencing and within 250 feet of the project footprint. Impacts to potential Hartweg's golden sunburst habitat are also shown in Figure 3.3.5-2, in Appendix A.

Only Alternative 1B, as the preferred alternative, was evaluated in detail for consultation with the U.S. Fish and Wildlife Service. Formal Section 7 Consultation was conducted with the U.S. Fish and Wildlife Service for Alternative 1B, and on December 11, 2019, the U.S. Fish and Wildlife Service concurred that the project may affect, and is likely to adversely affect Hartweg's golden sunburst. With implementation of BIO-49 to BIO-50, effects to Hartweg's golden sunburst would be minimized.

Colusa Grass and Greene's Tuctoria

Colusa grass and Green's tuctoria could be buried, crushed, or removed from potential habitat areas in seasonal wetlands, if present in the Action Area. The net result would be loss of habitat. Grading and other soil disturbance in uplands adjacent to the seasonal wetlands that will remain could result in increased sedimentation and/or introduction of invasive plant species, thereby reducing the quality of the seasonal wetland habitat. The effects of the exposure would be essentially the same regardless of the time of year and life stage (i.e., plant or seed).

Construction-related disturbance to seasonal wetlands associated with Alternative 1B would result in potential effects to suitable habitat for Colusa grass and Greene's tuctoria, if these species were present, totaling 0.06 acre of direct permanent effects and 0.01 acre of direct temporary effects to seasonal wetlands in the project footprint and 2.22 acre of indirect effects to seasonal wetlands within 250 feet of the project footprint and/or in areas protected by ESA fencing. Impacts to potential Colusa grass and Greene's tuctoria habitat are also shown in Figure 3.3.5-3, in Appendix A.

Only Alternative 1B, as the preferred alternative, was evaluated in detail for consultation with the U.S. Fish and Wildlife Service. Formal Section 7 Consultation was conducted with the U.S. Fish and Wildlife Service for Alternative 1B, and on December 11, 2019, the U.S. Fish and Wildlife Service concurred that the project may affect, and is likely to adversely affect Colusa grass and Greene's tuctoria. With implementation of BIO-49 to BIO-50, effects to Colusa grass and Greene's tuctoria would be minimized.

California Tiger Salamander

The protocol surveys did not identify any California tiger salamander, California tiger salamander larvae, or California tiger salamander eggs within the project area. Compensatory mitigation is not proposed for loss of potentially suitable, but unoccupied, habitat.

California tiger salamander could be buried, crushed, or removed from potential habitat areas in uplands within 1 mile of suitable aquatic habitat, if this species is present in the project area. The net result would be loss of habitat. California tiger salamanders could be disturbed by the noise and vibration of construction equipment if present within 0.5 mile of suitable upland habitat during the dry season (June 1 through October 31). Grading and other soil disturbance in suitable upland habitats within 1 mile of depressional features between November 1 and May 31 (California tiger salamander migration season) could result in increased sedimentation and/or introduction of invasive plant species, thereby reducing the quality of aquatic habitat for breeding.

Construction-related disturbance to upland areas associated with Alternative 1B within 1.24 miles of suitable aquatic habitat, which includes ponds, basins, seasonal wetlands, and seasonal marshes, would result in potential effects to suitable upland habitat for California tiger salamander, if this species was present, totaling 237.43 acres of direct permanent effects and 58.98 acres of direct temporary effects in the project footprint and 516.44 acres of indirect effects to upland areas within 250 feet of the project footprint and/or in areas protected by ESA fencing. Construction-related disturbance to suitable aquatic habitat associated with Alternative 1B within the project study area would result in 14.07 acre of direct permanet impacts and 2.92 ac of direct temporary impacts and 52.45 ac of indirect effects to aquatic features within 250 feet of the project footprint and/or in areas protected by ESA fencing. Impacts to potential California tiger salamander habitat are also shown in Figure 3.3.5-4, in Appendix A.

Only Alternative 1B, as the preferred alternative, was evaluated in detail for consultation with the U.S. Fish and Wildlife Service. Formal Section 7 Consultation was conducted with the U.S. Fish and Wildlife Service for Alternative 1B, and on December 11, 2019, the U.S. Fish and Wildlife Service concurred that the project may affect, and is likely to adversely affect California tiger salamander. With implementation of BIO-51 to BIO-62, effects to California tiger salamander would be minimized.

Vernal Pool Invertebrates

Alternatives 1A and 2A would not affect vernal pool invertebrate habitat. Impacts to vernal pool invertebrate habitat (seasonal wetlands) would range from 0.04 acre of direct impacts and 2.11 acres of indirect impacts if Alternative 2B were selected to 0.07 acre of direct impacts (including 0.06 acre of direct permanent impacts and 0.01 acres of direct temporary impacts) and 2.22 acre of indirect impacts if Alternative 1B were selected. Table 3.3.5-4 provides a breakdown of impacts to vernal pool invertebrate habitat by Build Alternative. Impacts to vernal pool invertebrate habitat are also shown in Figure 3.3.5-3, in Appendix A.

Table 3.3.5-3: Summary of Impacts to Habitat for Vernal Pool Invertebrates (Acres)

Impact	Alternative 1B	Alternative 2B
Permanent Direct Impacts	0.06	0.04

Temporary Direct Impacts	0.01	0.00
Indirect Impacts	2.22	2.11
Total	2.29	2.15

Source: Natural Environment Study, 2017, Biological Assessment, 2019, NES Addendum 2019

Vernal pool fairy shrimp and vernal pool tadpole shrimp could be buried, crushed, or removed from potential habitat areas in seasonal wetlands during grading activities. Grading activities would only occur in seasonal wetlands after they have dried so these species would only be exposed during the cyst life stage. The net result would be loss of habitat. Grading and other soil disturbance in uplands adjacent to the seasonal wetlands that will remain could result in increased sedimentation and/or introduction of invasive plant species, thereby reducing the quality of the seasonal wetland habitat.

Construction-related disturbance to seasonal wetlands associated with Alternative 1B would result in potential effects to suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp, totaling 0.06 acre of direct permanent effects and 0.01 acre of direct temporary effects to seasonal wetlands in the project footprint and 2.22 acre of indirect effects to seasonal wetlands protected by ESA fencing and/or within 250 feet of the project footprint.

Only Alternative 1B, as the preferred alternative, was evaluated in detail for consultation with the U.S. Fish and Wildlife Service. Formal Section 7 Consultation was conducted with the U.S. Fish and Wildlife Service for Alternative 1B, and on December 11, 2019, the U.S. Fish and Wildlife Service concurred that the project may affect, and is likely to adversely affect vernal pool fairy shrimp and vernal pool tadpole shrimp. With implementation of BIO-63 to BIO-67, effects to these vernal pool invertebrates would be minimized.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle could be disturbed by the noise and vibration of construction equipment if present within 165 feet of the project footprint. Currently, there is one known elderberry shrub located within this area of potential effect (i.e., along Fogarty Road within 105 feet of the project footprint), and there may be additional elderberry shrubs to be identified within 165 feet of the project footprint prior to the start of construction. Disturbance could be more pronounced during the flight season of the valley elderberry longhorn beetle (March - July). Impacts to elderberry shrubs are also shown in Figure 3.3.5-1, in Appendix A.

Only Alternative 1B, as the preferred alternative, was evaluated in detail for consultation with the U.S. Fish and Wildlife Service. Formal Section 7 Consultation was conducted with the U.S. Fish and Wildlife Service for Alternative 1B, and on December 11, 2019, the U.S. Fish and Wildlife Service concurred that the project may affect, but is not likely to adversely affect the valley elderberry longhorn beetle. With implementation of BIO-68 to BIO-76, effects to the valley elderberry longhorn beetle would be minimized.

Threatened and Endangered Species Effect Determination Summary

Table 3.3.5-4 below summarizes the effects to federally listed species that appeared on the U.S. Fish and Wildlife Service species list:

Table 3.3.5-4: Summary of Determination for Federally Listed Species

Species Name	Status	Determination
Fresno kangaroo rat	FE	No effect (1A, 2A, 1B, 2B)
Riparian woodrat	FE	No effect (1A, 2A, 1B, 2B)
Riparian brush rabbit	FE	No effect (1A, 2A, 1B, 2B)
San Joaquin kit fox	FE	No effect (1A, 2A, 1B, 2B)
Yellow-billed cuckoo	FT	No effect (1A, 2A, 1B, 2B)
Least Bell's Vireo	FE	No effect (1A, 2A, 1B, 2B)
Blunt-nosed leopard lizard	FE	No effect (1A, 2A, 1B, 2B)
Giant garter snake	FT	No effect (1A, 2A, 1B, 2B)
California tiger salamander	FT	May affect, and is likely to adversely affect (1A, 2A, 1B, 2B).
California red-legged frog	FT	No effect (1A, 2A, 1B, 2B)
Delta smelt	FT	No effect (1A, 2A, 1B, 2B)
Central Valley steelhead	FT	No effect (1A, 2A, 1B, 2B)
Conservancy fairy shrimp	FE	No effect (1A, 2A, 1B, 2B)
Vernal pool fairy shrimp	FT	May affect, likely to adversely affect (1B, 2B).
Vernal pool tadpole shrimp	FE	May affect, likely to adversely affect (1B, 2B).
Valley elderberry longhorn beetle	FT	May affect, but is not likely to adversely affect (1A, 2A, 1B, 2B)
Chinese Camp brodiaea	FT	No effect (1A, 2A, 1B, 2B)
Fleshy owl's-clover	FT	No effect (1A, 2A, 1B, 2B)
Greene's tructoria	FE	May affect, and is likely to adversely affect (1A, 2A, 1B, 2B)
Colusa grass	FT	May affect, and is likely to adversely affect (1B, 2B)
Hairy orcutt grass	FE	No effect (1B, 2B)
Hoover's spurge	FT	No effect (1B, 2B)
San Joaquin orcutt grass	FT	No effect (1A, 2A, 1B, 2B)
Hartweg's golden sunburst	FE	May affect, and is likely to adversely affect (1A, 2A, 1B, 2B)
Keck's checker-mallow	FE	No effect (1A, 2A, 1B, 2B)
Red Hills vervain	FT	No effect (1A, 2A, 1B, 2B)

Source: Natural Environment Study, 2017, and Biological Assessment, 2019

Temporary Construction Impacts

Implementation of the project would potentially affect threatened and endangered species during construction.

The project could also directly and indirectly affect Hartweg's golden sunburst if this species is present or near the project footprint during construction.

The project is also anticipated to directly and indirectly affect species found in vernal pools including Colusa grass, Green's tuctoria, vernal pool fairy shrimp, and vernal pool tadpole shrimp during construction.

The project could also directly affect nesting Swainson's hawks if individuals are nesting within or near the project footprint during construction. However, no take of an occupied, active Swainson's hawk nest (eggs or young) or Swainson's hawk individuals is anticipated.

The project could also directly affect nesting tricolored blackbirds if individuals are nesting within or near the project footprint during construction.

The project is could also directly and indirectly affect California tiger salamanders during construction. Construction-related disturbance to suitable aquatic habitat within the project study area would result in 14.07 acre of direct permanent impacts and 2.92 acre of direct temporary impacts and 52.45 acre of indirect effects to aquatic features within 250 feet of the project footprint and/or in areas protected by ESA fencing.

The project could also potentially affect the valley elderberry longhorn beetle during construction, with disturbance being more pronounced from March through July during the flight season.

The measures below including BIO-77 through BIO-80 would avoid, minimize, and mitigate for any potential impacts to threatened or endangered species.

No-Build Alternative

Under the No-Build Alternative, because no construction activities would occur, no impacts of any kind would occur to threatened and endangered species in the project area.

Avoidance, Minimization and/or Mitigation Measures

Final mitigation ratios for impacts to state and/or federally listed species will be determined through consultation with the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Mitigation will occur through the purchase of mitigation credits from an approved mitigation bank or banks and/or through creation of a project-specific mitigation site.

Swainson's Hawk

The following avoidance and minimization measures will be implemented to reduce potential impacts to the Swainson's hawk:

Measure BIO-40: Nesting surveys along Alignment 1B shall be conducted for Swainson's hawk by a qualified biologist in accordance with the Recommended Timing and Methodology for Swainson's Hawk in California's Central Valley (SHTAC 2000).

Measure BIO-41: If surveys indicate active Swainson's hawk nests are located within 0.5 mile of the project footprint, an initial setback of 600 feet from nesting areas shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall be maintained during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-42: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 600-foot setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest to the work limits, the line of sight between the nest and the work limits, and the description of the proposed work. The attachment to the Recommended Timing and Methodology for Swainson's Hawk in California's Central Valley titled "Determining a Project's Potential For Impacting Swainson's Hawks" shall also be consulted. Following the initial evaluation, the qualified biologist shall coordinate with the California Department of Fish and Wildlife to discuss the results and the proposed setback.

Measure BIO-43: If the qualified biologist, through coordination with the California Department of Fish and Wildlife, determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with the reduced setback, work can proceed with the continued presence of a qualified biologist. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 600 feet of a nest shall be halted until the biologist can establish an appropriate setback. All work within 600 feet of a Swainson's hawk nest requires a biological monitor.

No compensatory mitigation is proposed for foraging habitat. The following measure will be implemented to reduce impacts to foraging habitat:

Measure BIO-44: The project will avoid and minimize potential impacts to suitable foraging habitat to the greatest extent practicable.

Tricolored Blackbird

Measure BIO-45: If construction begins during the nesting season (February 15 to September 1), a survey for nesting tricolored blackbirds shall be conducted within the project footprint and within a 100-foot radius by a qualified biologist. The survey shall be conducted a maximum of 14 days prior to the start of construction.

Measure BIO-46: If nesting tricolored blackbirds are found within 100 feet of the project footprint during the survey, an initial setback of 100 feet from the edge of the nest colony shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall consist of brightly colored fencing and shall be maintained in good condition during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-47: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 100-foot setback. The evaluation criteria shall include,

but are not limited to, the location/orientation of the nest colony, the distance of the nest colony to the work limits, the line of sight between the nest colony and the work limits, and the description of the proposed work.

Measure BIO-48: If the qualified biologist determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with the reduced setback, work can proceed. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 100 feet of a nest colony shall be halted until the biologist can establish an appropriate setback.

Compensatory mitigation for the loss of tricolored blackbird nesting habitat and foraging habitat will be covered through the purchase of California tiger salamander aquatic and upland credits at a conservation bank or through the creation of a conservation easement. The aquatic and upland habitat to be conserved for the California tiger salamander will also serve as compensatory mitigation for the loss of tricolored blackbird nesting habitat and foraging habitat.

Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst

The following avoidance, minimization, and mitigation measures will be implemented to reduce potential impacts to Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst.

Measure BIO-49: The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the Hartweg's golden sunburst resulting from construction impacts to upland habitat. The County, in coordination with Caltrans, will compensate for the permanent loss of 3.28 ac of habitat and for temporary disturbance to 0.57 ac of habitat. However, this combined 3.85 ac of affected habitat is suitable for/available to both the Hartweg's golden sunburst and the Central California tiger salamander. Therefore, to avoid duplicating its compensation efforts, the County, in coordination with Caltrans, does not propose separate, additive compensatory mitigation for the Hartweg's golden sunburst. Of the 1,100.85 ac worth of compensatory mitigation proposed for the Central California tiger salamander, 10.41 ac of this total also will apply to the Hartweg's golden sunburst. In other words, the County, in coordination with Caltrans, either will 1) purchase 10.41 ac worth of upland credits that cover both species at a Service-approved conservation bank (as part of the total 1,100.85 ac worth of credits for the Central California tiger salamander, using a 3:1 compensation ratio for permanent effects and a 1:1 compensation ratio for temporary effects; (3.28 x 3) + (0.57 x 1) = 10.41 ac); or 2) fund a conservation easement that includes a minimum of 10.41 ac of upland habitat that also is suitable for the Hartweg's golden sunburst. Credits will be purchased and/or an easement will be recorded prior to the start of construction.

Measure BIO-50: No more than one year prior to the start of construction, a Service-approved biologist(s) or botanist(s) will conduct a preconstruction botanical survey of the entire action area (once all lands are accessible to survey) during the appropriate blooming season(s) for each plant species, and in accordance with the most recent and accepted botanical survey protocols/guidance.

Measure BIO-51: If individuals are found during these survey efforts, or during construction and can be avoided, exclusion fencing, or some other type of barrier/marker signifying an ESA will be installed to protect them from encroachment by construction activities, equipment, and personnel. Caltrans will coordinate with the Service to determine if any further actions are necessary to avoid effects to the species. If individuals cannot be avoided, the County, in

coordination with Caltrans, will implement on-site minimization efforts such as collecting, stockpiling, and re-applying topsoil.

California Tiger Salamander

The following avoidance, minimization and mitigation measures will be implemented to reduce potential impacts to the California tiger salamander.

Measure BIO-52: The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the Central California tiger salamander resulting from construction impacts to aquatic and upland habitats. The County, in coordination with Caltrans, will compensate for the permanent loss of a total of 14.07 acres (ac) of aquatic habitat and 237.43 ac of upland habitat; for temporary disturbance to a total of 2.92 ac of aquatic habitat and 58.98 ac of upland habitat; and for indirect effects to a total of 52.45 ac of aquatic habitat and 516.44 ac of upland habitat (using a 3:1 [ac:ac] compensation ratio for permanent effects; a 1:1 compensation ratio for temporary effects; and a 0.5:1 compensation ratio for indirect effects) ((251.50 ac x 3) + (61.90 ac x 1) + (568.89 x 0.5) = 1,100.85 ac of compensation). Prior to the start of work, the County, in coordination with Caltrans, will verify the areas of impacts and proposed compensation. If the amount of affected habitat increases, Caltrans may need to consider reinitiating formal consultation.

The County, in coordination with Caltrans, proposes either to: 1) purchase a total of 1,100.85 ac worth of Central California tiger salamander credits at a Service-approved conservation bank whose service area covers the project area (credits will be purchased prior to the start of groundbreaking); or 2) fund a conservation easement(s) on a total of 1,100.85 ac of land that is suitable for the species (the easement will be recorded prior to the start of construction). Should a Service-approved conservation easement(s) be established, it will be held by a Service-approved third-party entity, and managed according to a Service-approved long-term management plan (LTMP). A Service-approved endowment will be established to fund the long-term management, maintenance, and monitoring activities on the site. The final LTMP, along with an endowment analysis, will be submitted to the Service for approval prior to recordation of the conservation easement. The Service will review and approve any proposed preservation lands.

Measure BIO-53: To the extent practicable, the project shall include design features such as retaining walls and non-standard slope gradients to avoid and minimize impacts to depressional aquatic features and undeveloped uplands (within approximately 1 mile of aquatic habitat).

Measure BIO-54: To reduce the mortality to Central California tiger salamander eggs, larvae, and breeding adults, as well as to adult vernal pool fairy shrimp and vernal pool tadpole shrimp, all aquatic habitats that are scheduled to be permanently filled, first will be delineated and mapped, and then filled during the dry season only (i.e., when these specific life stages are absent from aquatic habitats).

Measure BIO-55: Once the new ROW is acquired and the entire project extent can be accessed, a Service-approved biologist(s) will conduct protocol-level surveys covering all suitable aquatic habitat within the action area for the Central California tiger salamander in the closest appropriate season prior to the start of construction. Results will inform/confirm habitat suitability and areas of impacts and proposed compensation in advance of the start of project construction.

Measure BIO-56: At least four weeks prior to the start of ground disturbance and/or construction, Caltrans will submit to the Service the names and qualifications of suitable individuals (e.g., resumes) for the Service's approval to work as biologists and monitors on the project.

Measure BIO-57: A Service-approved biologist(s) will conduct visual encounter preconstruction surveys of upland habitat for the Central California tiger salamander no more than 14 days prior to the start of groundbreaking or other general construction activities in any given part of the footprint. The surveys will pay particular attention to detecting burrows and other crevices and cover sites that could be used as refugia by the species. If any burrows are discovered, they will be flagged or otherwise marked, and avoided by at least 50 ft. If the burrows cannot be avoided, they will be inspected and excavated by the Service-approved biologist(s) in accordance with the procedures and methodologies established in a burrow excavation and relocation plan (Relocation Plan) approved by the California Department of Fish and Wildlife (CDFW) and by the Service. If an individual is found, a Service-approved biologist(s) will relocate it to a suitable burrow outside of the project footprint, ideally as close as possible to its original capture location. Both the preconstruction surveys and any subsequent burrow excavations will occur prior to the installation of exclusion fencing around the boundary of the project footprint (see measure #3 below) so as to maximize the clearing of the footprint and to minimize the risk of individuals becoming trapped within the fenced area. Caltrans will provide the Service with a written report that documents the survey efforts. If construction stops for a period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to restarting work.

Measure BIO-58: Prior to the start of work, and immediately following preconstruction surveys and any burrow excavations, temporary silt fencing (or other types of fencing materials that will not entangle the species), will be installed around the limits of the project footprint to preclude construction equipment, vehicles, and personnel from encroaching on areas outside of these limits (i.e., ESAs such as aquatic features and undeveloped uplands), and to prevent the Central California tiger salamander in outside areas from entering the work zones. Installation of this exclusion fencing will focus on where work areas abut suitable upland and/or aquatic habitats. Fencing also will include one-way funnels placed at regular intervals (to be determined in coordination with the Service) to allow any individuals that become trapped inside the fenced area to leave, but not re-enter the project footprint. Fencing will measure at least 3 ft. tall and be buried at least 6 inches below the ground to prevent individuals from attempting to burrow or move under the structure. The exclusion fencing will be well maintained throughout the course of construction and will be removed following project completion.

For any work occurring during the wet season (i.e., defined as approximately November 1 through May 31, which is when breeding adults are likely to be above¬ground and actively migrating to and from aquatic habitat to breed, and when eggs and larvae are developing in aquatic habitat), the proposed exclusion fencing must be in place prior to the onset of rain (i.e., when aquatic habitat is still dry) in order to prevent individuals from moving into active construction zones where they could be disturbed, injured, or killed by construction activities, equipment, or crews, and to prevent any breeding adults from becoming trapped in aquatic habitat within the construction zone.

In order to provide shelter for any individuals trapped along the exclusion fence, coverboards will be installed along the construction side of the fence line at regular intervals (to be determined by the Service-approved biologists).

Measure BIO-59: No construction activities will be conducted in upland or aquatic habitat areas where the Central California tiger salamander may occur if: 1) it is raining, 2) there is a greater than 70 percent chance of rain based on the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service forecast on any given work day, or 3) a rain event greater than 0.25 inch has occurred within the past 48 hours.

Following a rain event, the Service-approved biologist(s) will conduct visual encounter surveys for the species in all active work areas (including access roads and staging areas) prior to the resumption of construction activities and the use of access routes and staging areas.

Measure BIO-60: A Service-approved biologist(s) also will be present on-site to monitor for the species during the installation, replacement, and removal of all exclusion fencing. Additionally, the biologist(s) will be present on-site at least once per week, over the entire course of construction, to inspect the fencing for damage, to report any required remedial actions, and to clear the fenced area. Furthermore, this individual(s) will be present on-site during initial ground-disturbing and vegetation removal activities (i.e., clearing, grubbing, grading, excavating, filling, etc.). Anytime the Service-approved biologist(s) is present on-site, s/he will check for any Central California tiger salamanders trapped within the fenced areas and sheltering under the coverboards prior to the start of each workday. When not present on-site, the Service-approved biologist(s) will be available on-call during all construction periods in the event that the species is detected.

If a live Central California tiger salamander is encountered at any point during preconstruction or construction activities, work will stop in the vicinity of the individual and will not resume until the Service-approved biologist(s) either has monitored the individual and allowed it to move away unharmed, or has relocated it in accordance with the Relocation Plan. If a dead individual is found, the Service-approved biologist(s) will follow the instructions described in the Salvage and Disposition of Individuals section of this document. Caltrans will notify the Service of any such encounter (live or dead) as soon as possible and provide a summary of the date(s), location(s), description of the habitat in which it was found, and any other pertinent information.

Measure BIO-61: Prior to being moved, vehicles and equipment will be checked for any Central California tiger salamanders or other sensitive wildlife sheltering underneath them. In the event that an animal is observed, the vehicles/equipment will not be moved until the individual has vacated the area of its own accord.

Measure BIO-62: To avoid entangling the Central California tiger salamander, erosion control methods will not utilize plastic, monofilament, jute, or similarly tightly woven fiber netting or other such materials. Acceptable substitutes include coconut coir matting, tackified hydro-seeding compounds, or other similar materials.

Measure BIO-63: To prevent the inadvertent entrapment of the Central California tiger salamander or other animals during construction, all excavated, steep-walled holes or trenches measuring more than 6 inches deep either will be covered at the close of each working day using plywood or similar materials (without openings), or will be provided with one or more escape ramps constructed of earth fill or wooden planks in the event that the holes/trenches cannot be fully covered. All holes or trenches will be checked daily for trapped wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife.

Measure BIO-64: All construction pipes, culverts, or similar structures that are stored on the construction site for one or more overnight periods will be capped or sealed with tape (or similar

materials), or stored at least 3 ft. above ground level. They will be inspected thoroughly for the Central California tiger salamander before being buried, capped, or otherwise used. If an individual is discovered during this inspection, the Service-approved biologist(s) will be notified immediately. The biologist(s) will decide whether to leave the individual to move away on its own, or to intervene and relocate it.

Vernal Pool Invertebrates

The following avoidance, minimization and mitigation measures will be implemented to reduce potential impacts to vernal pool invertebrates:

Measure BIO-65: Suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp that is situated adjacent to the project footprint will be designated as Environmentally Sensitive Areas and protected with exclusion fencing to prevent encroachment into these areas.

Measure BIO-66: A Service-approved biologist(s) will be present on-site during initial ground disturbing activities taking place within habitat for listed vernal pool crustaceans.

Measure BIO-67: Measures consistent with the current Caltrans' Best Management Practices Manual (including the Storm Water Pollution Prevention Plan and Water Pollution Control Plan Manuals) shall be implemented to minimize effects to aquatic habitats resulting from erosion and siltation during construction.

Measure BIO-68: Following completion of construction, all graded slopes, temporary impact and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the standard Caltrans native seed mix.

Compensation would be required for the loss of vernal pool invertebrates resulting from project implementation.

Measure BIO-69: The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the vernal pool fairy shrimp and vernal pool tadpole shrimp resulting from construction impacts to aquatic habitat. The County, in coordination with Caltrans, will compensate for the permanent loss of 0.06 ac of aquatic habitat, for temporary disturbance to 0.01 ac of aquatic habitat, and for indirect effects to 2.15 ac of aquatic habitat. However, this combined 2.22 ac of affected habitat is made up of features that also are suitable for/available to the Central California tiger salamander, Colusa grass, and Greene's tuctoria. Therefore, to avoid duplicating its compensation efforts, the County, in coordination with Caltrans, does not propose separate, additive compensatory mitigation for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria. Of the 1,100.85 ac worth of compensatory mitigation proposed for the Central California tiger salamander (refer to conservation measure #10 under the Central California tiger salamander heading above), 4.51 ac of this total also will apply to the two vernal pool branchiopods and the two vernal pool plants. In other words, the County, in coordination with Caltrans, either will 1) purchase 4.51 ac worth of aquatic credits that cover all five species at a Service-approved conservation bank whose service area covers the project area (as part of the total 1,100.85 ac worth of credits for the Central California tiger salamander, using a 3:1 compensation ratio for permanent and temporary effects and a 2:1 compensation ratio for indirect effects; (0.06 x 3) + (0.01 x 3) + (2.15 x 2) = 4.51 ac) fund a conservation easement that includes a minimum of 4.51 ac of aquatic habitat that also is suitable for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's

tuctoria. Credits will be purchased and/or an easement will be recorded prior to the start of construction.

The preservation component is generally required at a ratio of 3 acres of pools preserved for every acre directly and indirectly impacted (i.e., 3:1 ratio) and 2 acres of pools preserved for every acre indirectly impacted (i.e., 2:1 ration). Table 3.3.5-6 shows the compensation requirements for vernal pool invertebrates for Alternative 1B.

Table 3.3.5-6: Summary of Compensation Requirements for aquatic habitat for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria

Impact Type	Impact	Compensation Ratio	Compensation Amount (in acres)
Alternative 1B			
Direct Permanent	0.06	3:1	0.18
Direct Temporary	0.01	3:1	0.03
Indirect	2.15	2:1	4.30
	Total		**4.51**

Source: Natural Environment Study, 2017, and Biological Assessment, 2019

Sufficient creation and preservation credits shall be purchased at a conservation bank(s) approved by the U.S. Fish and Wildlife Service to sell vernal pool habitat credits or through a U.S. Fish and Wildlife Service-approved project specific mitigation site.

Valley Elderberry Longhorn Beetle

The following avoidance and minimization measures should reduce potential impacts to the valley elderberry longhorn beetle, in accordance with the U.S. Fish and Wildlife Service Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB Guidelines), dated July 1999. No compensatory mitigation is proposed for the valley elderberry longhorn beetle, as the project is not expected to adversely affect this species.

Measure BIO-70: Prior to ground disturbance and/or the start of construction, a Service-approved biologist(s) will conduct a survey for elderberry shrubs covering the entire project footprint as well as the area 165 ft. out from the edge of the footprint. Data collected during the survey will include whether exit holes are present on the stems, the types of habitat in which the shrubs are located, the types of native plant species that are associated with the shrubs, and the distance to the nearest riparian area.

If shrubs are detected within the project footprint, either during surveys or during construction, and they cannot be avoided (i.e., they will be trimmed during the shrub's growth season, or will need to be removed or transplanted), Caltrans will reinitiate formal consultation with the Service to address adverse effects to the valley elderberry longhorn beetle.

Measure BIO-71: The existing three elderberry shrubs that are located within the action area, plus any additional shrubs identified during the preconstruction survey, will be fenced and/or

flagged in order to prevent construction equipment or personnel from encroaching on them. Fencing and/or flagging will remain in good condition until construction is complete.

Measure BIO-72: Ground-disturbing activities such as trenching, paving, etc., that risk damaging or killing the elderberry shrubs, will not take place within at least 20 ft. of the drip-line of any given shrub.

Measure BIO-73: A Service-approved biologist(s) will be present on-site to monitor any ground-disturbing construction activities that take place during the adult beetle's flight season and within 165 ft. of the elderberry shrubs. Caltrans will coordinate with the Service on any additional guidance.

Measure BIO-74: As much as possible, construction activities occurring within 165 ft. of an elderberry shrub will be conducted outside of the flight season of the valley elderberry longhorn beetle (flight season is approximately March-July).

Measure BIO-75: In order to avoid adverse effects to the valley elderberry longhorn beetle when trimming elderberry shrubs, any and all trimming will occur between November and February when the shrub is dormant; no stems that are greater than or equal to 1 inch in diameter will be removed.

Measure BIO-76: Herbicides will not be used within the drip-line of any given elderberry shrub. Insecticides will not be used within 100 ft. of a shrub.

Measure BIO-77: Mechanical weed removal within the dripline of an elderberry shrub will be restricted to the season when adult beetles are not active (i.e., August - February).

Measure BIO-78: Erosion control will be implemented and the affected area will be re-vegetated with appropriate native plants.

General/Multi-Species

Measure BIO-79: All project-related vehicles will observe a daytime speed limit of no more than 20 mi per hour (mph) and a nighttime speed limit of no more than 10 mph in all project areas, except on the highway.

Measure BIO-80: The use of temporary artificial lighting on-site will be limited, except when necessary for construction, or for driver and pedestrian safety. Any artificial lighting used during construction, particularly at night, will be confined to areas within the construction footprint and directed away from surrounding sensitive habitat. Caltrans will limit non-target casting of light by installing shielding behind and underneath the light source to confine the illumination further so as to minimize its effects on the species.

Measure BIO-81: All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site in order to reduce the potential for attracting predator species.

Measure BIO-82: To eliminate the potential for disturbance or injury to, or death of, any species resulting from the presence of pets and firearms, neither (with the exception of firearms carried by authorized law enforcement officials) will be allowed on the project site.

Measure BIO-4 for worker environmental awareness training (found in Section 3.3.1, Natural Communities) also applies to special status species.

3.3.6 Invasive Species

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." The Federal Highway Administration guidance issued August 10, 1999 directs the use of the State's invasive species list, maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Affected Environment

A Natural Environment Study for the project was completed and approved in June 2016 and is summarized in this section.

Many non-native species have been part of the California landscape for the past 150 years. Some of these introduced species such as oats, barley, and rye are present in vegetation communities in the project study area (annual grassland, ruderal areas). These species, while considered invasive, are primarily annual or biennial and are at most moderately invasive. A few notable invasive species, yellow star thistle (*Centaurea solstitialis*), Himalayan blackberry, and water primrose were observed in the project study area. All three of these species have an invasive rating of high, per the California Invasive Plant Council Invasive Plant Inventory Online Database (http://www.cal-ipc.org/paf/).

Environmental Consequences

Construction activities and soil disturbance from the proposed project could result in the introduction and spread of noxious weeds and other invasive plants, as could inappropriate erosion control measures. Erosion control measures such as use of straw bales and seed can also result in the inadvertent introduction of invasive plants to the project area. The project area already is moderately impacted by non-native species, and no new invasive species would be introduced. Measures to avoid, minimize, and compensate for the introduction and spread of additional noxious weeds are discussed below.

Avoidance, Minimization and/or Mitigation Measures

To avoid the introduction of invasive species into the project study area during project construction, contract specifications shall include, at a minimum, the following measures:

Measure BIO-83: To avoid introducing non-native, invasive species into the action area, all earthmoving equipment will be cleaned thoroughly before arriving on the project site and all seeding equipment (i.e., hydroseed trucks) will be cleaned prior to beginning seeding work. Also, to avoid transferring any invasive species already present on-site to off-site areas, all equipment will be cleaned thoroughly before leaving the action area.

3.4 Relationship between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

Project implementation will result in attainment of short-term and long-term transportation and economic goals at the expense of some long-term social, aesthetic, biological, noise, and other land use impacts.

Build Alternatives 1A, 2A, 1B and 2B

The four Build Alternatives would have similar impacts.

Short-term losses would include: economic losses experienced by businesses that relocate, construction impacts such as noise and air quality, motorized and non-motorized traffic delays or detours, utility relocations, and biological resources temporal loss of habitat.

Short-term benefits would include: increased jobs and revenue generated during construction.

Long-term losses would include: permanent loss of plant and wildlife resources, loss of open space, loss of agricultural land, visual impacts, noise increases, use of construction materials and energy, and homes relocated from the community.

Long-term gains include: improvement of the transportation network in the region and the project vicinity, increased access to the region or project vicinity, reduction of congestion on local streets and highways, increased jobs and revenue, and support of approved development.

No-Build Alternative

This alternative would offer none of the gains or have any of the losses listed above. It would, however, do nothing to resolve worsening congestion on local streets and highways.

3.5 Irreversible and Irretrievable Commitments of Resources That Would Be Involved in the Proposed Project

The proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment during the period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material are used. Additionally, large amounts of labor and natural resources are used in the making of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect upon continued availability of these resources. Any construction would also require a substantial one-time use of both state and federal funds, which are not retrievable; savings in energy, time, and a reduction in accidents would likely offset this. In addition to the costs of construction and right-of-way would be costs for roadway maintenance, including pavement, roadside, litter/sweeping, signs and markers, electrical and storm maintenance.

The commitment of these resources is based on the concept that residents in the immediate area, region, and state would benefit from the improved quality of the transportation system. These benefits would consist of improved accessibility and safety, which are expected to outweigh the commitment of these resources.

3.6 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as relocation and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

Affected Environment

Cumulative Analysis

The cumulative impact analysis included in this section is based on known projects that are currently proposed, approved, or under construction within Stanislaus County and the cities of Modesto, Riverbank, and Oakdale. A current list of projects included in the cumulative analysis is presented in Table 3.6-1.

Table 3.6-1: Future Projects

Project Name	Jurisdiction	Proposed Uses	Status
SR-219 (Kiernan Avenue)	Stanislaus County, City of Modesto	This project is a 4-lane divided highway with right-of-way for eventual expansion to 6 lanes to accommodate future needs.	Phase I completed Phase II Under Construction
Woodglen Specific Plan	City of Modesto	The Woodglen Specific Plan provides for the development of 180 Multi-Family Residential units and 353 Low-Density Residential units for a total of 533 units. An open space area with a stormwater infiltration basin and active and passive recreation areas would occupy the central portion of the proposed project site.	Pending Implementation
The Market Place Shopping Center	City of Modesto	The project will sit on southwest corner of Oakdale Road and Sylvan Avenue and will be 18 acres in size. It will have a total of 170,000 square feet of retail space. A 51,730-square-foot grocery store is proposed to anchor the center.	Pending Implementation
Tivoli Specific Plan	City of Modesto	The project is a blueprint for future residential and non-residential development proposed to occur in a currently unincorporated area of Stanislaus County, adjacent to the north-eastern boundary of the City of Modesto. The project is expected to develop between 1,900 and 3,200 housing units and 1,025,000 square feet of non-residential land uses on approximately 345 acres. It includes mix-density housing.	Pending Implementation
Woodward Reservoir-T-Island and Muir Point Campsites	Stanislaus County	Development of additional full hookup campsites at Woodward Reservoir. This project is anticipated to develop 41 campsites at T-Island and 20 campsites at Muir Point.	Pending Implementation
Pirrone Road and Sisk Road Salida Sidewalk Project Phase I-Safety	Stanislaus County	The project will improve sidewalks on Pirrone Road and Sisk Road.	Pending Implementation
SR-132 West	Stanislaus County	This project will construct a 4-lane freeway/expressway to reroute SR-132 away from downtown. The project will improve connectivity for SR-132 and SR-99 through the congested downtown area of the City of Modesto.	Approved/Funded
SR-132 Dakota Avenue to Gates Road	Stanislaus County	This project will construct an access controlled facility within the western central portion of Stanislaus County, from Gates Road to Dakota Avenue.	Approved/Funded
Video Visitation Facility	Stanislaus County	This project will provide for a physical location to accommodate video visitation equipment, monitoring, scheduling, and control.	Approved/Funded
Re-entry Alternatives to Custody and Transition (REACT) (Senate Bill 1022)	Stanislaus County	This project will develop a center with transitional programs, alternatives to custody, and up to 288 beds of detention/return-to-custody housing and services.	Future Project/Master Planned

Project Name	Jurisdiction	Proposed Uses	Status
Stanislaus County Veterans Center	Stanislaus County	This project will develop a Veteran's Center for consolidation of services to Stanislaus County veterans, including counseling, medical referrals, transportation, social, educational, VA and Cal Vet benefits coordination.	Future Project/Master Planned
Sierra Pointe Specific Plan	City of Oakdale	This specific plan for the future development of approximately 297 acres of land on the southeastern edge of the City of Oakdale into residential neighborhoods, parks and open space, and mixed-use corridor.	Future Project/Master Planned
South Oakdale Industrial Specific Plan	City of Oakdale	This specific plan is for the future development of approximately 500 acres of land in the southernmost region of the City of Oakdale to expand the City's existing industrial center.	Adopted
East F Street Corridor Specific Plan	City of Oakdale	This specific plan will provide a mix of residential and commercial land uses along existing SR-108/SR-120 (East F Street) on about 187 acres.	Future Project/Master Planned
Crane Crossing Specific Plan	City of Oakdale	This specific plan is for the future development of approximately 262 acres of land along the northeastern edge of the City of Oakdale into residential neighborhoods, parks and open space, and mixed-use corridor.	Future Project/Master Planned
Riverbank Industrial Complex (formerly the Riverbank Army Ammunition Plant)	City of Riverbank	100 acres of undeveloped land and a 74-acre industrial and manufacturing center with 700,000 square feet of industrial building space.	Future Project/Master Planned
Crossroads West Specific Plan	City of Riverbank	Construction of Low Density Residential units.	Pending Project
Bruinville Specific Plan	City of Riverbank	Residential development on the eastern side of Riverbank.	Pending Project

Source: Stanislaus County, 2013; Stanislaus County, 2014; City of Modesto, 2012; City of Modesto, 2013; City of Oakdale 2006; City of Oakdale 2013b; City of Oakdale, 2013c

Environmental Consequences

This section discusses potential impacts to various resources that could occur as a result of the North County Corridor project together with the other projects listed in Table 3.6-1.

The long-range analysis (year 2046) assumptions for the traffic, air quality, and noise (in Sections 3.1.6, 3.2.5, and 3.2.6, respectively) all reflect the growth projections approved by

Stanislaus County and respective Cities. Therefore, from a land use and circulation perspective, the approved long-range growth projections include the cumulative impacts of the projects identified in Table 3.6-1. As a result, the project long-range analysis for traffic, air quality and noise also generally reflects these impacts.

If multiple projects are built during the same general time frame, it would likely result in increased localized construction-related traffic congestion and construction air emissions and noise impacts. The widening of SR-219, the implementation of the Tivoli Specific Plan, and the development of the Riverbank Industrial Complex are examples of other actions that would occur near the North County Corridor and have the potential to contribute to cumulative construction impacts. Stanislaus County, the surrounding Cities, and Caltrans would work together to ensure overlapping construction from multiple projects in the same vicinity would be managed to avoid or lessen cumulative impacts.

The analysis concludes that there may be cumulative impacts for several resources:

- Community Impacts (Farmland)
- Traffic and Transportation/Pedestrian and Bicycle Facilities
- Visual resources
- Biological Resources

Analysis of cumulative impacts for these resources is presented below. The affected environment for each of these resources has been previously discussed in its respective portion of Chapter 3. Analysis focuses on the cumulative impacts of the build alternatives.

Evaluation of Resource Health and Project Contributions to Cumulative Impacts

This section is the baseline evaluation of the cumulative analysis, with identification of Resource Study Areas, resource health or status, and project contribution to cumulative effects, based on the individual evaluations provided and summarized in Table 3.6-2. Resource Study Areas are generally on the natural boundaries of the resource affected, rather than jurisdictional boundaries. The geographic scope (or area within which projects may contribute to a specific cumulative effect) of the cumulative impact analysis varies depending on the specific environmental issue area being analyzed.

Table 3.6-2: Resource Study Areas and Resource Evaluations

Environmental Issue	Geographic Scope of Resource Study Area	Resource Health/Status	Project Contribution to Cumulative Impacts
Human Environment			
Farmlands/Agriculture Lands	Modesto, Riverbank, Oakdale, as well as the unincorporated land in Stanislaus County	Stable	Less than considerable
Traffic and Transportation	Modesto, Riverbank, Oakdale, as well as the unincorporated land in Stanislaus County	Stable	Less than considerable
Visual/Aesthetics Resources	Modesto, Riverbank, Oakdale, as well as the unincorporated land in Stanislaus County	Stable	Less than considerable
Biological Environment			

Environmental Issue	Geographic Scope of Resource Study Area	Resource Health/Status	Project Contribution to Cumulative Impacts
Natural Communities	Project Study Area	Declining	Less than considerable
Wetlands and Other Waters	Project Study Area	Declining	Considerable
Plant Species	Project Study Area	Declining	Less than considerable
Animal Species	Project Study Area	Declining	Less than considerable
Threatened and Endangered Species	Project Study Area	Declining	Less than considerable

Community Impacts (Farmland)

Resource Study Area

The area of secondary impacts defined in Section 3.1 is considered to be where cumulative community impacts could occur. The cumulative effects to the communities in the project area could include a cumulative reduction in accessibility and travel patterns; the relocation of additional residences, key businesses, or key community facilities; and/or contribution to a cumulative change to the character of each community.

The proposed project is located partially within the cities of Modesto, Riverbank, Oakdale, as well as the unincorporated land in Stanislaus County. The communities in the project area are representative of much of Stanislaus County: agricultural-based but going through rapid urban transition. Planned developments in the project area are concentrated in Segments 1 and 2 of the project, especially within cities and their sphere of influence. Figure 3.1.1.1-2, in Appendix A, shows the planned land use within the project area.

Direct Impacts to Resources of Concern

Direct impacts to resources in the project area may result in the conversion of agricultural uses to urban development. These changes can also contribute to potential community impacts, such as changes in community character, traffic patterns, housing availability, and employment.

Table 3.6-1 presents a list of potentially influential projects in jurisdictions surrounding the North County Corridor as well as planned growth. Approximately half the projects listed in Table 3.6-1 would require the use of farmland. These projects would likely be located within or next to the boundaries of the project area and have the potential to cumulatively affect the urban character, community cohesion, access patterns, and economic characteristic of the project vicinity.

Indirect Impacts to Resources of Concern

Construction of the project would occur concurrently with other ongoing and planned projects in the vicinity. The Build Alternative may result in reductions in traffic congestion and improved level of service in the project area as well as increased traffic safety. The proposed project could potentially have impacts to employment, income, housing opportunities, and business opportunities in the region. Other projects in the resource project area that are improving road conditions would contribute to improving the overall transportation network of the region, therefore reducing the impact of the North County Corridor project.

Cumulative Impacts

All of the relevant projects planned for the project area are consistent with land use policies and designations for the Stanislaus County, Cities of Modesto, Riverbank and Oakdale's associated General Plans. Planned development in the project vicinity, in conjunction with the Build Alternatives, could potentially result in adverse cumulative community impacts. The Build Alternatives have the potential to relocate up to 136 residents and 39 businesses. These project-level significant impacts, when combined with impacts from other current and future project in the region, would result in significant cumulative impacts to the community for relocation of families and businesses.

Traffic and Transportation/Pedestrian and Bicycle Facilities

Resource Study Area

The resource study area for traffic and transportation as well as pedestrian and bicycle facilities include the routes within and next to the project area.

Direct Impacts to Resources of Concern

In recent years, Stanislaus County has experienced an increase in growth. As a result, there are many planned improvements needed within the transportation network to accommodate the additional traffic. The traffic analysis for the proposed project is based on future traffic conditions in 2046, which account for future development in the project area. As a result, the analysis contained in Section 3.1.6 constitutes the operational cumulative analysis for the proposed project.

Indirect Impacts to Resources of Concern

Construction activities of this project have the potential to result in temporary, localized, site-specific disruptions, including partial lane closures and detours. This could lead to an increase in delay times for vehicles during construction. The potential for disruption or obstruction of access in the project area would be avoided with the preparation of a Transportation Management Plan that takes into consideration any other projects being constructed in the vicinity that could have the potential to contribute to cumulative construction impacts. When feasible, existing pedestrian facilities would be maintained to Americans with Disabilities Act standards during construction. As a result, construction of the proposed project would not contribute to any substantial impacts on pedestrian or bicycle transportation, nor would it preclude any future pedestrian or bicycle transportation from being built.

Cumulative Impacts

Permanent cumulative effects would be beneficial, as the project would improve levels of service on the transportation facilities in the project area. The Transportation Management Plan would minimize the potential for cumulative traffic impacts associated with construction activities. Cumulative impacts are not anticipated.

As stated in Section 3.1.6, under the No-Build conditions, traffic congestion would not be reduced. All four Build Alternatives would result in a positive region-wide impact in reducing travel times and delays caused by congestion. The No-Build Alternative would not reduce travel

times or delays caused by congestion, therefore the No-Build Alternative could result in substantial negative traffic congestion impacts in the future.

Visual Resources

Resource Study Area

The resource study area for visual resources includes the routes within and next to the project area where the sensitive viewer groups would be affected.

Direct Impacts to Resources of Concern

Identified projects would be evaluated on a project-by-project basis and subject to similar stipulations as those analyzed in the Visual Impact Assessment. Lighting is not a component of the proposed project; no cumulative impacts to lighting in the area are anticipated. And while the project will convert some parcels' land uses from residential and agricultural to roadway, the area will still be largely open fields, and no cumulative impacts to land uses are anticipated. Therefore, the extent of the impacts arising from the cumulative projects is considered to be minor. As previously determined, the project would result in a moderate to moderate-low visual impact. With implementation of recommended avoidance/minimization measures, impacts pertaining to cumulative projects will be reduced.

Indirect Impacts to Resources of Concern

Located within the vicinity of the project are a total of seven future individual projects, including three road improvements: Lake Road Safety Improvements – Widening approximately 17 miles east of the City of Modesto, Pirrone Road and Sisk Road Salida Sidewalk Project Phase I-Safety at the intersection of Pirrone Road and Sisk Road, and Cornucopia Way Extension to Hackett Road in Ceres; one recreational facility: the Woodland Reservoir- T-Island and Muir Point Campsites in North County; and three social services facility projects: Video Visitation Facility in Modesto, Re-entry Alternatives to Custody and Transition (REACT) (Senate Bill 1022) at the Stanislaus County Public Safety Center located south of Modesto, and Stanislaus County Veterans Center at Modesto/Ceres.

None of these proposed future projects in the study area are anticipated to identify significant visual impacts within the CEQA analyses of these projects. Therefore, impacts associated with these projects are not cumulatively considerable when viewed in connection with the North County Corridor project, and no cumulative visual impacts are anticipated to occur.

Cumulative Impacts

Permanent cumulative effects would include a change in the visual environment. As stated in Section 3.1.7, the visual environment will change with project conditions. Viewers within Segment 3 would experience the greatest change in the visual environment because Segment 1 and 2 are in more urban settings. As only a third of the project is considered rural no cumulative impacts are anticipated because the visual environment will be consistent with the other settings throughout the proposed project.

Biological Resources

This section provides a general description of the potential cumulative impacts resulting from the proposed North County Corridor project and other present and reasonably foreseeable future projects that have effects, or will affect, the regions biological resources. Projects considered in the cumulative impacts evaluation generally include other Caltrans roadway projects and public and private development projects. Probable future impacts are largely based on buildout consistent with approved land use plans of the local jurisdictions (especially the City of Modesto, City of Oakdale, City of Escalon, and Stanislaus County General Plan).

Resource Study Area

A cumulative effects evaluation area (CEEA) was selected to include similar natural environments to those occurring in the project study area within a reasonable vicinity of the project. The cumulative effects evaluation area is generally bounded by SR-99 to the west, SR-132 to the south and the Stanislaus County line to the east. The north boundary begins in the vicinity of the SR-99 and Yosemite Avenue/SR-120 intersection and extends east before heading northeast past the census-designated area of Valley Home and continues traveling east before intersecting with the Calaveras and Tuolumne county line. The cumulative effects evaluation area encompasses portions of Stanislaus and San Joaquin counties and takes up an area of approximately 250,000 acres.

The western approximately 70 percent of the cumulative effects evaluation area is in agricultural production (orchards, row crops, irrigated pastures); a relatively small portion of this area is composed of development centered on existing cities (Modesto, Oakdale, Riverbank). The eastern approximately 30 percent of the cumulative effects evaluation area is mostly undeveloped grassland and other open habitats. Undeveloped lands are uncommon in the western portion of the cumulative effects evaluation area.

Natural Communities

Direct Impacts to Resources of Concern

Similar to the North County Corridor project, most projects identified in the cumulative effects evaluation area are in the western approximately two-thirds of the cumulative effects evaluation area, which contains mostly development and agriculture. Therefore, it is expected that impacts from these projects to natural communities would be relatively small. Considering the relatively small impact to interior live oak woodland, blue oak savannah, perennial marsh, seasonal marsh, riparian scrub, and seasonal wetlands from the proposed project and the measures proposed to avoid and minimize impacts to this community, it is not expected that the North County Corridor project would substantially contribute to cumulative effects to interior live oak woodland.

Indirect Impacts to Resources of Concern

Habitats present within the project site are judged low quality for protected species because of their proximity to residential, commercial, and industrial development as well as actively farmed land and existing roads; therefore, many plants and animals potentially present are either relatively tolerant of human presence or are already being negatively affected by current conditions.

Sensitive habitats in the project area include interior live oak woodland, blue oak savannah, perennial marsh, seasonal marsh, riparian scrub, and seasonal wetlands. Construction activities will result in the disturbance and removal of these habitats; however, activities will be confined by Environmentally Sensitive Area (ESA) fencing to as small of an area as possible. Vegetation will be trimmed, rather than removed, where possible. All sensitive habitats temporarily impacted by construction will be restored once activities are complete and habitats permanently impacted by construction activities will be mitigated for on or adjacent to the project site. Construction will not have a cumulatively considerable contribution to the decline of sensitive habitats in the region.

Other projects in the region will also be required (by U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and local jurisdictions) to avoid, minimize, and mitigate for construction impacts on habitats that are potentially suitable for protected species. Consequently, there will not be a cumulative impact on sensitive habitats.

Cumulative Impacts

Pending approval from regulatory agencies, impacts to waters of the U.S. and State will be mitigated for the proposed project. Compensatory mitigation will be required to offset the loss of sensitive natural communities. Impacts to sensitive natural communities would be compensated through restoration or enhancement of native habitats within the project site, creation of native habitats in an area approved by resource agencies, and/or permanent preservation of habitat through the purchase of credits in an approved mitigation bank. Mitigation locations and ratios are contingent upon approval by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife. Inclusion of these measures to avoid, minimize, and mitigate for impacts to natural communities would result in no significant cumulative impacts to natural communities.

Wetlands and Other Waters

Direct Impacts to Resources of Concern

All four Build Alternatives will have permanent and temporary impacts to wetlands and non-wetland waters of the U.S. under U.S. Army Corps of Engineers jurisdiction. Alternative 1A has direct impacts to 1.43 acres of wetlands and indirect impacts to 0.35 acres of wetlands in the project area. Alternative 1B has direct impacts to 0.66 acres of wetlands and indirect impacts to 0.91 acres of wetlands in the project area. Alternative 2A has direct impacts to 1.53 acres of wetlands and indirect impacts to 0.7 acres of wetlands in the project area. Alternative 2B has direct impacts to 1.02 acres of wetlands and indirect impacts to 2.58 acres of wetlands in the project area.

Indirect Impacts to Resources of Concern

Construction of the proposed project will impact waters of the U.S. protected under Section 404 and 401 of the Clean Water Act and associated habitats protected under Section 1602 of the California Fish and Game Code. With implementation of the proposed measures from this document in conjunction with acquisition of the necessary water permits, no cumulatively considerable contribution to the degradation of jurisdictional waters within the region is anticipated. Permitting requirements for other development projects in the area will ensure that appropriate Best Management Practices and compensatory mitigation are implemented. As a

result, construction of projects in the region will not have cumulative impacts on waters of the U.S. or State.

Cumulative Impacts

The proposed project will directly impact waters of the U.S. protected under Section 404 and 401 of the Clean Water Act and associated habitat protected under Section 1602 of the California Fish and Game Code. This could result in further loss of habitat used by the sensitive species in the project area. On a regional basis, these impacts will add to other development-related losses of wetlands and non-wetland waters.

Permits required for the project impacts to waters of the U.S. and State include a 404 Clean Water Act permit obtained from the U.S. Army Corps of Engineers, a 401 Water Quality Certification obtained from Regional Water Quality Control Boards, and a 1602 Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife. Permitting requirements for the proposed project and other development projects in the area should ensure that appropriate compensatory mitigation is implemented and that there is no net loss of waters of the U.S.

Animal Species

Direct Impacts to Resources of Concern

Impacts to natural communities discussed above would result in permanent loss of suitable foraging and potential nesting habitat for six species of bats, the tricolored blackbird, western burrowing owl, northern harrier, white-tailed kite, California horned lark, merlin (wintering), loggerhead shrike, and western spadefoot toad. Construction of a new SR-108 will result in permanent impacts to approximately 335 acres for Alternative 1A, 409 acres for Alternative 1B, 330 acres for Alternative 2A, and 405 acres for Alternative 2B of foraging habitat for the species listed above.

Indirect Impacts to Resources of Concern

Indirect impacts to the six species of bats, western burrowing owl, northern harrier, white-tailed kite, California horned lark, merlin (wintering), loggerhead shrike, and western spadefoot toad include noise pollution, light disturbance, ground disturbance, increased human activity, and increased dust.

Cumulative Impacts

Inclusion of mitigation measures to restore and mitigate for lost natural communities will minimize the impacts to foraging and nesting habitat for the species listed above. In addition, measures such as preconstruction breeding bird surveys and biological monitoring will ensure that nesting birds are not impacted by the proposed project. Reducing these potential impacts would ensure that the project would not constitute a potential for cumulative impacts to these animal species.

Threatened and Endangered Species

Direct Impacts to Resources of Concern

Development of the proposed project may contribute to the fragmentation of habitats that are necessary for the survival of special-status, threatened, and endangered species in the area, or potentially result in the isolation of special-status species populations.

Other development projects in the area will increase the number of local residents living in the area, which will further increase development pressures on local resources and will likely result in further losses of habitats used by plants and wildlife. In addition, the increased traffic in the area resulting from the proposed project will likely increase animal mortality from vehicle collisions.

All four Build Alternatives would reduce potential foraging habitat for the Swainson's hawk: approximately 335 acres for Alternative 1A, 409 acres for Alternative 1B, 330 acres for Alternative 2A, and 405 acres for Alternative 2B.

Construction-related disturbance to upland areas associated with Alternative 1B within 1.24 miles of suitable aquatic habitat, which includes ponds, basins, seasonal wetlands, and seasonal marshes, would result in potential effects to suitable upland habitat for California tiger salamander, if this species was present, totaling 237.43 acres of direct permanent effects and 58.98 acres of direct temporary effects in the project footprint. Construction-related disturbance to suitable aquatic habitat associated with Alternative 1B within the project study area would result in 14.07 acre of direct permanet impacts and 2.92 ac of direct temporary impacts.

Indirect Impacts to Resources of Concern

Potentially suitable habitat for the Swainson's hawk, tricolored blackbird and vernal pool fairy shrimp is present both within the proposed limits of disturbance as well as in lands next to the proposed construction limits. Based on the negative 2014/2015 and 2015/2016 California tiger salamander protocol breeding survey results, all potentially suitable California tiger salamander habitat within the project limits is anticipated to be unoccupied. If any of the species is present, construction activities have the potential to result in direct mortality and/or removal of occupied habitat. The proposed project has consulted with and will continue to consult with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife and will implement mitigation measures described in the above document.

Construction-related disturbance to upland areas associated with Alternative 1B within 1.24 miles of suitable aquatic habitat would result in potential indirect effects to 516.44 acres of upland areas within 250 feet of the project footprint and/or in areas protected by ESA fencing. Construction-related disturbance to suitable aquatic habitat associated with Alternative 1B within the project study area would result in 52.45 ac of indirect effects to aquatic features within 250 feet of the project footprint and/or in areas protected by ESA fencing.

Cumulative Impacts

To reduce impacts to threatened and endangered species, Section 3.3.5 includes a discussion of avoidance, minimization, and mitigation measures. These measures include mitigation and replacement of lost habitat as discussed above in the natural communities section as well as preconstruction surveys to determine presence of any threatened or endangered species. In

addition, formal consultation with the U.S. Fish and Wildlife Service has been conducted and all conservation measures included in this project will be followed.

While the cumulative effects of the combined projects are potentially substantial under NEPA, the cumulative effects attributable to the proposed project will be reduced to less than substantial levels under NEPA. Although the protocol California tiger salamander breeding survey results were negative, suitable California tiger salamander habitat is still present. With implementation of the avoidance, minimization, and mitigation measures for California tiger salamander, the project is not deemed significant under CEQA for California tiger salamander. The project-specific mitigation measures and applicable federal and state regulations will reduce impacts to below substantial under NEPA for the threatened and endangered species listed above.

Avoidance, Minimization and/or Mitigation Measures

Avoidance, minimization and/or mitigation measures are handled in the resource-specific discussions above. No additional measures are included here.

Chapter 4 California Environmental Quality Act (CEQA) Evaluation

4.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. The Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327. Caltrans is the lead agency under CEQA and NEPA.

One of the main differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

When determining whether a noise impact is significant under CEQA, the baseline noise level is compared to the build noise level. The CEQA noise analysis is completely independent of the NEPA 23 Code of Federal Regulations 772 analysis discussed in Chapter 3, which is centered on noise abatement criteria. Under CEQA, the assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

4.2 No Effects

As discussed at the beginning of Chapter 3 as part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no impacts were identified. As a result, no discussion about these issues in this document:

- Coastal Zone – The project is outside of, and is not contiguous to, the coastal zone, and it is not anticipated to have any effects on coastal resources.

- Wild and Scenic Rivers – The project would provide a new SR-108 within Stanislaus County. There are no designated Wild and Scenic Rivers in the vicinity of the project.

- Hydrology and Floodplain – A review of Federal Emergency Management Agency maps confirmed that there are no 100-year floodplain resources in the project area, and therefore this project would have no impacts to hydrology and floodplain resources.

4.3 Less than Significant Effects of the Proposed Project

The proposed project would have a less than significant effect on the following resources:

- Land Use/Planning – *Land Use (Section 3.1.1)*
- *Growth (Section 3.1.2)*
- *Parks and Recreational Facilities (Section 3.1.1.3)*
- Geology/Soils – *Geology/Soils/Seismic/Topography (Section 3.2.2)*
- Utilities/Service Systems – *Utilities and Emergency Services (Section 3.1.5)*
- Transportation/Traffic – *Traffic & Transportation/Bicycle Facilities* (Section 3.1.6)
- *Aesthetics – Visual Resources (Section 3.1.7)*
- *Air Quality (Section 3.2.5)*

For a full discussion of environmental consequences for the above issues, please see related sections in Chapter 3.

4.4 Significant Environmental Effects of the Proposed Project

The proposed project would have a significant effect on the following environmental resources; however, with mitigation and/or minimization measures implemented, the effect would be reduced to less than significant.

Cultural Resources – *Cultural Resources (Section 3.1.8)*

The four Build Alternatives will have no impact on historical resources; however, portions of the project area had not been surveyed. There is a potential for historical resources to exist within the unsurveyed portions of the project, which could be adversely affected by the construction of the North County Corridor. This would be considered a significant impact.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measure:

> **Measure CR-1:** The project shall comply with the Programmatic Agreement and Archaeological Resources Management Plan, which will implement a phased approach to complete identification, evaluation of potential historic properties, effect finding determinations, and mitigation requirements (if applicable), after right-of-entry to the remaining parcels which have not yet been surveyed has been obtained.

This measure would identify any previously unidentified historical resources within the project area and ensure proper documentation is completed in order to reduce the impact to less than significant. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts to cultural resources. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.1.8 Cultural Resources of this document.

Paleontology (Section 3.2.3)

The four Build Alternatives will have no impact on known paleontological resources; however, portions of the project area had not been surveyed prior to the circulation of the Environmental Document.

There is a potential for paleontological resources to exist within the project, which could be adversely affected by the construction of the North County Corridor as the project-proposed excavation and grading may be up to 30 feet due to the changes in topography. Implementation of the project would include ground disturbance anticipated to disturb sediments with high potential to contain scientifically significant, nonrenewable paleontological resources. This has the potential to impact paleontological resources, if present within the excavation and grading limits. This would be considered a significant impact.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measure:

> **Measure PER-1:** The Paleontological Mitigation Plan (PMP) shall be implemented to mitigate impacts to paleontological resources during ground-disturbing activities. The PMP includes a discussion of area geology, the types of paleontological resources that may be present, locations within the project that are likely to contain paleontological resources, recommended monitoring and laboratory methods, an estimated cost breakdown for the monitoring program, and recommendations.
>
> The PMP incorporates the 'Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources' published by the Society of Vertebrate Paleontology (2010) along with conditions of receivership that the repository institution will require when receiving fossils recovered during construction of the project.

This measure would identify any previously unidentified paleontological resources within the project area and ensure proper documentation is completed in order to reduce the impact to less than significant. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts to the paleontology. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.2.3 Paleontology of this document.

Hydrology/Water Quality – *Water Quality and Storm Water Runoff (Section 3.2.1)*

There is potential for the four Build Alternatives to have an effect on water quality and storm water runoff, including increase in turbidity, increase in pollutants, and erosion, which would result in an adverse effect. There are a number of existing water features within the project limits including irrigation canals, roadside ditches, perennial marshes, seasonal marshes,

seasonal wetlands, ponds, and basins. During construction, the proposed project has the potential to substantially degrade water quality. This would be considered a significant impact.

Mitigation required under CEQA that would reduce the impacts during construction to Less than Significant includes the following measures:

> **Measure WQ-1:** The proposed project would require a Section 1602 Streambed Alteration Agreement through the California Department of Fish and Wildlife.
>
> **Measure WQ-2:** The proposed project would require a Water Quality Certification (401) and a Discharge Permit for Waters of the U.S. (404).
>
> **Measure WQ-3:** The proposed project would require a National Pollution Discharge Elimination System (NPDES) General Construction Permit for Discharges of storm water associated with construction activities (Construction General Permit 09-2009-DWQ). A Storm Water Pollution Prevention Plan would also be developed and implemented as part of the Construction General Permit.

Through acquisition of these permits, potentially significant impacts to water quality will be reduced to a less than significant level. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts to the water quality and storm water runoff. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.2.1 Water Quality and Storm Water Runoff of this document.

Hazards and Hazardous Materials – *Hazards and Hazardous Materials (Section 3.2.4)*

There are two high risk and 82 medium risk parcels that could be affected by the various Build Alternatives. Activities associated with the Build Alternatives may reveal contamination from aerially deposited lead, leaking polychlorinated biphenyls (PCBs) from transformers, septic tanks, asbestos, and petroleum products. Construction of the proposed facility may expose the public or the environment to these hazardous materials through their routine transport, use, and disposal. These encounters may be considered a significant impact.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measures:

> **Measure HW-1:** Any leaking transformers observed during the course of the project should be considered a potential polychlorinated biphenyl (PCB) hazard. Should leaks from electrical transformers (that will either remain within the construction limits or will require removal and/or relocation) be encountered during construction, the transformer fluid should be sampled and analyzed by qualified personnel for detectable levels of PCBs. Should PCBs be detected, the transformer should be removed and disposed of in accordance with the appropriate regulatory agency. Any stained soil encountered below electrical transformers with detectable levels of PCBs shold also be handled and disposed of in accordance with the appropriate regulatory agency.
>
> **Measure HW-2:** Prior to completion of 50% design, a Preliminary Site Investigation (PSI) of all high and medium-risk sites identified in Table 3.2.4-1 having partial or total parcel impacts will be conducted. Depending on the project impact to each parcel, the PSI will consist of subsurface sampling and laboratory analysis and be of sufficient quantity to define the extent and concentration of potential contamination within the areal

extent and depths of planned construction activities within and adjacent to the 64 medium-risk parcels and whether groundwater has been impacted by released contaminants. Sampling and testing, if necessary may include asbestos, heavy metals, petroleum hydrocarbons, chlorinated solvents, herbicides/pesticides, miscellaneous chemical waste, and groundwater. Stanislaus County will acquire any parcel having groundwater contamination requiring mitigation or where residual contamination will remain in place and grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcel(s) and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action. Areas of parcels where residual contamination may remain in place that could represent an risk during future maintenance activities will be avoided and not acquired. If a PSI cannot be conducted prior to 50% design the parcel will be avoided.

Measure HW-3: Prior to completion of final design, a Preliminary Site Investigation (PSI) of all the Hawke Dusters parcel identified in Table 3.2.4-1 will be conducted if it is unable to avoid direct impacts to this parcel. The PSI will consist of subsurface sampling and laboratory analysis and be of sufficient quantity to define the extent and concentration of potential contamination within the areal extent and depths of planned construction activities within and adjacent to the 64 medium-risk parcels and whether groundwater has been impacted by released contaminants. Sampling and testing, if necessary may include asbestos, heavy metals, petroleum hydrocarbons, chlorinated solvents, herbicides/pesticides, miscellaneous chemical waste, and groundwater. Stanislaus County will acquire this parcel and grant a surface easement to Caltrans in order to construct the project. Stanislaus County will own the underlying fee on the parcel(s) and assume complete responsibility for any remaining contamination, absolving Caltrans of any responsibility for any remedial action. If a PSI is not conducted then this parcel will be avoided.

Measure HW-4: Treated Wood Waste. Utility poles and railroad ties may contain creosote and pentachlorophenol. During construction, Caltrans will ensure treated wood objects be handled as TWW and managed per the Alternative Management Standards for Treated Wood Waste, as required by Chapter 34 of the Title 22 California Code of Regulations Section 67386.1 through 67386.12. All TWW should be properly disposed at a landfill permitted to accept TWW.

Measure HW-5: Creosote and Pentachlorophenol. The soil surrounding wooden utility poles and railroad ties may contain creosote and pentachlorophenol. Therefore, the soil surrounding either poles or ties that would be disturbed by the project will be sampled for creosote and pentachlorophenol prior to completion of final design. Soils with regulated concentrations of creosote and pentachlorophenol will be removed and disposed in conformance with federal and state regulatory requirements at properly permitted disposal facilities.

These measures would ensure proper testing, identification, and disclosure of hazardous materials within the project site is conducted prior to the completion of design, which will reduce the potential impact to hazardous waste to a less than significant level. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts related to hazards and hazardous materials. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.2.4 Hazards and Hazardous Materials of this document.

Biological Resources

All four Build Alternatives would result in less than significant impacts to Natural Communities, but could result in significant impacts to Wetlands and Other Waters, Plant Species, Animal Species, and Threatened and Endangered Species. Mitigation required under CEQA would reduce the impacts to Less than Significant. The effects are summarized below.

Natural Communities (Section 3.3.1)

All four Build Alternatives will have minimal impacts on natural communities. There are no known established migration corridors were identified. Other impacts to natural communities were considered to be minimal. This will result in a less than significant impact.

While the project will have less than significant impacts, certain measures, not required under CEQA, are incorporated into the project to further reduce impacts to the natural communities. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.3.1 Natural Communities of this document.

Wetlands and Other Waters (Section 3.3.2)

All four Build Alternatives will have direct and indirect impacts on wetland and other waters. The direct impacts vary from 0.66 acre for Alternative 1B to 1.53 acres for Alternative 2A while indirect impacts vary from 0.35 acre for Alternative 1A to 2.58 acres for Alternative 2B. These impacts could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, and hydrological interruption. This would result in a significant impact under CEQA.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measures:

> **Measure BIO-7:** A qualified biologist will perform a final delineation of waters of the U.S. within the Alternative 1B project impact area after right-of-entry to the remaining parcels that have not yet been surveyed has been obtained. The final delineation will be submitted to the U.S. Army Corps of Engineers for verification and a request for an Approved Jurisdictional Determination.
>
> Impacts to waters of the U.S. shall be mitigated using one of the following methods, or by using a combination of the methods. An appropriate mitigation ratio shall be established to ensure no net loss of waters of the U.S. acreage or value.
>
> 1. Preservation, creation, and/or restoration in accordance with the U.S. Army Corps of Engineers Purchase of credits at an approved mitigation bank.
> 2. Payment of in-lieu fees pursuant to an approved in-lieu fees program
> 3. Preservation, creation, and/or restoration in accordance with the U.S. Army Corps of Engineers Mitigation Monitoring Program (MMP) Guidelines, dated December 30, 2004. The MMP shall address, at minimum, the following:
>   a. Project Site Impact Assessment
>   b. Compensatory Mitigation Site Selection

c. Compensatory Mitigation Site Design
d. Compensatory Mitigation Site Construction
e. Long-Term Compensatory Mitigation Site Maintenance and Monitoring
f. Long-Term Site Management

These measures would ensure waters within the project site are properly delineated and any impacts identified are mitigated for to ensure the project does not result in a loss of waters of the U.S., which will reduce the potential impact to wetlands and other waters to a less than significant level. Other measures, not required under CEQA, are incorporated into the project to further minimize impacts to the wetlands and other waters. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.3.2 Wetlands and Other Waters of this document.

Plant Species (Section 3.3.3)

Build Alternatives 1B and 2B will have direct and indirect impacts on plant species, while Build Alternatives 1A and 2A will have no impact on plant species. The direct impacts include 0.07 acre for Alternative 1B and 0.04 acre for Alternative 2B with indirect impacts including 2.22 acres for Alternative 1B and 2.11 acres for Alternative 2B. These impacts to plant species would potentially substantially adversely affect species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. These impacts would be significant.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measures:

Measure BIO-9: If any of the target species are identified during the surveys, a plan shall be prepared to address potential impacts on the identified plant species. The plan shall include measures to account for the type of impact to the species, potentially ranging from establishment of ESAs and protective fencing if the target plant were to be located near the project footprint but would not be directly impacted, to a comprehensive salvage and replacement program if the target plant would be removed during project construction.

Compensatory mitigation would be required if any of the vernal pool plants described above would be removed during project construction. Compensation shall consist one of the following two options, or combination of the two.

Measure BIO-10: Preservation of suitable habitat at an offsite location (enhancement of the habitat at the offsite location may also be a component of the compensation). The compensation habitat shall be of commensurate or higher ecological value than the habitat that would be removed. The compensation area shall be protected in perpetuity by a conservation easement or equivalent means.

Measure BIO-11: Credits shall be purchased at a mitigation bank approved by U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate based on the species in question, to compensate for the loss of habitat as a result of project implementation.

These measures would ensure additional plants surveys are conducted within the project site to identify sensitive plant species and appropriately address impacts to any communities discovered. Additionally, these measures will ensure that any plants found within impacted vernal pools will either be relocated or credits at a mitigation bank will be purchased to offset the disturbance, which will reduce the potential impact to plants to a less than significant level. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts to plant species. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.3.3 Plant Species of this document.

Animal Species (Section 3.3.4)

All four Build Alternatives would have direct and indirect impacts on animal species due to direct and indirect impacts on habitat. These include potential bat roosting habitat, western burrowing owl habitat, northern harrier nesting habitat, white-tailed kite foraging habitat, California horned lark nesting habitat, merlin wintering habitat, loggerhead shrike nesting habitat, Pacific pond turtle aquatic habitat, and western spadefood toad aquatic habitat. These impacts to animal species would potentially substantially adversely affect species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. These impacts could be significant.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measures:

Measure BIO-12: A qualified bat biologist shall conduct a detailed survey of all structures that would be removed during construction and that could provide potential roost habitat for bats. If any structure exhibits signs of bat use, the structure shall not be demolished until bats can be humanely evicted as described below.

a) Structure Option 1. All potential, but currently unused entry points into the structure are sealed. The active entry points are fitted with one-way exits, which are left in place 7-10 days to allow all bats to emerge normally during nightly feeding flights. The one-way exits are then removed and the remaining openings sealed until demolition if demolition will occur more than 30 days after eviction of the bats. If the interval between successful eviction and demolition will be short (less than 4 weeks), the one-way exits may often be left in place until demolition. This work shall be conducted by a biologist or other individual qualified in humane bat eviction methods and materials, or be conducted under the supervision a biologist or other individual with these qualifications.

b) Structure Option 2. In some cases, the physical condition of the structure is so poor that humane eviction as described above is not possible. If that occurs, the building shall be carefully and selectively dismantled in such a way that the internal environment is altered to a degree sufficient to cause bats to abandon the roost and not return. Dismantling shall occur under the guidance of a biologist or other individual qualified in partial dismantling of structures for bat eviction.

Measure BIO-13: A qualified bat biologist shall conduct a detailed survey of all trees that would be removed during construction and that could provide potential roost habitat for bats. Following the survey, any trees that can be determined unsuitable for bats roosts (e.g., shallow crevices in bark or wood) or the absence of bats can be determined through visual inspection of the roost features (e.g., accessible by boom truck, man lift, a visual inspection using fiber optic or video probes), shall not be subject to further restrictions for removal. If any tree exhibits signs of bat use or cannot be visually inspected, the following two-step method shall be followed to remove the tree.

a) On the first day, all non-habitat branches and limbs shall be cut from habitat trees using chainsaws only (no excavators or other heavy machinery). This activity shall be supervised by a biologist or other individual qualified in two-step tree removal of potential bat roost trees for sufficient length of time to train all tree cutters. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed, to not return to the roost that night.

b) On the second day, the remainder of the tree is removed. Supervision by a qualified biologist or other qualified individual shall not be required on the second day unless a very large cavity is present and a large colony is suspected.

Measure BIO-14: The bat eviction methods described above in measures BIO-12 and BIO-13 shall only be conducted during seasonal periods of bat activity (see below), but shall avoid the period of April 16 to August 31 when non-volant young could be present. In this region, the two primary active periods are from March 1 to April 15 (or after evening temperatures rise above 45 ºF and/or no more than 0.5 inch of rainfall within 24 hours occurs), or between September 1 and October 15 (or before evening temperatures fall below 45 ºF and/or more than 0.5 inch of rainfall within 24 hours occurs).

Measure BIO-15: If, during the detailed roost surveys, it is determined that a bat species of special concern is likely to occur at a given roost, the qualified bat biologist shall coordinate with California Department of Fish and Wildlife regarding specific measures for assessing the potential for the species to occur and the methods for estimating population size.

Measure BIO-16: If determined necessary by a qualified bat biologist, acoustical sampling and/or emergence surveys shall be conducted to provide an index of the bat species and relative abundance for a specific potential roost. The methodology for the acoustical sampling and emergence surveys (including location, frequency, and duration) shall be developed by a qualified bat biologist in coordination with the California Department of Fish and Wildlife.

To the extent practicable, the Alternative 1B shall be designed to avoid and minimize impacts to potential bat roost habitat.

If a significant roost site is identified within the project footprint and cannot be avoided, replacement roost habitat shall be required via an artificial bat roost (e.g., bat house). The design, siting, and placement of replacement roost habitat shall be

implemented by, or under the supervision of, a qualified bat biologist possessing a Memorandum of Understanding with the California Department of Fish and Wildlife.

Replacement roost habitat shall be monitored annually for three consecutive years following installation. The survey protocol shall be determined by a qualified bat biologist based on the target roost type for the replacement roost (e.g., day maternity roost).

The location of the replacement roost habitat shall be protected in perpetuity by a conservation easement or equivalent method.

Measure BIO-17: If construction begins during the nesting season (February 15 to September 15), a survey for nesting birds (with a particular focus on sensitive bird species) shall be conducted within the project footprint and within a 100-foot radius by a qualified biologist. The survey shall be conducted a maximum of 14 days prior to the start of construction.

Measure BIO-21: If construction begins during the nesting season (February 15 to September 15), a survey for nesting white-tailed kites shall be conducted within the project footprint and within a 600-foot radius by a qualified biologist. The survey shall be conducted a maximum of 14 days prior to the start of construction.

Measure BIO-22: If nesting white-tailed kites are found within 600 feet of the project footprint during the survey, an initial setback of 600 feet from nesting areas shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall consist of brightly colored fencing and shall be maintained in good condition during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-23: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 600-foot setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest to the work limits, the line of sight between the nest and the work limits, and the description of the proposed work.

Measure BIO-24: If the qualified biologist determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with the reduced setback, work can proceed. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 600 feet of a nest shall be halted until the biologist can establish an appropriate setback.

Measure BIO-30: To the extent practicable, the Alternative 1B shall include design features such as retaining walls and non-standard slope gradients to avoid and minimize impacts to western spadefoot toad habitat.

These measures would ensure any impacts to potential bat roosting habitat, western burrowing owl habitat, northern harrier nesting habitat, white-tailed kite foraging habitat, California horned lark nesting habitat, merlin wintering habitat, loggerhead shrike nesting habitat, Pacific pond turtle aquatic habitat, and western spadefood toad aquatic habitat will be properly documented and mitigated for, which will reduce the potential impact to animals to a less than significant

level. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts to animal species. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.3.4 Animal Species of this document.

Threatened and Endangered Species (Section 3.3.5)

All four Build Alternatives would have direct and indirect impacts on threatened and endangered species as a result of direct and indirect impacts on habitat. These include Swainson's hawk nesting trees (no take of an occupied, active Swainson's hawk nest [eggs or young] or Swainson's hawk individuals are anticipated), tricolored blackbird nesting habitat, Greene's tuctoria, Colusa grass, Hartweg's golden sunburst, vernal pool fairy shrimp and vernal pool tadpole shrimp, valley elderberry longhorn habitat (elderberry shrubs), and California tiger salamander habitat. These impacts to threatened and endangered species would potentially substantially adversely affect species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. These impacts could be significant.

Mitigation required under CEQA that would reduce the impacts to Less than Significant includes the following measures:

Swainson's Hawk

The following avoidance and minimization measures will be implemented to reduce potential impacts to the Swainson's hawk:

Measure BIO-40: Nesting surveys along Alignment 1B shall be conducted for Swainson's hawk by a qualified biologist in accordance with the Recommended Timing and Methodology for Swainson's Hawk in California's Central Valley (SHTAC 2000).

Measure BIO-41: If surveys indicate active Swainson's hawk nests are located within 0.5 mile of the project footprint, an initial setback of 600 feet from nesting areas shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall be maintained during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-42: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 600-foot setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest to the work limits, the line of sight between the nest and the work limits, and the description of the proposed work. The attachment to the Recommended Timing and Methodology for Swainson's Hawk in California's Central Valley titled "Determining a Project's Potential For Impacting Swainson's Hawks" shall also be consulted. Following the initial evaluation, the qualified biologist shall coordinate with the California Department of Fish and Wildlife to discuss the results and the proposed setback.

Measure BIO-43: If the qualified biologist, through coordination with the California Department of Fish and Wildlife, determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with

the reduced setback, work can proceed with the continued presence of a qualified biologist. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 600 feet of a nest shall be halted until the biologist can establish an appropriate setback. All work within 600 feet of a Swainson's hawk nest requires a biological monitor.

No compensatory mitigation is proposed for foraging habitat. The following measure will be implemented to reduce impacts to foraging habitat:

Measure BIO-44: The project will avoid and minimize potential impacts to suitable foraging habitat to the greatest extent practicable.

Tricolored Blackbird

Measure BIO-45: If construction begins during the nesting season (February 15 to September 1), a survey for nesting tricolored blackbirds shall be conducted within the project footprint and within a 100-foot radius by a qualified biologist. The survey shall be conducted a maximum of 14 days prior to the start of construction.

Measure BIO-46: If nesting tricolored blackbirds are found within 100 feet of the project footprint during the survey, an initial setback of 100 feet from the edge of the nest colony shall be established and protected with Environmentally Sensitive Area (ESA) fencing. ESA fencing shall consist of brightly colored fencing and shall be maintained in good condition during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

Measure BIO-47: A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 100-foot setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest colony, the distance of the nest colony to the work limits, the line of sight between the nest colony and the work limits, and the description of the proposed work.

Measure BIO-48: If the qualified biologist determines that the setback can be reduced, initial construction activities in the vicinity of the nest shall be monitored by a qualified biologist. If the biologist determines nesting is not affected by construction activities with the reduced setback, work can proceed. If it is determined that construction activities are adversely affecting the nesting birds with the reduced setback, all construction within 100 feet of a nest colony shall be halted until the biologist can establish an appropriate setback.

Compensatory mitigation for the loss of tricolored blackbird nesting habitat and foraging habitat will be covered through the purchase of California tiger salamander aquatic and upland credits at a conservation bank or through the creation of a conservation easement. The aquatic and upland habitat to be conserved for the California tiger salamander will also serve as compensatory mitigation for the loss of tricolored blackbird nesting habitat and foraging habitat.

Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst

The following avoidance, minimization, and mitigation measures will be implemented to reduce potential impacts to Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst.

Measure BIO-49: The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the Hartweg's golden sunburst resulting from construction impacts to upland habitat. The County, in coordination with Caltrans, will compensate for the permanent loss of 3.28 ac of habitat and for temporary disturbance to 0.57 ac of habitat. However, this combined 3.85 ac of affected habitat is suitable for/available to both the Hartweg's golden sunburst and the Central California tiger salamander. Therefore, to avoid duplicating its compensation efforts, the County, in coordination with Caltrans, does not propose separate, additive compensatory mitigation for the Hartweg's golden sunburst. Of the 1,100.85 ac worth of compensatory mitigation proposed for the Central California tiger salamander, 10.41 ac of this total also will apply to the Hartweg's golden sunburst. In other words, the County, in coordination with Caltrans, either will 1) purchase 10.41 ac worth of upland credits that cover both species at a Service-approved conservation bank (as part of the total 1,100.85 ac worth of credits for the Central California tiger salamander, using a 3:1 compensation ratio for permanent effects and a 1:1 compensation ratio for temporary effects; (3.28 x 3) + (0.57 x 1) = 10.41 ac); or 2) fund a conservation easement that includes a minimum of 10.41 ac of upland habitat that also is suitable for the Hartweg's golden sunburst. Credits will be purchased and/or an easement will be recorded prior to the start of construction.

Measure BIO-50: No more than one year prior to the start of construction, a Service-approved biologist(s) or botanist(s) will conduct a preconstruction botanical survey of the entire action area (once all lands are accessible to survey) during the appropriate blooming season(s) for each plant species, and in accordance with the most recent and accepted botanical survey protocols/guidance.

Measure BIO-51: If individuals are found during these survey efforts, or during construction and can be avoided, exclusion fencing, or some other type of barrier/marker signifying an ESA will be installed to protect them from encroachment by construction activities, equipment, and personnel. Caltrans will coordinate with the Service to determine if any further actions are necessary to avoid effects to the species. If individuals cannot be avoided, the County, in coordination with Caltrans, will implement on-site minimization efforts such as collecting, stockpiling, and re-applying topsoil.

California Tiger Salamander

The following avoidance, minimization and mitigation measures will be implemented to reduce potential impacts to the California tiger salamander.

Measure BIO-52: The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the Central California tiger salamander resulting from construction impacts to aquatic and upland habitats. The County, in coordination with Caltrans, will compensate for the permanent loss of a total of 14.07 acres (ac) of aquatic habitat and 237.43 ac of upland habitat; for temporary disturbance to a total of 2.92 ac of aquatic habitat and 58.98 ac of upland habitat; and for indirect effects to a total of 52.45 ac of aquatic habitat and 516.44 ac of upland habitat (using a

3:1 [ac:ac] compensation ratio for permanent effects; a 1:1 compensation ratio for temporary effects; and a 0.5:1 compensation ratio for indirect effects) ((251.50 ac x 3) + (61.90 ac x 1) + (568.89 x 0.5) = 1,100.85 ac of compensation). Prior to the start of work, the County, in coordination with Caltrans, will verify the areas of impacts and proposed compensation. If the amount of affected habitat increases, Caltrans may need to consider reinitiating formal consultation.

The County, in coordination with Caltrans, proposes either to: 1) purchase a total of 1,100.85 ac worth of Central California tiger salamander credits at a Service-approved conservation bank whose service area covers the project area (credits will be purchased prior to the start of groundbreaking); or 2) fund a conservation easement(s) on a total of 1,100.85 ac of land that is suitable for the species (the easement will be recorded prior to the start of construction). Should a Service-approved conservation easement(s) be established, it will be held by a Service-approved third-party entity, and managed according to a Service-approved long-term management plan (LTMP). A Service-approved endowment will be established to fund the long-term management, maintenance, and monitoring activities on the site. The final LTMP, along with an endowment analysis, will be submitted to the Service for approval prior to recordation of the conservation easement. The Service will review and approve any proposed preservation lands.

Measure BIO-53: To the extent practicable, the project shall include design features such as retaining walls and non-standard slope gradients to avoid and minimize impacts to depressional aquatic features and undeveloped uplands (within approximately 1 mile of aquatic habitat).

Measure BIO-54: To reduce the mortality to Central California tiger salamander eggs, larvae, and breeding adults, as well as to adult vernal pool fairy shrimp and vernal pool tadpole shrimp, all aquatic habitats that are scheduled to be permanently filled, first will be delineated and mapped, and then filled during the dry season only (i.e., when these specific life stages are absent from aquatic habitats).

Measure BIO-55: Once the new ROW is acquired and the entire project extent can be accessed, a Service-approved biologist(s) will conduct protocol-level surveys covering all suitable aquatic habitat within the action area for the Central California tiger salamander in the closest appropriate season prior to the start of construction. Results will inform/confirm habitat suitability and areas of impacts and proposed compensation in advance of the start of project construction.

Measure BIO-56: At least four weeks prior to the start of ground disturbance and/or construction, Caltrans will submit to the Service the names and qualifications of suitable individuals (e.g., resumes) for the Service's approval to work as biologists and monitors on the project.

Measure BIO-57: A Service-approved biologist(s) will conduct visual encounter preconstruction surveys of upland habitat for the Central California tiger salamander no more than 14 days prior to the start of groundbreaking or other general construction activities in any given part of the footprint. The surveys will pay particular attention to detecting burrows and other crevices and cover sites that could be used as refugia by the species. If any burrows are discovered, they will be flagged or otherwise marked, and avoided by at least 50 ft. If the burrows cannot be avoided, they will be inspected

and excavated by the Service-approved biologist(s) in accordance with the procedures and methodologies established in a burrow excavation and relocation plan (Relocation Plan) approved by the California Department of Fish and Wildlife (CDFW) and by the Service. If an individual is found, a Service-approved biologist(s) will relocate it to a suitable burrow outside of the project footprint, ideally as close as possible to its original capture location. Both the preconstruction surveys and any subsequent burrow excavations will occur prior to the installation of exclusion fencing around the boundary of the project footprint (see measure #3 below) so as to maximize the clearing of the footprint and to minimize the risk of individuals becoming trapped within the fenced area. Caltrans will provide the Service with a written report that documents the survey efforts. If construction stops for a period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to restarting work.

Measure BIO-58: Prior to the start of work, and immediately following preconstruction surveys and any burrow excavations, temporary silt fencing (or other types of fencing materials that will not entangle the species), will be installed around the limits of the project footprint to preclude construction equipment, vehicles, and personnel from encroaching on areas outside of these limits (i.e., ESAs such as aquatic features and undeveloped uplands), and to prevent the Central California tiger salamander in outside areas from entering the work zones. Installation of this exclusion fencing will focus on where work areas abut suitable upland and/or aquatic habitats. Fencing also will include one-way funnels placed at regular intervals (to be determined in coordination with the Service) to allow any individuals that become trapped inside the fenced area to leave, but not re-enter the project footprint. Fencing will measure at least 3 ft. tall and be buried at least 6 inches below the ground to prevent individuals from attempting to burrow or move under the structure. The exclusion fencing will be well maintained throughout the course of construction and will be removed following project completion.

For any work occurring during the wet season (i.e., defined as approximately November 1 through May 31, which is when breeding adults are likely to be above¬ground and actively migrating to and from aquatic habitat to breed, and when eggs and larvae are developing in aquatic habitat), the proposed exclusion fencing must be in place prior to the onset of rain (i.e., when aquatic habitat is still dry) in order to prevent individuals from moving into active construction zones where they could be disturbed, injured, or killed by construction activities, equipment, or crews, and to prevent any breeding adults from becoming trapped in aquatic habitat within the construction zone.

In order to provide shelter for any individuals trapped along the exclusion fence, coverboards will be installed along the construction side of the fence line at regular intervals (to be determined by the Service-approved biologists).

Measure BIO-59: No construction activities will be conducted in upland or aquatic habitat areas where the Central California tiger salamander may occur if: 1) it is raining, 2) there is a greater than 70 percent chance of rain based on the National Oceanic and Atmospheric Administration’s (NOAA) National Weather Service forecast on any given work day, or 3) a rain event greater than 0.25 inch has occurred within the past 48 hours.

Following a rain event, the Service-approved biologist(s) will conduct visual encounter surveys for the species in all active work areas (including access roads and staging

areas) prior to the resumption of construction activities and the use of access routes and staging areas.

Measure BIO-60: A Service-approved biologist(s) also will be present on-site to monitor for the species during the installation, replacement, and removal of all exclusion fencing. Additionally, the biologist(s) will be present on-site at least once per week, over the entire course of construction, to inspect the fencing for damage, to report any required remedial actions, and to clear the fenced area. Furthermore, this individual(s) will be present on-site during initial ground-disturbing and vegetation removal activities (i.e., clearing, grubbing, grading, excavating, filling, etc.). Anytime the Service-approved biologist(s) is present on-site, s/he will check for any Central California tiger salamanders trapped within the fenced areas and sheltering under the coverboards prior to the start of each workday. When not present on-site, the Service-approved biologist(s) will be available on-call during all construction periods in the event that the species is detected.

If a live Central California tiger salamander is encountered at any point during preconstruction or construction activities, work will stop in the vicinity of the individual and will not resume until the Service-approved biologist(s) either has monitored the individual and allowed it to move away unharmed, or has relocated it in accordance with the Relocation Plan. If a dead individual is found, the Service-approved biologist(s) will follow the instructions described in the Salvage and Disposition of Individuals section of this document. Caltrans will notify the Service of any such encounter (live or dead) as soon as possible and provide a summary of the date(s), location(s), description of the habitat in which it was found, and any other pertinent information.

Measure BIO-61: Prior to being moved, vehicles and equipment will be checked for any Central California tiger salamanders or other sensitive wildlife sheltering underneath them. In the event that an animal is observed, the vehicles/equipment will not be moved until the individual has vacated the area of its own accord.

Measure BIO-62: To avoid entangling the Central California tiger salamander, erosion control methods will not utilize plastic, monofilament, jute, or similarly tightly woven fiber netting or other such materials. Acceptable substitutes include coconut coir matting, tackified hydro-seeding compounds, or other similar materials.

Measure BIO-63: To prevent the inadvertent entrapment of the Central California tiger salamander or other animals during construction, all excavated, steep-walled holes or trenches measuring more than 6 inches deep either will be covered at the close of each working day using plywood or similar materials (without openings), or will be provided with one or more escape ramps constructed of earth fill or wooden planks in the event that the holes/trenches cannot be fully covered. All holes or trenches will be checked daily for trapped wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife.

Measure BIO-64: All construction pipes, culverts, or similar structures that are stored on the construction site for one or more overnight periods will be capped or sealed with tape (or similar materials), or stored at least 3 ft. above ground level. They will be inspected thoroughly for the Central California tiger salamander before being buried, capped, or otherwise used. If an individual is discovered during this inspection, the Service-

approved biologist(s) will be notified immediately. The biologist(s) will decide whether to leave the individual to move away on its own, or to intervene and relocate it.

Vernal Pool Invertebrates

The following avoidance, minimization and mitigation measures will be implemented to reduce potential impacts to vernal pool invertebrates:

Measure BIO-65: Suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp that is situated adjacent to the project footprint will be designated as Environmentally Sensitive Areas and protected with exclusion fencing to prevent encroachment into these areas.

Measure BIO-66: A Service-approved biologist(s) will be present on-site during initial ground disturbing activities taking place within habitat for listed vernal pool crustaceans.

Measure BIO-67: Measures consistent with the current Caltrans' Best Management Practices Manual (including the Storm Water Pollution Prevention Plan and Water Pollution Control Plan Manuals) shall be implemented to minimize effects to aquatic habitats resulting from erosion and siltation during construction.

Measure BIO-68: Following completion of construction, all graded slopes, temporary impact and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the standard Caltrans native seed mix.

Compensation would be required for the loss of vernal pool invertebrates resulting from project implementation.

Measure BIO-69: The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the vernal pool fairy shrimp and vernal pool tadpole shrimp resulting from construction impacts to aquatic habitat. The County, in coordination with Caltrans, will compensate for the permanent loss of 0.06 ac of aquatic habitat, for temporary disturbance to 0.01 ac of aquatic habitat, and for indirect effects to 2.15 ac of aquatic habitat. However, this combined 2.22 ac of affected habitat is made up of features that also are suitable for/available to the Central California tiger salamander, Colusa grass, and Greene's tuctoria. Therefore, to avoid duplicating its compensation efforts, the County, in coordination with Caltrans, does not propose separate, additive compensatory mitigation for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria. Of the 1,100.85 ac worth of compensatory mitigation proposed for the Central California tiger salamander (refer to conservation measure #10 under the Central California tiger salamander heading above), 4.51 ac of this total also will apply to the two vernal pool branchiopods and the two vernal pool plants. In other words, the County, in coordination with Caltrans, either will 1) purchase 4.51 ac worth of aquatic credits that cover all five species at a Service-approved conservation bank whose service area covers the project area (as part of the total 1,100.85 ac worth of credits for the Central California tiger salamander, using a 3:1 compensation ratio for permanent and temporary effects and a 2:1 compensation ratio for indirect effects; (0.06 x 3) + (0.01 x 3) + (2.15 x 2) = 4.51 ac) fund a conservation easement that includes a minimum of 4.51 ac of aquatic habitat that also is suitable for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's

tuctoria. Credits will be purchased and/or an easement will be recorded prior to the start of construction.

The preservation component is generally required at a ratio of 3 acres of pools preserved for every acre directly and indirectly impacted (i.e., 3:1 ratio) and 2 acres of pools preserved for every acre indirectly impacted (i.e., 2:1 ration). Table 3.3.5-6 shows the compensation requirements for vernal pool invertebrates for Alternative 1B.

Table 3.3.5-6: Summary of Compensation Requirements for aquatic habitat for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria

Impact Type	Impact	Compensation Ratio	Compensation Amount (in acres)
Alternative 1B			
Direct Permanent	0.06	3:1	0.18
Direct Temporary	0.01	3:1	0.03
Indirect	2.15	2:1	4.30
	Total		**4.51**

Source: Natural Environment Study, 2017, and Biological Assessment, 2019

Sufficient creation and preservation credits shall be purchased at a conservation bank(s) approved by the U.S. Fish and Wildlife Service to sell vernal pool habitat credits or through a U.S. Fish and Wildlife Service-approved project specific mitigation site.

Valley Elderberry Longhorn Beetle

The following avoidance and minimization measures should reduce potential impacts to the valley elderberry longhorn beetle, in accordance with the U.S. Fish and Wildlife Service Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB Guidelines), dated July 1999. No compensatory mitigation is proposed for the valley elderberry longhorn beetle, as the project is not expected to adversely affect this species.

Measure BIO-70: Prior to ground disturbance and/or the start of construction, a Service-approved biologist(s) will conduct a survey for elderberry shrubs covering the entire project footprint as well as the area 165 ft. out from the edge of the footprint. Data collected during the survey will include whether exit holes are present on the stems, the types of habitat in which the shrubs are located, the types of native plant species that are associated with the shrubs, and the distance to the nearest riparian area.

If shrubs are detected within the project footprint, either during surveys or during construction, and they cannot be avoided (i.e., they will be trimmed during the shrub's growth season, or will need to be removed or transplanted), Caltrans will reinitiate formal consultation with the Service to address adverse effects to the valley elderberry longhorn beetle.

Measure BIO-71: The existing three elderberry shrubs that are located within the action area, plus any additional shrubs identified during the preconstruction survey, will be fenced and/or flagged in order to prevent construction equipment or personnel from encroaching on them. Fencing and/or flagging will remain in good condition until construction is complete.

Measure BIO-72: Ground-disturbing activities such as trenching, paving, etc., that risk damaging or killing the elderberry shrubs, will not take place within at least 20 ft. of the drip-line of any given shrub.

Measure BIO-73: A Service-approved biologist(s) will be present on-site to monitor any ground-disturbing construction activities that take place during the adult beetle's flight season and within 165 ft. of the elderberry shrubs. Caltrans will coordinate with the Service on any additional guidance.

Measure BIO-74: As much as possible, construction activities occurring within 165 ft. of an elderberry shrub will be conducted outside of the flight season of the valley elderberry longhorn beetle (flight season is approximately March-July).

Measure BIO-75: In order to avoid adverse effects to the valley elderberry longhorn beetle when trimming elderberry shrubs, any and all trimming will occur between November and February when the shrub is dormant; no stems that are greater than or equal to 1 inch in diameter will be removed.

Measure BIO-76: Herbicides will not be used within the drip-line of any given elderberry shrub. Insecticides will not be used within 100 ft. of a shrub.

Measure BIO-77: Mechanical weed removal within the dripline of an elderberry shrub will be restricted to the season when adult beetles are not active (i.e., August - February).

Measure BIO-78: Erosion control will be implemented and the affected area will be re-vegetated with appropriate native plants.

General/Multi-Species

Measure BIO-79: All project-related vehicles will observe a daytime speed limit of no more than 20 mi per hour (mph) and a nighttime speed limit of no more than 10 mph in all project areas, except on the highway.

Measure BIO-80: The use of temporary artificial lighting on-site will be limited, except when necessary for construction, or for driver and pedestrian safety. Any artificial lighting used during construction, particularly at night, will be confined to areas within the construction footprint and directed away from surrounding sensitive habitat. Caltrans will limit non-target casting of light by installing shielding behind and underneath the light source to confine the illumination further so as to minimize its effects on the species.

Measure BIO-81: All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site in order to reduce the potential for attracting predator species.

> **Measure BIO-82**: To eliminate the potential for disturbance or injury to, or death of, any species resulting from the presence of pets and firearms, neither (with the exception of firearms carried by authorized law enforcement officials) will be allowed on the project site.

These measures would ensure any impacts to potential Swainson's hawk nesting trees, tricolored blackbird nesting habitat, Greene's tuctoria, Colusa grass, Hartweg's golden sunburst, vernal pool fairy shrimp and vernal pool tadpole shrimp, valley elderberry longhorn habitat (elderberry shrubs), and California tiger salamander habitat will be properly documented and mitigated for, which will reduce the potential impact to threatened and endangered species to a less than significant level. Other measures, not required under CEQA, are incorporated into the project to further reduce impacts to threatened and endangered species. These measures are discussed under the Avoidance, Minimization and Mitigation Measures heading in Section 3.3.5 Threatened and Endangered Species of this document.

4.5 Unavoidable Significant Environmental Effects

4.5.1 Relocations

The North County Corridor project would relocate 124 residential units by Alternative 1A, 114 residential units by Alternative 1B, 136 residential units by Alternative 2A, and 114 residential units by Alternative 2B within the project area as discussed in Section 3.1.4.2.

The magnitude of the proposed project is considerable among all four Build Alternatives under consideration (1A, 1B, 2A, 2B). Relocation impacts to a significant number of occupants, across a wide range of residential and commercial property types are anticipated, and would require the full spectrum of assistance available under governing relocation regulations, guidelines, and ordinances.

Research indicates that the availability of replacement sites is sufficient to relocate the relocated occupants into the replacement areas of the cities of Modesto, Riverbank, and Oakdale, and additionally the cities of Manteca and Turlock. The replacement area characteristics are discussed in Section 3.1.4.2, as is the need for a relocation phasing and planning to avoid an influx of persons relocated into the housing market.

It is anticipated that low-income households, elderly households, households with disabilities, households with language needs, and Section 8 households would be affected by the proposed project. Addressing the special needs of affected households early in relocation planning process is a critical component of the Draft Relocation Impact Report/Final Relocation Impact Statement and relocation planning process.

It is anticipated that some households will experience challenges in qualifying for replacement housing. Advance replacement housing payments may be necessary to assist persons being relocated in qualifying for leases or loans. Assistance under the provisions of Last Resort Housing is anticipated to play a key role in the proposed project's ability to provide persons being relocated with comparable replacement housing.

The proposed project poses significant impacts to a wide range of business uses, including retail, restaurant, automotive, office, and consumer services. Most of these businesses would be considered small businesses, which would require cost-effective smaller replacement sites with proximity to established customer bases.

Larger businesses, including manufacturing, industrial, and primarily agricultural farms would be affected. Several of these larger non-residential relocations, including agricultural farms, may be potential candidates for extensive advisory services. Relocation timeframes of 18 to 36 months should be anticipated for larger establishments, depending on the complexity of relocations and availability of replacement sites.

It would be critical to address complex business relocation issues early on in the process, including mitigation of such issues as: replacement site requirements, trade fixtures and equipment, tenant improvements/modifications, and personal property/real property issues. The Draft Relocation Impact Report discusses requirements that may become long lead items, such as special permits or zoning requirements.

A Final Relocation Impact Statement has been prepared and provides updated detail of the relocation plan for residences and businesses.

All property acquisition and relocations would be handled in accordance with the Uniform Relocation Act of 1970, as amended, which mandates certain relocation services and payments by Caltrans be made available to eligible residents, businesses, and nonprofit organizations displaced by Caltrans projects. Design refinements to avoid or minimize impacts to existing land uses related both to temporary construction use and/or permanent acquisition of properties would be incorporated in the final engineering design of the selected build alternative to the extent practical. If, however, displaced residents are required to relocate outside of their immediate neighborhood or sub-community, existing supportive family and community relationships may be severed for those leaving, as well as for those remaining behind. Neighbors, friends, and family, as discussed earlier, often provide emotional support that cannot be easily replicated. These characteristics of a cohesive community cannot be completely mitigated and are unavoidable. Concerning non-residential displacements, several types of businesses that may be difficult to relocate as a result of the project have been identified. The severity of non-residential property impacts would vary with the type of business displaced. Certain businesses typically experience a greater challenge to find a suitable replacement site, such as automotive repair garages and gasoline service stations, among others, because these types of businesses traditionally serve localized market areas.

Despite measures required by the Uniform Relocation Act, no available reasonable mitigation measures would reduce all community impacts in their entirety. Impacts would remain significant and unavoidable. Therefore, all Build Alternatives would have unavoidable significant impacts on relocations.

4.5.2 Farmland

As discussed in Section 3.1.3, the project area includes Prime Farmland and Farmland of Statewide Importance. Construction of all four Build Alternatives would directly affect between 397 and 576 acres of designated farmland, potentially resulting in an incremental loss of this resource. Additionally, according to CEQA Guidelines, Section 15206, cancellation of Williamson Act contracts for parcels exceeding 100 acres is considered to be “of statewide, regional, or area wide significance.” The project is anticipated to require cancellation of at least one or more Williamson Act contracts, including Williamson Act contracts with property owners that own multiple parcels which individually are less than 100 acres, but cumulatively could total to a cancelation of more than 100 acres of Williamson Act contracts for an individual property owner. Even though in some instances impacted Williamson Act properties may stay enrolled in the Williamson Act program, there are no feasible avoidance, minimization, mitigation, or design measures that could be implemented to diminish potential impacts on Williamson Act-enrolled lands. While the project will be mitigating for impacts to farmland, the project will still be removing large quantities of farmland from the existing community, including potentially unavoidable significant impacts to Williamson Act farmlands. Therefore, even with mitigation, there would be a significant and unavoidable impact to farmland.

4.5.3 Noise

When determining whether a noise impact is significant under CEQA, the baseline noise level and the build noise level are compared. The CEQA noise analysis is completely independent of the NEPA 23 Code of Federal Regulations 772 analysis discussed in Chapter 3, which is

centered on noise abatement criteria. Under CEQA, the assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

In the CEQA Noise analysis, the modeled existing noise levels (“baseline”) were compared with the design year with-project noise levels for each of the Build Alternatives. A noise level increase of 3 dBA is generally considered to be the minimum increase perceptible to the human ear. A majority of the receptors modeled (71-74 percent, depending on alternative) are predicted to experience an increase of 3 dBA or greater. Furthermore, due to the fact that the existing environment is largely rural and fairly quiet, an increase of 10 dBA or greater is predicted to occur at between 8 percent and 15 percent of the receptors modeled (depending on the alternative). It should be noted that a 10 dBA increase is generally perceived as a doubling of the current noise level.

For the purposes of CEQA, Caltrans considers the reasonableness and feasibility of noise abatement the same as previously discussed in Section 3.2.7, Noise, and as determined in the *Noise Abatement Decision Report*. The *Noise Abatement Decision Report* found two soundwalls to be reasonable and feasible which would serve as abatement to bring down the noise levels along several segments of the facility; however, many walls did not meet the criteria for consideration. Future predicted traffic noise levels would continue to experience noise increases of 10 dBA or more. Noise impacts at these locations would remain significant and unavoidable. Therefore, a significant noise impact, under CEQA, is predicted under all Build Alternatives. As described in Section 3.2.6, all four Build Alternatives would result in significant change in the noise environment throughout the project corridor.

4.6 Significant Irreversible Environmental Changes

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and secondary impacts generally commit future generations to similar uses. Also, irreversible damage could result from potential environmental accidents associated with the project.

4.7 Climate Change (CEQA)

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.3 In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.4 The dominant GHG emitted is CO2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.[5] This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”[6] Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel

[3] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014
[4] https://www.arb.ca.gov/cc/inventory/data/data.htm
[5] https://www.fhwa.dot.gov/environment/sustainability/resilience/
[6] https://www.sustainablehighways.dot.gov/overview.aspx

vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, 74 *Federal Register* 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*, 80 Federal Register 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts* v. *EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[7] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at

[7] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Donald Trump ordered EPA to reopen the review and reconsider the mileage target.[8]

NHTSA and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO_2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential Executive Order 13783, *Promoting Energy Independence and Economic Growth*, of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

State

With the passage of legislation including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order (EO) is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

[8] http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256 and https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391 (SB 391), Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. ARB approved the *First Update to the Climate Change Scoping Plan* on May 22, 2014. ARB is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.[9] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

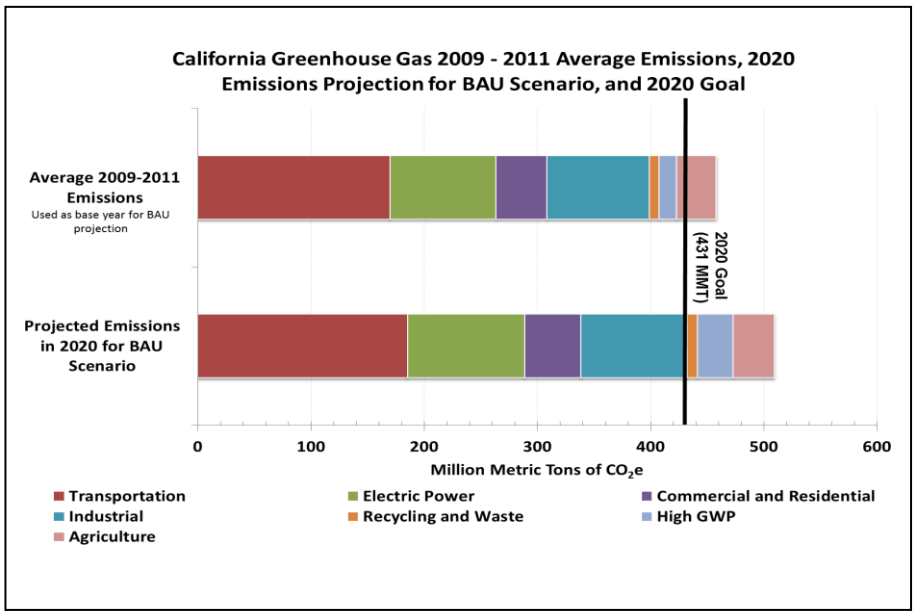
An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure ## represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431

[9] 2016 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm

MMTCO2e.[10] The 2016 edition of the GHG emissions inventory (released June 2016) found total California emissions of 441.5 MMTCO$_2$e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO$_2$e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO$_2$e.

Figure 4.7-1: California Greenhouse Gas Forecast



Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

[10] The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)

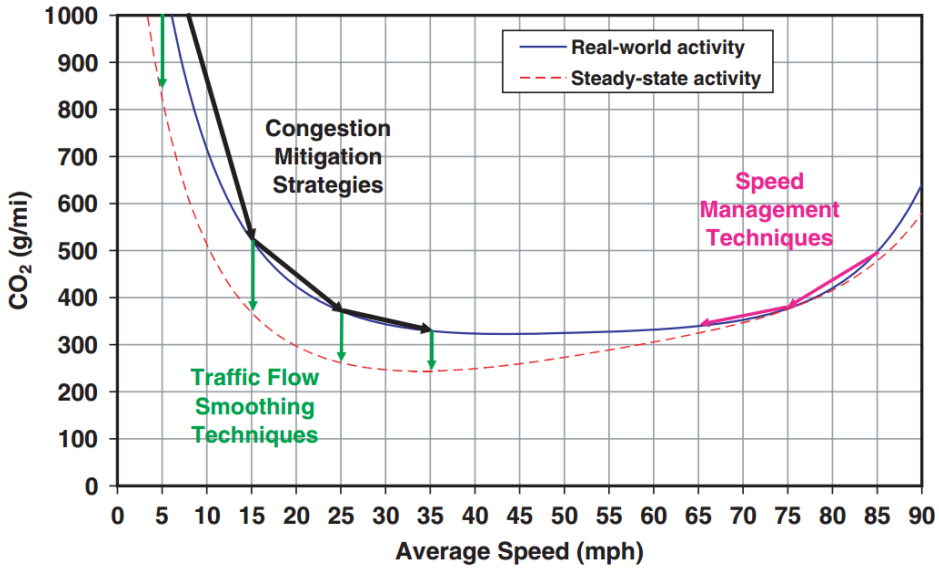
Operational Emissions

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity), (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts and correlate with efforts that the state of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (Figure 4.7-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

Figure 4.7-2: Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions [11]



Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity), (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the state of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 4.7.2 above). To the extent that a project relieves

[11] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin(TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

The purpose of the proposed project is to reduce congestion and vehicle delays. As discussed in the project's Traffic Operations Report (2015) and TOR Addendum (2019), when compared to the future no-build conditions, the future Build Alternatives would increase vehicle miles traveled, but would also reduce vehicle hours of delay in the project area by 12 percent to 34 percent. Additionally, as discussed in the 2018 Regional Transportation Plan/Sustainable Communities Strategy (SCS) by StanCOG, implementation of the Regional Transportation Plan/SCS will "meet, and even exceed…GHG emission reduction targets for 2020 and 2035 set by the California Air Resources Board (CARB) under Senate Bill 375." As an integral part of the Regional Transportation Plan/SCS, implementation of the project would therefore contribute to the regional greenhouse gas emissions reduction.

Due to the purpose of the project, including support of efficient movement of goods as well as the rural nature of the project area, public transit was not considered as a viable alternative.

Table 4.7-1: Regional Measures of Effectiveness for Project Area (No-Build vs Build Alternatives)

	Existing	No-Build Alternative	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Measure			**2026**			
Daily Vehicle Miles of Travel (VMT)[1]	1,953,472	2,497,408	2,572,913 (3.0%)	2,572,019 (3.0%)	2,562,813 (2.6%)	2,562,740 (2.6%)
Daily Vehicle Hours of Delay (VHD)[2]	707	1,873	4,736 (-33.8%)	1,505 (-19.7%)	1,676 (-10.5%)	1,722 (-18.0%)
			2046			
Daily Vehicle Miles of Travel (VMT)[1]	1,953,472	3,174,063	3,262,350 (2.8%)	3,255,592 (2.6%)	3,253,685 (2.5%)	3,246,040 (2.3%)
Daily Vehicle Hours of Delay (VHD)[2]	707	7,159	4,736 (-33.8%)	4,903 (-31.5%)	5,952 (-16.9%)	6,300 (-12.0%)

Notes:

1 Percent change from No-Build conditions is presented in parentheses.

2 Only includes roadway delay (intersection delay is not included).

Source: Traffic Operations Report for the North County Corridor, 2015, and TOR Addendum, 2019

Quantitative Analysis

CO_2 emissions for the North County Corridor project were analyzed utilizing CT-EMFAC 2017.

Vehicle miles traveled (VMT) are found in the Final Traffic Operations Report for the North County Corridor, March 2015, and TOR Addendum, 2019, by Fehr and Peers.

The Existing/Baseline CO_2 emissions are 189.68 pounds per day. For Open to Traffic Year 2026, CO_2 emissions, and Design Year 2046, CO_2 emissions, are summarized by Alternative in Table 4.7-2.

Table 4.7-2: 2026 and 2046 CO_2 Emissions Summary

Alternative	CO_2 Emissions	VMT
2026 Alternatives		
No Build (2026)	246.53	2,497,408
1A (2026)	272.17	2,572,913
1B (2026)	239.28	2,572,019
2A (2026)	227.80	2,562,813
2B (2026)	325.10	2,562,740
2046 Alternatives		
No Build (2046)	226.05	3,174,063
1A (2046)	236.71	3,262,350
1B (2046)	218.64	3,255,592
2A (2046)	192.91	3,253,685
2B (2046)	269.32	3,246,040

For both Open to Traffic Year 2026 and Design Year 2046, the No Build and Build Alternatives show that CO_2 emissions are projected to be higher than the Baseline for their respective years. The differences between Baseline, 2026 Alternative, and 2046 Alternative CO_2 emissions are summarized in Table 4.7-3.

Table 4.7-3: Differences in Baseline, 2026, and 2046 Alternatives CO_2 Emissions

Alternatives	CO_2 Emissions	Baseline	Change	VMT
2026 Alternatives				
No Build	246.5	189.68	59.82	2,497,408
1A	272.17	189.68	85.49	2,572,913
1B	239.28	189.68	52.6	2,572,019
2A	227.80	189.68	41.12	2,562,813
2B	325.10	189.68	138.42	2,562,740
2046 Alternatives				
No Build	226.05	189.68	39.37	3,174,063
1A	236.71	189.68	50.03	3,262,350
1B	218.64	189.68	31.96	3,255,592
2A	192.91	189.68	6.23	3,253,685
2B	269.32	189.68	82.64	3,246,040

CO_2 emissions are slightly higher than Baseline for all Alternatives for both Open to Traffic Year 2026 and Design Year 2046; however, this is attributed to an increase in vehicle numbers concomitant with anticipated future population growth.

Emissions for each Alternative 1Aand 2B are lower when compared to future 2026 and 2046 No Build scenarios, while emissions for Alternatives 1B and 2A are somewhat higher when compared to the No Build scenario. However, all future CO_2 emissions per vehicle are considerably lower when compared to existing vehicle emissions, due to technological improvements in the reduction of auto emissions as well as improvements in fuel formulations.

Together, these strategies result in future CO_2 emissions which are considerably lower per vehicle mile travelled.

It should be noted that while these emission numbers are useful for comparing alternatives, they do not necessarily accurately reflect what the true CO_2 emissions will be because CO_2 emissions are dependent on other factors that are not part of the model, such as the fuel mix (EMFAC model emission rates are only for direct engine-out CO_2 emissions, not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles. The relative magnitudes however, as used for the comparison above, can be assumed to be reasonably accurate.

EMFAC

Although EMFAC can calculate CO2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study[12], brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO2 emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the EPA and the CARB have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are numerous external variables that could change during the design life of the proposed project and would thus change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012,"[13] which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003, subsequently increasing to higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 16 percent from 2007 to 2012. Table 4.7-3 shows the increases in required fuel economy standards for cars and trucks between model years 2012 and 2025 as

[12] Matthew Bartha, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system.* Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410

[13] http://www.epa.gov/oms/fetrends.htm

available from the National Highway Traffic Safety Administration for the 2012-2016 and 2017-2025 CAFE Standards.

Table 4.7-3: Average Required Fuel Economy (Miles Per Gallon)

Vehicles	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1-36.5	38.3-38.9	48.7-49.7

Source: EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf

Second, new lower emissions and zero emissions vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case."[14]

The greater percentage of alternative fuel vehicles on the road in the future will reduce overall greenhouse gas emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections 95480-95490). As of January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Limitations and Uncertainties with Impact Assessment

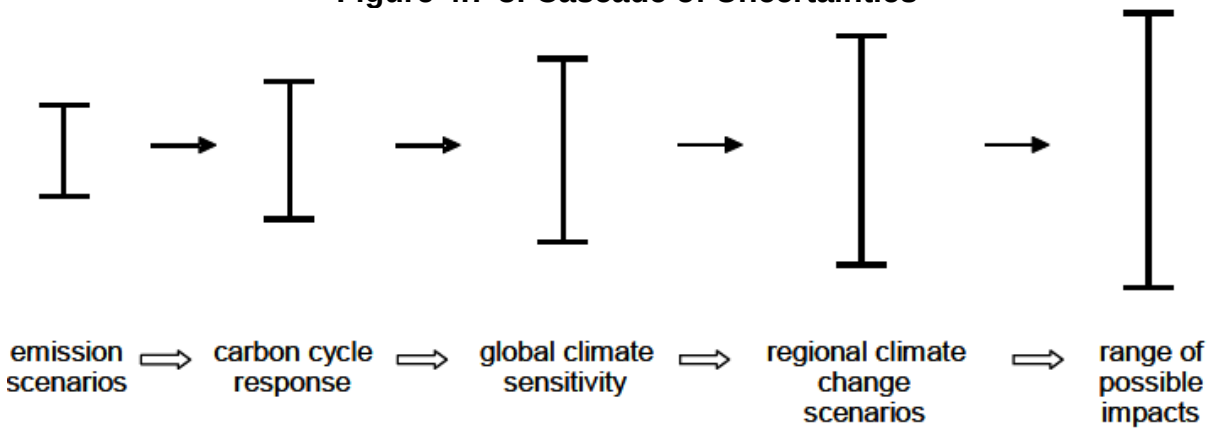
Taken from p. 5-22 of the National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012), Figure 4.7-3 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

"Moss and Schneider (2000) characterize the 'cascade of uncertainty' in climate change simulations Figure 4.7-3). As indicated in Figure 4.7-3, the emission estimates used in this EIS have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources […] Although the uncertainty bands broaden with each

[14] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf

successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood."[15]

Figure 4.7-3: Cascade of Uncertainties



Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO_2 from 2000 to 2030, which represents an increase of between 25 and 90 percent.[16]

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing "new" greenhouse gas emissions. It is difficult to assess the extent to which any project level increase in CO_2 emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

Complete Streets

A Complete Street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit

[15] http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf. page 5-22
[16] Intergovernmental Panel on Climate Change (IPCC). February 2007. Climate Change 2007: The Physical Science Basis: Summary for Policy Makers. http://www.ipcc.ch/SPM2feb07.pdf.

vehicles, truckers, and motorists, appropriate to the function and context of the facility. Complete street concepts apply to all roadways in all contexts including local roads and state highways in rural, suburban, and urban areas. The North County Corridor would not preclude a complete streets facility from being designed approaching the project within the local jurisdictions; this is especially true within Segment 1. North County Corridor is compatible with Caltrans' intended Complete Streets goals for transportation facilities within Stanislaus County.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Using the Roadway Construction Emissions Model, Version 7.1.5.1 (SMAQMD 2013), construction-related CO_2 emissions were estimated. The model output results are summarized in Table 4.7-4. Construction of the project is expected to take two years.

Table 4.7-4: Estimated CO_2 Emissions During Construction

	Project Construction Emissions (CO_2 tons/yr)				**SJVAPCD AQ Significance Thresholds (tons per year)**
	1A	1B	2A	2B	
Year 1	6,530.46	7,019.38	6,140.54	6,900.18	N/A
Year 2	2,084.45	2,275.37	2,111.73	2,275.37	N/A
Project Total	8,614.92	9,294.75	8,252.27	9,175.54	N/A

CEQA Conclusion

As discussed above, both the 2046 with project and future No-Build calculations show increases in CO_2 emissions over the existing levels; the future build CO_2 emissions are also higher than the future No-Build emissions. Nonetheless, there are also limitations with EMFAC and with assessing what a given CO_2 emissions increase means for climate change. Therefore, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined an AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

Figure 4.7-3 The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-

15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

The following measures will also be implemented in the project to reduce the greenhouse gas emissions and potential climate change impacts from the project:

Measure CC-1: The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost $60 to $70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves

consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.

Measure CC-2: According to the Caltrans's Standard Specifications, the contractor must comply with all local Air Quality Management District rules, ordinances, and regulations for air quality restrictions.

Per the StanCOG Regional Transportation Plan EIR, the following greenhouse gas reduction measures could reduce construction emissions and will therefore be implemented by the project to reduce greenhouse gas emissions.

Measure CC-3: The contractor will use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State Off-Road Regulation.

Measure CC-4: The contractor will use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy duty diesel engines, and comply with the State On-Road Regulation.

Measure CC-5: All on- and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit.

Measure CC-6: The contractor shall use electric equipment in place of diesel-powered equipment, where feasible.

Measure CC-7: The contractor will substitute gasoline-powered in place of diesel-powered equipment, where feasible.

Measure CC-8: The contractor shall use alternatively fueled construction equipment onsite where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28,

2011,[17] outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."[18]

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[19] This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.[20]

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)[21] was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

[17] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience
[18] https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm
[19] https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm
[20] https://www.fhwa.dot.gov/environment/sustainability/resilience/
[21] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),[22] which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California," specifically, "information and recommendations to enhance consistency across agencies in their development of approaches to SLR." The March 2013 update[23] finalizes the SLR Guidance by incorporating findings of the National Academy's 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly direct impacts to transportation facilities due to projected sea-level rise are not expected.

4.8 Mitigation Measures for Significant Impacts under CEQA

The proposed mitigation measures for each significant impact under CEQA discussed above is included in the relevant subheadings of this chapter. In addition, a Discussion of all impacts, as well as avoidance, minimization and/or mitigation measures, is included under the appropriate topic headings in Chapter 3. A complete list of these measures is provided under Appendix F of this EIS/EIR.

[22] http://www.climatechange.ca.gov/adaptation/strategy/index.html
[23] http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

Chapter 5 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and helps in identifying potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team meetings, interagency coordination meetings, and public outreach meetings. This chapter summarizes the results of the NCCTEA efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

5.1 Scoping Process

A Notice of Intent (NOI) to prepare an EIS for the North County Corridor New SR-108 Project was issued on August 23, 2010 by the Federal Highway Administration. Caltrans, in cooperation with the NCCTEA, held two public scoping meetings in September 2010. The meetings were held at the following dates, times and places:

	Meeting One	Meeting Two
Date	September 8, 2010	September 13, 2010
Time	6:30 p.m. – 8:00 p.m.	6:30 p.m. – 8:00 p.m.
Location	Oakdale Community Center 110 S. 2nd Avenue, Oakdale, CA	Salida Regional Library 4835 Sisk Road, Salida, CA

These meetings were to inform the public, interest groups, affected tribes and government agencies of the EIR/EIS, including opportunities for public involvement. The scoping meetings were conducted pursuant to the CEQA Guidelines Section 15083 (Early Public Consultation). Details are provided in Section 5.3 below. A Notice of Preparation (NOP) of a Draft EIR was published August 30, 2010 at the State Clearinghouse.

5.2 Agency Consultation and Coordination

During preparation of the technical studies for the project, extensive contacts were made with public agencies and local organization with interests in the project (see Table 5.2-1).

As a continuation to the Route Adoption coordination, the project has been coordinated with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife as part of the North County Corridor New SR-108 Project. The most recent coordination took place in January 2014 to reintroduce the agencies to the project and to concur on survey methodology.

As part of 23 USC §139 coordination meetings have taken place to engage participating and cooperating agencies and the public. Table 5.2-1 shows the participating and cooperating agencies, their role and their responsibilities for the North County Corridor project.

Table 5.2-1: Participating and Cooperating Agencies, their Roles, and Responsibilities

Agency Name	Role	Responsibilities
Federal and State Agencies		
Caltrans	NEPA and CEQA Lead Agency	As Lead Agency: • Manage the environmental review process • Provide oversight of the NEPA and CEQA process • Provide oversight of the public and participating/cooperating agencies involvement • Arbitrate and resolve issues
U.S. Army Corps of Engineers (Sacramento)	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS As a Cooperating Agency: • Permitting authority for Section 404 permit
U.S. Environmental Protection Agency (Region 9)	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS As a Cooperating Agency: • Responsible for compliance with the Clean Air Act
U.S. Fish & Wildlife Service (Region 8)	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS As a Cooperating Agency: • Issuance of Biological Opinion

Agency Name	Role	Responsibilities
Federal Emergency Management Agency	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
California Department of Fish & Wildlife	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS As a Cooperating Agency: • Permitting Authority Streambed Alteration Agreement; • California Endangered Species Act compliance
Natural Resources Conservation Service	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
Regional Agencies		
San Joaquin Valley Air Pollution Control District	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Indirect Source Review - Air Impact Assessment • Adopt EIS

Agency Name	Role	Responsibilities
Central Valley Regional Water Quality Control Board	Participating Agency (Declined)	As a Cooperating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Section 401 Water Quality Certification or waiver; • Storm Water Pollution Prevention Plan; • NPDES permits; • waste discharge permits
Stanislaus Council of Governments	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
North County Corridor Transportation Expressway Authority (NCCTEA)	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
Local Agencies		
Modesto Irrigation District	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS

Agency Name	Role	Responsibilities
Oakdale Irrigation District	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
City of Modesto	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
City of Riverbank	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
City of Oakdale	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS
San Francisco Public Utilities Commission	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives

Agency Name	Role	Responsibilities
		• Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS As a Cooperating Agency: Permitting Authority for Grade crossings, grade separations, systems safety
Stanislaus County	Participating Agency (Accepted)	As a Participating Agency: Provide comments on: • Purpose and Need • Range of Alternatives • Methodologies • Level of detail for analysis of alternatives • Identification of issues that could substantially delay or prevent granting of permit/approval • Opportunities for collaboration • Mitigation measures • Adopt EIS

Source: 23 USC §139 Coordination Plan

During the coordination process, an Efficient Environmental Reviews for Project Decision Making 23 USC §139 Coordination Plan document was revised as a living document to document the major changes in the project as they occur. These changes are a result of the meetings and overall coordination efforts that take place as part of this process. Meetings were held on October 19, 2011 and August 6, 2014. Use of the living document as well as physical meetings allows the responsible agencies to stay current on the progress of the environmental process, the project, and any changes to the project.

Table 5.2-2 lists the revision history to the 23 USC §139 Coordination Plan.

Table 5.2-2: North County Corridor 23 USC §139 Coordination Plan (Revision History)

Version	Date	Name	Description of Revision(s)
1	November 15, 2010	North County Corridor 23 USC §139 Coordination Plan	Provides information about the agencies involved in the 23 USC §139 coordination plan process.
2	December 1, 2010	North County Corridor 23 USC §139Coordination Plan	Provides updated contact information under Section 1.2, Agency Contact Information
3	December 20, 2010	North County Corridor 23 USC §139 Coordination Plan	Provides updated information about agency roles and responsibilities
4	March 15, 2011	North County Corridor 23 USC §139 Coordination Plan	Establishes due dates for submittals of various documents to agency members
5	June 1, 2011	North County Corridor 23 USC §139 Coordination Plan	Include Oakdale Irrigation District as participating agency and update contact. Re-classify SFPUC as local agency, and update contact. Add new Caltrans project manager.
6	September 30, 2014	North County Corridor New State Route 108 23 USC §139 Coordination Plan	Update project limits to Tully/SR-219/Kiernan Ave to SR-108/SR-120. Update all contact information per new representatives. Update project schedule. Update coordination points.

Native American Tribes, Groups and Individuals

As part of the 2008-2012 Native American coordination efforts, a letter requesting a list of interested Native American representatives was sent to the Native American Heritage Commission on October 4, 2011 via fax. The request included a search of the sacred lands file and a list of Native American representatives who might have information or concerns regarding the project. The Native American Heritage Commission replied via fax on October 13, 2011 relaying that the Sacred Files Lands File search was negative for the presence of Native American cultural resources in the project area. A list of interested Native American representatives was also provided.

A supplemental request for a list of Native American individuals who might have information or concerns about the project and to review the sacred lands files for any Native American cultural resource that might be affected by the project was sent via letter on February 26, 2014 to the Native American Heritage Commission. Katy Sanchez of the Native American Heritage Commission responded via a fax dated March 5, 2014 that a review of the sacred lands in the area failed to indicate the presence of cultural resources in the immediate project area. Included with the fax was a list of Native American contacts.

- On March 20, 2014, a letter was sent to the Native American contacts on the list provided by the Native American Heritage Commission. The letter provided a summary of the project and requested information regarding comments or concerns the Native American community might have about the project. For those individuals who did not respond to the letter within 30 days, follow-up phone calls were placed to inquire whether the initial letter had been received. The following discussion provides a summary of coordination efforts.

- **Katherine Erolinda Perez, representative of the North Valley Yokuts Tribe.** A follow-up call was placed on April 29, 2014 and a message was left giving project information and contact details. An email was also sent on April 29, 2014 which provided an electronic copy of the initial consultation letter and contact information. As no response was received, an additional email was sent on May 12, 2014 to verify that Ms. Perez received the previous phone call and email. No response. A third follow-up call was placed on June 3, 2014, and a voice message was left. No response has been received to date. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Anthony Brochini, Chairperson for the Southern Sierra Miwuk.** The first follow-up call was placed on April 29, 2014. Chairperson Brochini indicated during the phone conversation that he was no longer chairperson and would defer all communication to the current Chairperson, Lois Martin. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Les James, Spiritual Leader for the Southern Sierra Miwuk.** As Mr. James did not respond to the initial letter, a follow-up call was placed on April 29, 2014. The phone was answered by a woman who took a message for Mr. James. A second follow-up call was placed on May 12, 2014, and a message requesting a return call to discuss the project was left. No response has been received to date. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Lois Martin, Chairperson for the Southern Sierra Miwuk.** After speaking with Mr. Brochini, it was discovered that Lois Martin was the current chairperson for the Southern Sierra Miwuk. During a phone conversation with Chairperson Martin on April 29, 2014, Chairperson Martin requested an electronic copy of the initial letter for her to review. An electronic copy of the letter and associated maps were emailed after the phone call. A follow-up email was sent on May 12, 2014 to verify receipt of the consultation letter and maps (electronic copy). No reply was received. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Joey Garfield, Tribal Archaeological, Tule River Indian Tribe.** An initial consultation letter was sent on March 20, 2014. No response. The first follow-up phone call was placed, and Kerri Vera, Environmental Director, answered the phone. Further correspondence will continue with Ms. Vera. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Neil Payron, Chairperson, Tule River Indian Tribe.** An initial consultation letter was sent March 20, 2014. No response. As contact was made with Ms. Vera, the Environmental Department Director for the tribe, future correspondence will take place with Ms. Vera. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Kerri Vera, Environmental Department Director, Tule River Indian Tribe.** An initial consultation letter was sent on March 20, 2014. No response. A follow-up phone call was placed on April 29, 2014. Ms. Vera answered the phone, and the project details were discussed with her. Ms. Vera indicated that the location of the project was a long way from the location of the tribal territory. Ms. Vera also requested that a copy of the initial letter and maps be emailed to her; they were sent to her via email on April 29, 2014. A follow-up email was sent on May 12, 2014 inquiring whether the previous email and maps were received. As no response was received, a third follow-up call was placed on June 3, 2014. During the phone conversation, Ms. Vera stated that the tribe would defer to a local Miwuk tribe. She added that should Native American resources be identified and should no local Miwuk tribe be available to consult, that it would be appropriate to continue coordination efforts with the Tule River Indian Tribe. A Notice of Availability was sent via mail on August 9, 2017, no comments on the Draft Environmental Document were received.

- **Previous Native American Consultation:** As part of the 2008-2012 Native American coordination efforts, a letter requesting a list of interested Native American representatives was requested from the Native American Heritage Commission. On November 11, 2011, letters providing a brief project description and project area map were sent to each representative on the list obtained from the Native American Heritage Commission. Follow-up phone calls were placed on November 23 and December 21, 2011 to all representatives who had not responded to the initial letter. A second letter providing project details and a project area map was sent on January 3, 2012. Table 5.2-3 shows the 2008-2012 coordination efforts.

Table 5.2-3: Previous Native American Consultation (2008-2012)

Individual Contacted	Date Contacted	Comments/Response
Anthony Brochini, Chairperson for the Southern Sierra Miwuk Nation	Letter: 11-11-2011	No response.
	Phone: 11-23-2011	Wrong number.
	Phone: 12-21-2011	Wrong number.
	Letter: 01-03-2012	No response.
	Phone: 02-13-2012	Wrong number.
	Phone: 03-19-2012	Wrong number.
	Phone: 04-09-2012	Wrong number.
Les James, Spiritual Leader for the Southern Sierra Miwuk Nation	Letter: 11-11-2011	No response.
	Phone: 11-23-2011	No voicemail option.
	Phone: 12-21-2011	No voicemail option.
	Letter: 01-03-2012	No response.
	Phone: 02-13-2012	No voicemail option.
	Phone: 03-19-2012	No voicemail option.
	Phone: 04-09-2012	No voicemail option.
Jay Johnson, Spiritual Leader for the Southern Sierra Miwuk Nation	Letter: 11-11-2011	No response.
	Phone: 11-23-2011	Voicemail left. No response.
	Phone: 12-21-2011	Voicemail left. No response.
	Letter: 01-03-2012	No response.
	Phone: 02-13-2012	Voicemail left. No response.
	Phone: 03-19-2012	Mr. Johnson asked to no longer be contacted.
Katherine Erolinda Perez, representative for the Northern Valley Yokuts Tribe	Letter: 11-11-2011	No response.
	Phone: 11-23-2011	Voicemail left. No response.
	Phone: 12-21-2011	Ms. Perez requested a copy of the letter be resent to her. This request was honored.
	Letter: 01-03-2012	No response.
	Phone: 02-13-2012	Voicemail left. No response.
	Phone: 03-19-2012	Ms. Perez indicated that in the past she had conducted a site visit at a property near Oakdale for a proposed highway project. She could not remember the location of the property but said that it appeared to be sensitive for archaeological resources. Ms. Perez recommended testing and the involvement of both archaeological and tribal monitors to be present.
Sandra Vasquez, Chairperson for the American Indian Council of Mariposa County	Letter: 11-11-2011	No response.
	Phone: 11-23-2011	No voicemail option.
	Phone: 12-21-2011	No voicemail option.
	Letter: 01-03-2012	Voicemail left. No response.
	Phone: 02-13-2012	No voicemail option.
	Phone: 03-19-2012	No voicemail option.
	Phone: 04-09-2012	No voicemail option.

Local Historical Society/Historic Preservation Group

- On January 21, 2014, a letter and maps showing the Area of Potential Effect were sent to the **California State University, Stanislaus Library Special Collections and Archives** requesting any information or concerns regarding historical resources within the Area of Potential Effect that may be affected by the project. On April 15, 2014, a follow-up telephone call was placed and a voicemail message was left requesting a return call to relay any information or concerns. On April 25, 2014, Special Collections and Archives librarian Ken Potts called and said that he had no questions or concerns about the project.

- On January 21, 2014, a letter and maps showing the Area of Potential Effect were sent to the **McHenry Museum & Historical Society** asking if they had any information or concerns regarding historical resources within the Area of Potential Effect. On April 17, 2014, a follow-up telephone call was placed and a voice mail message was left requesting a return call to relay any information or concerns. No response was received. A second follow-up call and voicemail message requesting an appointment to view the archival collection was placed on May 6. Laura Mesa, the museum coordinator, called on May 9, 2014, and recommended that an appointment should be arranged to visit Janet Lancaster, a Stanislaus County volunteer historian and genealogist at the museum. A list of questions was emailed to Ms. Mesa the same day, who in turn forwarded the email to Ms. Lancaster. On May 21, 2014, Ms. Lancaster provided an email explaining that the McHenry Museum was not a research facility and provided other locations to conduct research. No further consultation was attempted.

- On January 21, 2014, a letter and maps showing the Area of Potential Effect were sent to the **Oakdale Museum and Heritage Center** asking if they had any information or concerns regarding historical resources within the Area of Potential Effect. A follow-up call was placed on April 17, 2014, and museum volunteer, Don Riife explained the Oakdale Museum and Heritage Center possessed many historical photographs and documents that are partially organized, but the bulk of the collection he focused on was historic-era mining resources near Knights Ferry. On May 6, 2014, a voicemail was left requesting an appointment to view the archival collection. Oakdale Museum and Heritage Center President Barbara Torres responded on May 14, 2014 by phone and stated that the museum held assessor records from 1907 to 1958 for the Oakdale area. On May 21, 2014, an appointment was scheduled with Ms. Torres to view the collection.

- On January 21, 2014, a letter and maps showing the Area of Potential Effect were sent to the **Riverbank Historical Society & Museum**, asking if they had any information or concerns regarding historical resources within the Area of Potential Effect. A follow-up call was placed on April 15, 2014, and the society's president, Paulette Roberson, mentioned that the society possessed historical photographs of Riverbank, but did not have anything online or in a searchable database. Ms. Roberson also mentioned that the Oakdale museum may have information regarding the railroads that pass through the Area of Potential Effect and that pamphlets and walking tours of Riverbank are available. The museum was called on May 6, 2014, and a voicemail was left requesting an appointment to view their archival collection. No response was received, so on May 15, 2014, an Architectural Historian visited the museum. Mr. Glenn Ditman, one of the museum's volunteers, provided a tour of

Riverbank and of the museum, and also provided information regarding certain prominent Riverbank historical figures and events. Mr. Ditman then described the museum's collection organization process.

State Historic Preservation Officer

Caltrans consulted the State Historic Preservation Officer regarding eligibility determinations on May 20, 2015 and the State Historic Preservation Officer concurred on July 16, 2015 (see Appendix J). After consultation with the State Historic Preservation Officer, Caltrans assumed a total of two properties eligible, for the purposes of this project only.

After circulation of the Draft Environmental Document, Caltrans consulted the State Historic Preservation Officer regarding the Finding of No Adverse Effect and the State Historic Preservation Officer concurred on July 23, 2019 (see Appendix J). The State Historic Preservation Officer concurred that a Finding of No Adverse Effect is appropriate for the five built environment resources.

Further, as access to the entirety of the Direct Area of Potential Effects was not possible due to right-of-entry limitations, the archaeological site identification, evaluation, and finding of effect determination are not complete at this time. As additional cultural resource identification and evaluation efforts are needed, and as the Direct Area of Potential Effects has areas of moderate to high buried site sensitivity, Caltrans prepared a Programmatic Agreement to implement a phased approach to complete identification, evaluation of potential historic properties, effect finding determinations, and mitigation requirements (if applicable), after right-of-entry to the remaining parcels that have not yet been surveyed has been obtained. Mitigation measures include data recovery or, when feasible, protecting the resource in place. Given the high buried resource sensitivity in some areas of the Direct Area of Potential Effects, the Programmatic Agreement also includes a stipulation for the preparation of a post-review discoveries plan to be implemented during construction of the project. Caltrans submitted the Programmatic Agreement to the State Historic Preservation Officer for review and concurrence. The State Historic Preservation Officer concurred with the stipulations of the Programmatic Agreement on September 19, 2019 (see Appendix J).

5.2.1 Interagency Coordination and Consultation

During the North County Corridor SR-108 East Route Adoption Project phase, coordination took place with the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and California Department of Fish and Wildlife to determine proper methods and action for endangered, threatened and special status species. The discussion below outlines the coordination efforts with the appropriate agencies throughout the project. In addition, input was also solicited through the 23 USC §139 review process from public agency participants regarding the alternatives to be addressed in the environmental document.

On January 31, 2012, Jennifer Haire (ICF) contacted Eric Hansen, an independent consulting biologist, via email about the potential for the giant garter snake (*Thamnophis gigas*) to occur in the project area. Mr. Hansen stated that, based on the results of several studies, giant garter snakes are not known to occur in Stanislaus County.

On April 10, 2012, a field meeting to discuss the approach to the jurisdictional delineation was held between staff from the U.S. Army Corps of Engineers, EPA, Caltrans, and ICF. The U.S.

Army Corps of Engineers and EPA provided several recommendations (e.g., verification approach, mapping irrigated pasture wetlands).

On May 4, 2012, Rachel Kleinfelter (Caltrans) contacted Jen Schofield (U.S. Fish and Wildlife Service) via email about the potential for the San Joaquin kit fox (*Vulpes macrotis mutica*) to occur in the project area. Ms. Schofield noted that, per a discussion with other U.S. Fish and Wildlife Service staff knowledgeable about the San Joaquin kit fox, this species is likely not an issue for the project; therefore, focused surveys for the San Joaquin kit fox would not be necessary.

On January 23, 2014, a biological resources coordination meeting was held to discuss the approach to special-status species. Attendees included staff from the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, Caltrans, Stanislaus County, Drake Haglan and Associates, Inc., LSA, and Dokken Engineering, Inc. (Dokken). Following a comprehensive discussion, concurrence was reached on the approach to all special-status species. After to the meeting, additional coordination occurred between Caltrans (Dena Gonzalez) and Dokken (Sarah Holm) about the approach to bat surveys. The approaches to special-status species agreed to during this meeting and subsequent coordination were implemented during the field investigation and data evaluation phases of the project.

On February 24, 2019, the Biological Assessment was transmitted to Jen Schofield (U.S. Fish and Wildlife Service) for review. U.S. Fish and Wildlife Service responded with comments on May 9, 2019, and the revised document was retransmitted to Jen Schofield on July 24, 2019 and October 15, 2019. U.S. Fish and Wildlife Service issued the Biological Opinion on December 11, 2019.

On October 8, 2019, the Air Quality Conformity Analysis was transmitted to the Federal Highway Administration for conformity concurrence. The Federal Highway Administration reviewed the Air Quality Conformity Analysis and supporting documentation, and concurred that the project is conforming to the Federal Transportation Improvement Program and the Regional Transportation Plan/Sustainable Communities Strategy on November 1, 2019.

5.3 Public Participation

The proposed project was designed with input from the community. The project design team (composed of members from Caltrans District 10, Stanislaus County, the cities of Modesto, Riverbank and Oakdale, and engineering, environmental and public relations consultant members) conducted and participated in a number of community outreach meetings with the general public, public entities, and interested stakeholders since 2011 in a comprehensive effort to gather input and comments from the surrounding communities.

Two public scoping meetings, eight community focus group meetings, six public information meetings, and one environmental focus meeting occurred between September 2010 and July 2014. Two more public information meetings were held in October and November 2014. Announcement of the public meetings was made in both English and Spanish through mailed postcards, public notices placed in newspapers, and news releases. Also, personal invitation letters from the District Director or Caltrans District 10 were sent to federal, state, and local elected officials in Stanislaus County.

To reach the high percentage of Hispanic and other minority populations within the project area communities, both English and Spanish were included in the public meeting invitations sent to property owners. Public meeting news releases in both English and Spanish were sent to print and broadcast media outlets, including the Hispanic Chamber of South San Joaquin County, Hispanic Chamber of Stanislaus County, and KCSO Telemundo 33. In addition, news releases specified that Spanish-language translation will be available at public meetings. At public meetings, a Spanish and Tagalog translator was available to greet attendees, encourage attendees to ask questions and make comments, as well as translate explanations, questions, answers, and public input.

In addition to language assistance, a number of other public outreach efforts were made to reach minority and low-income individuals. Telephone numbers, email addresses, and/or office addresses of the Caltrans Project Manager, Caltrans environmental planning staff, Caltrans District 10 Public Affairs office, as well as the Project Manager at the North County Corridor Transportation Expressway Authority, were provided in the public news releases so the public could submit comments, questions, or concerns. Phone numbers for special accommodations at the public meetings (such as American Sign Language interpreter, accessible seating, documentation in alternate formats, and Telecommunications Device for the deaf) were also included in the news releases for individuals with disabilities.

Meeting information is summarized in Table 5.3-1.

Table 5.3-1: Summary of Public Meetings

Date	Number of Attendees	Location	Topics Discussed
September 8, 2010	112	Oakdale Community Center	Public Scoping Meeting. Discussed a range of alternatives and identified the potentially significant issues to be analyzed in depth in the environmental documents.
September 13, 2010	152	Salida Regional Library	Public Scoping Meeting. Discussed a range of alternatives and identified the potentially significant issues to be analyzed in depth in the environmental documents.
December 8, 2010	24	StanCOG Board Room	Community Focus Group Meeting. The group's roles and responsibilities, expectations, and communication protocols were discussed.
March 9, 2011	18	StanCOG Board Room	Community Focus Group Meeting. Original 17+ alternatives had been narrowed to a reasonable range. Environmental planners began their technical analysis. Discussions on Permit to Enter (PTE) status (50 percent response).
June 8, 2011	13	StanCOG Board Room	Community Focus Group Meeting. Presented Build Alternatives that were moving forward in the environmental studies. Previewed displays for June 16, 2011 public meeting.
June 16, 2011	121	Riverbank Community Center	Public Information Meeting. Provided project displays and exhibits. Received public comments. Discussed environmental process, alternatives screening criteria, and the environmental and engineering studies that were underway.
September 28, 2011	About 13	StanCOG Board Room	Community Focus Group Meeting

Date	Number of Attendees	Location	Topics Discussed
November 9, 2011	13	StanCOG Board Room	Community Focus Group Meeting
November 21, 2011	33 new property owners	Riverbank Council Chambers	A special community meeting with the new property owners that now required PTEs
February 29, 2012	14	StanCOG Board Room	Community Focus Group Meeting
June 13, 2012	About 13	Riverbank Council Chambers	Community Focus Group Meeting
February 6, 2014	16	Riverbank	Community Focus Group Meeting. Presented project changes and updates.
March 6, 2014	About 201	Riverbank Community Center	Public Information Meeting. Provided project displays and exhibits. Received public comments. Discussed environmental process, alternatives screening criteria, and the environmental and engineering studies that were underway.
October 28, 2019	--	Covenant Grove Church	Neighborhood Open House

The following main concerns and comments were expressed at the public meetings:

- Negative effect on property values
- Ingress and egress to properties
- Gratitude for the project following the Kiernan/Claribel route
- General access issues
- Potential negative effects on local businesses in Riverbank and Oakdale
- Skepticism about roundabouts
- Noise
- Negative impacts on agricultural land
- Moving agricultural equipment to/from fields
- Increased traffic
- Negative impacts on birds

As shown in the table above, two public information meetings have been held to inform the community of the North County Corridor New SR-108 Project.

The first public information meeting was held at the Riverbank Community Center on June 16, 2011. The purpose of the meeting was to inform the community that could be affected by the new SR-108 alignment about the environmental process, alternatives screening criteria, and the environmental and engineering studies that were underway. Attendees were also encouraged to tell the project team about environmental issues and alternatives to consider and analyze in the EIS/EIR.

The second public information meeting took place on March 6, 2014. The purpose of the meeting was to inform the community of the progress of the project and share the proposed alternatives with the community. The public was encouraged to give feedback on the alternatives, including access to their individual properties. To further understand the needs of

the public, individual property meetings have also taken place to inform property owners of the project and discuss their individual needs in terms of access.

The following main concerns and comments were expressed at the public meetings:

- Negative effect on property values
- Ingress and egress to properties
- Gratitude for the project following the Kiernan/Claribel route
- General access issues
- Potential negative effects on local businesses in Riverbank and Oakdale
- Skepticism about roundabouts
- Noise
- Negative impacts on agricultural land
- Moving agricultural equipment to/from fields
- Increased traffic
- Negative impacts on birds

Public hearing and comments were also allowed in all regular meetings held by the NCCTEA and the North County Corridor Technical Advisory Committee (TAC). Records of all NCCTEA and North County Corridor TAC regular meetings held between 2008 and 2014 are listed in Table 5.3-2.

Table 5.3-2: Summary of Technical Advisory Committee Meetings

Date	Number of Attendees	Location	Topics Discussed
June 3, 2008	5	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	First meeting where team member roles and responsibilities were discussed. It was determined that the NCCTEA role is to complete the Project Approval and Environmental Document phase of the project. -The NCC Project is not currently in the RTP. StanCOG is amending the RTP to include the project. -The NCC Project STIP dollars were moved into the 08/09 STIP FY at the CTC meeting held on 6/4 and 6/5, 2008. -The NCC Project will be included in the 2007 FTIP with approval of Amendment11.
August 5, 2008	6	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	The TAC discussed the Jacobs Contract and scope of Task 1. Route Adoption Strategy discussed and how it would lead to a relinquishment of existing SR-108.
September 2, 2008	5	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Reviewed August 19, 2008 Environmental Focus Meeting. TAC members agreed that Caltrans is committed and very supportive of the project. Traffic forecasting was discussed as a critical path item. The CTC approved the STIP allocation for the NCC Project. This STIP allocation is for $6.2 million and will be funding the PA&ED phase of this project.
November 4, 2008	15	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Traffic presented the October 24, 2008 memorandum regarding the 2050 Land Use Projects for the North County Corridor Project.
December 2, 2008	5	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	The Route Adoption was determined to be the focus of the TAC, the route adoption strategy will be non-technical in nature and only to designate general termini.
February 3, 2009	7	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Delivery schedule was approved.
March 3, 2009	6	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	NCC Route Adoption Strategy, Year 2030 land use allocation, Jacobs Engineering Contract, Task 2 and 3.
March 31, 2009	5	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Decided to refer to corridors as A and B (instead of Alignment A and Alignment B). Cooperative Agreement was proposed.
May 5, 2009	6 (13 members of public also)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	NCC urban boundary was discussed. The Draft 2030 and 2050 Daily Traffic Forecasts for the NCC SR-108 East Route Adoption were handed out.

Date	Number of Attendees	Location	Topics Discussed
June 2, 2009	4 (at least 1 member of the public)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	June 15 public meeting was discussed, NCC schedule and NCC West Study Corridors.
June 30, 2009	4 (at least 1 member of the public)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Reviewed the local resolution of support for the relocation of SR-108.
August 31, 2009	4 (at least one member of the public)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Revised corridor proposed. The Route Adoption process was laid out, including the EIR 45-day circulation requirement.
October 6, 2009	4 (several members of the public)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Members of the public asked if at the public hearing if they were going to be able to ask specific questions. The TAC informed them that they would only be taking testimony and no response would be given at the time of the hearing.
March 5, 2010	4	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Updates on the project were given.
April 6, 2010	4 (members of the public were present)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project status given.
June 1, 2010	7 (9 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project updates.
July 6, 2010	6 (3 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project updates. Jacobs amendment was discussed. No updates on the lawsuit filed on the FEIR for the Route Adoption.
August 3, 2010	8 (3 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project updates. State Bill 375 was discussed.
September 8, 2010	10	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	New fact sheet handed out. StanCOG model was noted and planned on being compared with the new RTP model developed by StanCOG at future meetings.
October 5, 2010	8 (2 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	The public brought up the *Modesto Bee* article regarding the Kiernan I/C project and if it would help NCC project. The Kiernan I/C project, if awarded the Prop. 1B funding by the CTC will begin construction at the end of 2012; the CTC will vote on the Prop 1B funding in November; we are also requesting Prop 1B funding (savings from the SR-219 Widening Phase 2) for Claribel Widening, but won't know the results until

Date	Number of Attendees	Location	Topics Discussed
			after the first of the year. If awarded Prop 1B funding, the project could begin construction at the end of 2012. Hammett PSR is in the environmental phase.
January 4, 2011	8	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project updates.
February 7, 2011	5 (about a dozen members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Permit to Enter discussions. It was explained that this initial screening was to eliminate those alternatives that did not meet the Initial Screening Criteria. Fact sheets of each alternative, showing whether the alternative would be retained for further study or not had been emailed to stakeholders. Multiple members of the public had copies with them. It was summarized that of the 17 possible alternatives, 9 had been eliminated based on the initial screening analysis. The remaining 8 alternatives will be further considered in a second round of initial screening of analysis. The goal is to reduce to a reasonable range of alternatives (3 or so) for detailed analysis. Kris Balaji explained briefly the steps, areas of consideration, for the second level of analysis that would lead to PD T recommendation of the preferred alternative resulting from the environmental documentation. Each alternative was then gone through since members of the public had considerable comment.
April 5, 2011	9 (14 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Possible interchange locations were discussed in detail.
May 3, 2011	8 (5 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Access point locations were discussed, Permission to Enter letters were discussed. 23 USC §139 meetings were planned.
June 7, 2011	6 (3 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project update. Also, Conagra impacts were highlighted and it was determined that they would be invited to the 23 USC §139 meetings.
February 7, 2012	5 (4 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	It was determined that the Regional Water Quality Control Board stated that they anticipate that the project would have minimal impacts on the permit for Conagra.
October 4, 2012	9	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	The TAC agreed on the local road connections to NCC.

Date	Number of Attendees	Location	Topics Discussed
February 6, 2013	10	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	The traffic numbers currently used for the traffic model and traffic operations report are based on StanCOG's 2011 RTP Land Use Projections. StanCOG has begun working on the 2013 RTP and the StanCOG Board adopted new land use projections for use in that report. The project determined to continue with the RTP 2011 to avoid project delays as the 2013 RTP would not be approved until October.
June 3, 3013	8 (10 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Biological studies are on hold because of the weather. It was reported at the last JPA meeting that fairy shrimp studies were going to be completed, but 20 new pools were found and studied during the wet season and need to be surveyed this summer to complete the studies. Did not have sufficient rainfall to study the tiger salamanders this season, which will be addressed with the re-scoping of the project. Traffic forecasting has been completed, and the new numbers seem to support the re-scoping of the project to an expressway. The new modified B alignment follows a natural bluff line and ties in to the 4-lane section of SR-120. It still splits the Burchell property, but seems to make good sense. The new alignment mostly avoids the wetlands.
February 6, 2014	11 (2 members of the public as well)	Stanislaus County Public Works Conference Room, 3rd floor, 1010 Tenth St. Modesto, CA	Project update: Caltrans approved traffic forecasting for NCC in June after the last TAC meeting. JPA ended the contract with Jacobs Engineering and completed an RFQ and negotiated a contract with Drake Haglan and Associates for PA&ED. Changes of note to the alternatives include: 1. McHenry interchange greatly reduced footprint to a single-point interchange. 2. Coffee intersection upgraded to a single-point interchange due to traffic needs. 3. NCC shift to the south continued to Roselle before coming back to Claribel. 4. Single-point interchange access added to NCC at Roselle to better serve Riverbank and Modesto. 5. Alternative B was finalized, previous Wamble and Bluff alignments removed. 6. Termini at SR-120 are being considered as roundabouts.

Meetings with individual property owners occurred throughout the project planning and community outreach to discuss potential impacts and address concerns. Table 5.3-3 summarizes discussions between the project design team and individual property owners.

Table 5.3-3: Summary of Meetings with Individual Property Owners

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
Barns (Gookin)	6/3/2013	Property owner did not express concern or disagree with the project.	
Warren and Jean Baize	5/2013-11/2013, 6/3/2013	Property owner did not express concern or disagree with the project.	
John Anderson	11/15/2013	Property owner requested information on the design alternatives.	The project design team reviewed design alternatives with property owner.
Fred Killion, his family, and neighbors	12/4/2013	Property owner did not express concern or disagree with the project. Property owner requested maps of the project.	The project design team provided project maps to property owner.
Conagra	2/20/2014 3/11/2014	Property owner stated their needs as a business.	
Garth Stapley	3/17/2014	Property owner did not express concern or disagree with the project.	
Holly Jongsma	3/31/2014 5/11/2014	Property owner expressed concerns about changes to alignment around her parcel.	The project design team addressed these concerns.
David and Gaye Steeley	3/31/2014	Property owner expressed concerns about the project.	The project design team addressed these concerns.
Joe and Debbie Lewis	3/12/2014	Property owner expressed concerns about the alignment design.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible. The project design team explained why shifting alignment was not feasible.
Diane – Olive Lane Estates	4/4/2014	Property owner did not express concerns about impacts to property.	

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
Tony Mistlin	4/29/2014	Property owner expressed concerns about the potential impacts.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible.
Anna Bettencourt	5/19/2014	Property owner expressed concerns about impacts to property.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined impacts to farmland and residences will continue to be minimized to the greatest extent possible.
George Barsamian	5/15/2014 7/23/2014	Property owner expressed concerns about impacts to property.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible.
Dave Romano	May 2013-Nov 2013 6/26/2014	Property owner requested information on local access south of NCC between McHenry Avenue and Coffee Road	The project design team provided the requested information.
Gisele Gomes	6/30/2014	Real Estate Agent requested information on impacts near the intersection of Claribel Road and Roselle Avenue.	The project design team provided the requested information.
Wolfgang and Victorina Bach	4/14/2014 5/14/2014 5/29/2014 6/3/2014	Property owner believed that the alignment should continue on Claribel and not be realigned to the south.	The project design has been updated throughout the Project Approval and Environmental Document (PA&ED) phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
		Property owner expressed concern about losing property and house.	other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible. Several follow-up meetings took place between the Project Development Team and the Bachs to discuss the project in more detail.
Gale and Bernice Bick	4/14/2014	Property owner believed that the alignment should continue on Claribel and not be realigned to the south. Property owner expressed concern about losing property and house.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible.
Frank Bavaro	4/14/2014 6/20/2014	Property owner explained that he did not like the location of the frontage road because it would split his property. Expressed concern that the addition of a frontage road would devalue his property. Expressed concern that the location of the realignment should match with future development plans in the area.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible. The project design was explained to Mr. Bavaro indicating that the improvements near his property would include conforming the road to existing grade. All frontage roads are designed to allow all properties to maintain access to the new SR-108. Input from property owners is taken into consideration when choosing the location of the frontage roads to best serve the public. The project will be consistent will future development plans within the surrounding areas. It will be consistent with the County, the City

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
			of Riverbank, City of Modesto, and City of Oakdale's' general plans.
Charlonia Baker	4/24/2014	Property owner expressed concern that changing Davis Street to a cul-de-sac would cause flooding to be worse.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined, impacts to farmland and residences will continue to be minimized to the greatest extent possible.
Steven and Gina Belletto	4/30/2014	Property owner appreciated time taken to discuss the project and possible effects to the property. No concern or disagreement was voiced.	The Project Development Team has no concerns with this area.
Ronnie Ray Black	4/22/2014	Property owner did not express concern or disagree with the project.	
William and Joy Bloomingcamp	3/24/2014	Property owner expressed concern about the difficulties of farming on both sides of the road due to a frontage road. Expressed annoyance for the use of roundabouts. Expressed preference for Alternative 2.	
Burchell Nursery, Inc.	6/3/2013 2/7/2014	Property owner did not express concern or disagree with the project.	
Richard Connolly	3/3/2014	Property owner did not express concern or disagree with the project.	
Arthur and Ramona Davis	4/21/2014	Property owner did not express concern or disagree with the project.	
Abraham and Cynthia De Visser	3/17/2014	Property owner did not express concern or disagree with the project.	
Ronald DeMoss	5/1/2014	Property owner did not express concern or disagree with the project.	

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
Albert Deniz	4/3/2014	Property owner did not express concern or disagree with the project.	
Dolly and Glen Dorrity	1/9/2014	Property owner did not express concern or disagree with the project.	
Joe Dutra	1/9/2014 3/1/2014-3/7/2014	Property owner stated that he supported the project only if his property was not bisected. Property owner expressed concern about the project through phone and email.	
Paul Embree	4/21/2014	Property owner did not express concern or disagree with the project.	
Francisco Fernandez	4/15/2014	Expressed concern that the project would not assist him in opening the restaurant he desired to open. Expressed concern that the classification of Oakdale Road would not change.	The project will be consistent will future development plans within the surrounding areas. It will be consistent with the County, the City of Riverbank, City of Modesto, and City of Oakdale's' general plans.
Jimmy and Kathleen Gilbert	4/22/2014	Property owner did not express concern or disagree with the project.	
Jason Godkin	2/11/2014	Property owner did not express concern or disagree with the project.	
Vicente Gomez	4/3/2014	Property owner did not express concern or disagree with the project.	
Marcus Haney	1/9/2014	Property owner did not express concern or disagree with the project.	
Ross Hannick	4/30/2014	Property owner did not express concern or disagree with the project.	
Karen Henson	3/25/2014	The tenant indicated that she and her husband own the property mortgage, but not the title. Property owner did not express concern or disagree with the project.	
William and Caroline Hoekstra	4/22/2014	Property owner did not express concern or disagree with the project.	

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
Peggy Holt	3/24/2014	Property owner expressed frustration after the public meeting and requested a better viewing map. Property owner did not express concern or disagree with the project.	The property owners concern will be addressed in the next public meeting during the environmental document circulation.
Sandy Lee Ichord	4/30/2014	Property owner did not express concern or disagree with the project. Encouraged to go to public meetings.	
Christine Kaplan	Initial: Public Meeting Follow Up: 4/30/2014	Property owner expressed the fact that the process was disheartening. Expressed the fact that the access road was not wanted.	The project design has been updated throughout the PA&ED phase of the project to reduce impacts to farmlands and residences to the extent feasible in consideration of other site conditions such as drainage constraints, topography, and residential uses. As the alignments are refined and more of the existing alignment is being used in both alternatives, farmland impacts will continue to be minimized.
Richard Kleeman	5/1/2014	Property owner did not express concern or disagree with the project.	
Alex Laikos	4/14/1014	Property owner did not express concern or disagree with the project.	
Chester Lot	4/22/2014	Mr. Lot indicated that he and his wife were tenants of the property. Property owner did not express concern or disagree with the project.	
Diana Martin	4/15/2014	Property owner did not express concern or disagree with the project.	
Alex McKeon	3/24/2014	Property owner requested that the project take their house.	While this is appreciated, the Project Development Team will take the project as a whole under consideration.
Miguel Munoz	4/3/2014	Property owner did not express concern or disagree with the project.	

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
Phil and Jake Oosterman	3/18/2014	Property owner did not express concern or disagree with the project.	
Porter	3/18/2014	Property owner did not express concern or disagree with the project.	
Ramsey	4/30/2014	Property owner did not express concern or disagree with the project.	
Saarloos	2/12/2014	Property owner did not express concern or disagree with the project.	
Sandoval	4/22/2014	Property owner did not express concern or disagree with the project.	
San Francisco Public Utilities Commission (Karen Frye)	2010-2018	San Francisco Public Utilities Commission concerned about impacts to Hetch-Hetchy and associated utility facilities.	Design team conducted coordination meetings and provided exhibits, CAD files, and impacts to ensure the project would minimize impacts to Hetch-Hetchy.
Seng	4/15/2014	Property owner did not express concern or disagree with the project.	
Simmons	5/1/2014	Property owner did not express concern or disagree with the project.	
Tidwell	4/21/2014	Property owner explained that the access road that would be built from the Modesto Irrigation District property to the north through to Vella Way would be a wasted effort. Everyone uses Vella Way.	Input from property owners is taken into consideration when choosing the location of the frontage roads to best serve the public. The project will be consistent will future development plans within the surrounding areas. It will be consistent with the County, the City of Riverbank, City of Modesto, and City of Oakdale's' general plans.
Valenzuela Tenant	3/25/2014	Property owner did not express concern or disagree with the project.	
Wilson (Furtado Tenant)	3/24/2014	Property tenant has not received information about the project. Tenant also indicated that Alternative 1A or 1B would be better for his business.	Property tenant will be mailed project information. The Project Development Team will take the information under advisement when determining which alternative to choose.
Wincentsen	4/21/2014	Property owner did not express concern or disagree with the project.	
Wright	4/22/2014	The property owners appreciated learning more about the overall project.	

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
		Concern was expressed regarding how many trees would be taken by widening Patterson Road.	
Youngman	4/21/2014	Property owner did not express concern or disagree with the project.	
John Brichetto	3/11/2014	Concerns were expressed about re-routing irrigation.	A meeting was held with Mr. Brichetto and Conagra to discuss the re-routing of irrigation. Mr. Brichetto expressed unwillingness to discuss possible options of re-routing his irrigation and stated that over 1,000 jobs are at stake over the project. No resolution was reached as Mr. Brichetto ceased to continue correspondence about the project.
ConAgra	2017-18	Concerns were expressed about re-routing irrigation.	The County met with ConAgra representitives to resolve outstanding issues regarding re-routing of irrigation. It was determined that all waste water from ConAgra could be accomodated for with the project's impacts to ConAgra properties. Additional coordination is anticipated to occur during final design of the project.
Darrel, Vic Demelo	Early May, 2013	Property owner did not express concern or disagree with the project.	
Curtis Porter	May 2013-Nov 2013	Property owner did not express concern or disagree with the project.	
Camilla Wells	May 2013-Nov 2013	Property owner did not express concern or disagree with the project.	
A.L. Gilbert	May 2013-Nov 2013	Property owner did not express concern or disagree with the project.	
Will Leighton	May 2013-Nov 2013	Property owner did not express concern or disagree with the project.	
Amerine	May 2013-Nov 2013	Property owner did not express concern or disagree with the project.	
Willie Bylsma	May 2013-Nov 2013	Property owner did not express concern or disagree with the project.	

5.3.1 Circulation of the Draft EIR/EIS

Pursuant to National Environmental Policy Act and California Environmental Quality Act requirements, the Draft Environmental Impact Report/Environmental Impact Statement and Draft Section 4(f) De Minimis Finding for the project was circulated for public review and comment. The draft environmental document was circulated for a 69-day review by agencies and members of the public from August 9, 2017 to October 16, 2017.

Notices of Availability for the draft environmental document and notice of a Public Hearing were sent to property owners, residents, public agencies, emergency responders, transit agencies, civic and community groups, chambers of commerce, school districts, environmental groups, and other interested parties likely to be interested in the corridor. A total of 4,348 letters were mailed to inform the public of the availability of the draft environmental document.

The Notice of Availability to review the draft environmental document and the invitation to the public hearing were prepared in English and Spanish. Public notices announcing the availability of the draft environmental document included the date, time, and location of the public hearing. The public hearing was advertised in announcements that appeared in the *Modesto Bee,* published on August 9 and September 1, 2017, *Oakdale Leader,* published on August 9 and September 6, 2017, and *Riverbank News,* published on August 9 and September 6, 2017. A public notice in Spanish was also placed in *Vida en El Valle,* on August 9 and September 6, 2017. Notices were also posted with the Stanislaus County Clerk's Office. Availability of the environmental document was also announced in The Federal Register on September 1, 2017. The Notices of Public Hearings were also made available on the Caltrans website (http://www.dot.ca.gov/d10/x-project-sr108northcountycorridor.html#News).

Additionally, the Project Development Team held a Public Hearing on Thursday, September 7, 2017, for the North County Corridor Project Tully Road to SR-120 (New State Route 108) project. The Public Hearing was held from 4:00 p.m. to 8:00 p.m. in the Gene Bianchi Community Center in Oakdale, California.

The Public Hearing provided members of the public and other interested parties an opportunity to learn more about the project and to comment on the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and Draft Section 4(f) De Minimis Finding for the project. Copies of the documents were available at the hearing for review.

The Public Hearing was publicized through a jumbo postcard invitation sent by first-class U.S. mail, public notices (advertisements) in local newspapers, and a news release to print and broadcast mainstream and alternative media that serve the project area.

305 persons were signed in at the Public Hearing and provided a print program for the evening and a comment sheet. The pubic hearing was conducted in an open house format. Once attendees signed in, they were free to roam the room and see the displays and exhibits. Caltrans staff, members of the local North County Corridor Transportation Expressway Authority (NCCTEA), and other engineering and environmental project team specialists, who were available to answer questions and lead attendees through the extensive map displays and other information stations.

On the comment sheets provided, attendees could submit comments about the project. Attendees could also dictate their comments to the onsite court reporter, if preferred.

The draft environmental document was available for public viewing at the following locations:

- Caltrans District 6: 855 M Street, Suite 200, Fresno, CA 93721
- Caltrans District 10: 1976 E Dr. Martin Luther King Jr. Boulevard, Stockton, CA 95205
- Riverbank City Hall, 6707 3rd Street, Riverbank, CA 95367
- Oakdale Public Works Department, 455 South 5th Avenue, Oakdale, CA 95361
- Modesto City Hall, 1010 10th Street, Modesto, CA 95354
- Stanislaus County Public Works Department, 1716 Morgan Road, Modesto, CA 95358
- Stanislaus County Public Library: 1500 I Street, Modesto, CA 95354
- Riverbank Library: 3442 Santa Fe Street, Riverbank, CA 95367
- David F Bush Oakdale Library: 151 S 1st Avenue, Oakdale, CA 95361
- Big Valley Grace Library: 4040 Tully Road, Modesto, CA 95356

The comments received during the public circulation period, including those received at the public hearing, are provided in Appendix N contained within Volume III, which has been added to the environmental document. Additionally, responses to all public comments received during the public circulation period are provided in Appendix N.

For more information and to request an electronic copy of this document, please visit:

- (http://www.stancounty.com/publicworks/ncc-main.shtm)

Chapter 6 List of Preparers

The following Caltrans staff and consultants contributed to the preparation of this EIR/EIS.

Joint Powers Authority

David Leamon. P.E., California State University San Diego; B.S., Civil Engineering; 23 years of experience. Contribution: Authority Manager.

California Department of Transportation

Abdulrahim Chafi, N. P.E., INCE. Ph.D., Environmental Engineering Management, California Coast University; B.S. and M.S., Chemistry, California State University, Fresno. M.S., Civil/Environmental Engineer, California State University, Fresno. Over 17 years of experience performing transportation analysis studies for air quality, noise impact, and water quality. Contribution: Review and update of the Air Quality Analysis.

Allam Alhabaly, Transportation Engineer (Civil). B.S., Engineering, California State University, Fresno; 13 years in the environmental engineering unit. Contribution: Noise Report oversight.

Jon L. Brady, Associate Environmental Planner/Architectural Historian. B.A., Political Science and Anthropology; M.A., History, California State University, Fresno; over 30 years of experience as a consulting archaeologist and historian. Contribution: Historic Resources Evaluation Report oversight.

Denis Agar, District Director. 26 years of experience. Contribution: Project Oversight.

Abdulrahim Chafi, N. P.E., INCE. Ph.D., Environmental Engineering Management, California Coast University; B.S. and M.S., Chemistry, California State University, Fresno. M.S., Civil/Environmental Engineer, California State University, Fresno. Over 17 years of experience performing transportation analysis studies for air quality, noise impact, and water quality. Contribution: Review and update of the Air Quality Analysis.

Dena Gonzalez, Branch Chief, Central Region Biology. Contribution: Oversight review of the Natural Environment Study and Biological Assessment.

Mimi Huie, Project Manager. Electrical and Electronics Engineering, University of California, Davis, B.S.. Over 30 years of experience as a transportation engineer. Contribution: Oversight and project management.

Jennifer Lugo, Senior Environmental Planner. M.A., History, California State University, Fresno; B.A., History, Minor in Political Science, California State University, Fresno; 13 years of environmental planning experience. Contribution: Review of Biological Assessment and Final Environmental Document.

Scott Smith, Branch Chief. B.A., Economics, California State University, Fresno; 12 years of environmental planning experience. Contribution: Environmental Coordinator.

Juan Torres, Associate Environmental Planner. B.A., Environmental Studies, University of the Pacific, Stockton; 18 years environmental planning experience. Contribution: Associate Environmental Planner/Oversight.

Dan McElhinney, District Director. 22 years of experience. Contribution: Project Oversight.

Frank Meraz; Associate Environmental Planner (Natural Science). B.S., Biology, California State University, Fresno; 12 years of wildlife biology and environmental planning experience. Contribution: Natural Environment Study oversight.

Scott Smith, Branch Chief. B.A., Economics, California State University, Fresno; 12 years of environmental planning experience. Contribution: Environmental Coordinator.

Richard C Stewart; Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 25 years of hazardous waste and water quality experience; 8 years of paleontology/geology experience. Contribution: Paleontology Evaluation Report oversight.

Juan Torres, Associate Environmental Planner. B.A., Environmental Studies, University of the Pacific, Stockton; 18 years environmental planning experience. Contribution: Associate Environmental Planner/Oversight.

Philip Vallejo, Environmental Office Chief. Contribution: Project Oversight, Historic Resources Evaluation, Historic Property Survey Report, Finding of Effect, and Programmatic Agreement oversight.

Brian Wickstrom, Associate Environmental Planner (Archaeologist). Cultural Resources Management (1986), Sonoma State University; 28 years of experience in the archaeology of northern, central, and eastern California. Contribution: Cultural Resources oversight.

Dokken Engineering

Jaimie Azvedo, Assistant Roadway Engineer. B.S., Civil Engineering, Sacramento State University; 4 years environmental planning experience. Contribution: Water Quality Assessment.

Tim Chamberlain, Senior Environmental Planner. B.S., Political Science, University of California Los Angeles; 12 years environmental planning experience. Contribution: Environmental Quality Assurance.

Amy Dunay, Environmental Planner/Archaeologist. M.A., Archaeology, University of California Los Angeles; B.A., Classics, Mounty Holyoke College; 11 years of environmental planning experience. Contribution: Historic Property Survey Report and Archaeological Survey Report.

Sarah Holm, Senior Environmental Planner. B.A., Biology and B.S., Environmental Science; 10 years of environmental planning experience. Contribution: Environmental Quality Assurance Manager.

Namat Hosseinion, Environmental Manager. B.A. and M.A., Anthropology; 17 years of environmental planning experience. Contribution: Environmental Manager.

Zach Liptak, Environmental Planner. B.S., Environmental Studies, Sacramento State University; 9 years environmental planning experience. Contribution: Environmental Document (Primary Author).

Carlene Saxton, Associate Environmental Planner. M.S., Environment and Sustainable Development, University College London; B.S., Environmental Science, Valparaiso University 7 years environmental planning experience. Contribution: Environmental Document.

Fehr and Peers

Eddie Barrios, Associate. B.S., Civil Engineering; 16 years of transportation analysis experience. Contribution: Final traffic operations report.

Entech Consultation

Joza M. Burnam, Environmental Scientist. B.S., University of California, Riverside; 5 years of environmental consulting experience. Contribution: Assisted in the preparation of the Noise Study Report.

Michelle A. Jones, Principal of Technical Services. B.S., University of Washington; 20 years of environmental consulting experience. Contribution: Principal-In-Charge, managed the preparation of the Noise Study Report.

LSA Associates, Inc.

Jeff Bray, Biologist. B.S., Wildlife Biology; 20 years of experience. Contribution: Co-author of the Natural Environment Study.

Keith Lay, Associate, Air Quality Specialist. B.S., Civil Engineering (Transportation and Environmental Engineering emphasis); 11 years of experience. Contribution: Preparation of the Air Quality Analysis hotspot memorandums.

Brooks Smith, Senior Field Crew, Paleontology. B.S., Earth Science (Geology), University of California, Santa Cruz; 19 years of experience. Contribution: Preparation of the Paleontology Report.

Mike Trueblood, Biologist. B.S., Wildlife, Fish, and Conservation Biology; 13 years of experience in biological resources. Contribution: Co-author of the Natural Environment Study.

Nichole Jordan, Senior Cultural Resources Manager. M.A., Applied Anthropology, California State University, East Bay; 11 years of experience. Contribution: Historic Resources Evaluation Report.

Dayna Winchell, Biologist. M.S., Conservation Biology, University of Queensland in Brisbane, Australia; B.S., Biology, California State University, San Marcos; 3 years of experience

in biology resources consulting. Contribution: Co-author of the Natural Environment Study.

Drake Haglan & Associates

Jennifer Hildebrandt, Environmental Service Manager. M.S., Environmental Management, University of San Francisco; B.S., Anthropology, University of California, Davis; 8 years of environmental planning experience. Contribution: Community Impact Assessment co-author.

Matt Satow, P.E., Project Manager. B.S., Civil Engineering, California State University, Sacramento; 20 years of experience. Contribution: Project Manager.

Jose Silva, P.E., B.S., Civil Engineering, California State University, Chico; 27 years of experience. Contribution: Principal Engineer.

Miguel Ramirez, P.E. B.S., Civil Engineering, California State University, Chico; 9 years of experience. Contribution: Project Engineer.

Yishu Wei, Environmental Assistant. B.S., Environmental Policy and Planning, University of California, Davis; 1 year of environmental planning experience. Contribution: Community Impact Assessment co-author.

Crawford & Associates, Inc.

David P. Castro, P.E., Associate Project Manager. B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 10 years of experience. Contribution: Initial Site Assessment co-author.

Benjamin D. Crawford, P.E., G.E. B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 12 years of experience. Contribution: Initial Site Assessment co-author.

Chapter 7 Distribution List

Stanislaus County Department of Public Works
Attn: David Leamon
Public Works Director
Stanislaus County
1716 Morgan Road
Modesto, CA 95358-5805

California Department of Transportation
District 10
Attention: Mimi Hiue
1976 E. Dr. Martin Luther King Jr. Blvd
Stockton, CA 95205

Federal Government

Federal Highway Administration (FHWA)
1200 New Jersey Ave., SE
Washington, DC 20590

Environmental Protection Agency, Region IX
Federal Activities Office, CMD-2
75 Hawthorne Street
San Francisco, CA 94105-3901

Federal Transit Administration,
Region IX
201 Mission Street, Suite 1650
San Francisco, CA 94105-1839

Director
Office of Environmental Policy and Compliance
Department of the Interior
Main Interior Building, MS 2462
1849 “C” Street, NW
Washington, DC 20240

Department of the Interior
Office of Environmental Policy and Compliance San Francisco Region
333 Bush Street, Suite 515
San Francisco, CA 94104

United States Fish and Wildlife Service
Sacramento Fish and Wildlife Office
Attn: Jennifer Schofield
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

National Oceanic and Atmospheric Administration Field Offices for the South West Region:
Sacramento Field Office:
National Marine Fisheries Services
650 Capitol Mall, Suite 5-100
Sacramento, CA 95814-4708

Director,
Office of Environmental Management
U. S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Federal Railroad Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Director
Office of Environmental Affairs
Department of Health and Human Services
200 Independence Ave. SW, Rm. 537 F
Washington, DC 20201

Centers for Disease Control
National Center for Environmental Health
1600 Clifton Road
Atlanta, GA 30333

US Army Corps of Engineers, Sacramento District
ATTN: Regulatory Branch
1325 J Street, Room 1480
Sacramento, CA 95814-2922

Environmental Clearance Officer
Department of Housing and Urban Development
450 Golden Gate Avenue
P.O. Box 36003
San Francisco, CA 94102

Office of the Secretary
U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

Federal Elected Officials

The Honorable Kamala Harris *
United States Senate
600 B Street, Suite 2240
San Diego, CA 92101

The Honorable Dianne Feinstein *
United States Senate
750 B Street, Suite 1030
San Diego, CA 92101

The Honorable Josh Harder
U.S. House of Representatives
10th District
Modesto, CA
4701 Sisk Road, Suite 202
Modesto, CA 95356

State Government

Executive Officer Richard Corey
State Air Resources Board
1001 I Street
P.O Box 2815
Sacramento, CA 95812

California State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Director Charlton H. Bonham
California Department of Fish and Wildlife
1416 Ninth Street
Sacramento, CA 95814

California Department of Fish and Wildlife
Region 4
Attn: Laura Peterson
1234 E. Shaw Avenue
Fresno, CA 93710

California Transportation Commission
Commission Chair
1120 N Street
Room 2221 (MS-52)
Sacramento, CA 95814

Caltrans
Division of Environmental Analysis
NEPA Assignment Office – MS 27
P.O. Box 942874
Sacramento, CA 94274-0001

Business Operations
University of California
1111 Franklin St.
Oakland, CA 94607-5200

California State University
Office of the Chancellor
401 Golden Shore Boulevard
Long Beach, CA 90802-4210

California Native Plant Society
2707 K Street, Suite 1
Sacramento, CA 95816-5113

California Wildlife Federation
1012 J Street
Sacramento, CA 95814

Executive Officer
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Director
State Department of Housing and Community Development
1800 Third Street
Sacramento, CA 95811-6942

Executive Officer
State Lands Commission
100 Howe Avenue, Suite 100
Sacramento, CA 95825

California Department of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

California Environmental Protection Agency
1001 I Street
P.O. Box 2815
Sacramento, CA 95812-2815

Bureau of Land Management
California State Office
2800 Cottage Way, Suite W-1623
Sacramento, CA 95825-1886

Bureau of Reclamation
Mid-Pacific Region
2800 Cottage Way, Sacramento CA 95825-1898

Director: David Bunn
Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

Natural Resources Conservation Service
(formerly U.S. Soil Conservation Service)
Area Conservationist
Area 3
4974 East Clinton Avenue, Suite 114
Fresno, CA 93727

Headquarters Division of Environmental Analysis (for CTC Submission)
1120 N Street, MS 27
P.O. Box 942874
Sacramento, CA 94274-0001

Sierra Club
1414 K Street, Suite 500
Sacramento, CA 95814

Museum of Vertebrate Zoology
3101 Valley Life Sciences Building
Berkeley, CA 94720-3160

Business Manager
Operating Engineers Local #3
1620 South Loop Road
Alameda, CA 94502

Warren Stanley, Commissioner
California Highway Patrol
P.O. Box 942898
Sacramento, CA 94298-0001

Director
Department of Water Resources
1416 9th Street, Room 1115-1
Sacramento, CA 94236-0001

Director
Department of Parks and Recreation
915 I Street, 5th Floor
Sacramento, CA 95814

Department of Resources Recycling and Recovery (CalRecycle)
1001 I Street
P.O. Box 4025
Sacramento, CA 95812-4025

Secretary
Resources Agency
1416 Ninth Street
Sacramento, CA 95814

Executive Director
Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Director
Department of Health Services
714/744 P Street
Sacramento, CA 95814

Chief, Bureau of School Planning
Department of Education
1430 N Street
Sacramento, CA 95814

Director
Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

Executive Director
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Chief, Environmental Services Section
Professional Services Branch
Real Estate Services Section
Department of General Services
707 3rd Street, 8th Floor
West Sacramento, CA 95605

National Park Service
Pacific Great Basin System Support Office
1111 Jackson Street, Suite 700
Oakland, CA 94607

Chief
Federal Aviation Administration
San Francisco Airports District Office
1000 Marina Blvd, Suite 220
Brisbane, CA 94005

State Elected Officials

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

Assembly Member: District 12: Heath Flora
District Office
578 N. Wilma Ave., Suite B
Ripon, CA 95366

State Senator, District 14
Melissa Hurtado
Fresno District Office
2550 Mariposa Mall, Suite 2016
Fresno, CA 93721

Local Elected Officials and Local Agencies

Kristin Olsen
Stanislaus County Board of Supervisors
1010 10th St, Suite 6500
Modesto, Ca 95354

Clerk-Recorder: Donna Linder
1021 I Street, Suite 101
Modesto, California

Stanislaus County Sheriff: Jeff Dirkse
250 E. Hackett Road
Modesto, CA 95358

City of Riverbank
Mayor: Richard D. O'Brien
General Law City 6707 Third Street
Riverbank, CA 95367

City of Oakdale
Mayor: Pat Paul
General Law City 280 N. 3rd Street
Oakdale, CA 95361

City of Modesto
Mayor: Ted Brandvold
Charter City 1010 10th Street
Modesto, CA 95354

Modesto Irrigation District
P.O. Box 4060
Modesto, CA 95352-4060

Oakdale Irrigation District
1205 E F St
Oakdale, CA 95361

Modesto Fire Department
610 11th Street
Modesto, CA 95354

Oakdale City Fire Department
325 East G Street
Oakdale, CA 95361

Stanislaus Consolidated Fire Protection District
3324 Topeka St
Riverbank, CA 95367

City of Riverbank
Parks and Recreation Department
Sue Fitzpatrick - Director
6707 Third Street
Riverbank, CA 95367

City of Riverbank
Re: Utility Relocation
6617 Third Street
Riverbank, CA 95367

City of Modesto
Parks, Recreation and Neighborhoods
1010 10th Street
Modesto, CA 95354

Modesto Police Department
600 10th St. Modesto, CA 95354

City of Oakdale

Recreation & Facilities Department
City Hall
280 North Third Avenue
Oakdale, CA 95361

Oakdale Police Department
245 North Second Avenue
Oakdale, CA 95361

Superintendent: Sara Noguchi
426 Locust St
Modesto, CA 95351

Superintendent: Marc Malone
168 South 3rd Avenue
Oakdale, CA 95361

Superintendent: Dr. Daryl Camp
6715 7th Street
Riverbank, CA 95367

Superintendent: Dr. Britta Skavdahl
2410 Janna Ave.
Modesto, CA 95350

Modesto Transportation Department
1010 10th St # 4600
Modesto, CA 95354

Oakdale Chamber of Commerce
590 N Yosemite Ave
Oakdale, CA 95361

Modesto Chamber of Commerce
1114 J Street
Modesto, CA 95354

The Riverbank Chamber of Commerce
3202 Atchison Street
Riverbank, CA 95367

Oakdale Airport
8191 Laughlin Rd
Oakdale, CA 95361

Attn: Steve Fischio
Airport Manager
Modesto City-County Airport
617 Airport Way
Modesto, CA 95354

Stanislaus County Library
Diane McDonnell
County Librarian
1500 I Street
Modesto, CA 95354

Interested Companies, Organizations, Citizens, Community Planning Groups

Sierra Northern Railway
Corporate Office
341 Industrial Way
Woodland, CA 95776-6012

Sierra Northern Railway
Oakdale Division
551 S Sierra Ave
Oakdale, CA 95361-4055

Burlington Northern Santa Fe Railway
Juan M. Acosta
Regional AVP, State Govt. Affairs
1127 11th St., Ste. 242
Sacramento, CA 95814

Karen Frya, AICP
Environmental Management
Senior Environmental Project Manager
525 Golden Gate Avenue
6th Floor
San Francisco, CA 94102

Native American Organizations and Contacts

Executive Secretary
Native American Heritage Commission
915 Capitol Mall, Rm 364
Sacramento, CA 95814

Native American Tribal Councils
Inter-Tribal Council of California
3425 Arden Way
Sacramento, CA 95825

California State Historic Preservation Officer
P.O. Box 942896
Sacramento, CA 94296

Bureau of Indian Affairs

Pacific Regional Office
Bureau of Indian Affairs
2800 Cottage Way
Sacramento, CA 95825

Neil Peyron, Chairperson
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Joey Garfield, Tribal Archaeologist
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Kerri Vera, Environmental Department
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Kathrine Erolinda Perez, Chairperson
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Les James, Spiritual Leader
Southern Sierra Miwuk Nation
P.O. Box 1200
Mariposa, CA 95338

Anthony Brochini, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 1200
Mariposa, CA 95338

Lois Martin, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 1200
Mariposa, CA 95338