North County Corridor
New State Route 108 Project and Route Adoption

STANISLAUS COUNTY, CALIFORNIA
DISTRICT 10 – STA – 108
(SR-108 [PM 27.5/44.5], SR-219 [PM 3.7/4.8], SR-120 [PM 6.9-11.6])
EA: 10-0S8000 & Project ID: 1000000263

Draft Environmental Impact Report/ Environmental Impact Statement and Section 4(f) De Minimis Finding

Volume I of II

Volume I includes Chapter 1 through Chapter 7

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

Caltrans

August 2017

General Information about This Document

What's in this document:
The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Environmental Impact Report/Environmental Impact Statement (EIR/EIS), which examines the potential environmental impacts of the alternatives being considered for the proposed project in Stanislaus County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This document tells you why the project is being proposed, what alternatives we have considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:
Please read the document. Additional copies of the document and its related environmental technical studies are available for review at the following locations:

- Caltrans District 6: 855 M Street, Suite 200, Fresno, CA 93721
- 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 Ave, Oakdale, CA 95361
- Big Valley Grace Library: 4040 Tully Road, Modesto, CA 95356
- (http://www.dot.ca.gov/dist10/environmental/projects/ncc99to120/index.html and http://www.stancounty.com/publicworks/ncc-main.shtm)

Attend the public hearing on September 7, 2017 between 4:00 p.m. and 8:00 p.m., at the Gene Bianchi Community Center located at 110 South Second Aveue, Oakdale, CA 95361.

We'd like to hear what you think. If you have any comments regarding the proposed project, please attend the public hearing and/or send your written comments to Caltrans by the deadline.

- Submit comments via U.S. mail to:
  Juan Torres
  Senior Environmental Planner
  California Department of Transportation
  855 M Street, Suite 200
  Fresno, CA 93721
- Submit comments via email to: philip.vallejo@dot.ca.gov

Be sure to submit comments by the deadline: **September 22, 2017**

What happens next:
After comments are received from the public and reviewing agencies, Caltrans may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Juan Torres, Caltrans District 6, 855 M Street, Suite 200, Fresno, CA 93721; 559-445-6479 Voice, or use the California Relay Service TTY number, 1-800-735-2922 or dial 711.

FHWA Highway ID No. 1000000263

SCH#201082078
District 10-Sta-108-(SR-108 [PM 27.5/44.5], SR-219 [PM 3.7/4.8], SR-120 [PM 6.9-11.6])
EA: 10-0S8000 and Project ID: 10-0000-0263

Construct a new freeway/expressway from SR-219 and Tully Road, (SR-108 [PM 27.5/44.5], SR-219 [PM 3.7/4.8], SR-120 [PM 6.9-11.6]) to SR-108/120 east of the City of Oakdale

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT and Section 4(f) Evaluation

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C) and 49 USC 303

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies: North County Corridor Transportation Expressway Authority

7/17/17
Date of Approval

Dennis T. Agar
District 10 Director
California Department of Transportation
National Environmental Policy Act Lead Agency and
California Environmental Quality Act Lead Agency

The following person may be contacted for more information about this document:

Juan Torres
Senior Environmental Planner
California Department of Transportation
855 M Street, Suite 200
Fresno, CA 93721

Abstract: The purpose of the project is to reduce average daily traffic volumes and current traffic congestion and accommodate anticipated future traffic on SR-108 and the surrounding regional transportation network in Stanislaus County and the cities of Modesto, Riverbank, and Oakdale; support the efficient movement of goods and services throughout the region for the benefit of the regional economy by providing a more direct and dependable truck route, increasing the average operating speeds of all vehicles, and reducing the number of areas of conflict between motorized traffic and non-motorized means of travel; and improving the efficiency of interregional travel by reducing travel times for long-distance commuters, recreational traffic, and interregional goods movement. The proposed project will connect SR-219 near Modesto to SR-120 near Oakdale. The project is about 18 miles long with a western end at SR-219 (Kiernan Avenue)/Tully Road intersection and an eastern end at SR-108/SR-120. The project would have substantial effects to the community due to relocation impacts, farmland, noise and biological resources.

Summary

The California Department of Transportation (Caltrans), in cooperation with the North County Corridor Transportation Expressway Authority (NCCTEA), proposes to construct the North County Corridor New State Route 108 (SR-108) Project. The NCCTEA is represented by Caltrans District 10, Stanislaus County, and the Cities of Oakdale, Riverbank and Modesto. Caltrans is the lead agency for both National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) compliance.

The project lies in northern Stanislaus County between Tully Road SR-219 at the western end, to SR-108/SR-120 at the eastern end. The project area is generally bounded by SR-108/120 on the north, Kiernan Avenue/SR-219/Claribel Road on the south, Tully Road on the west, and Lancaster Road on the east. Within the limits of the project, the current location of SR-108 is a conventional two-lane, undivided highway with two 12-foot-wide lanes, flanked by 2- to 4-foot-wide non-standard shoulders.

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. Caltrans is the lead agency under NEPA and the lead agency under CEQA. In addition, the Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with 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.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, quite often a "lower level" document is prepared for NEPA. One of the most common joint document types is an Environmental Impact Report/Environmental Assessment.

After receiving comments from the public and reviewing agencies, a Final EIR/EIS will be prepared. Caltrans may prepare additional environmental and/or engineering studies to address comments. The Final EIR/EIS will include responses to comments received on the Draft EIR/EIS and will identify the preferred alternative. After the Final EIR/EIS is circulated, if Caltrans decides to approve the project, a Notice of Determination will be published for compliance with CEQA, and a Record of Decision will be published for compliance with NEPA.

Purpose and Need

The purpose of the project is to reduce existing and future traffic congestion in northern Stanislaus County, support the efficient movement of goods and services and improve interregional Travel as follows:

- Reduce average daily traffic volumes and current traffic congestion and accommodate anticipated future traffic on the existing SR-108 and the surrounding regional transportation network in Stanislaus County and the cities of Modesto, Riverbank, and Oakdale.
- Support the efficient movement of goods and services throughout the region for the benefit of the regional economy by providing a more direct and dependable truck route, increasing the average operating speeds of all vehicles, and reducing the number of areas of conflict between motorized traffic and non-motorized means of travel.
- Improve the efficiency of interregional travel by reducing travel times for long distance commuters, recreational traffic, and interregional goods movement.

The project has been identified as a necessary improvement to accommodate regional east-west traffic and to improve north-south connectivity in Stanislaus County and southern San Joaquin County. The current action is needed because:

- Travel conditions in the region, including traffic congestion on existing SR-108, will continue to worsen due to regional population growth and projected traffic volume increases.
- Traffic congestion on existing truck routes (SR-108/SR-120) will continue to hinder the efficient movement of goods and services.
- Existing SR-108 is part of the interregional system, and interregional circulation will become increasingly constrained as travel times on existing SR-108 increase substantially with planned residential and employment growth.

Proposed Action

The proposed project will connect SR-219 near Modesto to SR-120 near Oakdale. This environmental document analyzes the four Build Alternatives (1A, 1B, 2A, and 2B) and the No-Build Alternative. The western end of all alternatives is at the SR-219 (Kiernan Avenue)/Tully Road intersection. The project is analyzed as three distinct segments for environmental evaluation purposes and explaining the proposed improvements. Segment 1 represents the more urbanized area; Segment 2 represents a transition from urbanized to rural area; and Segment 3 represents the rural foothill area.

Segment 1, which has the same western end for all Build Alternatives, begins at the SR-219 Kiernan Avenue/Tully Road intersection. All of the Build Alternatives proceed along the same alignment and have similar improvements to the vicinity of the existing Claus Road/Claribel Road intersection near the southeast portion of the City of Riverbank and northeast portion of the City of Modesto's future sphere of influence.

Segment 2 is where the four similar alternatives separate into two different alignments (1A/1B and 2A/2B). In Segment 2, Alternatives 1A and 1B veer northeast from near the existing Claus Road/Claribel Road intersection and pass through the southern boundary of the City of Oakdale to just east of Albers Road, and Alternatives 2A and 2B continue to extend easterly along Claribel Road and veer northeastward past the intersection of Claribel Road/Bentley Road to just east of Albers Road. Each of the alternatives then continues to the respective proposed eastern end (A and B).

In Segment 3, Alternatives 1A and 2A merge as similar alternatives at the southern end of the City of Oakdale and continue on the same alignment to the proposed eastern end (A) at the new SR-108/SR-120 intersection just east of the City of Oakdale boundary. In Segment 3, Alternatives 1B and 2B merge as similar alternatives north of the existing Warnerville Road/Emery Road intersection and continue on a northeasterly direction to the proposed other eastern end (B) at the new SR-108/SR-120 intersection west of the existing SR-120/Lancaster Road intersection (see Section 2, Figure 2.3-1).

In general, the proposed project includes the following:

- New freeway/expressway controlled-access travel lanes.
- At-grade intersections.
- Grade-separation bridge structures at major roadway and railway crossings.
- Structures at waterway crossings (Modesto and Oakdale Irrigation District canals).
- County and City roadway improvements at various locations.
- Relinquishment of existing SR-108 back to local jurisdictions.
- Vehicular, bicycle, and pedestrian access that is in compliance with the California Complete Streets Act and the Americans with Disabilities Act.
- Utility relocations for gas, electric, water, and communication lines.
- Intelligent Transportation System elements (signal coordination and traffic cameras).

Project Impacts

See Summary of Major Potential Impacts from Alternatives table.

Summary of Major Potential Impacts from Alternatives

Potential Impact		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
	Consistency with the Stanislaus County General Plan	YES	YES	YES	YES	NO
	Consistency with the City of Modesto General Plan	YES	YES	YES	YES	NO
	Consistency with the City of Riverbank General Plan	YES	YES	YES	YES	NO
	Consistency with the City of Oakdale General Plan	YES	YES	YES	YES	NO
Growth		Moderate influence on growth.	Moderate influence on growth.	Moderate influence on growth.	Moderate influence on growth.	No impact.
Farmlands		Acquisition of 470 acres of farmland. Permanent impacts to Williamson Act land are 351 acres.	Acquisition of 576 acres of farmland. Permanent impacts to Williamson Act land are 540 acres.	Acquisition of 397 acres of farmland. Permanent impacts to Williamson Act land are 305 acres.	Acquisition of 540 acres of farmland. Permanent impacts to Williamson Act land are 495 acres.	No impact.
Community Character and Cohesion		Traffic and pedestrian facilities would be greatly improved. Minor	Traffic and pedestrian facilities would be greatly improved. Minor	Traffic and pedestrian facilities would be greatly improved. Minor	Traffic and pedestrian facilities would be greatly improved. Minor	No impact.
Relocation	Business Relocations	Displace 36 businesses.	Displace 33 businesses.	Displace 42 businesses.	Displace 38 businesses.	No Impact
	Housing Relocations	Displace 124 homes.	Displace 114 homes.	Displace 136 homes.	Displace 114 homes.	No Impact
Utilities		Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
Emergency Services	Operational efficiency for emergency service will ultimately be improved. Minor	Operational efficiency for emergency service will ultimately be improved. Minor	Operational efficiency for emergency service will ultimately be improved. Minor	Operational efficiency for emergency service will ultimately be improved. Minor	No impact.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	Build Alternative 1A would result in a substantial improvement in present and future traffic operations, including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 27 percent	Build Alternative 1B would result in a substantial improvement in present and future traffic operations, including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 21 percent	Build Alternative 2A would result in a substantial improvement in present and future traffic operations, including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 17 percent	Build Alternative 2B would result in a substantial improvement in present and future traffic operations, including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 11 percent	The No-Build would not improve existing or future traffic operations, nor would it improve safety, pedestrian facilities, or bicycle facilities.
Visual/Aesthetics	Moderate	Moderate	Moderate	Moderate	No impact.
Cultural Resources	No adverse effect to 6 known historic properties (historic era structures). Additional cultural resource identification, evaluation, effect determination, and mitigation (if applicable) efforts needed upon right-of-way acquisition.	No adverse effect to 6 known historic properties (historic era structures). Additional cultural resource identification, evaluation, effect determination, and mitigation (if applicable) efforts needed upon right-of-way acquisition.	No adverse effect to 6 known historic properties (historic era structures). Additional cultural resource identification, evaluation, effect determination, and mitigation (if applicable) efforts needed upon right-of-way acquisition.	No adverse effect to 6 known historic properties (historic era structures). Additional cultural resource identification, evaluation, effect determination, and mitigation (if applicable) efforts needed upon right-of-way acquisition.	No impact.
Water Quality and Storm Water Runoff	Net impervious surface of 179 acres and would have the potential to introduce pollutants during construction.	Net impervious surface of 211 acres and would have the potential to introduce pollutants during construction.	Net impervious surface of 189 acres and would have the potential to introduce pollutants during construction.	Net impervious surface of 222 acres and would have the potential to introduce pollutants during construction.	No impact.
Paleontology	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	No impact.
Hazardous Waste/Materials	2 High-Risk Properties, 62 Medium-Risk Properties.	2 High-Risk Properties, 64 Medium-Risk Properties.	1 High-Risk Properties, 62 Medium-Risk Properties.	1 High-Risk Properties, 66 Medium-Risk Properties.	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
Air Quality	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	No impact.
Climate Change	increase vs No-Build 2.8 percent increase modeled for 2042. (Pavley Regulations)	increase vs No-Build 2.6 percent increase modeled for 2042. (Pavley Regulations)	increase vs No-Build 2.5 percent increase modeled for 2042. (Pavley Regulations)	increase vs No-Build 2.2 percent increase modeled for 2042. (Pavley Regulations)	CO_2 Emissions in 2042 (tons/year) 543,120.
Noise and Vibration	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	No impact.
Natural Communities	Impacts to 1.32 acres (1.0 acre of direct impacts, 0.32 acre indirect impacts) of Interior Live Oak Woodland in the project area.	Impacts to 3.44 acres (3.07 acres of direct impacts, 0.37 acre of indirect impacts) of Interior Live Oak Woodland in the project area and 1.0 acres (0.23 acre of direct impacts, 0.77 acre of indirect impacts) of Blue Oak Savannah.	Impacts to 1.32 acres (1.0 acre of direct impacts, 0.32 acre of indirect impacts) Interior Live Oak Woodland in the project area	Impacts to 3.44 acres (3.07 acres of direct impacts, 0.37 acres of indirect impacts) of Interior Live Oak Woodland in the project area and 1.0 acre (0.23 acre of direct impacts, 0.77 acre of indirect impacts) of Blue Oak Savannah.	No impact.
Wetlands and other Waters	Impacts to 3.02 acres of wetlands and 0.78 acre of non-wetland waters of the U.S. in the project area.	Impacts to 3.22 acres of wetlands and 1.44 acres of non-wetland waters of the U.S. in the project area.	Impacts to 3.00 acres of wetlands and 0.61 acre of non-wetland waters of the U.S. in the project area	Impacts to 3.37 acres of wetlands and 1.06 acres of non-wetland waters of the U.S. in the project area.	No impact.
Animal Species	Build Alternative 1A would result in impacts to animal species. Bats (impacts: Tree = 25.58 acres; Building = 24.78 acres); Western Burrowing Owl Bats (impacts: Habitat = 12.34 acres); Northern Harrier, and California horned lark, White-tailed kite and Merlin (wintering)	Build Alternative 1B would result in impacts to animal species. Bats (impacts: Tree = 19.73 acres; Building = 19.95 acres); Western Burrowing Owl Bats (impacts: Habitat = 31.45 acres); Northern Harrier and California horned lark, White-tailed kite and Merlin (wintering)	Build Alternative 2A would result in impacts to animal species. Bats (impacts: Tree = 15.95 acres; Building = 32.97 acres); Western Burrowing Owl Bats (impacts: Habitat = 13.44 acres); Northern Harrier and California horned lark, White-tailed kite and Merlin (wintering)	Build Alternative 2B would result in impacts to animal species. Bats (impacts: Tree = 10.36 acres; Building = 27.06 acres); Western Burrowing Owl Bats (impacts: Habitat = 41.66 acres); Northern Harrier and California horned lark, White-tailed kite and Merlin (wintering)	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
	(Nesting Habitat = 12.34 acres; Foraging Habitat = 335.96 acres); Loggerhead shrike (Nesting Habitat = 1.00 acre; Foraging Habitat = 335.96 acres); Pacific Pond Turtle (Aquatic Habitat = 8.42 acres); Western spadefoot toad (Impacts Direct = 0.36 acre; Indirect = 0.07 acre)	(Nesting Habitat = 31.45 acres; Foraging Habitat = 409.29 acres); Loggerhead shrike (Nesting Habitat = 1.00 acre; Foraging Habitat = 335.96 acres); Pacific Pond Turtle (Aquatic Habitat = 0.86 acre); Western spadefoot toad (Impacts Direct = 0.27 acre; Indirect = 0.15 acre)	(Nesting Habitat = 13.44 acres; Foraging Habitat = 330.04 acres); Loggerhead shrike (Nesting Habitat = 1.00 acre; Foraging Habitat = 330.04 acres); Pacific Pond Turtle (Aquatic Habitat = 0.29 acre); Western spadefoot toad (Impacts Direct = 0.74 acre; Indirect = 0.49 acre)	(Nesting Habitat = 41.66 acres; Foraging Habitat = 405.0 acres); Loggerhead shrike (Nesting Habitat = 3.30 acre; Foraging Habitat = 405.43 acres); Pacific Pond Turtle (Aquatic Habitat = 5.82 acres); Western spadefoot toad (Impacts Direct = 0.66 acre; Indirect = 0.90 acre)	
Threatened and Endangered Species	Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 335.96 acres) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 335.96 acres), and Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions not all of the project study area has been surveyed for potential shrub locations.	Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 409.29) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 409.29 acres), and Vernal Pool Invertebrates (Impacts: Direct = 0.07 acres, Indirect = 1.21 acres), and Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions not all of the project study area has been surveyed for potential shrub locations.	Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 330.09 acres) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 330.04 acres), and Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions not all of the project study area has been surveyed for potential shrub locations.	Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 405.43 acres) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 405.43 acres), and Vernal Pool Invertebrates (Impacts: Direct = 0.04 acres, Indirect = 2.11 acres), Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions not all of the project study area has been surveyed for potential shrub locations.	No impact.
Invasive Species	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
Cumulative Impacts	Build Alternative 1A could potentially have cumulative impacts for community impacts, relocations, land use, noise visual, waters, and wetlands.	Build Alternative 1B could potentially have cumulative impacts for community impacts relocations, land use, noise visual, waters, and wetlands.	Build Alternative 2A could potentially have cumulative impacts for community impacts relocations, land use, noise visual, waters, and wetlands.	Build Alternative 2B could potentially have cumulative impacts for community impacts relocations, land use, noise visual, waters, and wetlands.	No impact.
Number of Interchanges	4	4	4	4	None
Number of Roundabout	2	3	2	3	None
Number of Intersections	6	7	6	7	None
Railroad Crossings	2	2	2	2	None
Canal Crossings	17	22	24	34	None
Number of Hetch-Hetchy Crossings	12	12	6	5	None
Cost	$660 million	$688 million	$676 million	$699 million	None

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Coordination with the Public and Other Agencies for the Route Adoption

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 table below outlines the coordination efforts with each agency throughout the route adoption phase of the project.

In addition, input was also solicited from the Federal Highway Administration through the 23 USC §139 review process from public agency participants regarding the alternatives to be addressed in the environmental document.

Agency Coordination and Public Outreach for Route Adoption

Meeting or Document Type	When and Where
Public meetings: Caltrans in cooperation with the Stanislaus Council of Governments, Stanislaus County, and the Cities of Modesto, Oakdale, and Riverbank	November 13, 2008 (Salida Regional Library) November 20, 2008 (Oakdale Community Center) June 15, 2009 (Riverbank Community Center) June 1, 2009 (StanCOG office, local property owners individual requested meetings)
CEQA Notice of Preparation Filed with the State Office of Planning and Research	October 17, 2008
CEQA Notice of Preparation Filed with the State Office of Planning and Research (adjusted western end from SR-99 to McHenry Avenue)	April 20, 2009
Public Hearing: Caltrans public hearing for SR-108 East Route Adoption Project (as part of public circulation of the Draft EIR)	October 13, 2009 (Gene Bianchi Community Center) October 22, 2009 (Riverbank Community Center)

Coordination with the Public and Other Agencies for the North County Corridor New SR-108 Project

As a continuation to the Route Adoption coordination, the NCCTEA has coordinated with U.S. Fish and Wildlife Service and California Department of Fish and Wildlife as part of the North County Corridor New SR-108 Project. On January 23, 2014, the NCCTEA reintroduced the agencies to the project and requested concurrence on survey methodology.

The Notice of Intent (NOI) to prepare an EIS for the North County Corridor New SR-108 Project was issued in August 23, 2010 by the Federal Highway Administration. Also, a NOI was published in the Federal Register on August 27, 2010. 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 held to inform the public, interest groups, affected Native American tribes and government agencies of the EIR/EIS, and provided an opportunity for public involvement. The scoping meetings were conducted pursuant to the CEQA Guidelines Section 15083 (Early Public Consultation).

A Notice of Preparation (NOP) for the Draft EIR was published August 30, 2010 through the State Clearinghouse.

Two public information meetings have been held to inform the community of the North County Corridor New SR-108 Project.

	Meeting One	**Meeting Two**
Date	June 16, 2011	March 6, 2014
Time	6:30 p.m. – 8:00 p.m.	6:30 p.m. – 8:00 p.m.
Location	Riverbank Community Center 3600 Santa Fe Street, Riverbank, CA	Riverbank Community Center 3600 Santa Fe Street, Riverbank, CA

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.

Chapter 5, Section 5.3 includes detailed discussion of all Technical Advisory Committee Meetings that took place throughout the Route Adoption as well as the North County Corridor New SR-108 Project. These meetings are open to the public.

The following permits and project approvals are anticipated for the project.

Permits and Project Approvals

Agency	Permit/Approval	Status
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species Review and comment on 404 Permit	Formal consultation initiated after alternative is selected.
United States Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the United States.	Application to be submitted during final design.
Natural Resources Conservation Service	Farmland Conversion Impact Rating for Corridor Type Projects	Review of farmland analysis. Completed analysis is included in Section 3.1.3.
California Department of Fish and Wildlife	1602 Agreement for Streambed Alteration Section 2081 Permit for Threatened and Endangered Species	Application to be submitted during final design.
Regional Water Quality Control Board – Central Valley Region 5	401 Certification	Application to be submitted during final design.
State Historic Preservation Officer	Finding of Effect	Concurrence to be obtained prior to release of final environmental document.
Hetch-Hetchy	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Oakdale Irrigation District	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Modesto Irrigation District	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Union Pacific Railroad	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Burlington Northern Santa Fe Railroad	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Sierra Railroad	Encroachment Permit and Permanent Easement	Application to be submitted during final design.

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Chapter 1 Proposed Project

1.1 Introduction

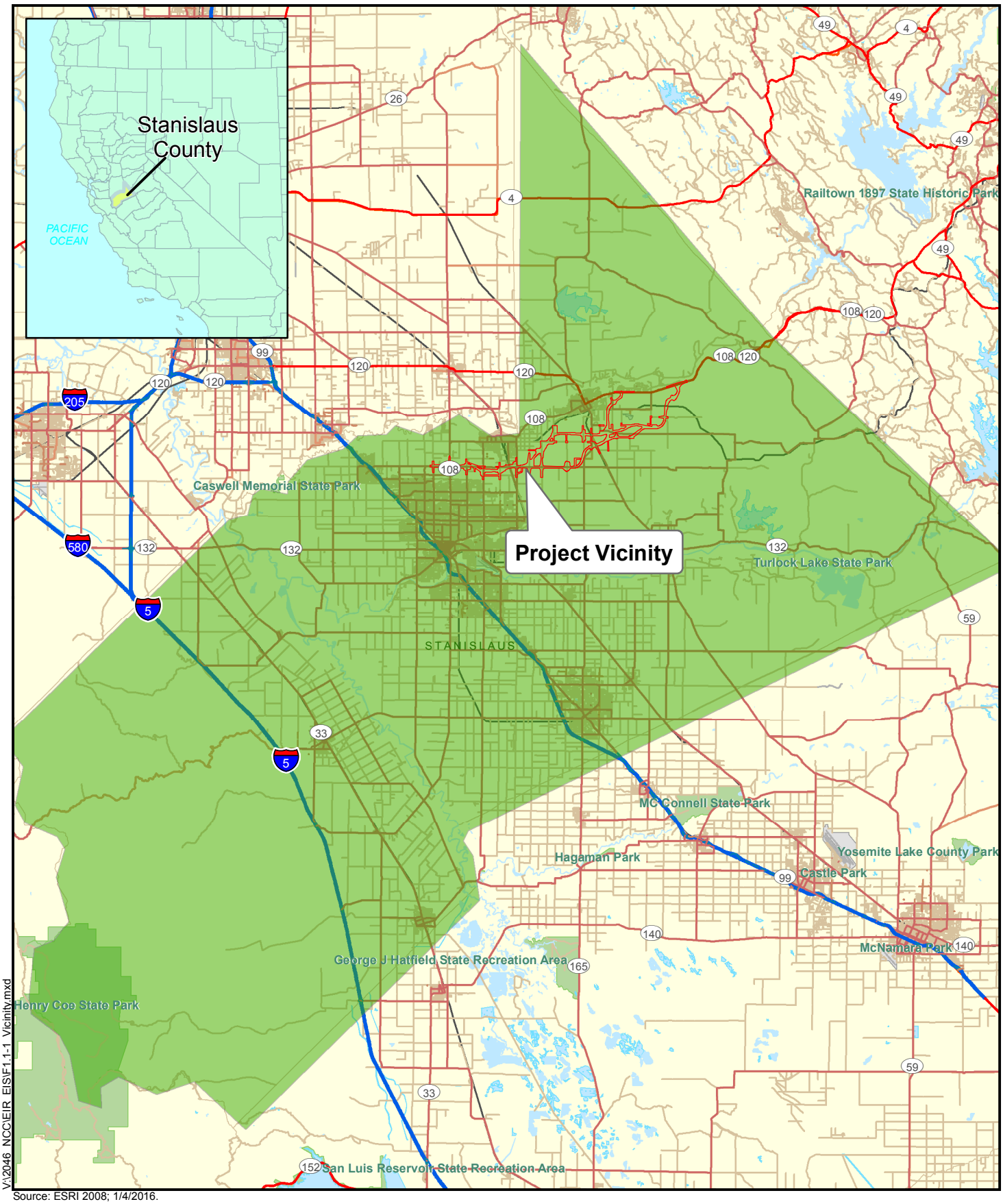
The California Department of Transportation (Caltrans), in cooperation with the North County Corridor Transportation Expressway Authority (NCCTEA), proposes to construct the North County Corridor New State Route 108 Project. The NCCTEA consists of Caltrans District 10, Stanislaus County, and the Cities of Oakdale, Riverbank and Modesto. Caltrans is the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) lead agency for the project.

The project area is located in northern Stanislaus County between the intersection of Tully Road and State Route 219 (SR-219) at the western end (SR-219 PM 3.7) and the existing SR-108/State Route 120 (SR-120) in East Oakdale at the eastern end (SR-120 PM 11.6).The project area is generally bounded by SR-108/SR-120 on the north, Kiernan Avenue/SR-219/Claribel Road on the south, Tully Road on the west, and Lancaster Road on the east. The total length of the project is approximately 22 miles. Figures 1.1-1 and 1.1-2 show the project vicinity and location, respectively. The existing SR-108 is located outside the project area and is currently a conventional two-lane, undivided highway with two 12-foot-wide lanes, flanked by 2- to 4-foot-wide non-standard shoulders. This project would relocate SR-108 to a newly-created alignment. Thereafter, Caltrans will relinquish the existing SR-108 to the County of Stanislaus. Although it will no longer be a State Highway, it will remain in operation as an east-west route in its current form and location.

In May 2010, the California Transportation Commission approved a Route Adoption for North County Corridor to become the new SR-108. The Route Adoption proposed two potential corridors south of the existing SR-108. The proposed North County Corridor project also proposes two corridors in the same vicinity; however, certain project features have been modified within the corridors since the route adoption to improve the placement and transitions of the proposed North County Corridor New SR-108 alignments. It is anticipated that the request to the California Transportation Commission for approval of these changes in the adopted route alignment will be submitted after the final environmental document is approved.

SR-120 will remain a controlled access highway even after it merges with the new North County Corridor public road connection east of the City of Oakdale. The new North County Corridor public road connection may impact the SR-120 route adoption.

The 2007 Stanislaus County Regional Transportation Plan (Stanislaus County, 2004) includes $41 million for construction of a four-lane freeway/expressway from the Modesto City limits to east of Oakdale via the North County Corridor New SR-108 or Claribel Road to open to traffic in 2022. Conceptual-level cost estimates to build a roadway within either of the wide corridors are for Alternative 1A $660 million, 1B $688 million, 2A $676 million, and 2B $699 million (based on 2016 costs). The additional funding needed will come from the State Transportation Improvement Program, impact fees, regional transportation impact fees, reprogrammed Oakdale Bypass State Project funds (State Transportation Improvement Program, Regional Improvement Program, Interregional-Improvement Program, and local funds); and anticipated revenue generated through Measure “L,” which allots a ½ cent sales tax to transportation projects within Stanislaus County.



V:\2046 NCCIEIR EIS\F1.1-1 Vicinity.mxd

Source: ESRI 2008; 1/4/2016.

0 5 10 Miles

FIGURE 1.1-1
Project Vicinity
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Environmental Study Limits

EASTERN TERMINUS (1A, 2A)

SR-120 [PM 11.6]

EASTERN TERMINUS (1B, 2B)

SR-120 [PM 6.9]

SIERRA RAILROAD

BURLINGTON NORTHERN SANTA FE RAILROAD

UNION PACIFIC RAILROAD

SR-219 [PM 3.7]

WESTERN TERMINUS (1A, 1B, 2A, 2B)

Project Location

BURLINGTON NORTHERN SANTA FE RAILROAD

UNION PACIFIC RAILROAD

Yosemite Ave
Escalon
Jackson Ave
Main St
Lon Dale Rd
Valley Home Rd
Santa Fe Rd
E River Rd
McHenry Ave
Del Rio Country Club
San Joaquin Stanislaus River
S Santa Fe Rd
Riverbank
Patterson Rd
1st St
Coffee Rd
Oakdale Rd
Roselle Ave
Terminal Ave
Claus Rd
Riverbank Aap
East Oakdale
Oakdale
S Yosemite Ave
Claribel Rd
Oakdale Waterford Hwy
Kiernan Ave
Salida Blvd
Pelandale Ave
Dale Rd
Claratina Ave
Murphy Rd
Vintage Faire Mall
Standiford Ave
Sylvan Ave
Beckwith Rd
Prescott Rd
Carver Rd
Tully Rd
Floyd Ave
Milnes Rd
Albers Rd
Plaza Parkway
W Briggsmore Ave
E Briggsmore Ave
Parker Rd
Modesto Junior College-West
W Orangeburg Ave
E Orangeburg Ave
Blue Gum Ave
N Dakota Ave
Stak Rd
Hwy 120
Hwy 108
Hwy 219
Hwy 99

V:\2046 NCC\EIR_EIS\F1.1-2 ProjectLocation.mxd

0 1 2 3 4 5 Miles

Segment 1 | Segment 2 | Segment 3

FIGURE 1.1-2
Project Location
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

1.2 Purpose and Need

The purpose and need statement is an essential part of the environmental process. It explains why the project is being proposed. The purpose and need statement provides context and criteria for developing a range of possible alternatives and eventually the selection of a preferred alternative. The project "purpose" is a set of objectives the project intends to meet. The project "need" is the transportation deficiency that the project was initiated to address.

1.2.1 Purpose

The purpose of the project is to:

- Reduce average daily traffic volumes and current traffic congestion and accommodate anticipated future traffic on the existing SR-108 and the surrounding regional transportation network in Stanislaus County and the cities of Modesto, Riverbank, and Oakdale.

- Support the efficient movement of goods and services throughout the region for the benefit of the regional economy by providing a more direct and dependable truck route, increasing the average operating speeds of all vehicles, and reducing the number of areas of conflict between motorized traffic and non-motorized means of travel.

- Improve the efficiency of interregional travel by reducing travel times for long distance commuters, recreational traffic, and interregional goods movement.

1.2.2 Need

The current action is needed because:

- Travel conditions in the region, including traffic congestion on existing SR-108, will continue to worsen due to regional population growth and projected traffic volume increases.

- Traffic congestion on existing truck routes (SR-108/SR-120) will continue to hinder the efficient movement of goods and services.

- Existing SR-108 is part of the interregional system, and interregional circulation will become increasingly constrained as travel times on existing SR-108 increase substantially with planned residential and employment growth.

Traffic Congestion on Existing SR-108

Population Growth

Stanislaus County's population is expected to grow from a current (2015) estimate of 532,297 to a projected 821,715 in 2030. The projected populations in 2030 for the cities of Modesto, Riverbank, and Oakdale are 411,788, 69,508, and 35,000, respectively.

Table 1.2.2-1: Projected Population in Northern Stanislaus County

City/County	1970[1]	1980[1]	1990[2]	2000[2]	Current Estimate (2015)[2]	Projected 2030
Modesto	61,712	106,963	164,746	188,861	209,186	411,788[4]
Riverbank	3,949	5,695	8,591	15,826	23,485	69,508[5]
Oakdale	6,594	8,474	11,978	15,503	21,773	35,000[6]
Stanislaus County	194,506	265,900	370,522	446,997	532,297[3]	821,715[7]

1 US Census
2 CA Department of Finance, Table E-4, Estimates for city, county and state, with 1990 and 2000 Census.
3 US Census 2012
4 City of Modesto General Plan
5 City of Riverbank General Plan
6 City of Oakdale General Plan
7 Stanislaus County General Plan

Traffic Volume Increases

Based on population trends and projections as well as the regional countywide traffic model, average daily traffic volumes are projected to increase through 2042, which represents the 20 year design life of the North County Corridor New SR-108 project. Continued growth in Stanislaus County, its communities, and its surrounding areas, coupled with increasing travel needs through northern Stanislaus County for improved access to and around the growing cities of Modesto, Riverbank, and Oakdale, has resulted in the need for this project.

Average 2014 daily traffic volumes on existing SR-108 range from 15,200 vehicles along the McHenry Avenue portion of existing SR-108 to 22,300 vehicles in downtown Oakdale (see Table 1.2.2-2). This table further indicates that future 2022 and 2042 daily traffic volumes will also increase. 2014 has been used to represent present day baseline condition without the North County Corridor New SR-108 project, 2022 represents the anticipated construction completion year of the North County Corridor New SR-108 project and 2042 represents the end of 20 year life expectancy of the North County Corridor New SR-108 project if constructed,

Table 1.2.2-2 Average Daily Traffic Volumes at Representative Locations

Volumes	Existing SR-108 – McHenry Segment North of Modesto	Existing SR-108 – Vicinity of Riverbank (Ladd/Patterson Road)	Existing SR-108 – Downtown Oakdale
Existing 2014	15,200	21,100	22,300
2022 No-Build	16,700	22,600	25,600
2042 No-Build	19,200	25,000	31,200

Source: Traffic Operations Report for the North County Corridor 2015

In addition to the existing SR-108, other existing arterial roadways within and near the project area will experience substantial increases in traffic volumes. Projected growth in the region will place increased strain on east-west travel, as well as strain the capacity of the region's roadway network (particularly existing SR-108).

Table 1.2.2-3 Average Daily Traffic Volumes on Existing Arterial Roadways

Location	Existing (2014)	2042 No-Build
Claribel Road east of Roselle Avenue	14,570	21,000
Pelandale Ave west of Coffee Road	16,656	53,700
Patterson Road east of Langworth Road	4,665	12,500

Movement of Goods and Services

Interregional Goods Movement

Traffic on the existing SR-108 includes a combination of commuter, local commerce, goods movement, agricultural and farm operations, and a large component of interregional recreational traffic. Interregional traffic involved in the movement of goods and services currently conflicts with local traffic creating congestion, as well as local noise and air pollution because the existing SR-108 provides direct access to local residences, farms, and other community facilities along its route. Stanislaus County is an important food-processing region. Poultry, dairy, and vegetable products are processed locally and distributed throughout the world every day. Goods movement is the result of production activities within and outside the region, and movement takes place within a complex system of routes, modes, terminals, and warehouse facilities.

The State of California has recognized the importance of agricultural goods movement in the Central Valley. The State's Goods Movement Action Plan (November 2007) identifies four high priority gateway regions in California, including the Central Valley, that are necessary to support the continued growth of the California economy. SR-99 and Interstate 5 and important east-west corridors (existing SR-108, Patterson Road, and Claratina Avenue) that cross Stanislaus County are located within these high-priority regions. Traffic congestion and operational conflicts between trucks and passenger vehicles have been identified as key issues that need to be addressed to maintain efficient goods movement. The high percentage of trucks on the roads in the project area reflects the high demand in the area for goods movement (Caltrans District 10 TSN TASAS). Many interstate truck lines and contract carriers operate in the Stanislaus region. These operators, distributed throughout the region, rely on the regional system of state highways, expressways, intermodal yards (such as in the City of Ripon and community of Empire), and major arterials to move supplies and products to the backbones of the highway freight system (SR-99, Interstate 5, and SR-132).

Existing/Future Traffic

Transportation planners use the term "level of service" to describe a roadway's performance based on average delay per vehicle. Level of service ranges from level of service A, indicating free-flow or excellent conditions with short delays, to level of service F, indicating congestion or overloaded conditions with extremely long delays (see Figure 1.2.2-7: Level of Service for Two-Lane Highway and Figure 1.2.2-8: Level of Service for Intersections with Traffic Signals).

Level of service is an effective measure to compare the quality of traffic performance over time and against alternative scenarios. As a baseline for comparison, level of service on the region's roadway network was determined for existing 2014, 2022, and 2042 conditions.

The existing conditions at main intersections and modeling information show deteriorating levels of service at many intersections in and near the project area by 2042. This means deteriorating access to, through, and around the growing cities of Modesto, Riverbank, and Oakdale.

Table 1.2.2-4 lists the existing levels of service for key intersections serving interregional traffic within and near the project area and the projected 2022 and 2042 morning (AM) and evening (PM) peak hour levels of service.

Table 1.2.2-4 No-Build Alternative Projected Intersection Level of Service – 2022 and 2042

Location	Peak Hour	2014 Level of Service	2022 Level of Service	2042 Level of Service
1. Kiernan Avenue (SR-219)/ Carver Road	**AM**	**F**	B	C
	PM	C	B	C
2. Kiernan Avenue (SR-219)/ Tully Road	**AM**	D	B	C
	PM	**F**	C	**F**
3. McHenry Avenue/Ladd Road	**AM**	C	C	**E**
	PM	C	D	**F**
4. McHenry Avenue/SR-108	**AM**	B	B	B
	PM	A	A	B
5. SR-108/Patterson Road	**AM**	A	A	**F**
	PM	A	B	**F**
6. SR-108/Kiernan Avenue	**AM**	C	C	**F**
	PM	C	C	**E**
7. SR-108/Pelandale Avenue	**AM**	C	C	**F**
	PM	D	D	**F**
8. Coffee Road/Claribel Road	**AM**	**F**	B	C
	PM	**F**	B	C
9. Coffee Road/Claratina Avenue	**AM**	**F**	C	**F**
	PM	**F**	C	**F**
10. Oakdale Road/SR-108	**AM**	C	C	C
	PM	D	C	D
11. Oakdale Road/Claribel Road	**AM**	C	D	D
	PM	D	D	**E**
12. Oakdale Road/Claratina Avenue	**AM**	A (B)	C	D
	PM	B (D)	C	**E**

Source: Traffic Operations Report for the North County Corridor, 2015

Interregional Circulation

Route Discontinuity

The existing SR-108 within Stanislaus County terminates at the junction of State Route 120 and Yosemite Avenue in the city of Oakdale. Although the route break occurs, traffic on SR-108 continues and then begins again in Tuolumne County at the State Route 120 Yosemite Junction. Traffic on the existing SR-108 must also travel through the busy downtown areas of Oakdale and Riverbank. These conditions will remain as development continues and traffic volumes increase (see Figure 1.2.2-1, in Appendix A).

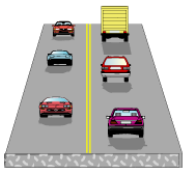
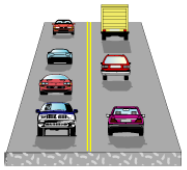
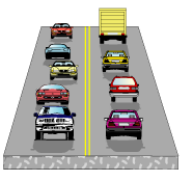
On existing SR-108 between the intersections of SR-108/McHenry Avenue and SR-108/Lancaster Road, motorists are slowed and required to stop by 83 public street intersections and many private driveways that have direct access onto existing SR-108.This access has made existing SR-108 ineffective as a major east-west route. The intersections and driveways increase the number of cross interactions of motorists. The route is highly congested during peak hours, and these conditions are expected to worsen as traffic volumes increase. “Peak hours” are defined as the hours during which traffic congestion and volume are at their highest for the day. This is usually experienced twice a day, once in the morning and once in the afternoon during commute times. In addition, many of these 83 intersections have traffic signals or stop signs. During periods of high traffic volumes, motorists must wait at the intersections, causing further delay. Slower-moving trucks add to the congested traffic conditions.

Legislation

On October 11, 2009, the Governor of California signed into law Senate Bill 532. The bill added to the Streets & Highway Code Section 164.15 the segment of SR-108 ”from Route 132 in Modesto to Route 120 east of Oakdale” into the system of interregional routes eligible to be funded as interregional improvements and revised the authorized route description.

LEVELS OF SERVICE

for Two-Lane Highways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		55+	Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed. **No delays**
B		50	Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. **No delays**
C		45	Stable traffic flow, but less freedom to select speed, change lanes or pass. **Minimal delays**
D		40	Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. **Minimal delays**
E		35	Unstable traffic flow. Speeds change quickly and maneuverability is low. **Significant delays**
F			Heavily congested traffic. Demand exceeds capacity and speeds vary greatly. **Considerable delays**

Source: 2000 HCM, Exhibit 20-2, LOS Criteria for Two-Lane Highways in Class 1

Figure 1.2.2-7: Level of Service for Two-Lane Highways

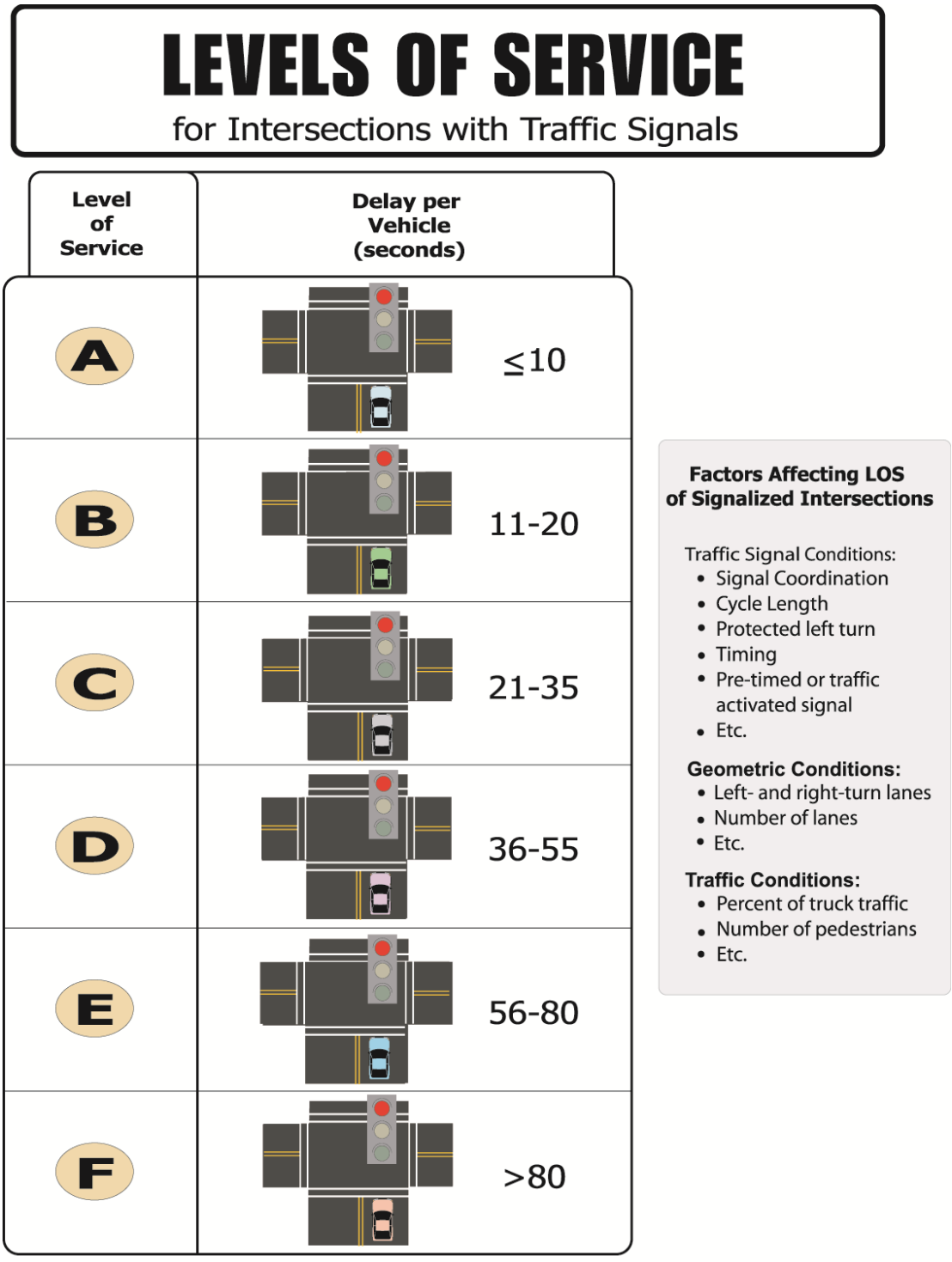


Figure 1.2.2-8: Level of Service for Intersections with Traffic Signals

1.3 Independent Utility and Logical Termini

Federal Highway Administration regulations (23 Code of Federal Regulations [CFR] 771.111[f]) require that (1) projects have logical limits and be long enough that the environmental analysis has a broad scope; (2) projects are usable and a reasonable use of funds even if no additional transportation improvements in the area are made (this is known as independent utility); and (3) approval of a project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. As discussed below, the North County Corridor New State Route 108 Project complies with these requirements.

The proposed project is a stand-alone project intended to improve the operation, capacity, and flow of traffic along the new SR-108 corridor. The proposed project begins at the intersection of Tully Road and SR-219 and ends at SR-108/SR-120, acting as a bypass for the Cities of Riverbank and Oakdale. The project would address the transportation deficiencies between the two endpoints and future projected congestion affecting the movement of traffic and goods between these routes. The project is a regional-scale transportation corridor that would facilitate multimodal movement, as well as improve traffic continuity.

Table 1.2.2-1 above shows the forecasted growth in population. Those increases, coupled with the declining LOS for the No-Build Alternative in 2042, signify that changes are needed on the route. The project features have been developed to fully address the purpose and the need of the project and address circulation and multi-modal transportation within the corridor. Based on the above discussion, the project meets the criteria for “logical termini.”

The proposed project is independent of other Caltrans projects and is in no way dependent on the implementation of other Caltrans projects on SR-108, SR-120, or SR-219 prior or subsequent to this proposed undertaking. This environmental document studies the entire project area. If any of the Build Alternatives are selected, the improvements would create a useable facility even if no other transportation improvements are made. Based on the aforementioned, and pursuant to 23 CFR 771.11(f), this project has independent utility and logical termini.

Chapter 2 Project Alternatives

2.1 Project Description

This chapter describes the proposed action and the project alternatives developed to meet the purpose and need of the project, while avoiding or minimizing environmental impacts. The alternatives are Alternative 1A, 1B, 2A, 2B, and the No-Build Alternative.

In response to the region's increasing traffic volumes and worsening traffic congestion, the inefficiencies related to the movement of goods and services, and the increasingly constrained interregional circulation on existing SR-108, Caltrans and the NCCTEA will construct the North County Corridor New SR-108 Project in northern Stanislaus County. The project will build the North County Corridor/New SR-108 from the intersection of SR-219 and Tully Road to SR-120/existing SR-108 east of the City of Oakdale along one or a combination of the four alternative routes discussed in this chapter. The proposed project will include the following features:

- New freeway/expressway controlled-access travel lanes;
- At-grade intersections;
- Grade-separated bridge structures at major roadway and railway crossings;
- Structures at various waterway crossings, including the Modesto Irrigation District and Oak Irrigation District canals; and,
- County and City roadway improvements at various locations.

With this project, the newly created North County Corridor alignment will become SR-108, and the City would thereafter relinquish the existing SR-108 to the County of Stanislaus. The old alignment would no longer be a state highway, but will operate as an east-west route in its current form and location.

The alternatives are evaluated for environmental purposes in three main segments, shown in Figure 2.3.1 at the end of Chapter 2. Figure 2.3.1 is continued in Appendix A, which contains additional details regarding each alternative. Segment 1 represents the more urbanized area; Segment 2 represents a transition from urbanized to rural area; and Segment 3 represents the rural foothill area. The project was divided into these segments to assist the public in visualizing the location and landscape of the project area.

Segment 1 begins at the SR-219 Kiernan Avenue/Tully Road intersection, which is the western end of the project for all four alternatives. All of the Build Alternatives proceed along the same alignment, extending to the existing Claus Road/Claribel Road intersection near the southeast portion of the City of Riverbank and northeast portion of the City of Modesto's future sphere of influence, including future areas projected to be incorporated into the City boundaries.

Segment 2 is where the four similar alternatives separate into two different alignments (1A/1B and 2A/2B). In Segment 2, Alternatives 1A and 1B veer northeast from near the existing Claus Road/Claribel Road intersection and pass through the southern boundary of the City of Oakdale to just east of Albers Road, and Alternatives 2A and 2B continue to extend easterly along Claribel Road and veer northeastward past the intersection of Claribel Road/Bentley Road to just east of Albers Road.

In Segment 3, Alternatives 1A and 2A merge as similar alignments at the southern end of the City of Oakdale and continue on the same alignment to the proposed eastern end (A) at the new SR-108/SR-120 intersection just east of the City of Oakdale boundary. In Segment 3, Alternatives 1B and 2B merge as similar alignments north of the existing Warnerville Road/ Emery Road intersection and continue on a northeasterly direction to the proposed other eastern end (B) at the new SR-108/SR-120 intersection west of the existing SR-120/Lancaster Road intersection.

To maintain access to all parcels, new and realigned local access roads will be included as part of the proposed project. A discussion of the access roads is included in Section 2.3.1 of this chapter.

2.2 Alternatives

Four Build Alternatives are being considered for the project: Alternative 1A, 1B, 2A, and 2B. In some locations, portions of one or more alternatives may overlap. All alternatives begin at the same location within Segment 1 on the west at the SR-219 (Kiernan Avenue)/Tully Road intersection. There are two possible eastern end locations: SR-108/SR-120 just east of the City of Oakdale boundary for Alternatives 1A and 2A, or further east of the Alternatives 1A and 2A end point along SR-108/SR-120 in the vicinity of Lancaster Road for Alternatives 1B and 2B.

2.3 Build Alternatives

2.3.1 Common Design Features of the Build Alternatives

The following roadway segment design is common to all Build Alternatives for segment 1.

The North County Corridor New SR-108 alignment begins at SR-219 (Kiernan Avenue)/Tully Road intersection, which is north of the City of Modesto between Kiernan Avenue/Carver Road intersection and SR-219/McHenry Avenue intersection. The alignment continues eastward along the existing SR-219 (Kiernan Avenue), which becomes Claribel Road east of existing SR-108/McHenry Avenue. Alternative 1A shifts to the south of Claribel Road east of Coffee Road, and returns onto Claribel Road west of Claus Road.

Roadway Corridor

- The proposed North County Corridor alignment will be a freeway/expressway with controlled access.
- A minimum 244-foot-wide right-of-way with two to three 12-foot-wide through lanes in each direction of the roadway with 5-foot-wide to 10-foot-wide shoulders. See Figure 2.3.1-1, at the end of Chapter 2 for example of a typical roadway cross section.
- The eastbound and westbound alignments will be separated by a 46-foot-wide to 70-foot-wide median. There will be drainage swales along each side of the roadway.
- From Claus Road to the end of the new alignment at SR-108/SR-120, a Class 3 bike lane will be included in each direction on the shoulders of the North County Corridor.

Local Access Roads

The proposed project will be a freeway/expressway with controlled access. There will be entry and exit at most crossroad intersections at a minimum of 1 mile apart, except for Alternatives 1A and 2A, which have the SR-108/Stearns Road intersection at only 0.6-mile spacing from the SR-108/SR-120 intersection at end “A.” Existing properties will be accessible via a

discontinuous local roadway system. These proposed local access road alignments and their relationship to local streets are shown in Figure 2.3-1, at the end of Chapter 2. Additional details are depicted on Figure 2.3-1, continued in Appendix A.

- Local access roads will generally have a 12-foot-wide lane and 4-foot-wide to 8-foot-wide shoulder in each direction.
- Up to a 12-foot-wide area between the right-of-way limit and the edge of pavement would allow for drainage swales.
- Where required, left-turn lanes and right-turn lanes will be provided at intersections.

Interchanges/Intersections

Signals will be added to the proposed intersections along the project alignment unless a roundabout is proposed. Any maintenance storage, pullout, or ramp metering needed throughout the project will be included within the project footprint.

The following interchange/intersection designs are common to all Build Alternatives for Segment 1:

- Tully Road/SR-219 (Kiernan Avenue) intersection will consist of a modified signalized at-grade intersection.
- SR-108 (McHenry Avenue)/SR-219, (Kiernan Avenue)/new SR-108, Coffee Road/new SR-108, Oakdale Road/new SR-108, and Roselle Avenue/new SR-108 will all consist of a proposed single-point urban interchange and separate-grade undercrossing structures. See Figure 2.3.1-2 in Appendix A for an example of a single-point interchange. These will be the only four interchanges within the proposed project.
- The Claus Road/new SR-108 signalized at-grade intersection will provide access from the new SR-108 facility east of Claus Road as well as the local road access to the City of Riverbank and future northeastern areas of the City of Modesto.

Canal Crossings

Various canals are within the areas of potential project construction. These canals supply irrigation water throughout Stanislaus County. Most of the major canals are owned and maintained by the Modesto Irrigation District and Oakdale Irrigation District. There are also many private canals within the project limits. The Build Alternatives will provide crossings over these canals as required by the Modesto Irrigation District and Oakdale Irrigation District. Most crossings will be at grade, and some will be elevated. Table 2.3.1-1 lists all canal crossings common to all Build Alternatives. The Build Alternatives will also provide crossings over private canals and ditches.

Hetch-Hetchy Crossing

The project crosses the Hetch-Hetchy/San Francisco Public Utilities Commission water pipeline and electrical transmission line approximately 1,200 feet west of the North County Corridor/ Oakdale Road intersection. The Oakdale road alignment crosses Hetch Hetchy about 500 feet north of this same intersection. All crossings of the Hetch-Hetchy/San Francisco Public Utilities Commission water pipeline and electrical transmission line are at grade over the water pipeline and under the power transmission lines. The project will cross the Hetch-Hetchy four times via

one major and three minor crossings within Segment 1. The project will also cross three valve boxes within Segment 1.

Table 2.3.1-1: Canal Crossings Common to Alternatives 1A, 1B, 2A and 2B

Roadway Facility	Canal Name	Location/Intersection	Type of Structure
Local Road	Modesto Irrigation District Lateral Number 6	Coffee Road south of Coffee Road/Claribel Road intersection	At-grade
New SR-108	Modesto Irrigation District Lateral Number 6	North County Corridor between Coffee Road and Oakdale Road	At-grade
Local Road	Modesto Irrigation District Lateral Number 6	Local access road between Coffee Road and Oakdale Road	At-grade
Local Road	Modesto Irrigation District Lateral Number 6	Roselle Avenue north of Roselle Avenue/Claribel Road intersection	At-grade
Local Road	Modesto Irrigation District Main	New Claribel Road between Roselle Avenue and Claus Road	Elevated
Local Road	Modesto Irrigation District Main	North County Corridor between Roselle Avenue and Claus Road	Elevated
New SR-108	Modesto Irrigation District Main	Claus Road south of Claus Road/Claribel Road intersection	At-grade

Source: Draft Project Report, 2016

Railroads

In Segment 1, all alternatives will cross the Burlington Northern Santa Fe (BNSF) Railroad between Roselle Avenue and Claus Avenue using a grade separation. The new Claribel Road and North County Corridor will be elevated over the BNSF Railroad and Terminal Avenue with separate overhead structures. The BNSF Railroad and Terminal Avenue will remain at their current alignment (see Figure 2.3.1-3, in Appendix A).

The existing Union Pacific Railroad (UPRR) between Tully Road and McHenry Avenue is an abandoned line. Tracks associated with this railroad line will be removed as part of the SR-219/Kiernan Avenue Widening Project that began construction in March 2013. This project is expected to finish by the fall of 2015, before the construction of the North County Corridor.

Utility Relocation

Various utilities exist within the areas of potential construction, including sewer, water, gas, overhead and underground electrical, overhead and underground telephone and communications, storm drains, irrigation canals, street lighting and signal equipment. The following utilities exist within the project limits:

- Electric (overhead and underground) – PG&E
- Electric (Hetch-Hetchy overhead) – San Francisco Public Utilities Commission
- Gas – PG&E
- Telephone (overhead and underground) – AT&T
- Communications (overhead and underground) – various

- Water (Hetch-Hetchy) - San Francisco Public Utilities Commission
- Water – City of Modesto
- Water – City of Riverbank
- Sanitary Sewer – City of Modesto
- Sanitary Sewer – City of Riverbank
- Irrigation – Modesto Irrigation District
- Irrigation – Oakdale Irrigation District

Responsibility for relocation of existing utilities that are within the state and city rights-of-way would be subject to applicable state and federal regulations and statutes. The Build Alternatives would require relocation of existing utilities, but relocation of the Hetch-Hetchy electric transmission lines, Hetch-Hetchy underground pipelines, and main canals would not be required. All utility information within this report will be verified with the corresponding utility agency during the final design phase. Environmental impacts caused by relocating utilities associated with the project will be within the environmental study area and are analyzed as part of this EIR/EIS. Detailed utility information can be found in the Utility/Emergency Services Section in Chapter 3 of the EIR/EIS.

2.3.2 Unique Features of the Build Alternatives

Alternative 1A

Segment 2

Segment 2 is a multi-lane expressway facility about 5.5 miles long that would provide a transition between the urban Segment 1 and the rural Segment 3 facility. Alternative 1A veers northeast from the Claus Road intersection and crosses Langworth Road and Patterson Road while extending 3.2 miles northeast at an approximately 45-degree angle. Past the Lexington Road and Crane Road intersection, Alternative 1A overlies the existing Lexington Road and extends easterly to Albers Road. Within Segment 2, no private driveway access is proposed. From Albers Road, Alternative 1A splits into the other possible alignments to intersect SR-108/SR-120.

Intersections

The following roadways will be elevated over the North County Corridor alignment with an overcrossing structure along its current alignment:

- Eleanor Avenue
- Langworth Road
- Patterson Road
- Kaufman Road

The Claus Road/new SR-108 signalized at-grade intersection will provide access from the new SR-108 freeway to new SR-108 expressway east of Claus Road as well as the local road access to City of Riverbank and future northeastern areas of City of Modesto.

Hetch-Hetchy Crossings

In Segment 2, Alternative 1A crosses Hetch Hetchy approximately 500 feet east of Langworth Road. The crossings are at grade over the water pipeline and under the power transmission lines.

In addition, Alternatives 1A and 1B share canal crossings in Segment 2 (see Table 2.3.1-2).

Table 2.3.1-2 Canal Crossings Common to Alternatives 1A and 1B (Segment 2)

Canal Name	Location/Intersection	Type of Structure
Southwest Lateral	North County Corridor south of North County Corridor/Patterson Road Overcrossing	At-grade
Riverbank Lateral	North County Corridor south of North County Corridor/Patterson Road overcrossing	At-grade
Riverbank Lateral	Patterson Road east of North County Corridor/Patterson Road overcrossing	At-grade
Crane Drain	Crane Road north of North County Corridor/Crane Road intersection	At-grade
Crane Drain	Local access road northeast of North County Corridor/Crane Road intersection	At-grade
Riverbank Lateral	North County Corridor between Crane Road and Kaufman Road	At-grade
Crane Drain	North County Corridor southwest of North County Corridor/Crane Road intersection	At-grade

Source: Draft Project Report, 2016

Hetch-Hetchy Crossings Common to Alternative 1A and 1B

The North County Corridor alignment and east access road cross the Hetch-Hetchy water pipeline and electrical transmission line approximately 1,900 feet south of Patterson Road. The Langworth Road alignment crosses Hetch-Hetchy approximately 2,000 feet south of Patterson Road. The access road west of Langworth crosses Hetch-Hetchy at three locations, approximately 2,400 feet south of Patterson Road. The Kaufman Road alignment crosses Hetch-Hetchy approximately 1,600 feet south of the North County Corridor/Kaufman Road overcrossing. The Albers Road alignment crosses Hetch-Hetchy approximately 1,000 feet south of the North County Corridor/Albers Road intersection. The North County Corridor, Langworth Road, the access road west of Langworth Road, Kaufman Road, and Albers Road are expected to clear the water pipeline and transmission towers. All crossings are at grade over the water pipeline and under the power transmission lines.

Segment 3

Segment 3 would be a rural multi-lane expressway facility that would connect Segment 2 east of the new SR-108/Albers Road intersection to the existing SR-108/SR-120 intersection at the proposed “A” eastern end about 0.6 mile east of the SR-120/South Stearns Road intersection. Alternative 1A begins near Warnerville Road west of South Stearns Road and the Sierra Railroad. Alternative 1A runs northward, parallel to South Stearns Road, before crossing over

the Sierra Railroad west of the South Stearns Road and Sierra Road intersection. It curves eastward until it ultimately ends at the intersection with SR-120.

Intersections

The North County Corridor will be elevated over the following roadway with an undercrossing structure along its current alignment: Warnerville Road.

The North County Corridor will be elevated over the following roadways with an undercrossing/overhead structure combination:

- Sierra railroad overhead/Sierra Road overcrossing
- South Stearns Road undercrossing

The connection from the North County Corridor to South Stearns Road will include a three-way intersection at South Stearns Road and an at-grade four-way roundabout at the North County Corridor. The roundabout will include one 12-foot-wide combination through/exit lane and one exit lane for all directions.

Railroads

In Segment 3, Alternatives 1A and 2A will cross the Sierra Railroad south of Sierra Road at approximately 0.4 mile southwest of the North County Corridor/South Stearns Road intersection and west of South Stearns Road. At this railroad crossing, the North County Corridor will be elevated over Sierra Road and the Sierra Railroad with an overhead structure along the current alignment.

Alternatives 1A and 2A share four canal crossings in Segment 3 (see Table 2.3.1-3).

Table 2.3.1-3 Canal Crossings Common to Alternative 1A and 2A (Segment 3)

Canal Name	Location/Intersection	Type of Structure
Claribel Lateral	North County Corridor between Oakdale-Waterford Highway and Smith Road	At-grade
Riverbank Lateral	Local access road extension of Warnerville Road, west of the North County Corridor	At-grade
Private Irrigation Crossing	North County Corridor	At-grade
Crane Drain	North County Corridor northwest of existing South Stearns Road/Warnerville Road intersection	Elevated and at-grade

Source: Draft Project Report, 2016

Alternative 2A

Segment 2

Segment 2 is a multi-lane expressway facility about 5.4 miles long and would transition between the urban Segment 1 and the rural Segment 3 facility. Within Segment 2, no private driveway access is proposed. Alternative 2A continues east mostly along the existing Claribel Road alignment. Just east of the Bentley Road/Claribel Road intersection, Alternative 2A veers northeast and crosses Oakdale-Waterford Highway.

Alternatives 2A and 2B also share canal crossings in this segment (see Table 2.3.1-4). Figure 2.3-1, at the end of Chapter 2 shows all canal crossing locations within the project area.

Table 2.3.1-4 Canal Crossings Common to Alternatives 2A and 2B (Segment 2)

Canal Name	Location/Intersection	Type of Structure
Private Irrigation Crossing	McGee Avenue south of North County Corridor/McGee/Eleanor Avenue intersection	At-grade
Mootz Lateral	North County Corridor between McGee/Eleanor Avenue and Langworth Road	At-grade
Mootz Lateral	Local access road between McGee Avenue and Langworth Road	At-grade
Mootz Lateral	Local access road between Eleanor Avenue and Langworth Road	At-grade
Mootz Lateral	Local access road between McGee Avenue and Langworth Road	At-grade
Mootz Lateral	Langworth Road north of North County Corridor/Langworth Road overcrossing	At-grade
Mootz Lateral	Local access road northeast of North County Corridor/Langworth Road overcrossing	At-grade
Mootz Lateral	Bentley Road south of North County Corridor/Bentley Road intersection	At-grade
Mootz Lateral	Local access road southwest of North County Corridor/Bentley Road intersection	At-grade
Mootz Lateral	Local access road southeast of North County Corridor/Bentley Road intersection	At-grade
Mootz Lateral	North County Corridor west of Albers Road and between Bentley Road and Albers Road intersections with North County Corridor	At-grade
Brichetto Lateral/Pipeline	North County Corridor between Albers Road and Oakdale-Waterford Highway overcrossing	At-grade
Brichetto Lateral/Pipeline	Oakdale-Waterford Highway north of North County Corridor at Oakdale-Waterford Highway overcrossing	Elevated

Source: Draft Project Report, 2016

Intersections

The following roadways will be elevated over the North County Corridor alignment with an overcrossing structure along its current alignment:

- Eleanor Avenue/McGee Avenue
- Langworth Road
- Oakdale Waterford Highway

The following intersections with the proposed North County Corridor alignment will consist of an at-grade intersection:

- Bentley Road
- Albers Road

Segment 3

After crossing the Oakdale/Waterford Highway, Alternative 2 curves northeast as it crosses the Claribel Lateral Canal, then continues northward toward the direction of South Stearns Road and the Sierra Railroad. It ends at the intersection with SR-108/SR-120, approximately two-thirds of a mile east of the SR-108/SR-120 and South Stearns Road intersection.

Intersections within Segment 3 of Alternative 2A share the same designs with all intersections within Segment 3 of Alternative 1A. These intersections are discussed under Alternative 1A Intersections.

Hetch-Hetchy Crossing

The North County Corridor alignment crosses Hetch-Hetchy approximately 500 feet south of Warnerville Road. The access road east of the North County Corridor crosses Hetch-Hetchy approximately 500 feet south of Warnerville Road. The North County Corridor and the access road are expected to clear the pipeline and transmission towers, and all crossings are at grade over the water pipeline and under the power transmission lines. In Segment 3 there is one major crossing and one minor crossing.

See Table 2.3.1-3 for the canal crossings.

Alternative 1B

Segment 2

Improvements for Alternative 1B in Segment 2 are identical to those listed in Alternative 1A, Segment 2 above. See Table 2.3.1-2 for the canal crossings.

Segment 3

Alternative 1B begins near Warnerville Road, similar to Alternative 1A. But instead of turning north toward South Stearns Road, Alternative 1B continues northeast for 3.3 miles, and then crosses the Sierra Railroad with a grade-separated structure before turning northward toward Fogarty Road and its SR-108/SR-120 end, 1.5 miles east of the SR-108/SR-120 and Wamble Road intersection.

The South Stearns Road intersection (east of Bendler Road and northeast of Oakdale Irrigation District South Main Canal) with the proposed North County Corridor alignment will consist of an at-grade intersection with two 12-foot-wide through lanes in each direction along the North County Corridor alignment.

Fogarty Road will be elevated over the North County Corridor alignment with an overcrossing structure along its current alignment.

A new local road intersection will cross the proposed North County Corridor alignment at approximately 5,000 feet south of the SR-108/SR-120 eastern end with an at-grade four-way roundabout. The roundabout will consist of one combination through/exit lane and one exit lane.

The intersection of SR-108/SR-120 with the proposed North County Corridor alignment will consist of an at-grade three-way roundabout with one 12-foot-wide combination through/exit lane and one exit lane for all directions except along westbound SR-108/SR-120.

Railroads

Alternatives 1B and 2B will cross the Sierra Railroad about 1 mile north of Fogarty Road and about half a mile southwest of the North County Corridor/New Intersection south of SR-108/SR-120. At this railroad crossing, the North County Corridor will be elevated over the Sierra Railroad with an overhead structure along the current alignment.

Alternatives 1B and 2B also have common canal crossings in this segment (see Table 2.3.1-5). Figure 2.3-1 shows the canal crossing locations in this area.

Table 2.3.1-5 Canal Crossings Common to Alternatives 1B and 2B (Segment 3)

Canal Name	Location/Intersection	Type of Structure
South Main	North County Corridor west of existing South Stearns Road/Warnerville Road intersection	At-grade
South Main	North County Corridor east of North County Corridor/South Stearns Road intersection	At-grade
South Main	Local access road northeast of South Stearns Road/Warnerville Road intersection	At-grade
Kearny Lateral	North County Corridor east of Smith Road near Warnerville Road	At-grade
Oakdale Irrigation District South Main	Local access road extension south of existing Wamble Road/Fogarty Road intersection and north of North County Corridor	At-grade
Oakdale Irrigation District South Main	North County Corridor between Warnerville Road and Fogarty Road	At-grade
Private Irrigation crossing	North County Corridor between Fogarty Road and Sierra Railroad	At-grade
Gray Lateral/Pipeline	North County Corridor between Sierra Railroad and new North County Corridor intersection south of SR-108/SR-120 intersection	At-grade

Source: Draft Project Report, 2016

Alternative 2B

Segment 2

Improvements for Alternative 2B in Segment 2 are identical to those listed in Alternative 2A, Segment 2 above. See Table 2.3.1-4 for the canal crossings.

Segment 3

Segment 3 of Alternative 2B shares the same design with Segment 3 of Alternative 1B intersections at North County Corridor/Fogarty Road, North County Corridor/New Local Access Road, and North County Corridor/SR-120. These three intersections are discussed under Alternative 1B Intersections. Other intersection designs unique to this alternative are discussed below.

The Smith Road intersection with the proposed North County Corridor alignment will consist of an at-grade intersection (see Figure 2.3-1, page 6, in Appendix A).

The North County Corridor will be elevated over Warnerville Road with an undercrossing structure along the current alignment of Warnerville Road.

Table 2.3.2-5 and Table 2.3.1-6 list the canals that will be crossed by Alternative 2B in Segment 3. Figure 2.3-1 shows the canal crossing locations in this area.

Table 2.3.1-6 Canal Crossings Only for Alternative 2B (Segment 3)

Canal Name	Location/Intersection	Type of Structure
South Lateral	North County Corridor west of North County Corridor/Smith Road intersection	At-grade
Heggie Pipeline	North County Corridor east of North County Corridor/Smith Road intersection and west of existing Stoddard Road alignment	At-grade
Union Drain	North County Corridor east of North County Corridor/Smith Road intersection and west of existing Stoddard Road alignment	At-grade
Stoddard Lateral	North County Corridor east of existing Stoddard Road alignment	At-grade
Kearney Lateral	North County Corridor north of Warnerville Road	At-grade
Kearney Lateral	North County Corridor north of Warnerville Road	At-grade

Source: Draft Project Report, 2016

Hetch-Hetchy Crossing

The North County Corridor alignment crosses Hetch-Hetchy approximately 1-1/2 miles east of Smith Road and north Warnerville Road. The North County Corridor is expected to clear the pipeline and transmission towers. The crossing is at grade over the water pipeline and under the power transmission lines. Alternative 2B will have one major crossing with the Hetch-Hetchy.

2.3.3 Transportation System Management and Transportation Demand Management Alternatives

Transportation systems management (TSM) and transportation demand management (TDM) strategies would increase the efficiency of existing roadway facilities and increase the number of vehicle trips a facility can carry without increasing the number of through lanes.

Transportation system management and transportation demand management alternatives were identified for the project.

Transportation system management alternatives enhance the capacity of the existing transportation system by implementing a wide array of operational improvements. Typical transportation system management strategies include intersection and signal lighting, signal timing optimization, turn lanes, pavement striping, acceleration lane improvement on freeways, ramp metering, and lane-change sections. Transportation demand management alternatives focus on moving people through the study area more efficiently by using alternative means of transportation. The build alternatives were designed to include sidewalks, allow for safe bicycle movement, create park and ride facilities, and improve the locations of bus stops. Although transportation system management measures alone could not satisfy the purpose for and need of the project, all of the strategies listed above have been incorporated into all of the build alternatives for this project.

The following TSM/TDM Alternatives have been identified and proposed for the project where applicable:

TSM/TDM Alternative 1: Intersection and Signal Improvements. These proposed improvements are currently being included in the respective cities' and the county's capital improvement programs (StanCOG 2011). These improvements on their own would not be sufficient to meet the project purpose and need because substantial additional area-wide intersection and traffic signal improvements beyond what is currently planned would be needed to improve regional circulation. Congestion and roadway capacity issues would still exist beyond the capability of the circulation system, even with additional intersection and signal improvements, due to existing and projected high traffic volumes in the region. The appropriate Alternative 1 TSM/TDM applicable to the proposed project would be to synchronize the signals on all of the listed intersections below in order to enhance the capacity of the existing transportation system:

Existing intersections within the project area by Build Alternative:

- SR-219 (Kiernan Avenue)/Tully Road (1A, 2A, 1B, 2B)
- SR-219/McHenry Avenue (1A, 2A, 1B, 2B)
- Claribel Road/Coffee Road (1A, 2A, 1B, 2B)
- Claribel Road/Oakdale Road (1A, 2A, 1B, 2B)
- Claribel Road/Roselle Avenue (1A, 2A, 1B, 2B)
- Claribel Road/Terminal Avenue (1A, 2A, 1B, 2B)
- Claribel Road/Claus Road (1A, 2A, 1B, 2B)
- Claribel Road/McGee Avenue (2A, 2B)
- Claribel Road/Langworth Road (2A, 2B)
- Claribel Road/Bentley Road (2A, 2B)

TSM/TDM Alternative 2: Use of Carpools, Vanpools, Train, Bus, Bicycle, and Walking. Policies related to vanpools, trains, buses, bicycles, and walking are in place in the respective cities' and the county's general plans. These policies have been adopted as goals in each of the communities, but taken alone would not meet the project purpose and need to reduce congestion and support the efficient movement of goods and services for truck traffic throughout the region:

Carpools and Vanpools. Use of carpools and vanpools is identified in Stanislaus County's 2011 Regional Transportation Plan (StanCOG 2011) as well as in each of the cities' general plans.

Trains. Amtrak provides passenger rail service in the area. The passenger rail line runs north-south along Santa Fe Avenue, Terminal Avenue, and Santa Fe Road. At-grade crossings are provided at the following roadway segments: SR-132, Claus Road, Claribel Road, Patterson Road, and River Road. There is an Amtrak commuter station in the City of Modesto near the Briggsmore Avenue and Santa Fe Avenue intersection. Transit access to and from the station is provided by the Modesto Area Express.

Bicycles and Walking. Bicycle facilities are provided throughout the study area. The North County Corridor will accommodate a Class 3 bike route in each direction on shoulders from Claus Road to the North County Corridor end at SR-108/SR-120. A Class 2 bike facility is planned in the future and is well within the limits of the proposed corridor. Incorporation of the bike routes would enhance the existing bikeway network in Stanislaus County, and is consistent with the Non-Motorized Transportation Master Plan (StanCOG, 2013).

The pedestrian network in the study area will consist of sidewalks along most of the streets and crosswalks at major intersections. While sidewalks are provided on many of the roadways in the developed areas of the cities of Modesto, Riverbank, and Oakdale, most roadways in the unincorporated areas of Stanislaus County do not have pedestrian facilities. The North County Corridor will provide pedestrian access including sidewalks and crosswalks along all crossroads in Segment 1 and at locations of existing pedestrian access in Segments 2 and 3.

TSM/TDM Alternative 3: High-occupancy vehicle lane (HOV lane) on existing alignment(s). FHWA focuses on HOV lane proposals on existing alignments as part of their technical advisory for TSM analysis. Any HOV lanes proposed for this project would conflict with the desire to improve efficiencies without adding additional through lanes, and would not meet the project's purpose and need. Additionally, HOV lanes would be in conflict with any signal timing coordination. Right of Way restrictions and the lack of available lanes to convert to HOV lanes make the concept not feasible along existing SR-108. Lack of access control also makes the effort difficult to implement. The rural nature of the project limits makes successful HOV lanes questionable.

Land use strategies and policies related to the use of alternative means of transportation have been implemented to the extent feasible though inclusion of TSM/TDM measures in the general plans of the respective communities. Signal and intersection improvements, roadway improvements, and signal synchronization have been completed based on the respective jurisdictions' capital improvement programs. Use of the existing transit system and improvements to it were also implemented as feasible.

2.3.4 No-Build Alternative

In accordance with NEPA and CEQA, this EIR/EIS discusses the No-Build Alternative. This alternative describes environmental conditions that would exist in the event that none of the Build Alternatives is selected. Under the No-Build Alternative, no new alignment would be built. The No-Build Alternative also includes all future planned transportation network improvements in the project area as discussed below and under TSM/TDM alternatives.

Improvements scheduled for the existing SR-108 include, but are not limited to:

- Widening in Riverbank from Jackson Street to the BNSF tracks from 2 to 4 lanes;
- Widening in Oakdale from Maag Avenue to Stearns Road from 2 to 4 lanes;

- Intersection Improvements in Riverbank at the intersections of First and Claus;
- Traffic Signal Improvements east of Oakdale at the intersections of Atlas, Dillwood, Sterns, and Orange Blossom Roads; and
- General improvements from Kiernan (SR-219) to Crane Road.

The above improvements on existing SR-108 are not associated with the proposed project, and will occur independently of the project.

Even with these improvements, the No-Build Alternative would result in continued deterioration of roadway level of service, increased traffic congestion, reduced ability to move goods and services, and increased impacts to air quality and noise in the surrounding communities. The No-Build Alternative therefore does not meet the purpose and need of the project discussed in Chapter 1.

The No-Build Alternative may be selected if other alternatives have substantial impacts on the environment, do not serve the stated purpose and need, or are not economically feasible. Selection of the No-Build Alternative would not preclude future maintenance work of future highway projects within the project area.

2.4 Comparison of Alternatives

The Build Alternatives are being comparatively evaluated by Caltrans and the other project decision makers and, at the end of the environmental process, a preferred alternative will be selected. Table 2.4-1 shows a comparison of the alternatives. The potential environmental effect, cost, and degree to which they meet the project purpose and need are factors used to evaluate the proposed project alternatives.

Table 2.4-1 compares the alternatives by comparing their environmental effects, cost and construction needs. Identified resources were compared in an attempt to define the important differences between alternatives. The criteria used for evaluating the alternatives consisted of environmental impacts, use of existing infrastructure, property acquisition needs, ease of phasing, and balancing cut-and-fill geometrics. While numerous options were presented based on existing land use, the improvement of traffic circulation and minimizing property acquisition was most prioritized.

After the public circulation period for the Draft EIR/EIS, all comments will be considered, and the Project Development Team (PDT) will select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with CEQA, Caltrans will certify that the project complies with CEQA and prepare findings for all significant impacts identified. Significant impacts have been identified for which there is no feasible mitigation, and thus, these impacts remain significant and unavoidable; therefore, a Statement of Overriding Considerations is required. Caltrans will then file a Notice of Determination (NOD) with the State Clearinghouse that will identify whether the project will have significant impacts, if mitigation measures were included as conditions of project approval, and that findings were made. With respect to NEPA, Caltrans, as assigned by Federal Highway Administration, will document and explain its decision regarding the selected alternative, project impacts, and mitigation measures in a Record of Decision (ROD) in accordance with NEPA.

Table 2.4-1 Comparison of Alternatives

Potential Impact		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
Consistency with Stanislaus County General Plan		YES	YES	YES	YES	NO
Consistency with City of Modesto General Plan		YES	YES	YES	YES	NO
Consistency with City of Riverbank General Plan		YES	YES	YES	YES	NO
Consistency with City of Oakdale General Plan		YES	YES	YES	YES	NO
Growth		Moderate influence on growth.	Moderate influence on growth.	Moderate influence on growth.	Moderate influence on growth.	No Impact.
Farmlands		Acquisition of 470 acres of farmland. Permanent impacts to Williamson Act land are 351 acres.	Acquisition of 576 acres of farmland. Permanent impacts to Williamson Act land are 540 acres.	Acquisition of 397 acres of farmland. Permanent impacts to Williamson Act land are 305 acres.	Acquisition of 540 acres of farmland. Permanent impacts to Williamson Act land are 495 acres.	No impact.
Community Character and Cohesion		Traffic and pedestrian facilities would be greatly improved. Minor.	Traffic and pedestrian facilities would be greatly improved. Minor.	Traffic and pedestrian facilities would be greatly improved. Minor.	Traffic and pedestrian facilities would be greatly improved. Minor.	No impact.
Relocation	**Business Relocations**	Displace 36 businesses.	Displace 33 businesses.	Displace 42 businesses.	Displace 38 businesses.	No Impact.
	Housing Relocations	Displace 124 homes.	Displace 114 homes.	Displace 136 homes.	Displace 114 homes.	No Impact.
Utilities		Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	Relocation of PG&E, AT&T, San Francisco Public Utilities Commission, City of Modesto (water and sanitary sewer), City of Riverbank (water and sanitary sewer), Modesto Irrigation District, and Oakdale Irrigation District.	No impact.
Emergency Services		Operational efficiency for emergency service will ultimately be improved. Minor.	Operational efficiency for emergency service will ultimately be improved. Minor.	Operational efficiency for emergency service will ultimately be improved. Minor.	Operational efficiency for emergency service will ultimately be improved. Minor.	No impact.
Traffic and Transportation/ Pedestrian and Bicycle Facilities		Build Alternative 1A would result in a substantial improvement in present and future traffic operations,	Build Alternative 1B would result in a substantial improvement in present and future traffic operations,	Build Alternative 2A would result in a substantial improvement in present and future traffic operations,	Build Alternative 2B would result in a substantial improvement in present and future traffic operations,	The No-Build would not improve existing or future traffic

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
	including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 27 percent.	including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 21 percent.	including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 17 percent.	including interregional movement of goods. However, construction could impact traffic temporarily. Pedestrian and bicycle facilities would be improved. Reduction in Daily Traffic Volume 11 percent.	operations, nor would it improve safety, pedestrian facilities, or bicycle facilities.
Visual/Aesthetics	Moderate	Moderate	Moderate	Moderate	No impact.
Cultural Resources	Affect six Historic Properties during project construction. No sensitive archaeological resources are present within the project area. However, the identification/evaluation process is not complete due to lack of property access. Additional historic properties may be identified during additional survey efforts during right-of-way acquisition.	Affect six Historic Properties during project construction. No sensitive archaeological resources are present within the project area. However, the identification/evaluation process is not complete due to lack of property access. Additional historic properties may be identified during additional survey efforts during right-of-way acquisition.	Affect six Historic Properties during project construction. No sensitive archaeological resources are present within the project area. However, the identification/evaluation process is not complete due to lack of property access. Additional historic properties may be identified during additional survey efforts during right-of-way acquisition.	Affect six Historic Properties during project construction. No sensitive archaeological resources are present within the project area. However, the identification/evaluation process is not complete due to lack of property access. Additional historic properties may be identified during additional survey efforts during right-of-way acquisition.	No impact.
Water Quality and Storm Water Runoff	Net impervious surface of 179 acres and would have the potential to introduce pollutants during construction.	Net impervious surface of 211 acres and would have the potential to introduce pollutants during construction.	Net impervious surface of 189 acres and would have the potential to introduce pollutants during construction.	Net impervious surface of 222 acres and would have the potential to introduce pollutants during construction.	No impact.
Paleontology	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	Geologic formations present with high Paleontological Sensitivity within the project limits. Paleontological Mitigation Plan required.	No impact.
Hazardous Waste/Materials	2 High-Risk Properties, 62 Medium-Risk Properties.	2 High-Risk Properties, 64 Medium-Risk Properties.	1 High-Risk Properties, 62 Medium-Risk Properties.	1 High-Risk Properties, 66 Medium-Risk Properties.	No impact.
Air Quality	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high construction	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high	Not a Project of Air Quality Concern. Meets Regional Conformity requirements by federal Clean Air Act. Moderately high	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
	(short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	construction (short-term) impacts related to NOx, ROG, PM_{10}, $PM_{2.5}$, and CO.	
Climate Change	Low increase vs No-Build 2.8 percent increase modeled for 2042. (Pavley Regulations)	Low increase vs No-Build 2.6 percent increase modeled for 2042. (Pavley Regulations)	Low increase vs No-Build 2.5 percent increase modeled for 2042. (Pavley Regulations)	Low increase vs No-Build 2.2 percent increase modeled for 2042. (Pavley Regulations)	CO_2 emissions in 2042 (tons/year) 543,120 No impact.
Noise and Vibration	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	Moderately high impacts to adjacent receptors. Two soundwalls have been found feasible and reasonable.	No impact.
Natural Communities	Impacts to 1.32 acres (1.0 acre of direct impacts, 0.32 acre indirect impacts) of Interior Live Oak Woodland in the project area.	Impacts to 3.44 acres (3.07 acres of direct impacts, 0.37 acre of indirect impacts) of Interior Live Oak Woodland in the project area and 1.0 acre (0.23 acre of direct impacts, 0.77 acre of indirect impacts) of Blue Oak Savannah.	Impacts to 1.32 acres (1.0 acre of direct impacts, 0.32 acre of indirect impacts) Interior Live Oak Woodland in the project area	Impacts to 3.44 acres (3.07 acres of direct impacts, 0.37 acre of indirect impacts) of Interior Live Oak Woodland in the project area and 1.0 acre (0.23 acre of direct impacts, 0.77 acre of indirect impacts) of Blue Oak Savannah.	No impact.
Wetlands and other Waters	Impacts to 3.02 acres of wetlands and 0.78 acre of non-wetland waters of the U.S. in the project area.	Impacts to 3.22 acres of wetlands and 1.44 acres of non-wetland waters of the U.S. in the project area.	Impacts to 3.00 acres of wetlands and 0.61 acre of non-wetland waters of the U.S. in the project area	Impacts to 3.37 acres of wetlands and 1.06 acres of non-wetland waters of the U.S. in the project area.	No impact.
Animal Species	Build Alternative 1A would result in impacts to animal species. Bats (impacts: Tree = 25.58 acres; Building = 24.78 acres); Western Burrowing Owl (impacts: Habitat = 12.34 acres); Northern Harrier, and California horned lark, White-tailed kite and Merlin (wintering) (Nesting Habitat = 12.34 acres; Foraging Habitat = 335.96 acres); Loggerhead shrike (Nesting Habitat = 1.00 acre; Foraging Habitat =	Build Alternative 1B would result in impacts to animal species. Bats (impacts: Tree = 19.73 acres; Building = 19.95 acres); Western Burrowing Owl (impacts: Habitat = 31.45 acres); Northern Harrier and California horned lark, White-tailed kite and Merlin (wintering) (Nesting Habitat = 31.45 acres; Foraging Habitat = 409.29 acres); Loggerhead shrike (Nesting Habitat = 1.00 acre; Foraging Habitat	Build Alternative 2A would result in impacts to animal species. Bats (impacts: Tree = 15.95 acres; Building = 32.97 acres); Western Burrowing Owl (impacts: Habitat = 13.44 acres); Northern Harrier and California horned lark, White-tailed kite and Merlin (wintering) (Nesting Habitat = 13.44 acres; Foraging Habitat = 330.04 acres); Loggerhead shrike (Nesting Habitat = 1.00 acre; Foraging Habitat	Build Alternative 2B would result in impacts to animal species. Bats (impacts: Tree = 10.36 acres; Building = 27.06 acres); Western Burrowing Owl (impacts: Habitat = 41.66 acres); Northern Harrier and California horned lark, White-tailed kite and Merlin (wintering) (Nesting Habitat = 41.66 acres; Foraging Habitat = 405.43 acres); Loggerhead shrike (Nesting Habitat = 3.30 acre; Foraging Habitat	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
	335.96 acres); Pacific Pond Turtle (Aquatic Habitat = 8.42 acres); Western spadefoot toad (Impacts Direct = 0.36 acre; Indirect = 0.07 acre)	= 335.96 acres); Pacific Pond Turtle (Aquatic Habitat = 0.86 acre); Western spadefoot toad (Impacts Direct = 0.27 acre; Indirect = 0.15 acre)	= 330.04 acres); Pacific Pond Turtle (Aquatic Habitat = 0.29 acre); Western spadefoot toad (Impacts Direct = 0.74 acre; Indirect = 0.49 acre)	= 405.43 acres); Pacific Pond Turtle (Aquatic Habitat = 5.82 acres); Western spadefoot toad (Impacts Direct = 0.66 acre; Indirect = 0.90 acre)	
Threatened and Endangered Species	Moderately high. Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 335.96 acres) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 335.96 acres), and Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions, not all of the project study area has been surveyed for potential shrub locations.	Moderately high. Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 409.29) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 409.29 acres), and Vernal Pool Invertebrates (Impacts: Direct = 0.07 acres, Indirect = 1.21 acres), and Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions, not all of the project study area has been surveyed for potential shrub locations.	Moderately high. Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 330.09 acres) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 330.04 acres), and Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions, not all of the project study area has been surveyed for potential shrub locations..	Moderately high. Impacts to the following animal species habitat: Swainson's Hawk (foraging habitat 405.43 acres) and two known nest trees, Tricolored blackbird (impacts: Foraging habitat = 405.43 acres), and Vernal Pool Invertebrates (Impacts: Direct = 0.04 acres, Indirect = 2.11 acres), Valley Elderberry Longhorn Beetle: no known shrubs will be impacted, however, due to Right of Entry restrictions, not all of the project study area has been surveyed for potential shrub locations.	No impact.
Invasive Species	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	The project area is already moderately impacted by non-native species. No new invasive species would be introduced. Permanent impacts include the low probability to spread invasive species within the project area during construction activities.	No impact.
Cumulative Impacts	Build Alternative 1A could potentially have cumulative impacts in regard to community impacts, relocations, land use, noise visual, waters, and wetlands.	Build Alternative 1B could potentially have cumulative impacts in regard to community impacts relocations, land use, noise visual, waters, and wetlands.	Build Alternative 2A could potentially have cumulative impacts in regard to community impacts relocations, land use, noise visual, waters, and wetlands.	Build Alternative 2B could potentially have cumulative impacts in regard to community impacts relocations, land use, noise visual, waters, and wetlands.	No impact.

Potential Impact	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	No-Build Alternative
Number of Interchanges	4	4	4	4	None
Number of Roundabout	2	3	2	3	None
Number of Intersections	6	7	6	7	None
Railroad Crossings	2	2	2	2	None
Canal Crossings	17	22	24	34	None
Number of Hetch-Hetchy Crossings	12	12	6	5	None
Cost	$660 million	$688 million	$676 million	$699 million	None

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2.5 Alternatives Considered but Eliminated from Further Discussion

A total of 18 alternatives were considered during the alternatives screening process based on wide-ranging public input as well as Project Development Team recommendations. The Project Development Team was composed of representatives from Caltrans; NCCTEA; the cities of Modesto, Riverbank, and Oakdale; the County of Stanislaus; and the Stanislaus Council of Governments (StanCOG). Two public scoping meetings were held on September 8, 2010, and September 13, 2010, in the communities of Oakdale and Salida. Each meeting was designed to solicit public input into the environmental compliance and alternatives screening processes. Participants were invited to draw alternative concepts on study area maps and aerial photos as well as provide written comments. Through the process, system/modal or alignment alternative concepts were identified, though components of one or more concept were combined to create a complete alternative.

As part of the Alternative Analysis Report, the alternatives were screened through a preliminary screening process that focuses on determining if a specific alternative will meet the 2030 traffic needs and if any major engineering considerations would affect the safety or function of the facility. From this preliminary screening, 18 alternatives were considered during the alternative screening process, and are discussed below. The TSM/TDM alternatives are not included in this list as they could not be implemented as standalone alternatives, but could be incorporated into the planned design as a combination of factors and project objectives (see Section 2.3.3). The initial 18 Build Alternatives are illustrated in Figure 2.5-1 (in Appendix A). Seven broad-based criteria of the Project Development Procedures Manual were used to screen the initial Build Alternatives. These criteria include the following:

- Purpose and need: Would the alternative meet the project's purpose and need?
- Excessive project cost: Would the alternative result in a substantially higher overall cost?
- Relocations and acreage: Would the alternative require excessive removal of businesses, residences, or urban or rural acreage?
- Operational or safety problems: Would the alternative result in operational or safety problems?
- Adverse social, economic, or environmental impacts of extraordinary magnitude: Would the alternative disrupt or divide an established community or result in economic or social impacts?
- Cumulative impacts: Would cumulative impacts result due to relocations, operational or safety problems, or social, economic, and environmental impacts?
- Rejected at an earlier stage: Was the alternative rejected at an earlier stage of project development?

Ten Build Alternatives were eliminated from consideration for not meeting the criteria listed above. Eight alternatives remained for further evaluation. The following section provides a brief description of the 18 considered Build Alternatives and the reasons for eliminating or moving forward a specific alternative based on the criteria described above. From this, pieces of eight Build Alternatives moved forward. These Alternatives include: 10A, 10B, 10C, 10C-1, 11, 11A, 11B, and 12.

Alternative 8 (SR-120 Oakdale Bypass) does not meet the project's purpose and need, because it does not accommodate anticipated future traffic on the existing SR-108 and the surrounding regional transportation network in Stanislaus County and the cities of Modesto, Riverbank, and Oakdale. Further, it would not support the efficient movement of goods and services throughout the region for the benefit of the regional economy as it would not provide a more direct and

dependable truck route, nor would it increase the average operating speeds of all vehicles. It would also not provide economic benefits to the cities of Modesto, Riverbank, and Oakdale as it would by-pass these cities. Adverse socio-economic impacts could occur in these communities as this alignment would redirect traffic away from existing business districts. With implementation of Alternative 8, travel conditions in the region, including traffic congestion on existing SR-108, will continue to worsen due to regional population growth and projected traffic volume increases. This alternative would have unacceptable adverse environmental impacts because it would cross over the Stanislaus River and would disturb sensitive biological habitat. This alternative would also result in excessive farmland bisection and would generate public controversy.

Alternative 9 (Existing SR-108) would make improvements to the existing SR-108 corridor in addition to improvements already planned notwithstanding the project, as indicated in section 2.3.4, above. Improving the existing SR-108 to meet the Purpose and Need of the project would exceed the $1.2 billion construction cost identified in StanCOG's Regional Transportation Plan because many developed properties would need to be acquired, and this would dramatically increase overall project costs, including construction costs. The estimated cost for this alternative is $1.411 billion, and this alternative would affect 1,361 parcels, 914 building structures which include 597 commercial buildings, 570 urban acres, and 357 rural acres. Operational and safety problems would result due to the density of development along the route. Unacceptable adverse social, economic, or environmental impacts would also occur due to the relocations required prior to construction. This alternative would not improve regional network circulation or reduce existing and future traffic congestion, and would not benefit commerce due to existing congestion and development along the present route. In addition, disruption to existing traffic operations and to existing businesses could occur during the construction process. The alternative is unlikely to reduce accidents as traffic volumes would increase, and it would not reduce conflicts between long distance travelers and local trips due to existing congestion.

Alternative 9A (Alternate 9 w/ F and G Streets One-way) would not meet the Purpose and Need of the project for many of the same reasons noted above for Alternative 9. This alternative would have excessive construction costs and negative relocation effects because many developed commercial and residential properties would need to be acquired, and this would increase overall project costs. The estimated cost for this alternative is $1.429 billion, and this alternative would affect 1,600 parcels, 1,000 buildings which include 624 commercial buildings, 630 urban acres, and 348 rural acres. As with Alternative 9, this alternative would result in construction costs in excess of the $1.2 billion identified in the 2011 RTP. Operational and safety problems could result due to the density of development along the route and conflicts between existing development and the road. This alternative would have unacceptable adverse socio-economic impacts because many developed properties would be taken and the community character would be negatively affected.

As with Alternative 9 above, Alternative 9B (Extend SR-108 Beyond Present Limits) would not reduce existing and future traffic congestion as it extends beyond the present Project boundaries and would provide no benefit to regional traffic or the economy of the communities it is intended to serve. This alternative would have construction costs in excess of the $1.2 billion identified in the 2011 RTP, mainly because many developed commercial and residential properties would need to be acquired. The estimated cost for this alternative is $1.567 billion, and this alternative would affect 1,401 parcels, 924 buildings which include 597 commercial buildings, 762 urban acres and 365 rural acres. This alternative would have unacceptable

adverse environmental impacts because it would affect undeveloped areas with the potential for sensitive habitat to be disturbed.

Alternative 9C (Ladd/Patterson to SR-108) would not improve network circulation, reduce existing and future traffic congestion, or benefit the regional economy due to existing congestion and the density of development along the majority of the existing SR-108. This alternative would not meet the project Purpose and Need because it bypasses the city of Modesto and would not provide the city with any economic benefit. This alternative would have high construction costs and negative relocation effects because many developed commercial and residential properties would need to be acquired, and this would increase overall project costs. The estimated cost for this alternative is $1.028 billion dollars, and this alternative would affect 850 parcels, 628 buildings which include 388 commercial buildings, 333 urban acres, and 427 rural acres. Operational and safety problems would result due to the density of development along the eastern portion of the route. Traffic volumes would increase, and the alternative would not reduce conflicts between long distance travelers and local trips due to existing congestion.

Alternative 10 (SR-99 to Langworth) is under consideration as part of Alternative 1A, 1B, 2A, and 2B Segment 1.

Alternative 10A (Ladd/SR-219 to north of Lexington) is under consideration as part of Alternative 1A, 1B, 2A, and 2B Segment 1.

Alternative 10B (Ladd/SR-219/ south of Lexington) is under consideration as part of Alternative 1A, 1B, 2A, and 2B Segment 1.

Alternative 10C (Ladd/SR-219 to north of Lexington) is under consideration as part of Alternative 1A and1B Segment 2.

Alternative 10C-1 (South Stearns to SR-120) is under consideration as part of Alternative 1A and A2.

Alternative 10C-2 (Same as Alternative 10C) was eliminated as it was too similar to Alternative 10C.

Alternative 10C-3 (Hammett/Ladd) would have excessive relocations, parcel acquisitions, and economic and social impacts for the cities of Modesto, Oakdale and Riverbank. This alternative would have moderate construction costs and there would be a low number of commercial and residential properties that would be taken. Estimated cost for this alternative is $817 million; it would affect 258 parcels, 60 buildings which include 20 commercial buildings, 286 urban acres, and 628 rural acres. Operational and safety problems could result due to the density of development along the route and conflicts between existing development and the road. This alternative could have unacceptable adverse social, economic, or environmental impacts as it would negatively affect a large amount of farmlands and natural habitat areas.

Alternative 11 (SR-219/Kiernan/Claribel Corridor) is under consideration as part of Alternatives 2A and 2B, Segment 2.

Alternative 11A (SR-219 to Claus) is under consideration as part of Alternatives 2A and 2B, Segment 2.

Alternative 11B (Kiernan to Wamble) is under consideration as part of Alternatives 2A and 2B, Segment 2.

Alternative 12 (Patterson to Albers) is under consideration as part of Alternatives 2A, Segment 2.

Alternative 13 (Widen SR-219 to McHenry) would not improve network circulation or reduce existing and future traffic congestion due to conflicts with the existing intersection of SR-219 and SR-99 and the intersection of SR-219 and Sisk Road. It would also not reduce conflicts between long distance travelers and local trips. This alternative would have moderate construction costs but high numbers of parcels and relocations would be affected. The estimated cost for this alternative is $724 million, but there would be 916 parcels and 399 buildings which include 20 commercial buildings, 410 urban acres, and 726 rural acres that would be affected. This alternative would have unacceptable adverse socio-economic impacts because many developed properties would be taken and the community character would be negatively affected.

Alternative 14 (Kiernan/Claus/SR-108) would not improve regional circulation, accommodate new and diverted traffic from future growth, or reduce existing and future vehicle delays due to conflicts with the existing intersection of SR-219 and SR-99 and the intersection of SR-219 and Sisk Road. This alternative would have moderate construction costs but high numbers of parcels would need to be acquired and relocations would be high. The estimated cost for this alternative is $787 million, but there would be 822 parcels fully or partially acquired, and 670 building structures which include 20 commercial buildings, 466 urban acres, and 382 rural acres that would be affected. This alternative would have unacceptable adverse socio-economic impacts because many developed properties would be acquired and the community character would be negatively affected.

As discussed above, portions Alternatives 10, 10A, 10B, 10C, 10C-1, 11, 11A, 11B and 12 have been incorporated into the current four alternatives. These alternatives have been combined into four concise alternatives that capture the most beneficial features in the alternatives considered but eliminated from further discussion.

As is shown in Figure 2.5-2, a total of three ending alignments were also considered during the alternatives screening process. Ending alignment refers to the location the project alternative terminates along SR-120. Similar to the alternative evaluation, the ending alignments were evaluated based on procedures and criteria outlined in the Caltrans Project Development Procedure Manual, as amended (Caltrans 2010a). Table 2.5-1 lists the three considered ending alignments, a brief description of each, and the reason for eliminating or moving forward a specific alternative based on the criteria described above.

Table 2.5-1 Considered Ending Alternatives

Ending Alignment	Name	Description	Reason for Elimination
A	Alternatives 1A and 2A	West of and parallel to South Stearns Road	Under consideration, Alignment 1A and 2A
B	Alternatives 1B and 2B	East of and parallel to Wamble Lane	Under consideration, merged into the new B connection point with SR-108/SR-120
C	Alternatives 1C and 2C	East of and parallel to Wamble Lane (east of ending alignment B)	Removed due to the following: Alternative C would have the greatest potential for impacts on paleontological and archaeological resources because it would have the greatest area of roadway cut and excavation. Alternative C would have the largest acreage of wetlands impacts that would be part of the 404 permitting process. Alternative C would have the largest acreages of potential habitat for Swainson's hawk. Alternative C would have the largest acreages of potential burrowing owl habitat. Alternative C provides considerably less traffic congestion relief.

The eight Build Alternatives that moved forward have been revised and combined into the four Build Alternatives with two possible ending points. These are four Build Alternatives that have moved forward and are evaluated in this EIR/EIS.

2.6 Permits and Approvals Needed

Table 2.6-1 presents a summary of anticipated permits, reviews, and approvals required for project construction.

Table 2.6-1 Permits and Approvals Needed

Agency	Permit/Approval	Status
United States Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species Review and comment on 404 Permit	Formal consultation initiated after alternative is selected.
United States Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the United States	Application to be submitted during final design.
Natural Resources Conservation Service	Farmland Conversion Impact Rating for Corridor Type Projects	Review of farmland analysis. Completed analysis is included in Section 3.1.3.
California Department of Fish and Wildlife	1602 Agreement for Streambed Alteration Section 2081 Agreement for Threatened and Endangered Species	Application to be submitted during final design.
Regional Water Quality Control Board – Central Valley Region 5	401 Certification	Application to be submitted during final design.
State Historic Preservation Officer	Finding of Effect	Concurrence to be obtained prior to final environmental document.
Hetch-Hetchy	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Oakdale Irrigation District	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Modesto Irrigation District	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Union Pacific Railroad	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Burlington Northern Santa Fe Railroad	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
Sierra Railroad	Encroachment Permit and Permanent Easement	Application to be submitted during final design.
United States Environmental Protection Agency	Approval of Right-of-way acquisition for Riverbank Army Depot Superfund Site	Application to be submitted during final design.
Department of Toxic Control	Approval of Right-of-way acquisition for Riverbank Army Depot Superfund Site	Application to be submitted during final design.

Project Area
Road Outline (edge of pavement)
Local Road Access
Right of Way
Structure
Railroad
Existing State Route

Oakdale
Riverbank
Modesto

Southern Pacific Railroad
Burlington Northern Santa Fe Railroad
Sierra Railroad
Union Pacific Railroad
Oakdale Waterford Highway

Lancaster Rd
Fogarty Rd
Warnerville Rd
Patterson Rd
Claribel Rd
S Stearns Rd
Wamble Rd
Emery Rd
Tully Rd
McHenry Ave
Coffee Rd
Oakdale Rd
Roselle Ave
Terminal Ave
Claus Rd
Eleanor Ave
Langworth Rd
Bentley Rd
Albers Rd

120
108

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1A, 1B, 2A, 2B
1A, 2A
1A, 1B
1B
1B, 2B
2A, 2B
2B

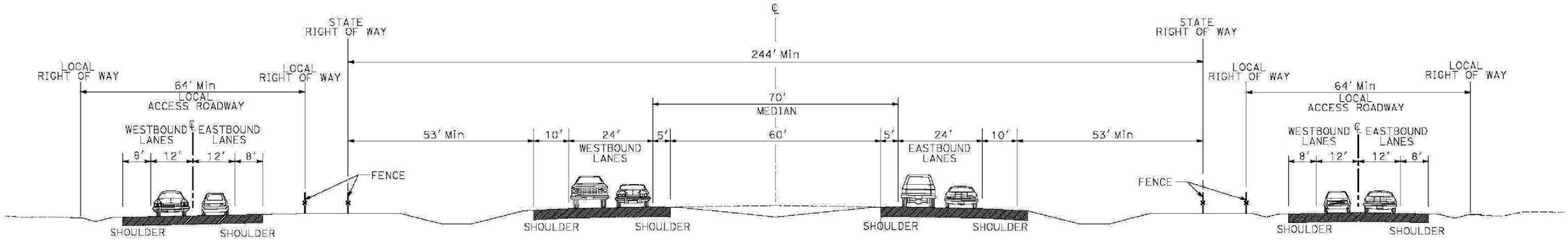
V:\2046_NCC\EIR_EIS\F2.3-1 Build Alternatives\F2.3-1Page1Build_Alternatives.mxd

Source: ESRI Maps Online March 2011; 3/29/2016.

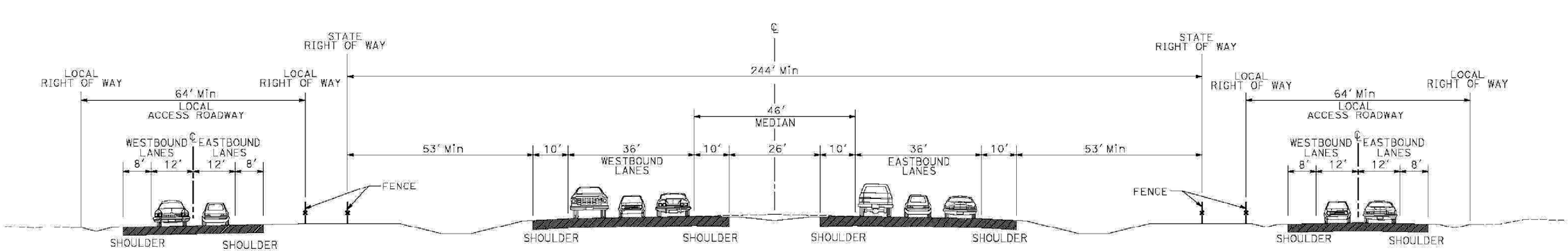
0 0.5 1 1.5 2 Miles

Segment 1 Segment 2 Segment 3

FIGURE 2.3-1
Build Alternatives
Page 1 of 14
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



ALTERNATIVE 1A, 1B, 2A AND 2B
4-LANE
OAKDALE Rd TO ROUTE 120



ALTERNATIVE 1A, 1B, 2A AND 2B
6-LANE
TULLY Rd TO OAKDALE Rd

PROPOSED ROUTE 108
(NCC)

TYPICAL CROSS SECTIONS
NO SCALE

V:\2046_NCC\EIR_EIS\F2.3.1-1 Roadway Cross Section.mxd

Source: 2011 Route Adoption; 1/6/2016.

Not to Scale

FIGURE 2.3.1-1
Typical Roadway Cross Section
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Chapter 3 Affected Environment, Environmental Consequences and Avoidance, Minimization, and/or Mitigation Measures

This chapter explains the impacts that the proposed project could have on the human, physical, and biological environments in the project area. It describes the existing environment that could be affected by the project, potential impacts from the Build Alternatives, and proposed avoidance, minimization, and/or mitigation measures pursuant to CEQA and NEPA requirements. A CEQA checklist, which evaluates the level of impacts under each environmental resource, is provided in Appendix B.

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, there is no further discussion about these issues in this document:

- Coastal Zone – The project is located outside of, and is non-contiguous to, the coastal zone; 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.

3.1 Human Environment

3.1.1 Land Use

A Community Impact Assessment (CIA) for the North County Corridor New SR-108 Project was completed in February 2016, and it is summarized here in Section 3.1 Human Environment.

3.1.1.1 Existing and Future Land Uses

The proposed project would be constructed in northern Stanislaus County, which is located in the northern part of the San Joaquin Valley. Stanislaus County is a fast-growing agricultural county in transition. While its economic base remains predominately agricultural, the county's economy is diversifying, and unprecedented population growth has increased pressures of urbanization. The project area is composed of three cities—Modesto, Riverbank, and Oakdale—as well as unincorporated land in Stanislaus County.

A look at local land use patterns can indicate a community's organizational structure, including where its residents live, work, and recreate. The Land Use Element is a required section of a municipality's general plan that governs zoning and planning for the given region. The Land Use Element also defines where growth may occur within the region and identifies Specific Plans for

areas of special interest, such as commercial centers, neighborhoods, and redevelopment areas within the cities. By describing the existing and projected major land uses in the affected area and the surrounding region, the information can be used to analyze any potential land use changes or land use conflicts associated with the proposed project.

Affected Environment

For the purpose of this EIR/EIS, Section 3.1.1.1 considers both the project area and the surrounding jurisdictions (Secondary Impact Area). The study area consists of both the project area and the Secondary Impact Area. The total land area of the project area is 147.89 square miles. Generally, land uses within the project area are a mix of farmland, open space, residential, commercial, civic, and industrial uses. Figure 3.1.1.1-1, in Appendix A, shows the current zoning designation within the project area.

Within the study area, residential and commercial spaces are located within zones designated for agricultural, urban transition, planned development, and planned industrial in the communities of Modesto and Riverbank. Industrial and open spaces are present south of the City of Oakdale. Farmland occurs throughout the proposed project corridor, but is more common on the unincorporated County land in Segments 2 and 3 of the project area. The Secondary Impact Area consists of generally the same types of land uses occurring within the project area.

Development Trends

Stanislaus County is an agricultural county and one of the fastest-growing counties in California. According to the 2010 U.S. Census, the total population of Stanislaus County in 2010 was 514,453 (growing 15.09 percent since 2000). This population growth is much higher than the state average rate of 9.99 percent. According to the Stanislaus County General Plan, population increases in the 1980s occurred in the nine incorporated cities rather than the unincorporated areas of the county. The population continues to shift from rural to urban life. At the same time, the county's economy has diversified, and unprecedented population growth continues to increase pressure to convert agricultural lands to non-agricultural uses (Stanislaus County, 1994).

Most of the cities in Stanislaus County have or are considering significant expansions of their spheres of influence, and the general plan of each affected jurisdiction outlines the overall goals for growth within the affected communities. Anticipating continued growth, the City of Modesto set out goals to encourage business development and expansion, improve public transportation, and expand water treatment and supply facilities (City of Modesto, 2008). The City of Riverbank plans to expand road capacity, business and commercial land uses, public utility services, and public service facilities (City of Riverbank, 2009). The City of Oakdale plans to expand its boundaries and future sphere of influence to the south, including public services, employment opportunities, and public transit expansions to accommodate this planned growth (City of Oakdale, 2013a). These goals and policies are discussed in detail in Section 2.2 Consistency with State, Regional, and Local Plans.

Table 3.1.1.1-1 presents a list of potentially influential projects in jurisdictions surrounding the North County Corridor. These projects would likely be located within or next to the boundaries of the study area and have the potential to cumulatively affect the urban character, community cohesion, access patterns, and economic characteristic of the project vicinity. Figure 3.1.1.1-2, in Appendix A, shows the planned land use within the study area.

Environmental Consequences

Build Alternatives

Land use impacts from construction and operation of all Build Alternatives are relatively similar. Existing land use within the project area for all alternatives consists of a variety of residential and commercial developments that are located in the Modesto and Riverbank communities. The project area for all alternatives within Oakdale and unincorporated county land mainly consists of farmland and open spaces.

Acquisition of partial and full agricultural parcels along the project corridor is expected for road widening and construction of the new roadway. Between 397 and 576 acres of farmland is anticipated to be acquired to accommodate the new roadway. Additional acquisition of other properties, including between 114 and 136 residential and between 33 and 42 commercial, is also expected along the proposed corridor for all Build Alternatives.

As the proposed roadway would function as a freeway/expressway with controlled access, new and realigned frontage roads are needed to provide continued access to existing properties. Location of all frontage roads is shown in Figure 3.1.1.1-2, in Appendix A. Access to parcels on major crossroads of the North County Corridor may be modified to right-in/right-out due to the installation of a center median.

Alternatives 1B and 2B would require the acquisition of larger amounts of land, with 576 acres and 540 acres of anticipated farmland acquisition, whereas Alternative 1A and 2A would only result in 470 and 397 acres of farmland acquisition, respectively. Alternative 2A would result in the most residential relocations, with 136 relocations, whereas Alternative 1B and 2B would only result in 114 residential relocations. Further, Alternative 2A would result in the most non-residential relocations, with 42 relocations, whereas Alternative 1B would only result in 33 non-residential relocations. Relocation impacts associated with implementation of the project are discussed in further detail in Section 3.1.4.2 Relocations.

The proposed project is designed to follow Caltrans design and safety standards while minimizing acquisition. To minimize parcel acquisitions and avoid unnecessary impact to the community, the project has been designed with input from the public. The project design team (composed of members from Caltrans Districts 10 and 6, Stanislaus County, the cities of Modesto, Riverbank and Oakdale, and engineering, environmental and public relations consultant members) has conducted and participated in a number of community outreach meetings with the general public, public entities, and interested stakeholders since 2011 in an effort to gather input and comments from members from the surrounding communities. Also, meetings with individual property owners occurred throughout the project planning and design phase to address individual concerns. Frontage roads were designed to provide access to existing properties along the North County Corridor. Public input on the alignment of the North County Corridor and frontage roads has been incorporated during project design to minimize impacts associated with parcel acquisition along and next to the North County Corridor. Summaries of the public meetings, discussions with property owners, and other public outreach efforts are summarized in Section 5.3 Public Participation.

Future Land Uses

The following table presents future projects within the vicinity of the project area. The project considers these projects in the cumulative impact section of this EIR/EIS. All Build Alternatives have the same impacts related to future land uses.

Table 3.1.1.1-1: 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 for 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 storm water 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	This 18-acre project will be located on the southwest corner of Oakdale Road and Sylvan Avenue, with 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, next to the northeastern 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 mixed-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 will 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
Video Visitation Facility	Stanislaus County	This project will provide for a physical location to accommodate video visitation equipment, monitoring, scheduling, and control.	Approved/Funded

Project Name	Jurisdiction	Proposed Uses	Status
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
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

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

Temporary Construction Impacts

Implementation of the project would temporarily expose residents and motorists to views of the project site. Construction-related vehicle access and staging of construction materials would occur within disturbed or developed areas along the length of the project site during the construction period.

No-Build Alternative

No land would be acquired to provide for roadway improvements under the No-Build Alternative. However, the No-Build Alternative would not conform with the circulation analysis and developed plans, programs, and policies in the Stanislaus County General Plan, StanCOG Regional Transportation Plan, or cities of Modesto, Riverbank and Oakdale general plans. These development plans envision transportation improvements that would provide greater

connectivity with the North County Corridor to reduce existing and future traffic congestion in northern Stanislaus County and support the efficient movement of goods in the region. The No-Build Alternative would not meet these objectives.

Avoidance, Minimization, and Mitigation Measures

No avoidance, minimization, or mitigation measures are necessary.

3.1.1.2 Consistency with State, Regional and Local Plans

The project area lies within or next to three incorporated cities and Stanislaus County; the proposed alternatives cross Stanislaus County and the cities of Modesto, Riverbank and Oakdale. State law requires that each of these jurisdictions adopt “a comprehensive, long-term General Plan for [its] physical development.” The General Plan is the official city or county policy document regarding the location of housing, business, industry, roads, parks, and other land uses. It also covers protection of the public from noise and other environmental hazards, and for the conservation of natural resources. The legislative body of each city (the City Council) and each county (the Board of Supervisors) adopts zoning, subdivision, and other ordinances to regulate land uses and to carry out the policies of its General Plan.

Affected Environment

A Community Impact Assessment (CIA) for the North County Corridor New SR-108 Project was completed in February 2016, and it is summarized here in Section 3.1.1.2 Consistency with State, Regional and Local Plans.

General Plans and Policies

The proposed alternatives of North County Corridor cross Stanislaus County and the cities of Modesto, Riverbank and Oakdale. State law requires that each of these jurisdictions adopt “a comprehensive, long-term General Plan for [its] physical development”. The general plan is the official city or county policy document regarding the location of housing, business, industry, roads, parks, and other land uses, protection of the public from noise and other environmental hazards, and for the conservation of natural resources. The legislative body of each city (the City Council) and each county (the Board of Supervisors) adopts zoning, subdivision, and other ordinances to regulate land uses and to carry out the policies of its general plan.

Stanislaus County General Plan

The existing Stanislaus County General Plan places specific emphasis on goals, policies, and implementation measures that focus on: the management of population and economic growth; development of infrastructure system and public services; conservation of air, water, and other natural resources; cooperation between the county and other agencies; and provision of public safety.

Stanislaus Council of Governments’ Regional Transportation Plan

The existing Stanislaus Council of Government’s (StanCOG) 2014 Regional Transportation Plan (RTP) is the principle tool used by the county to implement transportation policies. The Regional Transportation Plan sets out five goals as specific guidance to improve the transportation system and the region as a whole: Mobility, Safety and System Preservation, Environmental

Quality, Economic/Community Vitality, and Social Equity. The plan is a short-range and long-range strategy intended to lead to the development of an integrated transportation system that facilitates the efficient movement of goods and people (Stanislaus County, 2014).

City of Modesto General Plan

The existing City of Modesto Final Urban Area General Plan provides guidance for achieving its mission of preserving Modesto's "quality of life" while providing direction for the growth of businesses and industry to meet the needs of the future generation in the Modesto community (City of Modesto, 2008).

City of Riverbank General Plan

The existing City of Riverbank General Plan 2005-2025 supports its vision of a small town where residents can live, work, and play locally. The City strives to preserve its strong sense of community, protect agricultural and natural resources, and create a balance between housing and jobs (City of Riverbank, 2009).

City of Oakdale General Plan

The existing Oakdale 2030 General Plan reflects goals and policies related to its vision of a small town character and sense of community; a vital and distinct downtown; well-planned and managed growth; an attractive community; diverse residential neighborhoods; retail, service, and entertainment choices; broad opportunities for industry and employment; a safe community with quality public services; transportation options; a green community; and responsive governance and regional leadership (City of Oakdale, 2013).

Environmental Consequences

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

The build alternatives are consistent with the General Plan Policies and Goals discussed in the following tables:

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Table 3.1.1.2-1: Stanislaus County General Plan Policies and Goals Relevant to the Proposed Project

Stanislaus County General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Land Use Element			
Policy 24	Future growth shall not exceed the capabilities/capacity of the provider of services such as sewer, water, public safety, solid waste management, road systems, schools, health care facilities, and similar facilities.	The project will require discretionary approval approved by the cities of Modesto, Riverbank, and Oakdale. The project is consistent with all development standards set forth by these cities.	No development would occur, and no approval would be required.
Spheres of Influence Policy 1	Development, other than agricultural uses and churches, which requires discretionary approval from incorporated cities shall be referred to that city for preliminary approval. The project shall not be approved by the County unless written communication is received from the city memorializing their approval. If approved by the city, the city should specify what conditions are necessary to ensure that development will comply with city development standards. Requested conditions for such things as sewer service in an area where none is available shall not be imposed. Approval from a city does not preclude the County decision-making body from exercising discretion, and it may either approve or deny the project.	The project will require discretionary approval approved by the cities of Modesto, Riverbank, and Oakdale. The project is consistent with all development standards set forth by these cities.	No development would occur, and no approval would be required.
Circulation Element			
Goal 1	Provide a system of streets and roads throughout the County which meets land use needs.	The project would improve circulation in the northern County and provide an improved road system that meets the County's land use needs.	The existing road system would remain inadequate.
Policy 2	Circulation systems shall be designed and maintained to promote safety and minimize traffic congestion.	The project would minimize traffic congestion on the existing SR-108 and the regional traffic network through the communities of Modesto, Riverbank and Oakdale by reducing average daily traffic volumes.	Traffic congestion will continue to worsen due to projected traffic volume increases.

Stanislaus County General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy 4	The circulation system shall provide for roads in all classifications (Freeway, Expressway, Major, Collector, Local, Minor and Private) as necessary to provide access to all parts of the County and shall be expanded or improved to provide acceptable levels of service based on anticipated land use.	The project will provide acceptable level of service and provide frontage roads to maintain access to all parcels.	Traffic congestion will continue to worsen due to projected traffic volume increases
Goal 2	Provide a safe, comprehensive, coordinated transportation system that includes a broad range of transportation modes.	The North County Corridor would be a freeway/ expressway. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Policy 7	Bikeways and pedestrian facilities shall be designed to provide reasonable access from residential areas to major bicycle and pedestrian traffic destinations such as schools, recreation and transportation facilities, centers of employment, and shopping areas.	The North County Corridor would be a freeway/ expressway. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Goal 3	Maintain a balanced and efficient transportation system that facilitates inter-city and interregional travel and goods movement.	The project would support the efficient movement of goods and services throughout the region by providing a more direct and dependable truck route, increasing the average operating speeds of all vehicles, and reducing the number of areas of conflict between motorized traffic and non-motorized means of travel	Traffic congestion on existing truck routes will continue to inhibit the efficient movement of goods and increase commute times of cross-county traffic.
Policy 9	The County shall promote the development of inter-city and interregional transportation facilities that more efficiently moves goods and freight within and through the region.	The project would improve the efficiency of inter-city and interregional travel by reducing travel times for long distance commuters, recreational traffic, and interregional goods movement.	Traffic congestion on existing truck routes will continue to inhibit the efficient movement of goods. Commuter congestion will continue to worsen as traffic volume increases.
Conservation/Open Space Element			
Goal 1	Encourage the protection and preservation of natural and scenic areas throughout the County.	The project would not have a substantial adverse impact on natural and scenic areas.	No impact would occur.

Stanislaus County General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Goal 6	Improve air quality.	Temporary construction-related air quality impacts would occur along the North County Corridor. Measures will be implemented to reduce any of these impacts. The project operation would not have a substantial adverse impact on air quality.	Air quality would continue to worsen as traffic volume increases.
Goal 19	The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects.	Temporary construction-related air quality impacts would occur along the North County Corridor. Measures will be implemented to reduce any of these impacts. The project operation would not have a substantial adverse impact on air quality.	Air quality would continue to worsen as traffic volume increases, and LOS deteriorates.
Goal 8	Preserve areas of national, state, regional and local historical importance.	All Build Alternatives could affect 4 potentially Historic Structures during project construction. Measures will be implemented to avoid and/or minimize any impact to historic resources.	No impact would occur.
Policy 24	The County will support the preservation of Stanislaus County's cultural legacy of historical and archeological resources for future generations.	All Build Alternatives could affect 4 potentially Historic Structures during project construction. Measures will be implemented to avoid and/or minimize any impact to historic resources.	No impact would occur.
Noise Element			
Goal 2	Protect the citizens of Stanislaus County from the harmful effects of exposure to excessive noise.	The proposed project was designed to avoid, minimize, and/or mitigate any adverse noise impacts. Noise impacts are analyzed in a Noise Study Report and will be considered during the alternative selection process.	No impact would occur.
Policy 2	It is the policy of Stanislaus County to develop and implement effective measures to abate and avoid excessive noise exposure in the unincorporated areas of the County by requiring that effective noise mitigation measures be incorporated into the design of new noise generating and new noise sensitive land uses.	Temporary construction-related and operational noise will be minimized through best management practices as needed.	No impact would occur.
Policy 3	It is the objective of Stanislaus County to protect areas of the County where noise-sensitive land uses are located.	The project would not adversely impact any noise-sensitive area.	No impact would occur.
Safety Element			
Goal 2	Minimize the effects of hazardous conditions that might cause loss of life and property.	The project would minimize traffic congestion on the existing SR-108 and the regional traffic network through the communities of Modesto, Riverbank and Oakdale by reducing average daily traffic volumes.	Traffic congestion will continue to worsen due to projected traffic volume increases.

Stanislaus County General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy 8	Roads shall be maintained for the safety of travelers.	The project would minimize traffic congestion on the existing SR-108 and the regional traffic network through the communities of Modesto, Riverbank and Oakdale by reducing average daily traffic volumes.	Traffic congestion will continue to worsen due to projected traffic volume increases.
Agricultural Element			
Policy 2.3	The County shall ensure all lands enrolled in the Williamson Act are devoted to agricultural and compatible uses supportive of the long-term conservation of agricultural land.	The project will result in acquisition of farmland under the Williamson Act. Measures will be implemented to avoid and/or minimize any impacts.	No impact would occur.
Policy 2.5	To the greatest extent possible, development shall be directed away from the County's most productive agricultural areas.	The project would avoid and/or minimize agricultural acquisition in the project design. Measures will be implemented to avoid and/or minimize any impacts on farmland conversion as discussed in **Section 3.1.3**.	No impact would occur.
Policy 2.7	Agricultural lands restricted to agricultural use shall not be assessed to pay for infrastructure needed to accommodate urban development.	The project is consistent with the objectives and constraints of Policy 2.7 that would allow the conversion of agricultural land to urban, non-agricultural, uses.	No impact would occur.
Policy 2.14	The County will continue to evaluate each project on a case-by-case basis to determine whether the conversion of agricultural land will have a significant adverse effect on the environment.	The project was approved by the County and is listed on the RTP. Measures will be implemented to avoid and/or minimize any impacts on farmland conversion as discussed in **Section 3.1.3**.	No impact would occur.
Policy 2.15	In order to mitigate the conversion of agricultural land resulting from a discretionary project requiring a General Plan or Community Plan amendment from 'Agriculture' to a residential land use designation, the County shall require the replacement of agricultural land at a 1:1 ratio with agricultural land of equal quality located in Stanislaus County	The project is not a residential development. Nevertheless, acquired agricultural land would be replaced at a 1:1 ratio.	No impact would occur.

Source: Stanislaus County, 1994

Table 3.1.1.2-2: Stanislaus Council of Government's 2014 Regional Transportation Plan Policies and Goals Relevant to the Proposed Project

Regional Transportation Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Goal 1 – Mobility & Accessibility	Improve the ability of people and goods to move between desired locations; and provide a variety of transportation choices.	The project would support efficient movement of people and goods throughout the region by providing a more direct and dependable truck route. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3. Public transportation will be supported.	Traffic congestion on existing roadways will continue to inhibit the efficient movement of people and goods. No bicycle or pedestrian improvements will be made.
Goal 2 – Social Equity	Promote and provide equitable opportunities to access transportation services for all populations and ensure all populations share in the benefits of transportation improvements and provide a range of transportation and housing choices.	The project would provide a freeway/expressway that is accessible to all populations and different modes of travel. Access to all parcels along the selected alternative route will be maintained. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3. Public transportation will be supported.	No roadway, bicycle, or pedestrian improvements will be made.
Goal 4- Sustainable Development Pattern	Provide a mix of land uses and compact development patterns; and direct develop-ment toward existing infrastructure, which will preserve agricultural land, open space, and natural resources.	Alternative 1A is located most closely to existing urban core and direct development toward existing infrastructure. Alternative 1B and 2A are also relatively close to the cities' spheres of influence and specific plan areas. Alternative 2B is located farthest from existing urban cores.	Condition of the existing roadway infrastructures will continue to worsen and be unable to support future growth. Growth in the County may be attracted to other areas where higher rates of growth are not identified in the RTP.
Goal 5 – Environmental Quality	Consider the environmental impacts when making transportation investments and minimize direct and indirect impacts on clear air and the environment.	The proposed project was designed to avoid and minimize any adverse impact to the natural environment. Measures will be implemented to avoid, minimize, or mitigate any impacts to the environment.	Air quality would continue to worsen as traffic volume increases.
Goal 6 – Health & Safety	Operate and maintain the transportation system to ensure public safety and security; and improve the health of residents by improving air quality and providing more transportation options.	The project would minimize traffic congestion on the existing SR-108 and the regional traffic network through the communities of Modesto, Riverbank and Oakdale by reducing average daily traffic volumes. The project would reduce hazardous air pollutants by reducing traffic congestion, and would have no substantial adverse impact on air quality. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3.	Traffic congestion will continue to worsen due to projected traffic volume increases and existing accident rates remain well above the statewide average for similar facilities. Air pollutant would not be reduced. No bicycle or pedestrian improvements will be made.

Goal 7 – System Preservation	Maintain the transportation system in a state of good repair, and protect the region's transportation investments by maximizing the use of existing facilities.	The proposed project would repair and/or maintain all existing roads in the regional transportation network that will be utilized or impacted by the proposed project.	No roadway improvements would occur.

Source: StanCOG, 2014

Table 3.1.1.2-3: City of Modesto Final Urban Area General Plan Policies and Goals Relevant to the Proposed Project

City of Modesto General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Overall Goals			
Goal 2	Transportation and Circulation systems that adequately provide for intra-city and regional transportation needs should be provided. Alternatives to the drive-alone auto mode, such as light rail, mass transit, ride sharing, bicycling, trail systems, and telecommuting should be encouraged to reduce traffic congestion and enhance air quality. The City's transportation planning should be coordinated with regional transportation planning efforts, wherever possible.	The project would minimize traffic congestion on the existing SR-108 and the regional traffic network through the communities of Modesto, Riverbank and Oakdale by reducing average daily traffic volumes. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3.	Traffic congestion will continue to worsen due to projected traffic volume increases, and no additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Community Growth Policies			
1 b	Provide Timely Infrastructure.	The proposed project would provide infrastructure that supports the projected increase in traffic volumes and efficient movement of goods.	Traffic congestion will continue to worsen due to projected traffic volume increases, and traffic congestion on existing truck routes will continue to inhibit the efficient movement of goods.

Source: City of Modesto, 2008

Table 3.1.1.2-4: City of Riverbank General Plan Policies and Goals Relevant to the Proposed Project

City of Riverbank General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Circulation			
Policy CIRC-3.7	The City will coordinate with all agencies involved in planning for a future east-west expressway through northern Stanislaus County to ensure that transit service is provided along the route, including potentially the use of HOV/transit only lanes during peak hours.	The project would reduce average daily traffic volumes and current traffic congestion and accommodate anticipated future traffic on the existing SR-108 and the surrounding regional transportation network in northern Stanislaus County and the Cities of Modesto, Riverbank, and Oakdale by providing a more direct and dependable truck route.	No additional transportation facility would be provided.
Community Character and Design			
Goal DESIGN-2.2	The City will require separate travel areas for motorized vehicles, bicycles, and pedestrian traffic along busy streets.	The project would accommodate Class 3 bike routes along Segments 2 and 3, and preserve space along Segment 1 for future bikeways.	No additional bicycle improvements will be made to the existing roadway system within the project area.
Goal DESIGN-2.3	The City will require appropriate signage and traffic control devices to safely accommodate pedestrian, bicyclists, and vehicular traffic.	Appropriate signage and traffic control devices will be provided along the project alignment to safely accommodate pedestrian, bicycle, and vehicle traffic.	No project will be built and no signage or traffic control devices will be provided.
Conservation and Open Space			
Goal CIRC-1	Riverbank's circulation network provides convenience and choice among all modes of transportation.	The North County Corridor would be a freeway/expressway. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along crossroads in urban settings.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Goal CONS-2	Minimize negative impacts to archaeological resources.	The project would not adversely impact sensitive archaeological resources because none are present in the project area.	No impact would occur.
Policy CONS-2.1	Approved projects, plans, and subdivision requests shall incorporate all available measures, with a preference for avoidance, to reduce or eliminate impacts to known and unknown archaeological and paleontological resources.	The project would disturb sediments within high potential to contain paleontological resources. All Build Alternatives could potentially affect 4 potentially Historic Structures during construction. Measures will be implemented to avoid, minimize, and/or mitigate for any potential impacts. The project would not adversely impact sensitive archaeological resources because none are present in the project area.	No impact would occur.

City of Riverbank General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy CONS-2.5	As guided by State law, in the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the appropriate City agency. If Native American human remains are discovered, the City shall work with local Native American representatives to ensure that the remains and associated artifacts are treated in a respectful and dignified manner.	No sensitive archaeological resources are present within the project area.	No impact would occur.
Policy CONS-4.2	Approved projects, plans, and subdivisions shall provide for collection, conveyance, treatment, detention, and other stormwater management measures in a way that does not decrease water quality or alter hydrology in the Stanislaus River or associated groundwater recharge areas.	The project would not have adverse impact on water quality or hydrology. Best management practices will be followed during project construction.	No impact would occur.
Policy CONS-6.3	Approved projects, plans, and subdivisions in new growth areas shall incorporate natural drainage system design that emphasizes infiltration and decentralized treatment (rather than traditional piped approaches that quickly convey stormwater to large centralized treatment facilities).	The project would provide drainage swales along the roadway.	No impact would occur.
Safety			
Goal SAFE-2	Provide adequate access for emergency response.	The project would reduce average daily traffic volumes and current traffic congestion and accommodate future traffic on existing SR-108 and the surrounding regional transportation network, and therefore improve response time of emergency services.	No change would occur.
Policy SAFE-2.1	The City will require development and maintenance of a road system that provides adequate access for emergency equipment.	The project would provide adequate access for emergency equipment.	No change would occur.
Noise			
Goal Noise-1	Create land use patterns and transportation networks that minimize noise problems.	The proposed project was designed to avoid and minimize any adverse impact to noise. Noise impacts are analyze in a Noise Study Report and will be considered during alternative selection. Measures will be implemented to reduce any impact.	No impact would occur.

City of Riverbank General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Goal Noise-2	Minimize noise impacts associated with development projects and other land use change.	The proposed project was designed to avoid, minimize, and/or mitigate any adverse noise impacts. Noise impacts are analyzed in a Noise Study Report and will be considered during the alternative selection. Measures will be implemented to avoid, minimize, and/or mitigate any impacts.	No impact would occur.
Policy Noise-2.1	Development projects and roadway improvement projects that increase traffic noise levels shall be mitigated to achieve acceptable levels as measured at outdoor activity areas and interior spaces of existing and planned noise-sensitive land uses.	The proposed project was designed to avoid, minimize, and/or mitigate any adverse noise impacts. Noise impacts are analyzed in a Noise Study Report and will be considered during alternative selection. Measures will be implemented to avoid, minimize, and/or mitigate any impacts.	No impact would occur.
Policy Noise-2.3	The City shall require all feasible noise mitigation to reduce construction and other short-term noise and vibration impacts as a condition of approval for development projects by applying the performance standards outlined in Table N-3. The total noise level resulting from new sources and ambient noise shall not exceed the standards in Table N-3, as measured at outdoor activity areas of any affected noise sensitive land use.	Temporary construction-related noise will be avoided, minimized, and/or mitigated through best management practices. The total noise level resulting from the project will not exceed the applicable standard.	No impact would occur.
Public Services and Facilities			
Goal PUBLIC-1	Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.	The proposed project would provide infrastructure that supports the projected increase in traffic volumes.	Traffic congestion will continue to worsen due to projected traffic volume increases.
Policy PUBLIC-1	The City will coordinate the planning and construction of capital improvements with the timing of urban development within the Planning Area.	The proposed project would provide infrastructure that supports the projected increase in traffic volumes.	Traffic congestion will continue to worsen due to projected traffic volume increases.

Source: City of Riverbank, 2009

Table 3.1.1.2-5: Oakdale 2030 General Plan Policies and Goals Relevant to the Proposed Project

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Land Use			
Policy LU-5.3	**Access.** Provide access to and from the industrial area that allows for the safe and efficient movement of goods and people, and supports alternative forms of mobility.	The project would support the efficient movement of goods and services throughout the region by providing a more direct and dependable truck route, increasing the average operating speeds of all vehicles, and reducing the number of areas of conflict between motorized traffic and non-motorized means of travel.	Traffic congestion on existing truck routes will continue to inhibit the efficient movement of goods.
Policy LU-5.4	**North County Corridor**. Actively explore opportunities to connect the City's industrial area to the future NCC, as well as to adjacent rail facilities.	Alternatives 1A, 2A, and 1B would provide connection to the City's industrial area. Alternative 2B would not be located adjacent to the City's industrial area.	No connection would occur.
Policy LU-5.5	Infrastructure & Services. Ensure that adequate infrastructure and services are available and/or programmed to meet the needs of the City's existing and future industries.	The proposed project would provide infrastructure that supports the projected increase in traffic volumes and efficient movement of goods.	Traffic congestion will continue to worsen due to projected traffic volume increases, and traffic congestion on existing truck routes will continue to inhibit the efficient movement of goods.
Mobility			
Goal M-1	Expanded multimodal transportation choices that improve the ability to travel efficiently and safely throughout the city and region.	The North County Corridor would be a freeway/expressway. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3. Public transportation will be supported.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Policy M-1.1	**Multimodal Options.** Establish an interconnected transportation network that offers safe and convenient mobility options including adequate streets, transit services, pedestrian walkways, bike routes, equestrian facilities, commercial rail connections, and aviation services.	The North County Corridor would be a freeway/expressway. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3. Public transportation will be supported.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Policy M-1.3	**Complete Streets.** Design and construct both new and reconstructed streets with adequate rights-of way and facilities to support the full range of locally available travel modes, compliant with the California Complete Streets Act (CCSA).	The project would provide vehicular, bicycle, and pedestrian access that is in compliance with the CCSA.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy M-1.6	**Consider all Users of Transportation System.** Use multi-modal evaluation methods to ensure that projects do not result in worsening facilities or service for transit, bicyclists, and pedestrians.	The North County Corridor would be a freeway/expressway. Class 3 bike routes would be accommodated along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3. Public transportation will be supported.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Goal M-2	An interconnected roadway/highway system that ensures the safe and efficient movement of people, goods, and services on multiple routes by multiple modes.	The project would support the efficient movement of people, goods, and services throughout the region; increase the average operating speeds of all vehicles; and reduce the numbers of areas of conflict between motorized traffic and non-motorized means of travel in the communities of Modesto, Riverbank and Oakdale by reducing average daily traffic volumes.	Traffic congestion will continue to worsen due to projected traffic volume increases, and existing accident rates remain well above the statewide average for similar facilities.
Policy M-2.1	**Roadway Plan.** Plan, design, and regulate roadways in accordance with the General Plan Circulation Diagram and City's Roadway Classifications.	The project is consistent with all development standards set forth by these cities.	No development would occur.
Policy M-2.3	**System Completion.** Ensure completion of the roadway system through the elimination of substandard width segments and construction of missing links.	The roadway system would be complete and meet all design standards.	No development would occur, and therefore no system completion.
Policy M-2.4	**North County Corridor.** Continue participation in the planning, preservation of right-of-way, and ultimate implementation of the North County Corridor.	The project would implement the North County Corridor.	No North County Corridor would be implemented.
Policy M-2.10	**Timing of Improvements.** Provide identified transportation improvements in a timely manner to meet the needs of the community.	The proposed project would provide transportation improvements that support the projected increase in traffic volumes and efficient movement of goods.	Traffic congestion will continue to worsen due to projected traffic volume increases.
Policy M-2.14	**Traffic Control Strategies.** Promote signal coordination along expressways and major arterials to effectively serve large traffic demands, and continue to work with Caltrans to implement traffic control strategies that will improve the level of service on the City's street system.	Transportation system management strategies such as intersection and signal lighting, signal timing optimization, turn lanes, and pavement striping, will be incorporated into the project as appropriate.	Traffic congestion will continue to worsen due to projected traffic volume increases.
Policy M-2.15	**Intelligent Transportation Systems.** Evaluate and implement cost effective intelligent transportation systems (such as signal coordination, centralized traffic control, and real-time travel information) to manage traffic flows.	ITS such as signal coordination and traffic cameras will be incorporated into the project final design.	Traffic congestion will continue to worsen due to projected traffic volume increases.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Goal M-3	Enhanced bicycle, pedestrian and equestrian facilities that are accessible, safe, and convenient.	The North County Corridor would accommodate Class 3 bike routes along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Policy M-3.1	**Bicycle and Pedestrian Master Plan.** Implement and maintain the City's Bicycle and Pedestrian Master Plan to guide the systematic planning, design, funding and construction of new and enhanced bicycle and pedestrian facilities.	The North County Corridor would accommodate Class 3 bike routes along Segments 2 and 3. Pedestrian access including sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3.	No additional bicycle or pedestrian improvements will be made to the existing roadway system within the project area.
Policy M-4.5	**Rights-of-Way Preservation.** Design expressways, arterials and major collectors to include adequate rights-of-way to accommodate bus stops and/or pull-out lanes, where appropriate.	The project would incorporate designs to accommodate bus operation where appropriate.	No change would occur.
Policy M-5.1	**Efficient Goods Movement.** Support infrastructure improvements and the use of emerging technologies that facilitate the timely movement of trade, including facilities for the efficient intermodal transfer of goods between truck, rail, and air transportation modes.	The project would support the efficient movement of goods and services throughout the region by providing a more direct and dependable truck route, increasing the average operating speeds of all vehicles, and reducing the number of areas of conflict between motorized and non-motorized means of travel.	Traffic congestion on existing truck routes will continue to inhibit the efficient movement of goods.
Policy M-5.2	**Truck Routes.** Designate truck routes to minimize the impacts of truck traffic on residential neighborhoods and other sensitive land uses. Ensure that adequate pavement depth, lane widths, bridge capacities, and turning radii are maintained on truck routes.	The project would accommodate truck traffic and direct trucks away from residential neighborhoods.	Trucks would continue to pass through residential neighborhoods.
Policy M-5.3	**North County Corridor.** Work cooperatively with Caltrans and the Stanislaus Council of Governments to plan and fund connections between Oakdale and the future North County Corridor, in particular to the City's industrial area.	Alternatives 1A, 2A, and 1B would provide connection to the City's industrial area. Alternative 2B would not be located adjacent to the City's industrial area.	No connection would occur.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy M-7.4	**Multi-Jurisdictional Corridors.** Work with adjacent jurisdictions to identify transportation corridors that should be linked across jurisdictional boundaries to ensure that sufficient right-of-way is preserved and that operational and improvement standards are consistent.	North County Corridor Transportation Expressway Authority (NCCTEA) is represented by California Department of Transportation (Caltrans), Stanislaus County, and the cities of Oakdale, Riverbank and Modesto. The project would provide access to the cities of Modesto, Riverbank, and Oakdale, as well as unincorporated areas in northern Stanislaus County. Operational and improvement standards will be consistent throughout the corridor.	No corridor would be implemented.
Policy M-7.5	**Multi-Jurisdictional Plans.** Coordinate transportation and land use plans and policies with local and regional planning agencies. Incorporate the Regional Transportation Plan and the Stanislaus County Congestion Management Program as part of the City's transportation system.	The project is in conformance with the Regional Transportation Plan and the Stanislaus County Congestion Management Program.	No change would occur.
Natural Resources			
Goal NR-1	Conservation and enhancement of Oakdale's open spaces and significant biological resources.	The proposed project was designed to avoid and minimize any adverse impacts to biological resources. Measures will be implemented to avoid, minimize, and/or mitigate any impacts wherever feasible. These measures will be discussed in the Natural Environment Study (NES) prepared for this project.	No impact would occur.
Policy NR-1.1	**Open Space.** Ensure the conservation of lands designated for open space within the City.	Conversion of open space is discussed in **Section 3.1.2** and **3.1.3.**	No impact would occur.
Policy NR-1.4	**Preservation.** Preserve unique and valuable natural resources and associated habitats, including special-status species, in coordination with federal, state, and local resource agencies.	The proposed project was designed to avoid, minimize, and/or mitigate any adverse impacts to natural resources and associated habitats. Additionally, meetings with resource and permitting agencies are ongoing, including U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and U.S. Fish and Wildlife Service. Measures will be implemented to avoid and/or minimize any impact wherever feasible. These measures will be discussed in the NES and BA prepared for this project.	No impact would occur.
Policy NR-1.5	**Resources Assessment.** Require discretionary development proposals that could potentially impact natural resources to conduct a biological resources assessment to ensure that project-related impacts are considered and mitigated consistent with local, state and federal regulations.	A NES and a BA will be prepared for the project to assess potential impacts to natural and biological resources.	No impact would occur.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy NR-1.6	**Avoidance.** Ensure new development projects avoid, to the extent feasible, significant biological resources (e.g. areas of rare, threatened, or endangered species).	The proposed project was designed to avoid, minimize, and/or mitigate any adverse impacts to biological resources. Measures will be implemented to avoid and/or minimize any impacts wherever feasible. These measures will be discussed in the NES and BA prepared for this project.	No impact would occur.
Goal NR-3	Improved air quality and reduced greenhouse gas emissions in the City and region.	The project would reduce greenhouse gas emissions and improve air quality by reducing existing and future traffic congestion on the existing SR-108 and the surrounding regional transportation network.	Greenhouse gas emission would increase as traffic congestion on existing SR-108 continues to worsen.
Policy NR-3.1	**Regional Coordination.** Participate in regional planning efforts including coordination with the San Joaquin Valley Air Pollution Control District, Stanislaus Council of Governments, and other jurisdictions on programs to reduce air quality impacts and attain state and federal air quality standards.	Temporary construction-related air quality impacts would occur along the North County Corridor. Measures will be implemented to avoid, minimize, and/or mitigate any impacts wherever feasible. The project would not have a substantial adverse impact on air quality.	Air quality would continue to worsen as traffic congestion on existing SR-108 continues to worsen.
Policy NR-3.3	**Construction Emissions.** Require new development projects to incorporate feasible measures that reduce emissions from construction, grading, excavation, and demolition activities to avoid, minimize, and/or offset their impacts consistent with San Joaquin Valley Air Pollution Control District requirements.	The project would have temporary construction-related air quality impacts along the North County Corridor. Measures will be implemented to avoid, minimize, and/or mitigate any impacts wherever feasible.	No impact would occur.
Policy NR-3.4	**Operational Emissions.** Require new development projects to incorporate feasible measures that reduce operational emissions through project and site design and use of best management practices to avoid, minimize, and/or offset their impacts consistent with San Joaquin Valley Air Pollution Control District requirements.	The proposed project was designed to avoid and minimize any adverse impacts to air quality. Measures will be implemented to avoid, minimize, and/or mitigate any impacts to air quality wherever feasible. Air quality impacts are discussed in detail in the Air Quality Report.	No impact would occur.
Policy NR-3.5	**SJVAPCD Consultation.** Require consultation and coordination with the San Joaquin Valley Air Pollution Control District for any projects that may have a potential health risk impact or may expose the public to hazardous air pollutants, and on compliance with adopted rules and regulations.	The project will comply with rules and regulations adopted by the SJVAPCD. Caltrans will continue to consult and coordinate with the SJVAPCD.	No impact would occur.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy NR-3.6	**Toxic Air Pollutants.** Locate uses, facilities and operations that may produce toxic or hazardous air pollutants (e.g., industrial uses, highways) an adequate distance from sensitive receptors (e.g., housing and schools), consistent with California Air Resources Board recommendations.	The project would be located an adequate distance from sensitive receptors, consistent with all California Air Resource Board Recommendations.	No impact would occur.
Policy NR-4.3	**Natural Open Space Areas.** Preserve areas that provide important groundwater recharge, stormwater management, and water quality benefits such as undeveloped open spaces, natural habitat, riparian corridors, wetlands, and other drainage areas.	The project would provide drainage swales along the roadway. Measures will be implemented to avoid, minimize, and/or mitigate any impacts wherever feasible. These measures will be discussed in the NES and BA prepared for this project.	No impact would occur.
Policy NR-4.4	**National Pollution Discharge Elimination System.** Regulate construction and operational activities to incorporate stormwater protection measures and best management practices in accordance with the City's National Pollution Discharge Elimination System (NPDES) permit.	The project would not have adverse impacts on water quality or hydrology. The project will comply with the City's NPDES permit, and best management practices will be followed during project construction.	No impact would occur.
Policy NR-7.1	**Preservation.** Protect and preserve significant paleontological, archaeological, and historic resources, including those recognized at the national, state, and local levels.	The project would disturb sediments within areas with high potential to contain paleontological resources. Four properties within the project's Primary Impact Area are considered historical resources. Measures will be implemented to avoid and, minimize, and or mitigate any potential impacts to paleontological resources, and no historic resources will be impacted by the project alternatives. Measures for paleontological resources will be outlined in a Paleontological Mitigation Plan (PMP) prepared for the proposed project. No sensitive archaeological resources are present within the project area.	No impact would occur.
Policy NR-7.5	**Consultation.** Consult with the appropriate organizations and individuals early in the development process (e.g., Information Centers of the California Historical Resources Information System, Native American Heritage Commission, and Native American groups and individuals) to minimize potential impacts to cultural resources.	Cultural resources consultation was conducted as part of the project. The Native American Heritage Commission (NAHC) was contacted via letter on February 26, 2014, and on March 20, 2014, letters were sent to the Native American contacts on the list provided by the NAHC. Additionally, record searches of the project area were conducted in 2008 and 2012.	No impact would occur.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Policy NR-7.6	**Resource Assessment.** Require discretionary development proposals that could potentially impact cultural resources to conduct a cultural resources survey prior to approval of new development, rehabilitation efforts, and remodels to ensure that potential sites are identified for avoidance or special treatment.	A mixed survey strategy was utilized to survey the primary project impact area and consisted of a pedestrian field survey coverage and Multidimensional Photogrammetry survey coverage.	No impact would occur.
Policy NR-7.9	**Archaeological and Paleontological Resources.** Ensure compliance with protocols that protect or mitigate impacts to archaeological and paleontological resources.	The project would be in compliance with protocols to avoid, minimize, and/or mitigate any impacts associated with archaeological and paleontological resources. No sensitive archaeological resources are present within the project area. A PMP will be prepared to discuss measures to reduce impacts to paleontological resources.	No impact would occur.
Noise			
Goal N-1	Minimal exposure of residents and businesses to harmful noise and vibrations.	The proposed project was designed to avoid, minimize, and/or mitigate any adverse noise impacts. Noise impacts are analyzed in a Noise Study Report and will be considered during alternative selection. Measures will be implemented to avoid, minimize, and/or mitigate any impacts.	No impact would occur.
Policy N-1.8	**Mitigation Measures along Roadways.** Include noise mitigation measures in the design of all future streets and highways, and improvements along existing streets and highways. Measures should emphasize the establishment of natural buffers or use of setbacks between roadways and adjoining noise sensitive uses when feasible.	The proposed project was designed to avoid, minimize, and/or mitigate any adverse noise impacts. Noise impacts are analyzed in a Noise Study Report and will be considered during alternative selection. Measures will be implemented to avoid, minimize, and/or mitigate any impacts.	No impact would occur.
Policy N-1.11	**Construction Noise.** Minimize construction-related noise and vibration by limiting construction activities within 500 feet of noise-sensitive uses to 7:00 A.M. to 6:00 P.M. on weekdays, 8:00 A.M. to 5:00 P.M. on Saturdays, and no construction on Sundays and holidays unless permission for the latter has been granted by the City.	Temporary construction-related noise impacts will be avoided, minimized, and/or mitigated though best management practices, and will comply with all local noise ordinances.	No impact would occur.

City of Oakdale General Plan	Policy/Goal Content	Build Alternatives 1A, 1B, 2A, 2B	No-Build
Noise N-1.12	**Vibration Standards.** Require construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria as shown in Table N-6 (Groundborne Vibration Impact Criteria for General Assessment).	Temporary construction-related vibration will be minimized though best management practices. Temporary construction-related vibration impacts will be avoided, minimized, and/or mitigated through best management practices, and will comply with the applicable criteria.	No impact would occur.
Noise N-1.13	**High Noise-Generating Uses.** Locate new industrial projects or other high noise-generating uses away from noise-sensitive land uses and minimize excessive noise through project design features that include noise control, as well as the use of landscaped buffers.	The project is a freeway/expressway and would not include high noise-generating uses. The proposed project was designed to avoid, minimize, and/or mitigate any adverse noise impacts. Temporary construction-related noise will be minimized through best management practices. Measures will be implemented to avoid, minimize, and/or mitigate any impacts.	No impact would occur.

Source: City of Oakdale, 2013a

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Temporary Construction Impacts

No temporary impacts to General Plans and Policies are anticipated as a result of implementation of the project. No substantial adverse short-term noise impacts from construction are anticipated because construction would be done in accordance with Caltrans Standard Specifications and applicable local noise standards, which would avoid and minimize noise impacts during construction. Construction noise would be short term, intermittent, and overshadowed by local traffic noise. See Section 3.2.6, Noise, for details.

No-Build Alternative

Under the No-Build Alternative conditions, the existing SR-108 would remain part of the Caltrans on-system roadway network. Improvements to the existing SR-108 would be limited to intersection improvements, traffic signal installation, limited widening, and maintenance that are planned whether the project is built or not. The No-Build Alternative would result in continued deterioration of roadway level of service, increased traffic congestion, reduced ability to move goods and services, and increased impacts to air quality and noise in the surrounding communities, even with the planned improvements. The No-Build Alternative does not meet the purpose and need of the project and is not consistent with the goals and policies of the general plans of the county or affected cities.

Avoidance, Minimization, and Mitigation Measures

The project has been designed to be consistent with state, regional, and local plans and programs to the extent feasible. During final design, effort would be made to further avoid, minimize, and/or mitigate construction and operational impacts to existing and planned land uses, as more fully discussed in the tables above.

3.1.1.3 Parks and Recreational Facilities

Affected Environment

A Community Impact Assessment (CIA) for the North County Corridor New SR-108 Project was completed in February 2016, and it is summarized here. There are many parks, recreation areas, and open spaces within the vicinity of the project area. As shown in Figure 3.1.1.3-1, in Appendix A, parks and open spaces within the vicinity of the project area include Wesson Ranch Park, Coffee-Clarantina Park, Beyer Park, Stockard Coffee Park, California Avenue Park, Santa Fe Park, Brennan Park, Kerr Park, Valley Oak Recreational Area, Davis Sports Complex, Castleberg Park, and Orange Blossom Recreational Area. The following publicly owned parks are located within half a mile of the project area: Davis Sports Complex, Castleberg Park, and Stockard Coffee Park. However, no publically owned and operated parks are within the project area.

Rainbow Fields is a privately owned sports complex including 6 fields (4 with lights for nighttime use, 2 without lights), a clubhouse, snack bar, and an outdoor playground. Rainbow Fields is located at the corner of Claus Road and Claribel Road and would be affected by the project.

As there are no publically owned parks or recreation areas within the project area, there is no Section 4(f) use of parks or recreation areas.

Environmental Consequences

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

All Build Alternatives would have a permanent impact of 1.5 acres of Rainbow Fields. Although potential frontage acquisitions may be required from the parcel, the project alternatives would not affect the recreational uses of the parcel. Impacts to Rainbow Fields are due to right-of-way needs for the roadway improvements. No permanent impacts would result to the three publicly owned parks within the half mile buffer of the project area.

Temporary Construction Impacts

Implementation of the project would temporarily impact Rainbow Fields during construction, in which access to the privately owned sports complex could be reduced or delayed to allow for construction of the project. Construction-related vehicle access and staging of construction materials would occur within disturbed or developed areas along the length of the project site, including within the acquired portion of Rainbow Fields frontage, thereby affecting access during construction.

No-Build Alternative

Under the No-Build Alternative, because no construction would occur, no impacts of any kind would occur to parks and recreational facilities in the project area.

Avoidance, Minimization, and/or Mitigation Measures

Impacts to Rainbow Fields will be avoided and/or minimized to the greatest extent possible, through careful design, ensuring the minimum acreage required to accommodate the project is acquired. All right-of-way impacts to Rainbow Fields will be compensated for appropriately according to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

3.1.2 Growth

Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the NEPA of 1969, requires evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations 1508.8) refer to these consequences as “indirect impacts.” Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

CEQA also requires the analysis of a project’s potential to induce growth. The CEQA guidelines (Section 15126.2[d]) require that environmental documents “…discuss the ways in which the

proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

Affected Environment

Growth was analyzed as part of the Community Impact Assessment for the project (February 2016). Expecting continued population increase in the future 50 years, Stanislaus County has adopted strategies for economic development, job/housing balance, infrastructure system and public services expansion, resource protection, cooperation between agencies, and public safety in the Stanislaus County General Plan (1994). Population growth is largely concentrated in the incorporated city areas, including the cities of Modesto, Riverbank, and Oakdale. The county's population had increased 15.09 percent from 2000 to 2010, much higher than the California population average increase of 9.99 percent. The rapid population expansion in recent years is largely related to development in the Bay Area. Roughly one-fifth of the county's residents commute daily to jobs in the Bay Area.

Population forecasts published by the California Department of Finance through 2060 suggest that population growth and its associated development will continue in the study area and surrounding region. Table 3.1.2.-1 summarizes the population projection for Stanislaus County. Stanislaus County population is expected to increase by 76.3 percent over the 45-year period from 2015 to 2060. In comparison, the general population for California is forecasted to grow 35.8 percent.

Table 3.1.2.-1: Population Projection

	(Resident population numbers in thousands)									
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**
Stanislaus County	540,853	589,156	634,710	674,859	714,694	759,027	815,171	861,984	907,775	953,580

Source: California Department of Finance, 2013

Cities in the county have proposed or are considering significant expansion of their spheres of influence to accommodate anticipated growth. Most development would not be approved by the County unless first approved by the city within whose sphere of influence it lies. This policy aims to discourage developments that are inconsistent with the land use designation from a specific city's general plan or exceed the existing service level of a sanitary sewer district, domestic water district, or community service district that provides service to the unincorporated area.

First-Cut Screening

A first-cut screening for growth potential was conducted using the following questions (see flowchart in Figures 3.1.2-1 and 3.1.2-2):

Question 1: Does the project have the potential to change accessibility?

Answer 1: Yes. The project proposes roadway widening and construction of new roadway in urban fringe areas, and it has the potential to change accessibility. The Build Alternatives are intended to provide many access-related beneficial effects such as reduced congestion, increased traffic safety and more efficient movement of people and goods.

All Build Alternatives would result in a redistribution of traffic volumes and an overall reduction in traffic volumes on major east-west roadways such as the existing SR-108, Patterson Road, and Claratina Avenue, as some of that traffic is shifted to the new North County Corridor, improving travel times. Additionally, the overall amount of daily travel (reflected in the vehicle miles of travel measures) will be slightly less under with-project conditions when compared to no-build conditions for all analysis years, which will reduce the cost of travel. Any project alternative would have positive region-wide impacts in reducing travel times and delays caused by congestion.

Additionally, while transportation projects generally do not result in the creation of significant permanent new jobs within a community, they may affect employment in positive or negative ways. Construction of the proposed project may directly create new jobs in the local community and larger region. Purchases by construction team members may generate additional sales revenue in the community. Businesses and people relocated by the project would likely be moved to nearby communities, and the characteristics of local employment, labor force, and customer base would not change significantly.

Further, the North County Corridor would improve the movement of people, goods, and recreation by providing a new east-west transportation facility. Once the project is completed, interregional commuters and truck traffic would be directed away from local streets. Businesses along the future North County Corridor would benefit from increased visibility and improved circulation. Businesses farther from the North County Corridor would have decreased exposure due to smaller traffic volumes. Implementation of the North County Corridor would result in improved accessibility, higher level of service along local streets, reduced queuing (traffic backups), and improved air quality. As a result, efficiency in local communities would increase, creating a better business environment.

Question 2 and 3: Consider factors such as project type, project location, and growth pressure. Is the project-related growth reasonably foreseeable?

Answer 2: Yes. The project could indirectly affect land use patterns, population density, and/or growth rate in the study area. The rate of population growth for 2015-2020 is 4.63 percent in Stanislaus County (California County-Level Economic Forecast 2015, Caltrans and California Economic Forecast). The rate of economic growth for 2015-2020 in the form of expected job growth is 7.4 percent for Stanislaus County (California County-Level Economic Forecast 2015, Caltrans and California Economic Forecast). The project would accommodate the forecasted population growth and economic growth by continuing to provide access to the region without significant delay. Due to the project's accommodation of this population and economic growth, growth related to the project is reasonably foreseeable.

Question 3: If there is a project-related growth, could it impact resources of concern?

Answer 3: Maybe. Land use in the project area consists of urbanized developments, agricultural lands, and industrial areas. Resources of concern within the project area include wetlands, vernal pools, prime farmland, and potentially threatened/endangered species. It was determined that further analysis was needed.

Figure 3.1.2-1: First-Cut Screening Process

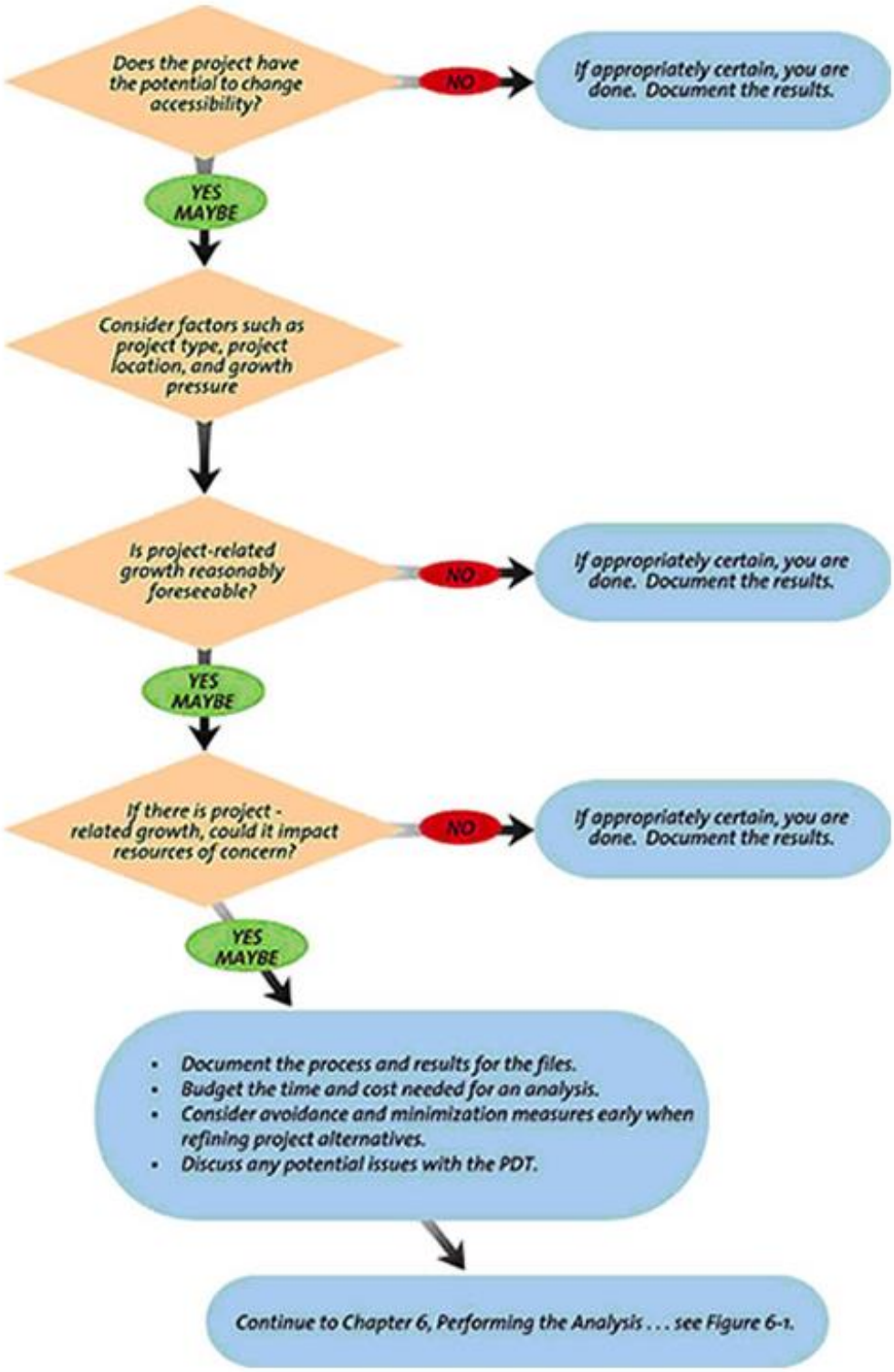
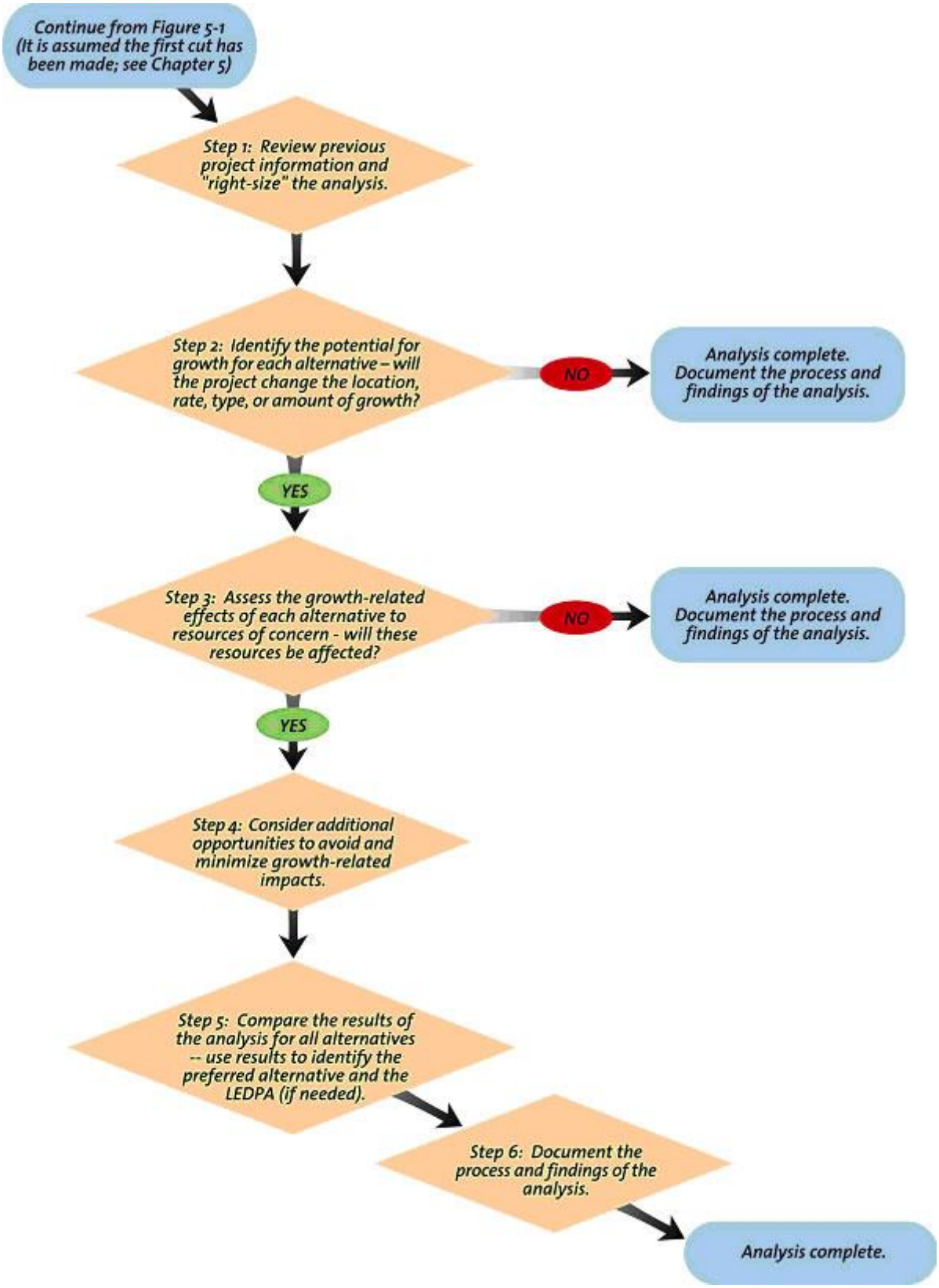


Figure 3.1.2-2: Growth–related Impact Analysis



Environmental Consequences

Growth-Related Effect Analysis

A growth-related effect analysis is used to determine whether a transportation project could contribute to a growth-related effect that would affect resources of concern. As shown in Figure 3.1.2-2, the following steps serve as guidelines for identifying and assessing growth-related effects of a proposed transportation project and are used in the Environmental Consequences section below:

- Step 1: Review Previous Project Information and "Right-size" the Analysis
- Step 2: Identify the Potential for Growth for Each Alternative
- Step 3: Assess the Growth-related Effects of each Alternative to Resources of Concern
- Step 4: Consider Additional Opportunities to Avoid and Minimize Growth-related Impacts
- Step 5: Compare the Results of the Analysis for All Alternatives
- Step 6: Document the Process and Findings of the Analysis

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

Step 1: Right-Size the Analysis

The first-cut screening suggests that growth related to the project is reasonably foreseeable, and this growth may affect the resources of concern in the region.

Both quantitative and qualitative data sources were gathered to analyze growth-related project impacts. Quantitative data included U.S. census data on the county's and cities' existing populations, growth forecast from the California Department of Finance, and technical studies on the resources of concern for the proposed project. Qualitative information included the project area's county and cities general plan goals, specific plan development goals, and future land use plans.

The existing roadway network in the study area was not planned to accommodate the amount of growth that has occurred in recent years, nor growth projected to occur in the region in the future. As a result, traffic congestion has become an increasing problem on some local roadways. To resolve the issue, the North County Corridor was proposed by regional authorities and was included in Stanislaus County General Plan, Stanislaus County Regional Transportation Plan, and the cities of Modesto, Riverbank and Oakdale general plans.

Step 2: Potential Growth

The *Regional Growth Forecast 2014-2040* in the Regional Transportation Plan indicates that the population in Stanislaus County will increase by 48.6 percent between 2010 and 2040, regardless of whether the 2014 Regional Transportation Plan is implemented. The North County Corridor is one of the projects under the 2014 Regional Transportation Plan that is designed and intended to accommodate anticipated growth up to 2040. Goal 4 of the Regional Transportation Plan states that the plan aims to provide a mix of land uses and compact development patterns and direct development toward existing infrastructure, which will preserve agricultural land, open space, and natural resources.

The purpose of the North County Corridor is to address existing congestion and route continuity concerns. The proposed improvements are needed to keep pace with developing conditions and prevent future deterioration in levels of service. The proposed project also aims to improve access within and between existing and future communities, including those of Modesto, Riverbank, Oakdale, and the unincorporated area of Stanislaus County.

The project study area encompasses large areas of land identified to have high growth potential. These areas include the cities of Modesto, Riverbank, Oakdale, and each city's sphere of influence. Claribel Road between Tully Road and Claus Road is the boundary of the Modesto and Riverbank spheres of influence. Land use along this road consists of urban development and agricultural land. This area is considered urban fringe and has high growth potential. Likewise, the Oakdale sphere of influence is another area where future growth would occur.

The City of Oakdale has designated future growth areas. All alternatives of the proposed project were designed to accommodate and support future growth in these areas. Development in the following areas would be likely to occur regardless of which alternative is chosen:

- South Oakdale Industrial Specific Plan Area – About 500 acres that would expand the city's existing industrial center to the south and to the east. It is located within the existing sphere of influence and included in the current general plan.

- Crane Crossing Specific Plan Area – About 262 acres on the northwestern edge of the city and covering two locations identified for future growth in the current general plan.

- Sierra Point Specific Plan Area – About 297 acres on the southeastern edge of the City of Oakdale and covering planned land use in this plan area. Includes residential neighborhoods, mixed-use corridor, and parks and open space uses. It is located within the Oakdale General Plan and was recognized by the City and County as a potential future annexation area.

- Future Specific Plan Area 5 – A 707-acre area in the southwest corner of the City of Oakdale, north of Lexington Avenue, east of Crane Road and west of the city's industrial area. Land designations in this area include a broad mix of single-family and multiple-family residential neighborhoods, as well as commercial, park, school and open space uses.

Alternative 1A

Alternative 1A shares the same alignment with the other three alternatives in Segment 1. No unplanned growth is anticipated within Segment 1. In Segment 2, this alternative goes through land just east of the City of Riverbank's sphere of influence and enters the City of Oakdale's future sphere of influence at Patterson Road. This alignment is next to the southern edge of South Oakdale Industrial Specific Plan Area and the Future Specific Plan Area 5. This alignment is about 1 mile south of the Crane Crossing Specific Plan Area. In Segment 3, Alternative 1A passes through the Sierra Point Specific Plan Area. This segment of Alternative 1A is also within the City of Oakdale's future sphere of influence. Among all Build Alternatives, Alternative 1A is closest to lands that have higher levels of planned growth in the future and is most compatible with the goals identified in the Regional Transportation Plan.

Alternative 1B

Alternative 1B follows the same alignment as Alternative 1A in Segment 1 and 2, so it crosses the same sphere of influence areas in Riverbank and Oakdale. In Segment 3, Alternative 1B extends outside of the City of Oakdale's sphere of influence. Land use along this alignment is mostly agricultural, and no planning documents have been approved to transform the land use near this alignment. Alternative 1B is close to some higher planned growth areas, but also passes areas with lower levels of planned growth.

Alternative 2A

Alternative 2A shares the same alignment with the other three alternatives in Segment 1. In Segment 2, Alternative 2A is outside any city boundary or sphere of influence. Land use along this alignment is mostly agricultural, and no planning documents have been approved to develop land near this alternative in Segment 2. In Segment 3, Alternative 2A passes through the Sierra Point Specific Plan Area. This segment of Alternative 2A is also within the City of Oakdale's future sphere of influence. Among all alternatives, Alternative 1A is closest to lands with high planned growth potential in the future. Alternative 2A is close to some higher planned growth areas, but also passes areas with lower levels of planned growth.

Alternative 2B

Alternative 2B shares the same alignment with the other three alternatives in Segment 1. In Segment 2, Alternative 2B is outside any city boundary or sphere of influence. In Segment 3, Alternative 1B extends outside the City of Oakdale's sphere of influence. Land use along this alignment in Segments 2 and 3 is mostly agricultural, and no planning documents have been approved to develop land in this area. Among all build alternatives, Alternative 2B is farthest from lands that have higher levels of planned growth in the future.

All alternatives were designed to accommodate and support future growth in areas defined in approved general plans and specific plans in the county and cities. The proposed project would not directly result in unplanned growth. The project would not create additional public services on which homes and businesses rely, such as water services from private wells and septic systems. In addition, the project would not create access to previously inaccessible areas.

Implementation of the project, however, would result in increased accessibility in areas surrounding the project, especially areas at intersections and interchanges. Research has shown that although accessibility improvements rarely change the rate of growth of a region, change in accessibility can influence the direction of growth in a region and the rate of growth in local areas. Even in areas where there is no net change in the overall amount of growth, the design or location of a transportation project can alter the patterns of land use and extent of potential impacts to resources. In addition, reduced congestion associated with the proposed project could influence travel behavior, trip patterns, or the attractiveness of some undeveloped areas along the corridor. Therefore, the selection of a specific project alternative would result in different development patterns in the future.

Most of the undeveloped land along the entire proposed corridor is agricultural land. In Segment 1, agricultural lands are more fragmented due to proximity to the cities of Modesto and Riverbank. Larger areas of agricultural lands can be found in Segments 2 and 3. As emphasized by the city and county planning policies, preservation of agricultural lands is the main planning goal in the county and nearby cities. Conversion of farmland in the region has

also been limited by local, state, and federal policies. Currently, no other development besides the specific plan areas mentioned are planned in the vicinity of the project, and it appears that, for the foreseeable future, agricultural uses will continue to dominate.

In the future, factors such as transportation, population growth, and economic growth, availability of developable land, lower cost, and desirable location along the future corridor may lead to increased growth pressure in the project study area. The cities of Modesto, Riverbank, and Oakdale are all considering the expansion of their facilities or limits of sphere of influence in light of such expected growth. As these expansion plans take place, future development is likely to be attracted to the developable land along the proposed corridor, and such growth pressure may act as a factor to accelerate the conversion of agricultural and other open space lands to development uses. Ultimately, the cities and Stanislaus County have the decision-making authority over land use in terms of location, amount, type, and rate of development pursuant to its respective plans and policies.

Step 3: Growth-related Effects

Due to the above reasons, a conclusion can be drawn that the project is unlikely to result in unplanned growth, and it would not change growth patterns. However, implementation of any of the build alternatives may attract future development in the region towards the corridor. Consequently, compared to the No-Build Alternative, the local rate of growth along the selected alignment may accelerate.

The Build Alternatives of the North County Corridor are within or close to the three cities' spheres of influence, where future growth and development are anticipated and planned for. Such growth is expected to occur regardless of whether the project is implemented, and the project is needed to provide adequate infrastructure for anticipated future growth, as the County Regional Transportation Plan and specific plan documents have assumed the existence of the North County Corridor in their analyses. Also, this growth would comply with Goal 4 of the County Regional Transportation Plan: "Provide mixed land uses and compact development patterns, and direct development toward existing infrastructure to preserve agricultural land, open space, and natural resources."

The main resource of concern within the spheres of influence is farmland. Other developable lands, such as empty lots or abandoned properties, are also present in the specific plan areas. Because the North County Corridor is a project included in the County's Regional Transportation Plan and approved by the cities, effects of planned growth in these areas and effects on natural resources have been analyzed by local jurisdictions through their land use section of their general and specific plan documents.

In areas outside the cities' spheres of influence, the North County Corridor may have the potential to attract future development. Such areas include the development of agricultural land along all alternatives in Segment 2 and land along Alternatives 1B and 2B in Segment 3. Resources in these areas include farmland, fragmented natural habitat and special-status species habitat. Currently, there are no future/foreseeable development plans in unincorporated county land. Habitat for many species overlaps with one another; many of the bird species have a similar foraging and/or nesting habitat within the project area. In general, there are fewer resources of concern within the cities' spheres of influence, as they are fragmented and disturbed by human inhabitation. The project's direct effects to farmland, natural communities of concern, and special-status species are summarized in Table 3.1.2-2.

Table 3.1.2.-2: Effects to Resources of Concern

Resource Affected	Affect Area (Acres)			
	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Farmland	470	576	397	540
Natural Communities of Special Concern[1]	3.58	6.49	4.03	8.52
Tricolored Blackbird Foraging Habitat	335.96	409.29	330.04	405.43
Western Burrowing Owl Suitable Habitat	12.34	31.45	13.44	41.66
Swainson's Hawk Foraging Habitat	335.96	409.29	330.04	405.43
Northern Harrier Nesting and Foraging Habitat	348.3	440.74	343.48	447.09
White-Tailed Kite Foraging Habitat	335.96	409.29	330.04	405.43
California Horned Lark Nesting and Foraging Habitat	335.96	440.74	343.48	447.09
Merlin Foraging Habitat	335.96	409.29	330.04	405.43
Loggerhead Shrike Nesting and Foraging Habitat	336.96	412.59	331.04	408.73
Pacific Pond Turtle Aquatic Habitat	8.42	0.86	0.29	5.82
Western Spadefoot Toad Aquatic Habitat	0.43	0.42	1.23	1.56

[1] Natural Communities of Special Concern includes interior live oak woodland, blue oak savannah, perennial marsh, seasonal marsh, riparian scrub, and seasonal wetland.

Source: Natural Environment Study 2016

As noted in the table, Alternatives 1A and 2A would have relatively smaller direct effects on the resources, and Alternatives 1B and 2B would have greater direct effects. Resources outside of the project's Primary Impact Area were not surveyed; however, it is assumed that the distribution of these resources in a larger area follows a similar pattern and density as the resources surveyed along the alternative alignments. Therefore, future development would, on average, produce less growth-related effect along the alignments of Alternatives 1A and 2A than a similar level of development along Alternatives 1B and 2B.

Potential adverse effects to resources in the area, including farmland, natural habitat and special-status species, have been or will be evaluated in the county and cities' land use development plans for specific development projects. In addition, future projects proposed to occur in the county will be required to perform environmental assessments to ensure minimal adverse effects to any resources of concern.

Step 4: Additional Opportunities to Avoid and Minimize Growth-related Effects

Growth effect created by all the project alternatives will be minimized through land use policies and the construction schedule. Municipal growth boundaries and zoning code set forth by the county and cities will restrict unplanned growth. Agricultural land in the study area is also protected by the Farmland Protection Policy Act, the Williamson Act, and/or local policies.

Step 5: Compare the Results

As discussed previously, all project alternatives are designed to accommodate past and future planned regional growth as discussed in the Stanislaus County General Plan, Regional Transportation Plan, and cities' general plans and specific area plans. Given the growth in Stanislaus County that has occurred without the project, the North County Corridor is being planned to accommodate growth that has already occurred, with limited capacity to induce further growth. Future development and investment in the region are expected to occur mainly in response to underlying economic conditions, including supply and demand for housing, goods and services, and only marginally due to improved travel time and accessibility. Other factors that would influence future development along the North County Corridor include existing infrastructure, land prices, and physical constraints.

Although the North County Corridor project would predominantly accommodate previous growth that has occurred as well as future planned growth rather than induce new unplanned growth, it would change accessibility and mobility within the area and could potentially contribute to improved accessibility to and from the surrounding metropolitan areas. By reducing traffic bottlenecks and current stop-and-go vehicular traffic, the build alternatives would facilitate the flow of traffic, leading to time savings for the traveler. The project would have the effect of providing a better connection by means of a major new multi-lane, limited access highway.

The increased accessibility created by the North County Corridor project may affect the location of expected growth because improved access to the region could make the parcels adjacent to the corridor more desirable. However, on a regional scale, the rate, type, and amount of growth in the project vicinity is not expected to substantially change due to land use controls shaped by local and regional plans and policies, and a desire to approve projects that are compatible with the surrounding land uses. Growth has been occurring in the Cities of Modesto, Riverbank, and Oakdale, and the project would accommodate the circulation demands that have been created by past and ongoing developments in the three cities' sphere of influence. This would also potentially indirectly influence development in the surrounding unincorporated areas.

In summary, none of the build alternatives are expected to substantially influence the overall amount or type of regional growth or influence the redistribution of economic development and population. The pattern and rate of population and housing growth would remain consistent with the population expected in existing planning documents for the area. Growth in Stanislaus County is expected to follow the trend of the Central Valley's population growth, which is fueled by high birthrates and the immigration of people from other parts of California. The potential for growth in the area is consistent with local land use plans and current trends; the project would not substantively influence growth, and no growth-related impacts are expected. Current growth trends and potential future growth are considered in local land use plans, and the project would not influence growth that is not currently planned. The project would not result in direct adverse growth-related impacts.

It is important to note that future development patterns would ultimately be determined by multiple factors such as population growth, economic growth, land availability, cost and desirability, as well as the approval of land use change by the County or cities. The rate of population growth for 2015-2020 is 4.63 percent in Stanislaus County (California County-Level Economic Forecast 2015, Caltrans and California Economic Forecast). The rate of economic growth for 2015-2020 in the form of expected job growth is 7.4 percent for Stanislaus County (California County-Level Economic Forecast 2015, Caltrans and California Economic Forecast). All the Build Alternatives to varying degrees will accommodate the forecasted growth listed above. Each Build Alternative is discussed in detail below.

Alternative 1A

Of the four Build Alternatives, Alternative 1A is closest to the cities' spheres of influence, where existing and planned future development will occur regardless of project implementation. Therefore, Alternative 1A will accommodate planned growth in the project area. This alternative would also direct future growth toward existing urban cores, as well as form a desirable future growth pattern according to the Regional Transportation Plan.

In general, there are fewer resources of concern in a city's sphere of influence due to previous development and human disturbance. Therefore, growth along the Alternative 1A alignment also would have less effect on resources compared to other alternatives. By selecting this alternative, future growth will be attracted toward an existing planned development area.

Alternative 1B

Alternative 1B is also close to the cities' sphere of influence and would adequately support the foreseeable growth in the project area; however, compared to Alternative 1A, this alternative may cause greater pressure in the future (though no current development plans are under consideration in this area) to develop land along its alignment in Segment 3. This alternative would be inconsistent with Goal 4 in the County's Regional Transportation Plan for compact growth and preservation of agricultural lands, open space and natural resources.

In Segment 3, Alternative 1B extends farther away from the specific plan areas, outside of any city's sphere of influence. Resources such as farmland and natural habitat are less disturbed in these areas. Therefore, compared to Alternative 1A, potential future development along Alternative 1B would have a greater effect on resources of concern, and this alternative is less favorable.

Alternative 2A

Alternative 2A is also close to the cities' sphere of influence and would adequately support the foreseeable growth in the project area; however, compared to Alternative 1A, this alternative may cause greater pressure to develop land along its alignment in Segment 2 (though no current development plans are under consideration in this area). This alternative would be inconsistent with Goal 4 in the County's Regional Transportation Plan for compact growth and preservation of agricultural lands, open space and natural resources.

In Segment 2, Alternative 2A extends farther away from the specific plan areas, outside of any city's sphere of influence. Resources such as farmland and natural habitat are more abundant and intact in these areas. Therefore, compared to Alternative 1A, potential future development

along Alternative 2A would have a greater effect on resources of concern, and this alternative is less favorable.

Alternative 2B

Of the four build alternatives, Alternative 2B is farthest from the cities' spheres of influence and specific plan areas. This alternative may cause greater pressure to develop land along its alignment in Segments 2 and 3 (though no current development plans are under consideration in these areas). This alternative would be the most inconsistent with Goal 4 in the County's Regional Transportation Plan for compact growth and preservation of agricultural lands, open space and natural resources.

In Segment 2 and 3, Alternative 2B passes through a large swath of undeveloped, unincorporated agricultural land far away from any specific plan areas. Future land development along this alternative (if approved by the County) would likely result in development far from urban cores, plus greater effect to resources of concern than development associated with Alternatives 1A, 1B, and 2A. Therefore, Alternative 2B is the least favorable alternative.

Step 6: Findings of Analysis

The project will adequately accommodate planned growth in the region. Implementation of any Build Alternative has the potential to attract future residential, commercial, and industrial development in the region toward the corridor and increase the local rate of growth along the selected alignment. Future development patterns would ultimately be determined by multiple factors such as population growth, economic growth, land availability, cost and desirability, as well as the approval of land use change by the County or cities. As suggested by the analysis, Alternative 1A is the most favorable alternative on the basis of growth, as development along its alignment is most foreseeable and would result in less risk to resources of concern. Alternative 1A also meets the goals under the County Regional Transportation Plan for compact development and preservation of farmland, open space, and natural resources. The rate of population growth for 2015-2020 is 4.63 percent in Stanislaus County (California County-Level Economic Forecast 2015, Caltrans and California Economic Forecast). The rate of economic growth for 2015-2020 in the form of expected job growth is 7.4 percent for Stanislaus County (California County-Level Economic Forecast 2015, Caltrans and California Economic Forecast). All the Build Alternatives to varying degrees will accommodate the forecasted growth listed above. Alternatives 2A and 1B are also relatively favorable, as they are both partially within the cities' spheres of influence and planned development areas.

No-Build Alternative

Planned growth would still occur even if the No-Build Alternative is selected; however, growth would occur in a different manner. Under No-Build Alternative conditions, congestion on existing SR-108 will continue to worsen as a result of the increased population and traffic volume, resulting in inefficient movement of people and goods. Resources of concern in the project area would not be affected by the project; however, by not implementing the North County Corridor project as planned in the Regional Transportation Plan, growth may be attracted to other areas with better traffic circulation. Areas that are more accessible throughout the county may experience growth at a higher rate than identified in the Regional Transportation Plan. The No-Build Alternative does not meet the purpose and need of the project.

The project conforms with most of the circulation analysis and goals, plans, programs, and policies identified in the Stanislaus County General Plan, Stanislaus County Regional Transportation Plan, and the general plans and specific plans of the cities of Modesto, Riverbank and Oakdale. Goals and policies such as sustainable development, land use and transportation planning, farmland conservation, natural resource conservation, and jobs-housing balance have been identified in regional and local plans to avoid and minimize any growth-related effects.

Avoidance, Minimization, and/or Mitigation Measures

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

Avoidance, minimization, and mitigation measures for Prime Farmland are discussed in Section 3.1.3.

3.1.3 Farmlands

Regulatory Setting

NEPA and the Farmland Protection Policy Act (7 U.S. Code 4201-4209; and its regulations, 7 Code of Federal Regulations Part 658) require federal agencies, such as the Federal Highway Administration, to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the Farmland Protection Policy Act, farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance.

CEQA requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

Affected Environment

Farmland was analyzed as part of the *Community Impact Assessment* (February 2016) for the project. Agriculture is the leading industry in Stanislaus County, and farmlands occur throughout the study area. Agricultural land use in Stanislaus County includes approximately 147,530.5 acres of Prime Farmland and 13,696.3 acres of Farmland of Statewide Importance. Agricultural land uses include livestock grazing; hay production; dairies; walnut, almond, and various fruit orchards; row crops; and nurseries. According to the Stanislaus County Crop Report for 2014, Stanislaus County farmland production is about $4.4 billion annually. Stanislaus County had a net change in Prime Farmland of -2,731 acres and 26 for farmland of Statewide Importance (from 2008 to 2010), according to the California Department of Conservation. The study area consists of pockets of farmland in Segment 1 and large areas of farmland in Segments 2 and 3.

The project area consists of about 2,000 acres of farmland (Prime Farmland and Farmland of Statewide Importance), which represent 41 percent of the project area's total land use. According to Natural Resources Conservation Service soils maps, Prime Farmland is concentrated at the west end of the project area between Tully Road and Oakdale Road, and at the east end near Crane Road, Langworth Road, Stearns Road, Sierra Road, and SR-120. Farmland of Statewide Importance is present in Segments 2 and 3, scattered between

Langworth Road and SR-120. Figure 3.1.3-1 shows the distribution of farmland according to Farmland Mapping and Monitoring Program 2012 data, which is the most current data available.

The protection and value of agricultural land in Stanislaus County are discussed in the Agricultural Element of the Stanislaus County General Plan (summarized in Table 3.1.1.2-1.) Agricultural lands in Stanislaus County represent a valuable resource, and the general plan identified goals and policies to strengthen the agricultural sector of the economy, conserve agricultural lands for agricultural uses, and protect the natural resources that sustain agriculture in Stanislaus County (Stanislaus County, 1994).

Environmental Consequences

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

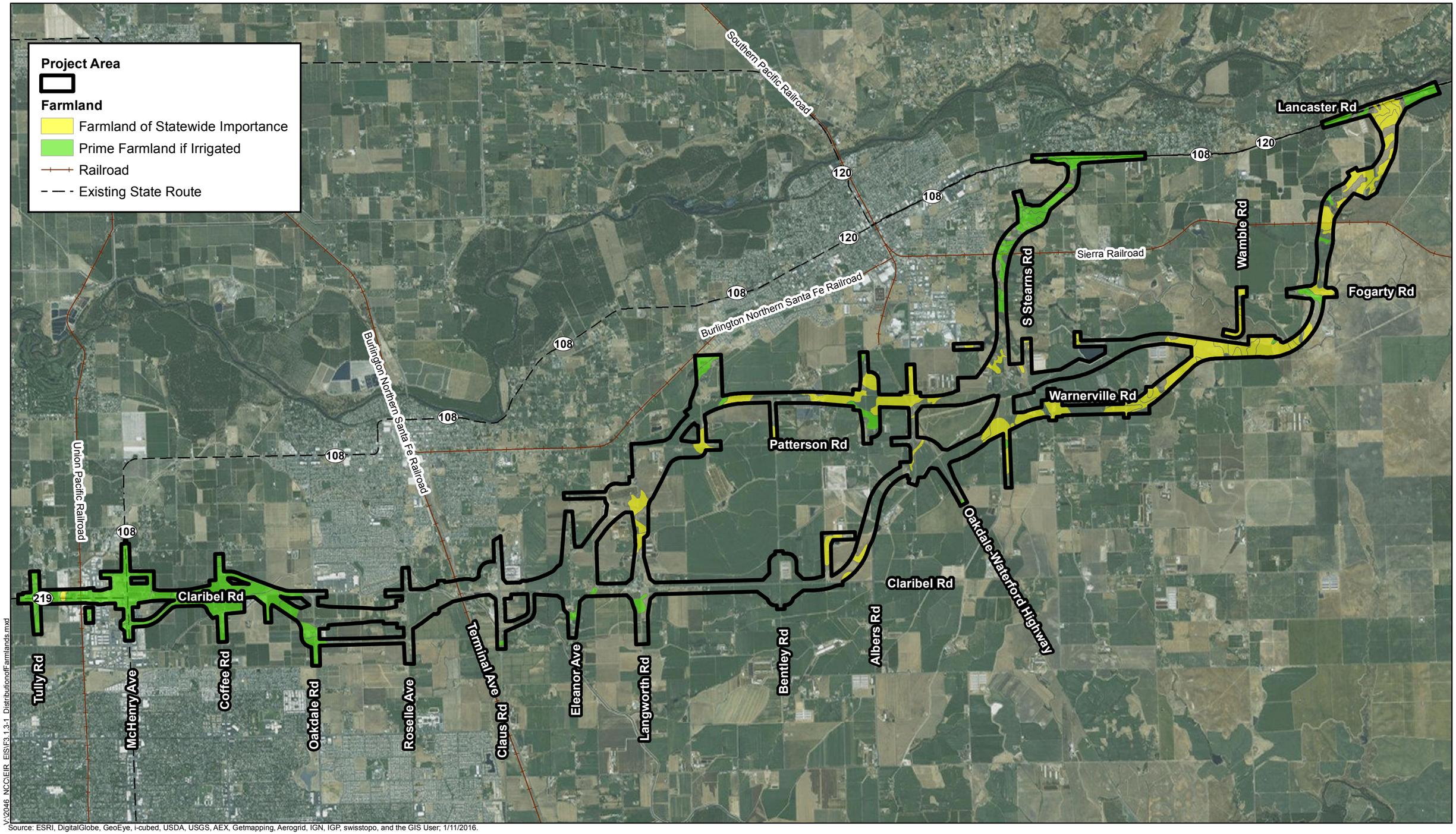
Depending on the project alternative, conversion of approximately 397 to 576 acres of agricultural parcels to public right-of-way would be required to accommodate the proposed expansion of roadways within the North County Corridor. Table 3.1.3-1 shows the acreage of farmland affected by each alternative, as well as the percentage of each type of farmland affected relative to the total amount of that type in Stanislaus County. As shown in the table, Alternatives 1A and 2A would cause greater impacts to Prime Farmland by affecting 0.24 percent of the County's total Prime Farmland; Alternatives 1B and 2B would have greater impacts to the total amount of farmland.

Table 3.1.3-1: Farmland Impacts by Alternative

Farmland Type	Total Acres and Percentage of Farmland Impacts			
	Alternative 1A	**Alternative 1B**	**Alternative 2A**	**Alternative 2B**
Prime Farmland	352 (0.24%)	296 (0.20%)	356 (0.24%)	291 (0.20%)
Farmland of Statewide Importance	118 (0.85%)	280 (2.04%)	41(0.27%)	249 (1.75%)
Total (Acres)	**470**	**576**	**397**	**540**

Source: Community Impact Assessment, 2016
Note: The percentage is the percentage of each type of farmland affected relative to the total amount of that type in Stanislaus County.

Impacts to farmland were determined through cut/fill and right-of-way limits of all build alternates and were overlaid onto Farmland Mapping and Monitoring Program/Natural Resources Conservation Service files. The federal process to assess farmland impacts is guided by the provisions of the Farmland Protection Policy Act, which calls for completion of Form CPA-106 (Farmland Conversion Impact Rating for Corridor Projects – located in Appendix C of the Community Impact Assessment, 2016) for linear transportation projects. In accordance with the instructions for CPA-106, Sections I and III were completed and the form sent to the Natural Resources Conservation Service office in the U.S. Department of Agriculture Service Center in Modesto. Natural Resources Conservation Service staff determined that the study area contained 1,005 acres of Prime Farmland subject to the Farmland Protection Policy Act, completed Sections II, IV, and V of the form, and returned the form to the County. After the County received the form from Natural Resources Conservation Service, Sections VI and VII were completed, yielding a total corridor assessment value for the farmland in the study area. A determination was then made about whether the proposed conversion was consistent with the Farmland Protection Policy Act. Table 3.1.3-2 shows the conversion score of each Build Alternative.



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Source: ESRI, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User; 1/11/2016.

0 1 2 3 4 5 Miles

FIGURE 3.1.3-1
Distribution of Farmlands within the Project Area
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

Table 3.1.3-2: Total Farmland Impacts by Build Alternative

Alternatives	Number of Farmland Parcels Affected	Land Converted (acres)	Percent of farmland in County Converted	Percent farmland in State	Farmland Conversion Impact Rating
Alternative 1A	221	470	0.13%	0.004%	135
Alternative 1B	218	576	0.16%	0.005%	136
Alternative 2A	216	397	0.11%	0.003%	134
Alternative 2B	210	540	0.15%	0.004%	137

Source: Community Impact Assessment, 2016

NRCS farmland conversion guidance indicates that "sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated." As indicated in Table 3.1.3-2, farmland in the study area received a total corridor assessment value of 134 to 137 on Form CPA-106. According to the form, all Build Alternatives would have similar impacts to farmland within the project corridor. All Build Alternatives received a total score of less than 160; therefore, no additional sites need to be evaluated. Existing policy within Stanislaus County provides for conversion of farmland to non-farmland uses be mitigated by preserving an equal amount of agricultural land within the county in those areas that have not been approved or proposed for urban uses. Implementation of the following measures by Stanislaus County will ensure farmland impacts are minimized:

- Conversion of farmland to non-farmland uses will be mitigated by preserving an equal amount of agricultural land within the County in those areas that have not been approved or proposed for urban uses. This is consistent with Stanislaus County's current policy in the Farmland Mitigation Program Guidelines of requiring 1:1 replacement for agricultural land impacted by proposed projects where feasible.

- If 1:1 replacement is not available in the County, agricultural easements administered by land trusts (examples include Ducks Unlimited, The Nature Conservancy, American Farmland Trust) or other non-profit entities on agricultural parcels will be considered as a means to mitigate for the permanent loss of agricultural land within the Stanislaus County region.

- Mitigation at a 1:1 ratio for acquired agricultural lands will be accomplished through purchase of credits through an organization such as the Agricultural Land Stewardship Program established by the California Farmland Conservancy, administered by the Division of Land Resource Protection, to mitigate for the permanent loss of agricultural land within the Stanislaus County region. The Agricultural Land Stewardship Program is a grant program that aids in purchasing and/or partially funding agricultural easements. Under this program, any property proposed for easement must meet certain criteria (e.g., location, soil quality, water availability) that make it a priority for the potential easement holder organization to pursue an easement. If the potential easement holder wishes to pursue an easement on the proposed property, the organization would negotiate terms with the landowner, including price (unless the easement is to be donated) and restrictions. If the easement is to be purchased, the potential easement holder may seek grant funding under this program.

- Where parcels are bisected by a segment of the proposed project, but enough usable land remains on either side of the highway to be cultivated, access for livestock, machinery, and/or drainage shall be constructed where feasible in order to provide

access to both portions of the property so that the land is still viable for farming operations.

The Williamson Act is a California law that provides property tax relief to owners of farmland and open-space land in exchange for a 10-year agreement that the land will not be developed or otherwise converted to another use. The motivation for the Williamson Act is to promote voluntary land conservation, particularly farmland conservation. About 2,000 acres of agricultural lands within the project area are currently under Williamson Act contracts (Community Impact Assessment, February 2016). Table 3.1.3-3 shows project impacts by Build Alternative to properties currently enrolled in Williamson Act contract.

Table 3.1.3-3: Total Williamson Act Acres within the Project Area

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Number of impacted parcels under Williamson Act contracts	72	89	75	77
Total acres of farmland under Williamson's Act contracts impacted by project	351	540	305	495
Percentage of total acres of impact to farmland under Williamson Act contracts in Stanislaus County	0.05%	0.08%	0.05%	0.07%
Number impacted parcels dropping out of Williamson Act contracts	1	1	1	1

Source: Community Impact Assessment, 2016

As shown in Table 3.1.3-3, Alternative 1B would have the greatest impact on the acreage of farmland under Williamson Act contract (540 acres). Each of the project alternatives would cause one parcel to drop out of its Williamson Act contract. Each Build Alternative would remove the same parcel from Williamson Act contract; the parcel is 9.6 acres. Williamson Act contract parcels affected by partial acquisition would have their contracts amended during the right-of-way process. Among all Build Alternatives, Alternative 2A would have the smallest impact on farmland under Williamson Act contract (305 acres, representing 0.05 percent of total farmland under Williamson Act contract in Stanislaus County).

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," and therefore subject to additional noticing and review requirements under CEQA. 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.

The purpose of the project is ultimately to build a west-east roadway that would improve regional network circulation, relieve existing traffic congestion, reduce traffic delay, accommodate future traffic, and benefit the regional economy. Once implemented, the project

would benefit agricultural businesses surrounding the study area by providing an improved transportation conditions and more efficient movement of goods and services.

Unavoidable impacts to farmland will be minimized by project design and the mitigation measures discussed below.

Temporary Construction Impacts

Implementation of any alternative would result in temporary construction impacts to Prime Farmland and to parcels under Williamson Act contract. The project will require temporary construction easements for the temporary construction impacts which include construction equipment staging and relocating irrigation lines.

No-Build Alternative

Under the No-Build Alternative conditions, no farmland acquisition or conversion would occur under the No-Build Alternative conditions; however, the No-Build Alternative does not meet the purpose and need of the project.

Avoidance, Minimization, and/or Mitigation Measures

The project would result in adverse impacts to agricultural resources.The project has been designed to be consistent with state, regional, and local plans and programs to the extent feasible. During final design, effort would be made to further avoid, minimize, and/or mitigate construction and operational impacts to existing farmland and be consistent with Stanislaus County policies, as more fully discussed in the tables above.

3.1.4 Community Impacts

3.1.4.1 Community Character and Cohesion

Regulatory Setting

NEPA of 1969, as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S. Code 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 U.S. Code 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Because this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

Population and housing information was compiled into a descriptive account of the physical dimensions and social characteristics of the project area to provide an overview of a range of

local and regional demographic characteristics, including population growth, race and ethnic group, age, and housing density. Information on population and housing is obtained from the U.S. Census Bureau and local planning documents. This information helps determine whether the proposed project has environmental justice concerns. Population and housing are discussed in this document at a regional level and in a more detailed examination within the project area. Below is a description of the potentially affected communities and neighborhoods within the project area as defined within planning documents and by local knowledge (Community Impact Assessment, February 2016 and the Draft Relocation Impact Report, January 2016).

Population Characteristics/Community Character

Population and Growth

The 2010 U.S. Census found that Stanislaus County has a population of 514,453. The population has grown 15.09 percent since 2000. This growth rate was much higher than the state average rate of 9.99 percent. During this period, the city of Modesto had a lower population growth rate of 6.52 percent, while population in the cities of Riverbank and Oakdale increased by 43.3 percent and 33.36 percent, respectively. The total population of the county is concentrated in the cities. Areas with the highest population density are found within census tract 3.03 and 3.04 (both in Riverbank), where population density is 5,711.1 persons per square and 4,953.3 persons per square mile, respectively. Unincorporated areas in census tracts 1.02 and 28.02 have the lowest population densities, which are 44.7 and 182.7 persons per square mile, respectively. Figure 3.1.4.3, Census Tracts within the Project Area, is found in in Appendix A.

As of 2010, the population within the 12 census tracts representing the study area was 69,623, making up about 13.5 percent of the County's total population. High population within the study area was found largely in the city boundaries, although variation between census tracts exists. Among the 12 census tracts, 4.02 (Unincorporated/Modesto), 2.03 (Oakdale), and 5.01 (Modesto) contain the largest populations. Census tracts 5.05 (Modesto) and 1.02 (unincorporated) have the smallest populations.

Table 3.1.4.1-1 shows the total population and population density of the state, county, cities, and contiguous census tracts.

Table 3.1.4.1-1: Total Population and Population Density in 2010

Jurisdiction	Total Population	Population Density (persons per square mile)
California	37,253,956	227.6
County		
Stanislaus County	514,453	344.2
Affected Communities		
City of Modesto	201,165	5,423.4
City of Oakdale	20,675	3,392.1
City of Riverbank	22,678	5,509.7
Study Area Census Tracts		
Census Tract 1.02 (Unincorporated)	3,869	44.7
Census Tract 2.02 (Oakdale)	6,593	4,259.8
Census Tract 2.03 (Oakdale)	8,756	2,152.3
Census Tract 3.03 (Riverbank)	5,883	5,711.1

Jurisdiction	Total Population	Population Density (persons per square mile)
Census Tract 3.04 (Riverbank)	5,003	4,953.3
Census Tract 4.02 (Unincorporated/Modesto)	10,095	6,24.3
Census Tract 4.03 (Modesto)	4,317	2,858.2
Census Tract 4.04 (Modesto)	5,564	3,663.6
Census Tract 5.01 (Unincorporated)	7,165	526.2
Census Tract 5.05 (Modesto)	1,773	3,585.4
Census Tract 5.06 (Modesto)	4,295	2,855.7
Census Tract 28.02 (Unincorporated)	6,310	182.7

Source: U.S. Census Bureau 2010

Race and Ethnicity

As of 2010, Stanislaus County's majority ethnic composition is White (65.57 percent), with smaller portions of Black/African American (2.86 percent), Asian (5.07 percent), Native (American Indian, Alaska Native, Hawaiian Native) (1.81 percent), "some other race" (19.28 percent), and "two or more races" (5.4 percent). In addition, 41.92 percent of the total population in Stanislaus County identified themselves as Hispanic. According to the U.S. Census definition, people who identify their origin as Spanish, Hispanic, or Latino may be of any race, so the percentage for Hispanic should not be added to percentages for racial categories.

Table 3.1.4.1-2 shows the ethnic compositions in the study area cities and census tracts, which follow a similar pattern as the county, with majority of the population in the study area census tracts being White. Census tracts 1.02 (unincorporated) and 4.03 (Modesto) have the largest percentage of White residents, and census tracts 3.04 and 3.03 (both in Riverbank) have the highest percentage of Hispanic residents. Compared to the other census tracts and the County average, census tracts 5.06 and 5.05 (both in Modesto) contain higher percentage of Black/African American population, and census tracts 5.05 and 5.01 (both in Modesto) contain a higher percentage of Asian residents.

Table 3.1.4.1-2: Ethnic Composition in 2010

Jurisdiction	White	Black/ African American	American Indian, Alaska, Hawaiian Native	Asian	Some Other Race	Two or More Races	Hispanic*
County							
Stanislaus County	65.57	2.86	1.81	5.07	19.28	5.4	41.92
Affected Communities							
City of Modesto	65.04	4.17	2.2	6.74	15.53	5.4	35.48
City of Oakdale	80.09	0.79	1.19	2.24	11.54	4.15	26.11
City of Riverbank	65.93	2.12	1.57	3.4	21.82	5.16	52.13
Study Area Census Tracts							
Census Tract 1.02 (Unincorporated)	86.74	0.1	1.42	1.68	6.64	3.41	18.45
Census Tract 2.02 (Oakdale)	76.79	1.14	0.88	3.34	13.54	4.31	29.91
Census Tract 2.03 (Oakdale)	78.16	0.73	1.31	2.25	13.67	3.87	27.68
Census Tract 3.03 (Riverbank)	69.51	2.02	1.46	2.18	19.48	5.35	53.85

Jurisdiction	White	Black/ African American	American Indian, Alaska, Hawaiian Native	Asian	Some Other Race	Two or More Races	Hispanic*
Census Tract 3.04 (Riverbank)	56.67	1.38	1.54	0.64	34	5.78	72.82
Census Tract 4.02 (Unincorporated/Modesto)	71.63	2.35	1.5	6.05	13.06	5.42	33.96
Census Tract 4.03 (Modesto)	80.24	2.5	1.9	3.73	6.83	4.79	21.75
Census Tract 4.04 (Modesto)	71.57	4.04	1.31	9.9	7.17	6	23.96
Census Tract 5.01 (Unincorporated)	68.12	2.9	1.54	7.13	15.13	5.18	30.03
Census Tract 5.05 (Modesto)	60.20	4.76	3.08	11.26	13.07	7.62	30.26
Census Tract 5.06 (Modesto)	71.9	5.12	1.91	4.38	10.97	5.73	28.45
Census Tract 28.02 (Unincorporated)	73.33	0.67	1.62	1.32	18.73	4.34	37.78

Source: U.S. Census Bureau 2010
**Note: According to the U.S. Census definition, people who identify their origin as Spanish, Hispanic, or Latino may be of any race. The percentage for Hispanic should not be added to percentages for racial categories.*

Income Distribution

In economics, "income distribution" is how a nation's total Gross Domestic Product (GDP) is distributed amongst its population. Table 3.1.4.1-3 shows the household income of the County, cities, and census tracts. In general, income distribution in all communities and contiguous census tracts of the North County Corridor roughly follows the idealized hypothetical income distribution curve, where the percentage of highest-earning and lowest-earning household is low, and the percentage of medium-earning households is high.

Table 3.1.4.1-3: Household Income Distribution (Percentage)

Jurisdiction	$10k or less	$10k-$20k	$20k-$30k	$30k-$40k	$40k-$50k	$50k-$75k	$75k-$100k	$100k-$150k	$150k-$200k	$200k or more
County										
Stanislaus County	6.02	12.61	11.59	10.81	9.1	18.48	12.34	12.31	3.86	2.88
Affected Communities										
City of Modesto	6.07	13.19	11.68	11.05	8.73	18.48	11.77	12.2	3.79	3.05
City of Oakdale	6.68	11.94	6.91	9.29	7.77	21.33	13.54	15.44	3.4	3.69
City of Riverbank	3.29	10.4	10.32	12.82	9.18	18.32	14.6	14.24	4.4	2.43
Study Area Census Tracts										
Census Tract 1.02 (Unincorporated)	0.81	3.97	8.09	11.4	11.84	12.94	11.03	22.5	7.06	10.37
Census Tract 2.02 (Oakdale)	6.78	11.04	4.75	12.13	5.79	20.54	12.82	17.33	5.2	3.61
Census Tract 2.03 (Oakdale)	7.96	13.28	8.56	8.31	10.05	16.87	14.52	15.57	3.11	1.78
Census Tract 3.03 (Riverbank)	2.56	6.34	14.24	11.8	9.53	22.21	16.28	12.03	2.97	2.03
Census Tract 3.04 (Riverbank)	4.19	19.36	11.58	11.58	10.76	20.85	10.69	10.69	0	0.3
Census Tract 4.02	4.07	8.29	6.61	9.37	5.94	16.84	17.69	18.58	8.67	3.94

Jurisdiction	$10k or less	$10k-$20k	$20k-$30k	$30k-$40k	$40k-$50k	$50k-$75k	$75k-$100k	$100k-$150k	$150k-$200k	$200k or more
(Unincorporated/ Modesto)										
Census Tract 4.03 (Modesto)	3.46	10.11	6.71	10.25	9.12	19.36	11.38	16.04	7.07	6.5
Census Tract 4.04 (Modesto)	7.56	15.46	7.17	8.58	9.65	13.81	12.55	20.99	2.76	1.45
Census Tract 5.01 (Unincorporated)	0	5	4.45	7.29	11.7	18.02	17.98	17.98	6.45	11.11
Census Tract 5.05 (Modesto)	2.09	7.64	12.75	8.68	10.22	19.83	15.33	15.33	6.65	1.48
Census Tract 5.06 (Modesto)	7.72	21.9	11.66	9.49	5.89	14.29	12.46	7.2	5.83	3.54
Census Tract 28.02 (Unincorporated)	6.91	7.4	14.31	5.51	13.28	24.24	12.63	11.99	1.62	2.11

Source: U.S. Census Bureau, 2010

Neighborhoods/Communities/Community Character

Areas exhibiting longer homeowner tenures are also expected to have greater community cohesion, due to homeowners being actively engaged in their community for a longer period of time. Areas with high proportions of older adults are also indicative of places with elevated community cohesion, as older adults generally show higher levels of community and civic involvement than younger residents. Areas with high proportions of minority residents and/or cultural homogeneity (explored in this section through an analysis of linguistic [language] isolation) are also expected to have greater community cohesion, resulting from a shared ethnic and/or cultural background.

Table 3.1.4.1-4 shows factors that may indicate community cohesion, including percentage of owner-occupied housing, average length of home tenure, and percentage of linguistically isolated households within the study area. According to the 2010 U.S. Census data, 55.36 percent of the occupied housing units in Stanislaus County are occupied by the owner, and 10 of the 12 census tracts have owner-occupied housing proportions higher than that of the county. Census tracts 5.05 and 5.06, both in the City of Modesto, are the only census tracts with a lower-than-county owner-occupied housing rate (51.78 percent and 50.75 percent, respectively). Land use in census tract 5.06 is largely business parks and regional commercial developments. Land use in census tract 5.05 consists of residential developments, farmland, and business parks.

Table 3.1.4.1-4: Home Occupancy and Length of Residency

Jurisdiction	Owner-Occupied Housing	Average Length of Tenure (Years)	Linguistically Isolated Households
County			
Stanislaus County	99,364 (55.36%)	8.92	9.1%
Affected Communities			
City of Modesto	39,422 (52.53%)	9.05	6.7%
City of Oakdale	4,454 (56.94%)	8.84	3.6%
City of Riverbank	4,753 (67.24%)	7.99	10.2%

Jurisdiction	Owner-Occupied Housing	Average Length of Tenure (Years)	Linguistically Isolated Households
Study Area Census Tracts			
Census Tract 1.02 (Unincorporated)	1,122 (76.80%)	9.69	0%
Census Tract2.02 (Oakdale)	1,313 (56.55%)	7.76	3.9%
Census Tract 2.03 (Oakdale)	1,930 (57.03%)	7.85	4.7%
Census Tract 3.03 (Riverbank)	1,313 (73.27%)	6.10	7.7%
Census Tract 3.04 (Riverbank)	888 (61.62%)	9.21	19.7%
Census Tract 4.02 (Unincorporated/Modesto)	2,490 (74.71%)	8.43	5.2%
Census Tract 4.03 (Modesto)	1,207 (74.05%)	9.60	0.5%
Census Tract 4.04 (Modesto)	1,379 (62.51%)	7.07	3.1%
Census Tract 5.01 (Unincorporated)	1,884 (76.49%)	8.60	3.8%
Census Tract 5.05 (Modesto)	918 (51.78%)	9.86	0.8%
Census Tract 5.06 (Modesto)	979 (50.75%)	7.18	6.4%
Census Tract 28.02 (Unincorporated)	1,314 (59.62%)	10.16	4.6%

Source: Community Impact Assessment, 2016

Data on the average length of home tenure is provided by the 2006-2010 American Community Survey 5-year Estimates (American Community Survey, 2010a). Length of home residency can typically give a general indication of the residential stability of an area. The estimated average length of home residency of Stanislaus County is 8.92 years. For the study area, census tracts 28.02 and 1.02 (both in unincorporated area), and 5.05, and 4.03 (both in Modesto) showed the longest average home residency. Census tracts within the three incorporated cities, except 4.03 and 5.05, are occupied by relatively recent owners or renters attributed to the cities' population booms in recent years. Residents in census tract 3.03 (Riverbank) have the shortest average length of home tenure (6.1 years).

Linguistically isolated households are those in which no person older than 14 responded that they speak English at least "very well" to the U.S. Census. According to 2006-2010 American Community Survey 5-year Estimates (American Community Survey. 2010b), census tract 1.02 (unincorporated), 4.03 (Modesto), and 4.04 (Modesto) have the lowest percentage of linguistically isolated households (0 to 3.1 percent). Census tract 3.04 (Riverbank) has the highest (19.7 percent) of linguistically isolated population, a higher percentage than the county as a whole.

Most of the proposed project is in the fringe of existing urban developments. Within the project area, one religious institution is found in census tract 5.06; three religious institutions and one private-owned sports field are found in census tract 4.02. No community gathering places such as schools, parks, markets, or theatres are present within the project area.

Segments 2 and 3 are mostly scattered rural residences and not cohesive neighborhoods. Given the data on age, percentage of owner-occupied homes, length of householders tenure, proportion of linguistically isolated households, and presence of community gathering facilities, it can be inferred that communities in census tracts 4.03 and 5.05 (both in Modesto) and 28.02 and 1.02 (both in unincorporated area) are likely to have higher community cohesion due to the longer home residency. Community cohesion in census tract 3.04 is also likely to be high due to the significantly higher percentage of linguistically isolated households within the community. Three community gathering facilities within the project area are in census track 4.02, indicating

these communities are likely to have higher community cohesion. Other census tracts do not display significant factors that indicate high community cohesion.

Housing

There are 747 residential parcels in the project area and 22,014 within the Secondary Impact Area. It is assumed that housing in the Primary Project Area will follow the same housing statistics with housing in their respective census tract.

In 2010, housing units within the contiguous census tracts of the North County Corridor composed 14.4 percent of all housing units within Stanislaus County. The rates of occupied housing units are above 90 percent throughout the county and the study area, while the median home price differed drastically from $199,500 (census tract 3.03, Riverbank) to $639,000 (census tract 1.02, unincorporated). The county's average home price is $285,200. The home price throughout the study area can be affected by factors such as parcel size and condition of the housing structure.

As discussed above, average owner-occupied housing rates within the contiguous census tracts of the North County Corridor are generally higher than or comparable to that of the county (55.36 percent), except for census tracts 5.05 and 5.06 (both in Modesto). These census tracts also have a renter-occupied housing rate higher than the county's 36.67 percent.

The average household and family sizes in the study area is 3.02, which is comparable to the county's 3.08. Six of the 12 contiguous census tracts have an equal or higher number of persons per household than that of the county average, suggesting that these areas are more likely to house families with children younger than 18. The highest persons-per-housing rates are found in census tracts 3.03 and 3.04, both within the City of Riverbank. The lowest persons-per-housing rates are found in census tracts 5.06, 4.03, and 4.03, all within the City of Modesto.

Table 3.1.4.1-5 summarizes the housing profile of the county, cities, and census tracts.

Table 3.1.4.1-5: Housing Profile

Jurisdiction	Total Housing Unit	Housing units occupied	Owner-occupied housing	Renter-occupied housing	Median home price (2006-2010)	Persons per Household
County						
Stanislaus County	179,503	92.02%	55.36%	36.67%	$285,200	3.08
Affected Communities						
City of Modesto	75,044	92.09%	52.53%	39.56%	$282,500	3.38
City of Oakdale	7,822	93.17%	56.94%	36.23%	$287,300	2.81
City of Riverbank	7,069	93.07%	67.24%	25.83%	$253,700	3.42
Study Area Census Tracts						
Census Tract 1.02 (Unincorporated)	1,461	94.39%	76.80%	17.59%	$639,000	2.81
Census Tract 2.02 (Oakdale)	2,322	92.08%	56.55%	35.53%	$287,900	3.03
Census Tract 2.03 (Oakdale)	3,384	92.91%	57.03%	35.87%	$279,990	2.78
Census Tract 3.03 (Riverbank)	1,792	94.20%	73.27%	20.93%	$199,500	3.46
Census Tract 3.04 (Riverbank)	1,441	89.38%	61.62%	27.76%	$261,200	3.88
Census Tract 4.02 (Unincorporated /Modesto)	3,333	94.54%	74.71%	19.83%	$347,100	3.2
Census Tract 4.03 (Modesto)	1,630	95.09%	74.05%	21.05%	$263,600	2.72
Census Tract 4.04 (Modesto)	2,206	92.25%	62.51%	29.74%	$295,800	2.73
Census Tract 5.01 (Unincorporated)	2,463	93.75%	76.49%	17.26%	$424,600	3.1
Census Tract 5.05 (Modesto)	1,773	89.34%	51.78%	37.56%	$307,600	3.08
Census Tract 5.06 (Modesto)	1,929	92.28%	50.75%	41.52%	$243,900	2.41
Census Tract 28.02 (Unincorporated)	2,204	91.88%	59.62%	32.26%	$322,900	3.11

Source: U.S. Census Bureau 2010

For each housing element period, the California Department of Housing and Community Development (HCD) prescribes housing allocations for each California region. In the planning period of January 1, 2014 through September 30, 2023, the StanCOG regional housing need was projected to be 21,330 units (HCD, 2013). Planned residential development areas in the vicinity of the proposed project include the following:

- Salida Community Plan Area (Modesto), with approximately 6,405 dwelling units
- Sierra Pointe Specific Plan Area (Oakdale), with 901 dwelling units
- Crane Crossing Specific Plan Area (Oakdale), with approximately 1,039 dwelling units

Residential density designations in the Land Use Elements of all four applicable general plans anticipate population increases within their jurisdictions. This is particularly true for communities within the study area, some of which are within the spheres of influence of the fast-growing cities and expected to urbanize in the near future. The main element of the jobs/housing balance concept is to locate residential areas near job centers and commercial services with the premise that commuting, the overall number of vehicle trips, and the resultant vehicle miles traveled can be reduced. In addition to creating a more balanced and holistic community, modest environmental benefits may come from reduced vehicle miles traveled.

Stanislaus County encourages “smart growth,” a concept to locate housing around a variety of transportation choices and create “walkable” and bicycle- and pedestrian-friendly neighborhoods. This concept is incorporated in all four applicable general plans. Alternative modes of transportation are also promoted by these communities. Such concepts are designed

to have a positive effect on the jobs/housing balance, while reducing vehicle trips within the communities.

Job/housing balance is also addressed in the three cities' general plans. City of Modesto has set a goal for jobs/housing balance by facilitating business growth and encouraging the economic revitalization of the downtown. The City of Riverbank encourages compact development, mixed-use designations, and more balanced circulation. The City of Oakdale plans to develop a compact community form that incorporates smart growth principles.

The 2010 U.S. Census gathered information on the amount of time that people spent commuting to and from the workplace, which in turn gives a general idea of those in the population who work and live within the same area. As of 2010, an estimated 198,972 people in Stanislaus County were over age 16 and employed. According to the 2010 U.S. Census, the average commute time of Stanislaus County workers is 24.5 minutes. As shown in Table 3.1.4.1-6, travel time of the workers in each census tract ranges from 23.9 minutes (4.04, Modesto) to 31.6 minutes (28.02, unincorporated). Workers in 10 of the 12 census tracts have higher average commute times than that of workers within the county. The project would reduce commute times for long-distance commuters.

In general, as the jobs/housing balance efforts help reduce commuting times and vehicle trips, shorter commute times may indicate a higher jobs/housing balance as a whole; those who have lengthy commute times do not contribute to a balance of housing and jobs.

Table 3.1.4.1-6: Commute Times

Jurisdiction	Average Commute Time to Work (minutes)
County	
Stanislaus County	24.5
Affected Communities	
City of Modesto	22.7
City of Oakdale	26.3
City of Riverbank	27.9
Study Area Census Tracts	
Census Tract 1.02 (Unincorporated)	24.1
Census Tract 2.02 (Oakdale)	28.1
Census Tract 2.03 (Oakdale)	27.6
Census Tract 3.03 (Riverbank)	27.9
Census Tract 3.04 (Riverbank)	26.2
Census Tract 4.02 (Unincorporated /Modesto)	29.9
Census Tract 4.03 (Modesto)	27.2
Census Tract 4.04 (Modesto)	23.9
Census Tract 5.01 (Unincorporated)	28.3
Census Tract 5.05 (Modesto)	24.9
Census Tract 5.06 (Modesto)	25.7
Census Tract 28.02 (Unincorporated)	31.6

Source: U.S. Census Bureau 2010

Economic Conditions

Transportation projects can have important effects on the community and regional economies of a given community. This section provides a general economic overview of the region, and discussion of business activities, employment, and fiscal conditions of the study area. Also, it includes an examination of the businesses in the project area. Variables and data used in this economic evaluation include land use designations, employment, and income data from the U.S. Census Bureau.

The leading industry in Stanislaus County is agriculture, which generates an annual gross value in excess of a billion dollars into the local economy. This initial value of farm production has a ripple, or multiplier, effect in the economy by generating related activities, such as food processing, retail and wholesale trade, marketing, transportation, and related services. Located in the Central Valley, Stanislaus County consistently ranks among the top 10 agricultural counties in the state. In recent years, while its economic base remains mainly agricultural, the county's economy is diversifying. This change is largely associated with the unprecedented population growth, especially in the incorporated urban areas of Modesto, Riverbank, and Oakdale.

According to 2010 U.S. Census data, industries providing the most employment in Stanislaus County are education, health and social services, retail trade, manufacturing, art, entertainment, recreation, accommodation, and food services.

Commercial, industrial, residential, and agricultural land uses are within and surrounding the project area. A mix of land use within the study area includes residential, business park commercial, regional commercial, industrial, and mixed-use development. Segment 1 of the project area consists of residential, commercial, civic, and industrial/business park. In Segment 2, Alternatives 1A and 1B border the City of Oakdale's South Oakdale Industrial Specific Plan area, and land uses along Alternatives 2A and 2B consist of agricultural lands. In Segment 3, Alternatives 1A and 2A pass the City of Oakdale's Sierra Pointe Specific Plan area, where residential, park and open space, and mixed-use corridor land uses are planned. Alternatives 1B and 2B are farther east, passing through mainly agricultural lands.

Farmlands in the study area include Prime Farmland and Farmland of Statewide Importance. Agricultural land uses are present throughout the project area, but more concentrated in Segments 1 and 3.

Employment and Income

Income

Median household income is the middle value of all incomes arranged from highest to lowest in a selected geographical area. The most recent data for the study area is from 2010. As shown in Table 3.1.4.1-7, the median household incomes of residents in California and Stanislaus County are $57,708 and $53,261, respectively. Median household income in the study area varies from $41,961 (census tract 3.04, Riverbank) to $92,917 (census tract 1.02, unincorporated), and 10 of the 12 contiguous census tracts of the North County Corridor have higher median household incomes than that of the county.

The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. According to the 2010 U.S. Census data, 19.9 percent of the population in Stanislaus County lives in poverty.

Poverty rate varies from 2.97 percent (census tract 1.02, unincorporated) to 26.16 percent (28.02, unincorporated), and nine of the 12 contiguous census tracts have a lower poverty rate than that of the county. The percentage of population in poverty is shown in Table 3.1.4.1-7.

Employment

Since 2010, the unemployment rate has substantially decreased for Stanislaus County. Unemployment data is not available at the census tract level (U.S. Census Bureau, 2010). Based on data from the U.S. Bureau of Labor Statistics, the unemployment rate in Stanislaus County increased from 15.8 percent in 2009 to 17.3 percent in 2010, and then steadily decreased to 13.0 percent in 2013. This decrease in unemployment is likely a result of the economic recovery after the global financial crisis in 2008. Table 3.1.4.1-8 shows unemployment statistics for the county.

Table 3.1.4.1-7: Median Household Income

Jurisdiction	Median Household Income	% Population in Poverty
California	$57,708	15.80%
County		
Stanislaus County	$53,261	19.90%
Affected Communities		
City of Modesto	$47,983	20.39%
City of Oakdale	$59,842	9.43%
City of Riverbank	$58,308	14.86%
Study Area Census Tracts		
Census Tract 1.02 (Unincorporated)	$92,917	2.97%
Census Tract 2.02 (Oakdale)	$57,070	13.77%
Census Tract 2.03 (Oakdale)	$54,106	12.49%
Census Tract 3.03 (Riverbank)	$59,303	17.09%
Census Tract 3.04 (Riverbank)	$41,961	24.96%
Census Tract 4.02 (Unincorporated / Modesto)	$73,980	9.60%
Census Tract 4.03 (Modesto)	$59,412	10.82%
Census Tract 4.04 (Modesto)	$53,088	7.90%
Census Tract 5.01 (Unincorporated)	$82,895	5.67%
Census Tract 5.05 (Modesto)	$54.552	22.73%
Census Tract 5.06 (Modesto)	$46,778	15.27%
Census Tract 28.02 (Unincorporated)	$51,422	26.16%

Source: U.S. Census Bureau 2010

Table 3.1.4.1-8: Annual Unemployment Rate

	Unemployment Rate				
	2009	**2010**	**2011**	**2012**	**2013**
Stanislaus County	15.8%	17.2%	16.7%	15.1%	13.0%

Source: U.S. Bureau of Labor Statistics,2009-2013

Business Activity

The economy of Stanislaus County is centered largely on agriculture. High-volume employers within and surrounding the study area are likely concentrated around the urban centers in the cities of Modesto, Riverbank, and Oakdale. According to Employment Development Department's annual data for 2010, the estimated labor force in Stanislaus County consisted of 239,800 people, of whom 82.7 percent were employed (198,300 people). Table 3.1.4.1-9 shows labor force distribution by occupation for civilian labors in the study area based on 2010 U.S. Census data.

The 12 contiguous census tracts of the North County Corridor show broadly similar trends in employment categories compared to the county. As listed in Table 3.1.4.1-9, 18.01 percent (census tract 2.03, Oakdale) to 23.27 percent (census tract 28.02, unincorporated) of people in each census tract have occupations in the educational, health and social services, making this category the largest in nine of the 12 census tracts. Other large occupational categories in the study area include retail, food manufacturing, construction, professional services, and entertainment and recreation.

Census tracts 1.02 and 28.02, both in the unincorporated areas that cover Segments 2 and 3 of the study area, have the highest proportion of people (7.43 percent and 9.84 percent, respectively) with occupations in agriculture. Major employers in the county include county government, food-production private businesses, hospitals, schools and universities, publishers, and electric companies.

Table 3.1.4.1-9: Annual Unemployment Rate

Occupation	Agriculture, Forestry, Fishing, Hunting, Mining	Construction	Manufacturing	Wholesale Trade	Retail Trade	Transportation, Warehousing, Utilities	Information	Finance, Insurance, Real Estate, Rental and Leasing	Professional, Scientific, Management, Administrative, Waste Management Services	Educational, Health and Social Services	Arts, Entertainment, Recreation, Tourism, Accommodation, Food services	Public Administration	Other, Except Public Administration
County													
Stanislaus County	5.7	7.4	13.4	4.6	13.11	4.7	1.3	3.6	6.9	22.6	7.6	3.8	5.3
Affected Communities													
City of Modesto	1.5	7.7	11.4	4.9	15.0	4.3	1.0	4.1	7.3	25.4	8.6	4.4	4.6
City of Oakdale	2.8	9.8	16.8	3.2	11.4	4.6	2.5	3.7	6.0	18.5	9.7	4.1	7.1
City of Riverbank	3.3	8.5	19.5	4.1	13.0	3.8	1.6	6.2	6.3	18.6	7.3	4.8	3.2
Study Area Census Tracts													
Census Tract 1.02 (Unincorporated)	7.4	4.6	8.5	3.3	7.4	6.2	0	7.9	7.6	18.7	6.0	17	5.5
Census Tract 2.02 (Oakdale)	4.3	7.0	9.3	4.8	21.5	2.7	5.3	3.0	5.7	22.8	9.4	2.5	4.4
Census Tract 2.03 (Oakdale)	1.4	11.4	21.0	2.3	8.3	4.2	5.0	3.4	7.4	18.0	9.0	4.5	4.2
Census Tract 3.03 (Riverbank)	5.3	10.1	19.1	3.6	15.0	2.5	0.4	4.8	9.0	15.0	7.5	5.4	2.4
Census Tract 3.04 (Riverbank)	1.7	7.9	13.6	4.1	10.8	3.7	2.8	9.3	7.5	21.0	6.4	6.0	5.5
Census Tract 4.02 (Unincorporated/Modesto)	1.7	7.9	13.6	4.1	10.8	3.7	2.8	9.3	7.5	21.0	6.4	6.0	5.5
Census Tract 4.03 (Modesto)	0.5	5.3	11.9	7.7	15.5	6.8	4.1	4.3	8.0	22.7	6.0	4.1	3.3
Census Tract 4.04 (Modesto)	1.0	13.0	9.5	1.8	14.2	6.0	2.3	4.4	10.3	20.9	10.8	3.3	2.8
Census Tract 5.01 (Unincorporated)	3.3	7.0	5.6	3.2	19.3	7.6	2.0	5.2	7.9	18.7	10.3	4.9	4.7

Occupation	Agriculture, Forestry, Fishing, Hunting, Mining	Construction	Manufacturing	Wholesale Trade	Retail Trade	Transportation, Warehousing, Utilities	Information	Finance, Insurance, Real Estate, Rental and Leasing	Professional, Scientific, Management, Administrative, Waste Management Services	Educational, Health and Social Services	Arts, Entertainment, Recreation, Tourism, Accommodation, Food services	Public Administration	Other, Except Public Administration
Census Tract 5.05 (Modesto)	4.9	5.2	9.7	7.3	12.5	7.3	2.3	4.7	3.2	21.3	9.6	6.9	5.1
Census Tract 5.06 (Modesto)	2.3	3.5	12.6	2.2	23.6	6.4	1.6	4.9	5.5	22.5	6.2	4.0	5.0
Census Tract 28.02 (Unincorporated)	9.8	9.8	13.1	4.4	8.5	8.7	0.5	2.1	10.1	23.3	5.0	1.0	3.8

Source: U.S. Census Bureau 2010

Fiscal Conditions

Property taxes generally are the biggest revenue source for counties and cities. Property tax is imposed on real property based on the assessed value of the property and allocated by tax rate areas throughout the county. The approximate median value for a residential property in Stanislaus County is $208,000. The approximate median value for residential properties per community within the study area as follows: Modesto $196,000, Riverbank $207,100, and Oakdale $256,000 (Draft Relocation Impact Report, 2016).

The project location consists of low-density urban development and agricultural lands. No great number of firms or major firms would be relocated as a result of the project.

Community Facilities

Figure 3.1.4.1-1, in Appendix A, shows all community facilities and emergency service stations in the project study area.

Schools

The study area is served by four school districts: Stanislaus Union, Sylvan Union, Riverbank Unified, and Oakdale Joint Unified. There are 88 public schools, private schools, day-care facilities, kindergartens, colleges, and professional training schools within the Secondary Impact Area. None of these facilities are located within the project area.

Community Centers

Community centers contribute in many ways to community cohesion. Community centers provide community members a means to interact with each other. There are 19 community centers in the Secondary Impact Area. No community facility is located within the project area. The project would not affect the community's ability to use these community centers. Circulation in the project study area would increase after construction of the project, which would allow community members in the study area to access these community centers more easily.

Religious Institutions

Approximately 108 religious institutions sit within the Secondary Impact Area, four within the project study area. Locations of religious institutions are shown in Figure 3.1.4.1-1, in Appendix A.

Four of these institutions are within the project study area. Implementation of the project would require relocation of the Seed of Joy Worship Center and the Living Faith Community Church. The Seed of Joy Worship Center is at 536 Kiernan Avenue in Modesto. Congregation size of this institution is unknown. The Living Faith Community Church is at 4825 Roselle Avenue in Modesto. The Living Faith Community Church also shares part of its facility with another religious worship service, the Iglesia Emmanuel De Riverbank. Together, these two services have a congregation size of 150 people.

The Kingdom Hall of Jehovah's Witnesses is at 4940 Claus Road in Modesto (located within the project study area). Congregation size is unknown.

Environmental Consequences

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

Build Alternative 1A, 2A, 1B and 2B

Population Characteristics

The proposed project aims to improve access within and between the communities of Modesto, Riverbank, and Oakdale by constructing new, or improving the existing, roadway between the Tully Road/Kiernan Avenue intersection and SR-108/SR-120. The project is designed to minimize interruption to the existing communities by using existing roadway corridors and sparsely populated urban fringe lands. Although the project would result in improved accessibility in surrounding communities, it would not create access to a previously inaccessible area. Currently, these areas are accessible via local roads; as stated above, the project would result in improved accessibility, not new access. The project was designed to accommodate both local and regional current and future population growth and transportation needs. The project is unlikely to influence the regional population characteristics, such as race, age, and income distribution on its own.

Neighborhoods/Communities/Community Character

Generally, major transportation projects tend to disrupt the cohesion of communities by directly affecting pedestrian, bicycle, and vehicular circulation. Also, travel patterns residents use to interact are disrupted because transportation projects are typically intended to serve a larger geographical area than a single neighborhood or community. Transportation projects can diminish community cohesion through the alteration, relocation, and/or closure of locally important institutions or businesses. Transportation projects can also create physical or psychological barriers or impediments to interaction, dividing cohesive communities. Finally, transportation projects can change access routes and disrupt corridors regularly used by residents to obtain necessary goods and services in a timely manner.

But transportation projects are not always disruptive. Often, transportation projects are a primary means of connecting communities through improved circulation. This includes improving pedestrian circulation, which can increase community cohesion through the creation or facilitation of new networks of contacts and different types of interactions.

From a community character standpoint, all Build Alternatives would directly reduce congestion along the existing SR-108, indirectly reduce congestion on roads in the study area, and improve public access to community facilities for residents. This would be achieved by easing congestion overall within the region during peak hours, including within the cities of Modesto, Riverbank, and Oakdale, and improving connectivity between these communities.

In addition, traffic currently passing between communities by way of local streets and the existing SR-108 would be directed to the North County Corridor. The decrease in automobile queuing (backups) and reduction in noise from braking and accelerating would enhance the small-town characteristics of local roadways in the cities of Riverbank and Oakdale, and improvements to air quality would benefit all communities in the study area. By expanding and constructing the North County Corridor and associated features, the project would result in an increase in urban features in the project area.

Segment 1 of the study area is largely urbanized, despite the agricultural uses surrounding the cities. There are no cohesive neighborhoods in the project area; therefore, no neighborhoods would be divided as a result of the project. The project would not create new geographic or social barriers that may hinder interaction in the study area because it is an improvement of an already existing transportation corridor mostly following an existing facility in Segment 1. Segments 2 and 3 of the study area are largely agricultural lands and would be separated by the proposed new North County Corridor. Within Segments 2 and 3 are scattered rural residences, so no neighborhoods would be impacted. The higher traffic volumes on the North County Corridor would create more urbanized characteristics along the corridor; however, given the scattered population and rural environment in Segments 2 and 3, no substantial effects would occur.

The North County Corridor would be a freeway/expressway with controlled access; it would provide entry and exit only at major crossroad intersections; therefore, private parcels and certain local roads that currently have access to major roads would no longer have direct access to the North County Corridor. Frontage roads will be included as a part of the project to provide access to parcels in the study area. Access to parcels on major crossroads of the North County Corridor may be changed to right-in right-out due to the installation of center median. Cul-de-sacs or overcrossings will be installed at locations where road termination to North County Corridor is required. In general, residents and businesses closer to the North County Corridor would experience a greater change to their travel patterns because they will be redirected to frontage roads and entry points of the North County Corridor. The North County Corridor will improve overall regional circulation by reducing traffic on local roads. This change would not result in substantial impacts to community character throughout the study area.

From a community cohesion standpoint, all Build Alternatives of the North County Corridor would not be considered a substantial change to the existing separation formed by Kiernan Avenue and Claribel Road, because all Build Alternatives of the North County Corridor pass between the cities of Modesto and Riverside, and along the end east of the City of Oakdale. Established communities within these cities would not be separated by this corridor, so they would not experience any significant change in community cohesion.

Housing

Federal and state laws (the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, also known as the Uniform Relocation Act, and California Government Code, Chapter 16, Section 7260, et seq.) require that relocation assistance be provided to any person, business, farm, or nonprofit operation relocated because of the acquisition of real property by a public entity for public use.

Implementation of the project would not substantially disrupt any existing rural residential communities, but it would relocate people and businesses through land acquisition. The project would also require permanent easements for the local access roads.

Implementation of the project would relocate people and businesses through land acquisition. Residential relocations would include a number of parcels as shown below:

- Alternative 1A – 124
- Alternative 1B – 114
- Alternative 2A – 136
- Alternative 2B – 114

Impacts associated with housing would be considered during alternative selection. Residents relocated by the project would be relocated to suitable replacement sites in the cities of Modesto, Riverbank, Oakdale, and Ceres, as well as the communities of Salida and Empire. Available housing in these communities would be adequate to meet the replacement needs generated by the project. Residential relocations and housing impacts associated with implementation of the project are explained in Section 3.1.4.2, Relocations.

Economy

Construction of the project would require conversion of residential, commercial, industrial, and agricultural lands to public right-of-way to accommodate the proposed expansion of roadway. The project would pose impacts to a wide range of business uses, including retail, restaurant, automotive, office, and consumer services. All Build Alternatives would directly affect 5 manufacturing, 8 retail, and 13 service businesses. These businesses are shown in Table 3.1.4.1-10. Most of these businesses are in Segment 1 of the project.

Table 3.1.4.1-10: Businesses Affected by the Project

Manufacturing
Manufacturing and Junk Yard business (name not identified)
Mobility Plus – Home Medical Equipment
Garage Door Manufacturing (name not identified)
KB Farm Fab and Welding
Banbacigno Steel Co., Inc.
Retail
Showcase Auto Sales, Inc.
Empire Sportsmen's Association and Casino
Burrito To Go Mexican Restaurant
Storage/Office (name not identified)
Distribution warehouse (name not identified)
Ray's Carpet
Boyett gas station & Cruisers convenient store
Taco Bell
Truck Sales and Rentals (name not identified)
Service
K Zone (batting cages)
Conway's Personal Training
Modesto Auto Service
America's Radiator Service
Modesto Transmission Service
Upholstery Service (name not identified)
Window Tinting Service (name not identified)
Car Tech Synergy
Seed of Joy Church
DMMAF
Auto Service (name not identified)
Leisure RV Storage

The Living Faith Church/The Iglesia Emmanuel De Riverbank

Source: Draft Relocation Impact Report, 2016

Displaced businesses would be relocated within the county. Businesses requiring relocation will be provided relocation assistance payments and advisory assistance in accordance with the Caltrans Relocation Assistance Program (RAP), based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 CFR Part 24. See details below in Section 3.1.4.2, Relocation.

The project is designed to accommodate future population and economic growth in northern Stanislaus County. Implementation of the North County Corridor would benefit businesses in the study area by reducing travel times, increasing the average operating speeds, and improving travel time reliability. The project would also improve goods movement efficiency at a regional level, which would strengthen the agricultural and general economy of Stanislaus County.

Employment and Income

While transportation projects generally do not result in the creation of significant permanent new jobs within a community, they may affect employment in positive or negative ways. The project would not have adverse impacts on businesses in the Secondary Impact Area, except for minor disruption to circulation that may occur during project construction. The project would not cause disproportionate impacts on low-income or minority residents.

After construction, the North County Corridor would improve circulation in the study area, which would create an environment beneficial to businesses in the study area. Commuting would be improved for local and interregional employees and employers. No large business or employment centers will be relocated by the North County Corridor. No substantial adverse effects to employment would occur.

Business Activity

Changing travel patterns in the study area may in result in changes to business activities in the region. Businesses in the vicinity of the project are concentrated in the cities of Modesto and Riverbank, along Claribel Road (Segment 1), and scattered in Segments 2 and 3.

The North County Corridor would improve the movement of people, goods, and recreation by providing a new east-west transportation facility. Once the project is completed, interregional commuters and truck traffic would be directed away from local streets. Businesses along the future North County Corridor would benefit from increased visibility and improved circulation. Businesses farther from the North County Corridor would have decreased exposure due to smaller traffic volumes. Implementation of the North County Corridor would result in improved accessibility to businesses, higher level of service along local streets, reduced queuing (traffic backups), and improved air quality. As a result, efficiency in local communities would increase, creating a better business environment.

To maintain access to all parcels, the North County Corridor project would include frontage roads. Access to parcels along major crossroads of the North County Corridor may be changed to right-in right-out due to the installation of a center median. Class 3 bike routes would be accommodated along Segments 2 and 3 of the main corridor, and pedestrian access including

sidewalks and crosswalks would be provided along all crossroads in Segment 1 and at locations of existing pedestrian access in Segments 2 and 3.

The project would acquire new right-of-way and easements to improve existing roadway or construct new roadways. Implementation of the project would require partial or full acquisition of business parking spaces. Some business parking spaces may be temporarily affected during construction and the project would also permanently remove public on-street parking along McHenry Avenue, south of the McHenry Avenue/Kiernan Avenue intersection.

About 33-42 businesses would be relocated by the project depending upon which Build Alternative is selected, which is between 50 and 60 percent of the businesses within the project limits. Business relocations are discussed in Section 3.1.4.2, Relocations. In general, the project would not result in substantial permanent impacts to businesses in the study area as they would be able to find suitable replacement sites nearby. Some of the businesses would be completely acquired while others would only have a small portion of their property acquired, allowing those business to continue operating.

Fiscal Conditions

Removal of residential and business property due to the project could result in losses to property and sales tax revenue for the local jurisdictions in which the removal takes place. Non-residential acquisitions would be required, as shown below:

- Alternative 1A – 36
- Alternative 1B – 33
- Alternative 2A – 42
- Alternative 2B – 38

Suitable replacement sites for business and residential property in the cities of Modesto, Riverbank, Oakdale, and Ceres, as well as the communities of Salida and Empire, would be adequate to meet the replacement needs generated by the project. All replacement areas are in Stanislaus County, so relocated residents and businesses would not be removed from the tax base of Stanislaus County.

Partial acquisition of properties by a project does not usually affect tax revenue unless the use of the parcel is substantially affected. Implementation of the proposed project would improve goods movement efficiency at a regional level, create a beneficial business environment, and stimulate future economic growth in nearby communities.

Community Facilities

Community facilities in the project area consist of four religious institutions. To accommodate the expanded roadway, the construction of the North County Corridor would require relocation of the Seed of Joy Worship Center, the Living Faith Community Church, and the Iglesia Emmanuel De Riverbank. Also, the Project would require partial right-of-way acquisition of the parcel on which the Kingdom Hall of Jehovah's Witnesses is located, though the main structures of this facility would not be affected. Access to this property will be maintained through frontage roads. Long-term impacts to the property include loss of approximately 15 parking spaces on the west side of the parking lot and possible increased traffic noise resulting from the widening

of the existing right-of-way. Because all four of these institutions are in Segment 1 of the project, where all alternatives share the same alignment and design, the selection of an alternative would not result in different levels of impact to these institutions.

Temporary Construction Impacts

Implementation of the project would create temporary adverse impacts to communities along the North County Corridor, including construction-related access and circulation disruptions.

During construction, businesses within the study area could experience temporary disruptions to existing travel patterns. A Traffic Management Plan will be implemented to minimize disruption. Businesses within the project area may experience temporary impact associated with air quality, noise, and modified access. Measures will be implemented to avoid and minimize such impacts. Construction of the North County Corridor will be completed in stages and with the use of detours, so traffic disruptions to businesses in the study area would be temporary and not cause substantial adverse effects to businesses or the region's economy.

Construction of the proposed project may directly create new temporary construction jobs in the local communities and the surrounding region. Purchases by construction team members may also generate additional sales revenue in the community. Businesses and people relocated by the project would likely be moved to nearby communities, so the characteristics of local employment, labor force, and customer base would not change significantly.

During construction, businesses in the project area may temporarily experience increased noise levels and decreased air and visual quality. Businesses in the study area may experience temporary losses in sales due to modified access, lane restrictions, lane closures, or temporary detours. Such disruptions will be minimized with implementation of a Traffic Management Plan, which would include detour signage, public transportation information, construction timing, and other useful construction information for residents and motorists. Construction of the North County Corridor will be completed in stages and with the use of detours, so traffic disruptions to businesses in the study area would be temporary. Construction coordination and the Traffic Management Plan are discussed further in Section 3.1.6.

During construction, community facilities including the Kingdom Hall of Jehovah's Witnesses would experience short-term impacts from construction noise and dust.

No-Build Alternative

Under No-Build Alternative conditions, there would be no construction activities, no change would occur to the existing neighborhoods and communities in the study area. No relocations of people, businesses, or community facilities would take place, and no jobs would be created or moved from the study area. Traffic congestion would continue to worsen along Kiernan Avenue/Claribel Road and the existing SR-108. The existing SR-108 would continue to be used by drivers in the surrounding communities, and no pedestrian or bicycle facilities will be accommodated. Interregional traffic circulation would become increasingly constrained as travel times on the existing SR-108 increase as the result of projected residential and employment growth in the area. Traffic congestion on existing truck routes will continue to hinder the efficient movement of goods, lowering efficiency and increasing cost to industries such as manufacturing, food processing, wholesale trade, and retail trade. Therefore, the No-Build Alternative does not meet the purpose and need of the project.

Avoidance, Minimization and/or Mitigation Measures

Regional Population Characteristics

The project is unlikely to influence the regional population characteristics. No avoidance, minimization, and mitigation measures are necessary.

Neighborhoods/Communities/Community Character

A Transportation Management Plan will be implemented to provide minimization measures for temporary disruption to circulation during construction. Discussion of the Traffic Management Plan is included in Section 3.1.6. Implementation of this minimization measure would reduce construction-related access and circulation disruptions.

Housing

Housing for persons who will be subject to relocation is discussed in Section 3.1.4.2, Relocations and Real Property Acquisitions.

Economic Conditions

To minimize and mitigate business parking impacts, project team members will conduct meetings with owners of affected businesses during the final project design phase and assess the parking needs for each business. Parking spaces including on-street parking, public parking lot, or private parking areas, would be accommodated where feasible. Parking and transit studies will be done during the final phase of project design, and necessary parking facilities will be accommodated at feasible locations accessible by motorists and public transit users.
A Traffic Management Plan will be implemented to provide minimization measures for temporary disruption to circulation during construction. Discussion of the Traffic Management Plan is included in Section 3.1.6.

Avoidance, minimization, and mitigation measures for residential and non-residential relocations are discussed in Section 3.1.4.2, Relocations and Real Property Acquisitions.

Community Facilities

Once a preferred alternative has been selected, impacts to community facilities and utilities will be released to the public through the project media campaign. Owners of parcels subject to acquisition would be contacted by Caltrans Right of Way agents.

Displacement and relocation of the religious institutions are discussed in Section 3.1.4.2, Relocations and Real Property Acquisitions.

3.1.4.2 Relocations and Real Property Acquisitions

Regulatory Setting

Caltrans' Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations Part 24. The purpose of the Relocation Assistance Program is to ensure

that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. See Appendix E for a summary of the Relocation Assistance Program.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S. Code 2000d, *et seq*.). See Appendix D for a copy of the Caltrans Title VI policy statement.

Affected Environment

A Draft Relocation Impact Report (DRIR) for the North County Corridor New SR-108 Project was completed in January 2016 and is summarized below.

The project area encompasses the cities of Modesto, Riverbank, and Oakdale, and areas of unincorporated Stanislaus County. The west end of the corridor starts at Tully/SR-219 Kiernan Avenue on the northern border of the City of Modesto, goes east through southern Riverbank along Claribel Road, and continues northerly through the City of Oakdale, connecting to the SR-108/SR-120.

While the area is mostly agricultural, it encompasses a wide range of residential and commercial properties, including single-family residences (SFRs), multiple-family residences (MFRs), mobile homes, and commercial uses, including industrial, commercial, retail, and farmland. A description of the area, general occupancy characteristics, neighborhood, amenities, access, and facilities are provided (by segment) below.

The area within the western portion of the alignment (Segment 1) along Kiernan Avenue extends from Tully Road about 5 miles to the vicinity of Claus Road in the City of Riverbank. The area includes a mix of commercial, industrial and retail property uses, including large industrial/warehouses near Pentecost Drive, commercial-retail and industrial uses near McHenry Avenue, residential uses in the vicinity of Coffee Road, retail uses in the vicinity of Oakdale Road, and mostly agricultural uses toward Claus Road.

In between these commercial and residential areas, the area consists mostly of farmland, large industrial yards, and vacant land areas. Access is provided by a network of two-lane roads such as Claribel Road, Coffee Road, Oakdale Road, Roselle Avenue, and existing McHenry Avenue/SR-108, which functions as the main west-east “main street” going through the downtown areas of Modesto, Oakdale, and Riverbank.

Retail businesses along Kiernan Avenue, between Stratos Way and McHenry Avenue, include an auto sales lot, a casino, and a gas station. There are single-family homes between McHenry Avenue and Coffee Road, as well as mobile homes that could be affected are at the Morningside Mobile Home Park, between Coffee Road and Oakdale Road.

The middle portion of the proposed alignments (Segment 2) is near Claribel Road/Claus Road in Riverbank and extends northerly about 6 miles to the vicinity of Albers Road/Oakdale Waterford Highway near Oakdale. While there are various alignments under consideration within Segment 2, the area is mostly farmland and includes some residential and industrial/agricultural uses.

The area east of Riverbank consists of a sparsely populated local agricultural community. Access is provided by a network of two-lane roads such as Claribel Road, Claus Road, Patterson Road and Albers Road. These three roads provide access to regional travel via SR-108 heading to Modesto, Oakdale, and Riverbank.

The area in the eastern portion of the proposed alignment (Segment 3) extends from the vicinity of Albers Road/Oakdale Waterford Highway near Oakdale about 6 miles to the vicinity of SR-120. Various alignments are being considered in Segment 3. The area is mostly farmland, but includes some single-family homes and industrial/agricultural uses. The area consists of mixed-use properties including single-family homes within farmland. Access to SR-108 is provided by a network of two-lane roads such as Stearns Road, Warnerville Road, and Sierra Road.

Environmental Consequences

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

Residential

In Table 3.1.4.2-1, the residential occupancy types (owner/tenant) of the estimated residential relocation units by Build Alternative are provided in five categories: Owner Occupants of Single-Family Residences, Tenant Occupants of Single-Family Residences, Occupants of Multiple-Unit Residences, Owner Occupants of Mobile Homes, and Tenant Occupants of Mobile Homes.

The table also provides the total of residential relocations and ratio of owner/tenant impacts. Statistics for the number of persons per household are based on preliminary information provided by U.S. Census data for the cities of Modesto, Oakdale, and Riverbank. The actual numbers of affected occupants would be accurately identified at the time of residential interviews during the right-of-way phase of the project.

The various tables in this section show the number of properties requiring full property acquisition, which would require owner/tenants to relocate as a result of the project's right-of-way needs.

Table 3.1.4.2-1: Estimated Relocations of Residential Units by Alternative

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Single-Family Residences	72	68	88	74
Duplex/Triplex (2 or 3 units)	0	0	2	2
Apartments (4 or more units)	30	30	30	30
Sleeping Rooms/Shared Quarters	0	0	0	0
Mobile Homes	22	16	16	8
Tenant Impact/Owner Ratio	72% Tenant 28% Owner	71% Tenant 29% Owner	70% Tenant 30% Owner	67% Tenant 33% Owner
Total Persons (average number/ household)	2.87/356	2.87/327	2.87/390	2.87/327
Total Relocations	**124**	**114**	**136**	**114**

*Source Draft Relocation Impact Report, 2016

Based on analyses of the data concerning replacement housing, adequate resources for residential relocations exist in Modesto, Riverbank, and Oakdale, as well as Ceres, Salida and Empire. Ceres is about eight miles south of the project area at the western end of the proposed alignment. Empire is about seven miles southeast of the project area at the western end of the proposed alignment, and Salida is about four miles west of the project area on the western end of the proposed alignment. All replacement housing is within Stanislaus County.

A total of 453 housing units, including single-family homes, multi-family residences, condominiums, and mobile homes for sale and rent are available in Modesto, Oakdale, Riverbank, and Ceres. Also, preliminary research indicates that several mobile home parks and rental housing provided under Section 8 of the Housing Act of 1973 for low-income households exist within these areas, and would provide adequate replacement housing resources. The relocation areas are generally comparable to the neighborhoods from which residents will be relocated in terms of amenities, public utilities, accessibility to public services, transportation, and public facilities. Residents who have met eligibility requirements will be provided relocation assistance payments and advisory assistance in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the proposed project's Relocation Assistance Program.

The Relocation Assistance Program mandates that no residential occupant shall be relocated without receiving functionally equivalent replacement housing that is within their financial means. Advance replacement housing payments may be necessary to assist residents to be relocated in qualifying for leases or loans. The average range of lease prices surveyed in the replacement area is estimated to be from $585 to $1,675 for multi-family residential units and $600 to $4,300 for single-family housing units.

Businesses

The project poses substantial impacts to a wide range of businesses, including retail, restaurant, automotive, office, and consumer services. According to data provided in the Draft Relocation Impact Report, Alternative 1A would directly affect 21 commercial businesses, 5 industrial/manufacturing businesses, and 10 agricultural farms. Alternative 1B would directly affect 21 commercial businesses, 5 industrial/manufacturing businesses, and 7 agricultural farms. Alternative 2A would directly affect 21 commercial businesses, 5 industrial/manufacturing businesses, and 16 agricultural farms (see Table 3.1.4.2-2). Alternative 2B would directly affect 21 commercial businesses, 5 industrial/manufacturing businesses, and 12 agricultural farms. Fifteen of these businesses have had occupancy for over 15 years. Most businesses affected by the project would be considered small businesses, which would require cost-effective smaller replacement sites with proximity to established customer bases. Some larger businesses, including manufacturing, industrial, and agricultural farms, would also be affected. Several of these larger non-residential relocations, including agricultural farms, may be potential candidates for extensive advisory services. See Table 3.1.4.2-2 below.

Table 3.1.4.2-2: Non-Residential Impacts

	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Commercial Businesses	21	21	21	21
Industrial/Manufacturing Businesses	5	5	5	5
Nonprofit Organizations	0	0	0	0
Agricultural/Farms	10	7	16	12
Total	**36**	**33**	**42**	**38**

*Source: Draft Relocation Impact Report, 2016

Ample space is available in the current real estate market, and both purchase prices and lease rates are competitive within the region to accommodate those needs. Businesses that have been in operation for more than 10 years could have long established local clientele loyalties and site identities that may entail some additional difficulties for relocation.

Additionally, certain types of businesses may hold a particular niche in the community and may have built up a fair amount of repeat business based on customers pleased with their services, and they may rely on their recommended referrals. Most businesses properties directly affected by implementation of any of the build alternatives would be able to find suitable replacement sites nearby.

Employees of the relocated businesses may face challenges such as unemployment or increased fuel and living costs. Also, temporary closure of businesses during relocation may cause temporary layoffs of employees.

Various types of agriculture are anticipated to be affected by all four Build Alternatives under consideration. Due to the frequency of mixed-use properties (farmland and residential) in the area, it is anticipated that businesses, residential owners and tenants, and employees working on a farmland would be relocated. In addition, disruption to critical structures such as irrigation lines and other facilities vital to farm activities are anticipated. Partial impacts to these facilities have the potential to render affected commercial farms as fully relocated. The types of impacted agricultural lands are shown in Table 3.1.4.2-3.

Based on preliminary research, Alternative 2A would result in the most impact on the number of farmland parcels.

Table 3.1.4.2-3: Types of Agriculture Farms Affected

Types of Agriculture	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
Row Crops	2	2	3	2
Trees	5	3	7	5
Livestock	1	1	1	1
Other	2	1	5	4
Total Number of Agriculture Farms	**10**	**7**	**16**	**12**

*Source: Draft Relocation Impact Report, 2016

It is anticipated that elderly households (households with persons over 65 years of age), low-income households, minority households, and households with disabled residents would be affected by the project. It is also anticipated that the project would potentially relocate marginal and minority-owned businesses. See Section 3.1.4.3. below, for a discussion of Environmental Justice.

In general, the magnitude of the proposed project would be considerable under any of the four Build Alternatives under consideration. Alternative 2A would have the largest impact by requiring 136 residential relocations and 42 non-residential and farmland relocations, while Alternative 1B would have the least amount of impact by requiring 114 residential relocations and 33 non-residential and farmland relocations. See Table 3.1.4.2-4.

Table 3.1.4.2-4: Build Alternative Relocations

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
1	004-069-016	PA	PA	PA	PA	NA
2	004-069-033	PA	PA	PA	PA	NA
3	004-069-034	PA	PA	PA	PA	NA
4	004-069-014	PA	PA	PA	PA	NA
5	004-069-013	PA	PA	PA	PA	NA
6	004-069-012	PA	PA	PA	PA	NA
7	046-006-008	PA	PA	PA	PA	NA
8	046-006-009	PA	PA	PA	PA	NA
9	046-006-010	PA	PA	PA	PA	NA
10	046-006-011	PA	PA	PA	PA	NA
11	046-012-005	PA	PA	PA	PA	NA
12	**046-012-001**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
13	046-001-012	PA	PA	PA	PA	NA
14	046-001-001	PA	PA	PA	PA	NA
15	004-071-029	PA	PA	PA	PA	NA
16	004-071-030	PA	PA	PA	PA	NA
17	004-071-028	PA	PA	PA	PA	NA
18	004-071-006	PA	PA	PA	PA	NA
19	004-019-006	PA	PA	PA	PA	NA
20	004-071-008	PA	PA	PA	PA	NA
21	004-057-011	PA	PA	PA	PA	NA
22	046-001-002	PA	PA	PA	PA	NA
23	004-057-010	PA	PA	PA	PA	NA
24	004-057-003	PA	PA	PA	PA	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
25	004-057-004	PA	PA	PA	PA	NA
26	004-057-005	PA	PA	PA	PA	NA
27	**004-057-006**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial (Junk Yard)**
28	RR0-00-	PA	PA	PA	PA	NA
29	004-097-019	PA	PA	PA	PA	NA
30	046-010-001	FA	FA	FA	FA	NA
31	**004-097-010**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial (Storage / Office / Retail)**
32	**004-097-009**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial (Storage / Office / Retail)**
33	**046-010-003**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Industrial (Manufacturing)**
34	**004-094-039**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial (Batting Cage & Gym)**
35	004-094-029	PA	PA	PA	PA	NA
36	004-094-028	PA	PA	PA	PA	NA
37	004-094-003	FA	FA	FA	FA	NA
38	004-094-014	PA	PA	PA	PA	NA
39	**046-010-021**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial**
40	004-094-004	FA	FA	FA	FA	NA
41	004-094-005	FA	FA	FA	FA	NA
42	004-094-016	PA	PA	PA	PA	NA
43	004-094-032	PA	PA	PA	PA	NA
44	**046-010-008**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial**
45	**046-010-009**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial**
46	004-094-031	PA	PA	PA	PA	NA
47	046-010-024	PA	PA	PA	PA	NA
48	004-094-044	PA	PA	PA	PA	NA
49	004-094-043	PA	PA	PA	PA	NA
50	**004-094-009**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial (Used Auto Sales)**
51	**046-010-025**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial (retail)**
52	**046-010-026**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial**

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
53	**046-010-027**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Commercial**
54	**004-094-010**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed Commercial & Residential**
55	**004-094-011**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
56	046-010-016	PA	PA	PA	PA	NA
57	046-010-018	PA	PA	PA	PA	NA
58	046-010-019	PA	PA	PA	PA	NA
59	004-094-012	PA	PA	PA	PA	NA
60	004-094-041	PA	PA	PA	PA	NA
61	004-094-040	PA	PA	PA	PA	NA
62	004-094-033	PA	PA	PA	PA	NA
63	074-015-016	PA	PA	PA	PA	NA
64	074-015-015	PA	PA	PA	PA	NA
65	**074-015-018**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Farm**
66	074-015-017	PA	PA	PA	PA	NA
67	082-006-055	PA	PA	PA	PA	NA
68	082-006-053	PA	PA	PA	PA	NA
69	082-006-073	PA	PA	PA	PA	NA
70	082-006-072	PA	PA	PA	PA	NA
71	**082-006-033**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Industrial (Manufacturing)**
72	**074-015-003**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR & MH)**
73	**082-006-074**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
74	082-006-075	PA	PA	PA	PA	NA
75	074-015-014	FA	FA	FA	FA	NA
76	**074-015-006**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Industrial (Manufacturing)**
77	074-015-007	PA	PA	PA	PA	NA
78	**082-006-004**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
79	074-015-010	PA	PA	PA	PA	NA
80	082-006-056	PA	PA	PA	PA	NA
81	082-006-058	PA	PA	PA	PA	NA
82	Modesto	PA	PA	PA	PA	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
	Irrigation District-000-					
83	**082-004-013**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
84	**082-004-021**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
85	082-004-041	PA	PA	PA	PA	NA
86	Modesto Irrigation District-000-	PA	PA	PA	PA	NA
87	**082-004-030**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
88	**074-014-010**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
89	082-004-038	PA	PA	PA	PA	NA
90	082-004-039	PA	PA	PA	PA	NA
91	074-014-009	PA	PA	PA	PA	NA
92	082-004-036	PA	PA	PA	PA	NA
93	**074-014-008**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
94	082-004-035	PA	PA	PA	PA	NA
95	082-004-004	PA	PA	PA	PA	NA
96	074-014-007	PA	PA	PA	PA	NA
97	082-004-008	PA	PA	PA	PA	NA
98	082-004-005	PA	PA	PA	PA	NA
99	082-004-022	PA	PA	PA	PA	NA
100	**082-004-024**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
101	**083-002-015**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
102	**083-002-032**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
103	**083-002-034**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
104	**083-002-017**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
105	**083-002-016**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
106	083-002-002	PA	PA	PA	PA	NA
107	083-002-001	PA	PA	PA	PA	NA
108	083-002-042	PA	PA	PA	PA	NA
109	083-002-009	PA	PA	PA	PA	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
110	083-002-041	PA	PA	PA	PA	NA
111	083-002-006	PA	PA	PA	PA	NA
112	083-002-020	PA	PA	PA	PA	NA
113	083-002-031	PA	PA	PA	PA	NA
114	083-002-021	PA	PA	PA	PA	NA
115	083-002-022	PA	PA	PA	PA	NA
116	083-002-023	PA	PA	PA	PA	NA
117	083-002-038	PA	PA	PA	PA	NA
118	**083-002-048**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
119	**083-002-025**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed (Church & SFR)**
120	**083-002-024**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
121	083-002-028	PA	PA	PA	PA	NA
122	083-002-030	PA	PA	PA	PA	NA
123	083-002-029	PA	PA	PA	PA	NA
124	**083-002-037**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
125	**083-002-047**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
126	075-014-026	PA	PA	PA	PA	NA
127	075-025-010	PA	PA	PA	PA	NA
128	**075-025-007**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
129	**075-025-008**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
130	**075-025-009**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
131	084-001-023	PA	PA	PA	PA	NA
132	084-001-024	PA	PA	PA	PA	NA
133	084-001-028	PA	PA	PA	PA	NA
134	075-025-011	PA	PA	PA	PA	NA
135	084-001-029	PA	PA	PA	PA	NA
136	**084-001-025**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
137	084-001-026	PA	PA	PA	PA	NA
138	084-001-030	PA	PA	PA	PA	NA
139	084-001-027	PA	PA	PA	PA	NA
140	084-001-032	PA	PA	PA	PA	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
141	075-025-012	PA	PA	PA	PA	NA
142	**075-025-018**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
143	075-025-020	PA	PA	PA	PA	NA
144	075-025-024	PA	PA	PA	PA	NA
145	**084-001-002**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
146	**075-025-019**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
147	**084-001-003**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
148	075-024-001	PA	PA	PA	PA	NA
149	**084-001-005**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
150	Modesto Irrigation District-000-	PA	PA	PA	PA	NA
151	**075-024-012**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR)**
152	075-024-011	FA	FA	FA	FA	NA
153	075-024-003	PA	PA	PA	PA	NA
154	075-024-002	PA	PA	PA	PA	NA
155	084-001-006	PA	PA	PA	PA	NA
156	075-024-005	PA	PA	PA	PA	NA
157	084-001-013	PA	PA	PA	PA	NA
158	**084-001-012**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Other (Self Storage Units)**
159	**084-001-008**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Residential (SFR & MH)**
160	075-024-009	FA	FA	FA	FA	NA
161	075-023-023	PA	PA	PA	PA	NA
162	075-023-005	PA	PA	PA	PA	NA
163	075-023-022	PA	PA	PA	PA	NA
164	075-023-021	PA	PA	PA	PA	NA
165	075-023-007	PA	PA	PA	PA	NA
166	014-001-030	FA	FA	FA	FA	NA
167	**014-001-002**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (Mobile Home)**
168	**014-001-027**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
169	075-022-032	PA	PA	PA	PA	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
170	075-022-035	PA	PA	PA	PA	NA
171	075-022-021	PA	PA	PA	PA	NA
172	062-031-005	PA	PA	PA	PA	NA
173	014-001-015	PA	PA	PA	PA	NA
174	014-001-031	PA	PA	PA	PA	NA
175	014-001-023	PA	PA	PA	PA	NA
176	014-001-019	PA	PA	PA	PA	NA
177	014-001-012	PA	PA	PA	PA	NA
178	**062-031-004**	**PA, R**	**PA, R**	**PA**	**PA**	**Residential (SFR)**
179	014-001-011	PA	PA	PA	PA	NA
180	014-001-014	PA	PA	PA, R	PA, R	Residential (SFR)
181	**062-030-023**	**PA, R**	**PA, R**	**--**	**--**	**Residential (SFR)**
182	**062-030-012**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
183	**062-030-011**	PA	PA	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
184	062-030-014	PA	PA	--	--	NA
185	062-030-006	PA	PA	--	--	NA
186	**062-030-007**	**FA, R**	**FA, R**	**--**	**--**	**Residential (SFR)**
187	**062-030-008**	**FA, R**	**FA, R**	**--**	**--**	**Residential (SFR & MH)**
188	**062-030-022**	**PA, R**	**PA, R**	PA	PA	**Residential (SFR)**
189	062-030-021	PA	PA	FA	FA	NA
190	**062-030-019**	PA	PA	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
191	062-030-017	PA	PA	PA	PA	NA
192	062-029-010	PA	PA	PA	PA	NA
193	062-029-001	PA	PA	--	--	NA
194	062-025-010	PA	PA	--	--	NA
195	062-025-011	PA	PA	--	--	NA
196	062-025-013	PA	PA	--	--	NA
197	062-025-012	PA	PA	--	--	NA
198	062-030-001	PA	PA	--	--	NA
199	062-024-032	PA	PA	--	--	NA
200	062-025-009	PA	PA	--	--	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
201	062-025-026	PA	PA	--	--	NA
202	062-025-008	PA	PA	--	--	NA
203	062-025-023	PA	PA	--	--	NA
204	062-025-024	PA	PA	--	--	NA
205	**062-027-002**	**FA, R**	**FA, R**	**--**	**--**	**Residential (SFR)**
206	062-027-003	PA	PA	--	--	NA
207	062-027-019	PA	PA	--	--	NA
208	062-027-018	PA	PA	--	--	NA
209	062-026-009	PA	PA	--	--	NA
210	062-026-008	PA	PA	--	--	NA
211	062-026-004	PA	PA	--	--	NA
212	062-026-007	PA	PA	--	--	NA
213	062-026-005	PA	PA	--	--	NA
214	**062-026-006**	**PA, R**	**PA, R**	**--**	**--**	**Residential (SFR & MH)**
215	062-014-003	PA	PA	--	--	NA
216	**062-026-001**	**FA, R**	**FA, R**	**--**	**--**	**Residential (SFR & MH)**
217	062-026-002	PA	PA	--	--	NA
218	062-014-004	PA	PA	--	--	NA
219	063-030-001	PA	PA	--	--	NA
220	062-014-003	PA	PA	--	--	NA
221	**062-014-002**	**FA, R**	**FA, R**	**--**	**--**	**Residential (SFR)**
222	062-014-015	PA	PA	--	--	NA
223	063-025-009	PA	PA	--	--	NA
224	063-026-007	PA	PA	--	--	NA
225	063-026-006	PA	PA	--	--	NA
226	063-026-005	PA	PA	--	--	NA
227	063-026-004	PA	PA	--	--	NA
228	063-025-010	PA	PA	--	--	NA
229	063-027-001	PA	PA	--	--	NA
230	**063-027-002**	**PA, R**	**PA, R**	**--**	**--**	**Residential (SFR)**
231	**063-027-008**	**PA, R**	**PA, R**	**--**	**--**	**Residential (SFR)**
232	063-027-009	PA	PA	--	--	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
233	**063-027-017**	**FA, R**	**FA, R**	**--**	**--**	**Residential (SFR)**
234	063-027-004	PA	PA	--	--	NA
235	**063-025-008**	**PA, R**	**PA, R**	**--**	**--**	**Residential (Mobile Home)**
236	063-027-018	PA	PA	--	--	NA
237	**063-027-029**	**PA, R**	**PA, R**	**--**	**--**	**Residential (SFR)**
238	063-027-033	PA	PA	--	--	NA
239	063-027-064	PA	PA	--	--	NA
240	063-027-062	PA	PA	--	--	NA
241	063-027-063	PA	PA	--	--	NA
242	063-027-007	PA	PA	--	--	NA
243	063-027-059	PA	PA	--	--	NA
244	063-028-009	PA	PA	--	--	NA
245	063-028-008	PA	PA	--	--	NA
246	063-028-021	PA	PA	--	--	NA
247	063-028-020	PA	PA	--	--	NA
248	063-028-019	PA	PA	--	--	NA
249	063-028-040	PA	PA	--	--	NA
250	063-028-039	PA	PA	--	--	NA
251	063-028-038	PA	PA	--	--	NA
252	063-028-037	PA	PA	--	--	NA
253	063-028-023	PA	PA	--	--	NA
254	063-028-004	PA	PA	--	--	NA
255	063-028-005	PA	PA	--	--	NA
256	064-031-026	PA	PA	--	--	NA
257	064-030-006	PA	PA	--	--	NA
258	064-031-027	PA	PA	--	--	NA
259	064-029-013	PA	PA	PA	--	NA
260	064-029-001	PA	--	PA	--	NA
261	**064-029-012**	**FA, R**	**--**	**--**	**--**	**Residential (SFR & MH)**
262	**064-029-011**	**PA, R**	**PA, R**	**PA, R**	**PA, R**	**Residential (SFR)**
263	064-028-013	PA	--	PA	--	NA
264	064-029-002	PA	PA	PA	--	NA
265	064-028-007	PA	--	PA	--	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
266	064-028-009	PA	--	PA	--	NA
267	064-028-008	PA	--	PA	--	NA
268	064-027-020	PA	--	PA	--	NA
269	064-027-008	PA	--	PA	--	NA
270	064-027-019	PA	--	PA	--	NA
271	**064-027-007**	**FA, R**	**--**	**FA, R**	**--**	**Residential (SFR)**
272	**064-027-006**	**FA, R**	**--**	**FA, R**	**--**	**Residential (SFR)**
273	064-027-014	PA	--	PA	--	NA
274	064-027-017	PA	--	PA	--	NA
275	064-027-005	PA	--	PA	--	NA
276	064-027-004	PA	--	PA	--	NA
277	064-027-003	PA	--	PA	--	NA
278	064-021-010	PA	--	PA	--	NA
279	**064-021-009**	**FA, R**	**--**	**PA, R**	**--**	**Residential (Mobile Home)**
280	**064-021-027**	**FA, R**	**--**	**FA, R**	**--**	**Residential (SFR)**
281	064-021-007	PA	--	PA	--	NA
282	**064-021-006**	**FA, R**	**--**	**FA, R**	**--**	**Residential (SFR)**
283	**064-021-005**	**FA, R**	**--**	**FA, R**	**--**	**Mixed (SFR & Farm)**
284	064-017-009	PA	--	PA	--	NA
285	**064-021-025**	**FA, R**	**--**	**FA, R**	**--**	**Residential (Mobile Home)**
286	**064-017-008**	**FA, R**	**--**	**FA, R**	**--**	**Mixed (SFR & Farm)**
287	**064-017-017**	**FA, R**	**--**	**FA, R**	**--**	**Mixed (Residential & Farm)**
288	064-021-026	PA	--	PA	--	NA
289	**064-021-029**	**PA, R**	**--**	**PA, R**	**--**	**Residential (Mobile Home)**
290	**064-021-028**	**PA, R**	**--**	**PA, R**	**--**	**Residential (Mobile Home)**
291	064-017-012	PA	--	PA	--	NA
292	064-017-013	PA	--	PA	--	NA
293	064-017-014	PA	--	PA	--	NA
294	010-014-016	PA	--	PA	--	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
295	**010-014-031**	**PA, R**	**--**	**PA, R**	**--**	**Residential (SFR)**
296	010-022-002	PA	--	PA	--	NA
297	**010-022-003**	**FA, R**	**--**	**FA, R**	**--**	**Residential (SFR)**
298	010-022-004	PA	--	PA	--	NA
299	010-022-012	PA	--	PA	--	NA
300	075-075-052	PA	PA	PA	PA	NA
301	075-025-006	PA	PA	PA	PA	NA
302	**064-029-015**	**--**	**FA, R**	**FA, R**	**--**	**Residential (SFR & MH)**
303	**064-029-014**	**--**	**FA, R**	**--**	**--**	**Mixed (Residential & Farm)**
304	064-029-009	--	PA	--	--	NA
305	062-029-014	--		PA	PA	NA
306	**064-029-017**	**--**	**PA, R**	**--**	**--**	**Residential (SFR)**
307	064-029-004	--	PA	--	--	NA
308	010-040-010	--	PA	--	--	NA
309	010-040-004	--	PA	--	--	NA
310	010-039-030	--	PA	--	--	NA
311	010-040-009	--	PA	--	--	NA
312	010-039-029	--	PA	--	--	NA
313	010-039-033	--	PA	--	--	NA
314	010-040-006	--	PA	--	--	NA
315	010-041-041	--	PA	--	--	NA
316	010-041-028	--	PA	--	--	NA
317	010-041-037	--	PA	--	--	NA
318	010-041-039	--	PA	--	--	NA
319	010-041-040	--	PA	--	--	NA
320	010-041-023	--	PA	--	--	NA
321	010-041-024	--	PA	--	--	NA
322	010-041-025	--	PA	--	--	NA
323	010-041-037	--	PA	--	--	NA
324	010-041-038	--	PA	--	--	NA
325	010-072-004	--	PA	--	--	NA
326	010-072-001	--	PA	--	--	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
327	010-072-003	--	PA	--	--	NA
328	010-072-003	--	PA	--	--	NA
329	010-072-002	--	PA	--	--	NA
330	010-015-061	--	PA	--	--	NA
331	010-015-071	--	PA	--	--	NA
332	010-015-067	--	PA	--	--	NA
333	010-008-052	--	PA	--	--	NA
334	010-008-053	--	PA	--	--	NA
335	010-011-067	--	PA	--	--	NA
336	010-011-068	--	PA	--	--	NA
337	010-011-033	--	PA	--	--	NA
338	010-011-038	--	PA	--	--	NA
339	**014-001-037**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**
340	**014-001-040**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
341	014-001-032	--	--	PA	PA	NA
342	014-001-016	--	--	PA	PA	NA
343	014-001-029	--	--	PA	PA	NA
344	**014-001-028**	**--**	**--**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
345	**014-001-025**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**
346	062-030-018	--	--	PA	PA	NA
347	046-006-007	PA	PA	PA	PA	NA
348	**014-001-024**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
349	**062-029-011**	PA	PA	**PA, R**	**PA, R**	**Residential (SFR)**
350	014-049-001	--	--	PA	PA	NA
351	062-029-008	--	--	PA	PA	NA
352	062-029-005	--	--	PA	PA	NA
353	014-049-002	--	--	PA	PA	NA
354	062-029-004	--	--	PA	PA	NA
355	014-049-003	--	--	PA	PA	NA
356	**062-028-001**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
357	**062-028-002**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
358	**062-028-003**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
359	**062-028-011**	**--**	**--**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
360	**062-028-010**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
361	**062-028-006**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
362	**062-028-007**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
363	**062-028-008**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR & Duplex)**
364	**062-029-013**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**
365	**062-027-004**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**
366	**062-027-015**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR & APT)**
367	**014-049-004**	**--**	**--**	**FA, R**	**FA, R**	**Mixed (SFR & Farm)**
368	**062-027-014**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
369	014-049-005	--	--	PA	PA	NA
370	062-027-013	--	--	PA	PA	NA
371	062-027-012	--	--	PA	PA	NA
372	**014-049-006**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR & MH)**
373	062-027-011	--	--	PA	PA	NA
374	**062-027-010**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR)**
375	062-027-017	--	--	PA	PA	NA
376	062-027-016	--	--	PA	PA	NA
377	062-027-008	--	--	PA	PA	NA
378	062-027-007	--	--	PA	PA	NA
379	062-027-006	--	--	PA	PA	NA
380	062-027-005	--	--	PA	PA	NA
381	063-030-001	--	--	PA	PA	NA
382	**014-005-001**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**
383	**014-005-012**	**--**	**--**	**FA, R**	**FA, R**	**Residential (SFR & MH)**
384	**014-005-011**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
385	014-005-003	--	--	PA	PA	NA
386	014-002-017	--	--	PA	PA	NA
387	014-002-016	--	--	PA	PA	NA
388	014-002-013	--	--	PA	PA	NA
389	**063-029-019**	**--**	**--**	**PA, R**	**PA, R**	**Residential (SFR)**
390	063-029-070	--	--	PA	PA	NA
391	063-029-024	--	--	PA	PA	NA
392	014-002-014	--	--	PA	PA	NA
393	063-029-035	--	--	PA	PA	NA
394	063-029-065	--	--	PA	PA	NA
395	063-029-069	--	--	PA	PA	NA
396	014-002-003	--	--	PA	PA	NA
397	063-029-068	--	--	PA	PA	NA
398	063-029-067	--	--	PA	PA	NA
399	063-029-066	--	--	PA	PA	NA
400	063-029-063	--	--	PA	PA	NA
401	063-029-062	--	--	PA	PA	NA
402	063-029-058	--	--	PA	PA	NA
403	063-029-008	--	--	PA	PA	NA
404	063-029-051	--	--	PA	PA	NA
405	063-029-050	--	--	PA	PA	NA
406	063-029-049	--	--	FA	FA	NA
407	063-029-010	--	--	PA	PA	NA
408	**063-029-012**	**--**	**--**	**FA, R**	**FA, R**	**Farm**
409	063-029-056	--	--	PA	PA	NA
410	063-029-057	--	--	PA	PA	NA
411	063-028-005	--	--	PA	PA	NA
412	064-031-029	--	--	PA	PA	NA
413	064-032-006	--	--	PA	--	NA
414	064-032-051	--	--	PA	--	NA
415	064-032-007	--	--	PA	--	NA
416	064-031-021	--	--	PA	PA	NA
417	010-040-002	--	--	--	PA	NA
418	064-031-028	--	--	PA	PA	NA

ID#	APN	Full Acquisition (FA), Partial Acquisition (PA), Relocation (R)				Type of Relocation
		Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	
419	064-031-019	--	--	PA	PA	NA
420	064-031-016	--	PA	PA	PA	NA
421	064-031-022	--	--	PA	PA	NA
422	064-031-023	--	PA	PA	PA	NA
423	064-031-017	--	PA	PA	--	NA
424	064-031-018	--	PA	PA	--	NA
425	064-031-015	--	PA	PA	--	NA
426	064-031-005	--	PA	PA	PA	NA
427	064-031-031	--	PA	PA	--	NA
428	064-031-001	--	--	PA	--	NA
429	064-029-007	--	--	PA	--	NA
430	064-031-032	--	--	--	PA	NA
431	064-031-024	--	--	--	PA	NA
432	010-016-013	--	--	--	PA	NA
433	010-016-016	--	--	--	PA	NA
434	010-016-002	--	--	--	PA	NA
435	010-016-003	--	--	--	PA	NA
436	010-016-022	--	--	--	PA	NA
437	010-016-018	--	--	--	PA	NA
438	010-016-023	--	--	--	PA	NA
439	010-016-020	--	--	--	PA	NA
440	**010-016-019**	**--**	**--**	**--**	**FA, R**	**Mixed (SFR & Farm)**
441	010-016-005	--	--	--	PA	NA
442	010-016-006	--	--	--	PA	NA
443	010-073-021	--	--	--	PA	NA
444	074-016-021	PA	PA	PA	PA	NA
445	074-014-014	PA	PA	PA	PA	NA
446	**046-001-013**	**FA, R**	**FA, R**	**FA, R**	**FA, R**	**Cell Tower**

No-Build Alternative

Under the No-Build Alternative, there would be no partial or full property acquisitions. No residents or businesses will require relocation advisory assistance.

Avoidance, Minimization and/or Mitigation Measures

See Appendix E for a summary of the Relocation Benefits and Relocation Impact Memorandum. The following standard condition and mitigation measure would apply to all Build Alternatives.

Measure RLC-1: Caltrans shall comply with the Uniform Relocation Assistance Real Property Acquisition Policies Act of 1970, as amended in 1987. Caltrans shall provide relocation advisory assistance to any person, business, farm, or nonprofit organization relocated as a result of the projects acquisition of real property for public use.

A Summary of Relocation Benefits is provided in Appendix E.

3.1.4.3 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2014, this was $23,850 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is demonstrated by its Title VI policy statement, signed by the Caltrans Director; the statement is provided in Appendix D of this document.

Affected Environment

Environmental justice was analyzed as part of the *Community Impact Assessment* for the North County Corridor (February 2016). The assessment evaluated impacts to people, institutions, neighborhoods, organizations, and larger social and economic systems.

Environmental justice is designed to protect areas with low-income and minority populations from disproportionate project impacts. To analyze the project and alternatives for possible environmental justice inequities, one must identify areas that are sensitive to environmental justice issues; areas where low-income or minority persons are concentrated are identified using the following criteria:

- **Minority individuals** are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black; or Hispanic.

- **Minority populations** should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

- **Low-income populations** in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies

may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

The percentage of Hispanic population is greater than 50 percent in census tract 3.03, 3.04 (both in Riverbank). Therefore, for the purpose of identifying environmental justice concerns, a minority population, as defined by the guidance, exists in the project area.

Table 3.1.4.3-1: Total Minority and Hispanic Population

Jurisdiction	Total Minority (Non-Hispanic) (%)	Hispanic (%)
County		
Stanislaus County	34.42	41.92
Affected Communities		
City of Modesto	34.04	35.48
City of Oakdale	19.91	26.11
City of Riverbank	34.07	52.13
Project Area Census Tracts		
Census Tract1.02 (Unincorporated)	13.25	18.45
Census Tract 2.02 (Oakdale)	23.21	29.91
Census Tract 2.03 (Oakdale)	21.83	27.68
Census Tract 3.03 (Riverbank)	**30.49**	**53.85**
Census Tract 3.04 (Riverbank)	**43.34**	**72.82**
Census Tract 4.02 (Unincorporated/Modesto)	28.38	33.96
Census Tract 4.03 (Modesto)	19.75	21.75
Census Tract 4.04 (Modesto)	28.42	23.96
Census Tract 5.01 (Unincorporated)	31.88	30.03
Census Tract 5.05 (Modesto)	39.79	30.26
Census Tract 5.06 (Modesto)	28.11	28.45
Census Tract 28.02 (Unincorporated)	26.68	37.78

Source: Community Impact Assessment, 2016

Low-income Populations

Table 3.1.4.3-2 summarizes the estimated proportion of individuals living below the property threshold for census tracts within the project area in 2009. According to U.S. Census data, 19.9 percent of the population in Stanislaus County lived below the poverty threshold. The proportion of people living in poverty ranges from 2.97 percent (census tract 1.02, unincorporated) to 26.16 percent (census tract 28.02, unincorporated). No census tract contains a low-income population that exceeds 50 percent or twice that of the municipality as a whole; therefore, census tracts in the project area do not have meaningfully greater proportion of low-income populations than does the general population of the county, so there is no potential environmental justice concern with regard to those populations.

Table 3.1.4.3-2: Percentage of Population in Poverty

Jurisdiction	% Population in Poverty
County	
Stanislaus County	19.9
Affected Communities	
City of Modesto	20.39
City of Oakdale	9.43
City of Riverbank	14.86
Project Area Census Tracts	
Census Tract1.02 (Unincorporated)	13.25
Census Tract 2.02 (Oakdale)	23.21
Census Tract 2.03 (Oakdale)	21.83
Census Tract 3.03 (Riverbank)	30.49
Census Tract 3.04 (Riverbank)	43.34
Census Tract 4.02 (Unincorporated/Modesto)	28.38
Census Tract 4.03 (Modesto)	19.75
Census Tract 4.04 (Modesto)	28.42
Census Tract 5.01 (Unincorporated)	31.88
Census Tract 5.05 (Modesto)	39.79
Census Tract 5.06 (Modesto)	28.11
Census Tract 28.02 (Unincorporated)	26.68

Source: Community Impact Assessment, 2016

Environmental Consequences

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

The Council on Environmental Quality guidelines do not define an “affected area” for environmental justice purposes, but the U.S. Environmental Protection Agency (EPA) indicates that the “affected area” is “that area which the proposed project will or may have an effect on” (EPA 1998a). In this case, it is interpreted to mean the study area as a whole or a component thereof, such as an individual census tract.

As discussed above, 10 of the 12 contiguous census tracts do not contain a meaningfully greater proportion of minority or low-income populations, so they would not be of potential environmental justice concern. Census tracts 3.03 and 3.04, however, each contains Hispanic populations (considered a minority) that are “meaningfully greater” than those of the region as a whole.

All Build Alternatives border census tracts 3.03 and 3.04 at their southern boundary, and land use within the Primary Impact Area in these two census tracts includes industrial, business park, and rural residential. Proposed changes along census tracts 3.03 and 3.04 consist of widening

the existing Claribel Road and constructing new frontage roads. Under all project alternatives, four parcels in census tract 3.03 and 11 parcels in census tract 3.04 are subject to partial or full acquisition because they are located partially or fully within the proposed right-of-way.

Acquisitions in these two census tracts would require the relocation of residents in one house and the removal of structures in three industrial developments. According to census data, approximately 6,811 Hispanic individuals reside in census tracts 3.03 and 3.04 combined.

Because the project proposes to widen the existing right-of-way and construct new roadways throughout its limits, right-of-way acquisition will occur along the entire project corridor. As discussed in Section 3.1.4.2, Relocations, depending on the alternative chosen, the project would result in a total of 356 to 376 partial or full acquisitions throughout the corridor. The linear footage of proposed roadway in census tracts 3.03 and 3.04 consists of approximately 4 percent of the project roadway footage, and acquisition in census tracts 3.03 and 3.04 represents less than 4 percent of the total project acquisition. The amount of acquisition is not considered a disproportionally greater amount than acquisition in other areas, and therefore would not be of environmental justice concern. In addition, relocation assistance will be provided to individuals, families, and businesses that need to be relocated in census tracts 3.03 and 3.04, and all other affected census tracts without discrimination.

According to the Noise Study Report (July 2015), operation of the project may result in increased noise levels in many locations along the project. Receptors in census tracts 3.03 and 3.04 would experience either no increases in noise levels or increased noise levels that still remain below the noise abatement standard, 67 dBA. Because all four Build Alternatives of the project share the same alignment and design where the North County Corridor passes census tracts 3.03 and 3.04, selection of a Build Alternative would not result in differing levels of impacts.

Based on the above discussion and analysis, Alternatives 1A, 1B, 2A and 2B would not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 concerning environmental justice once the project is operational.

Temporary Construction Impacts

During construction, residents within the Primary Impact Area may experience temporary disruption to traffic due to lane restrictions, lane closures, temporary detours, increased noise levels, and decreased air and visual quality. Such construction-related impacts would occur at all construction sites at similar levels along the entire project corridor.

Based on the above discussion and analysis, Alternatives 1A, 1B, 2A and 2B would not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 concerning environmental justice during construction of the project.

No-Build Alternative

Under the No-Build Alternative conditions, no impacts would occur to any persons or communities along the North County Corridor.

Avoidance, Minimization and/or Mitigation Measures

Based on the above discussion and analysis, Alternatives 1A, 1B, 2A and 2B would not cause disproportionately high and adverse effects on any minority or low-income populations pursuant to Executive Order 12898 concerning environmental justice. Therefore, no avoidance, minimization, or mitigation measures are required.

3.1.5 Utilities and Emergency Services

Affected Environment

Utilities and emergency services have been analyzed as part of the *Community Impact Assessment* (February 2016) for the North County Corridor project.

Utilities

Various utilities exist in the project area, including sewer, water, overhead and underground electrical, overhead and underground telephone and communications, storm drains, irrigation canals, street lighting and signal equipment. The following existing utilities have been identified within the project area:

- Electric (overhead and underground) – PG&E
- Electric (Hetch-Hetchy overhead) – San Francisco Public Utilities Commission
- Electric – Modesto Irrigation District
- Electric – Turlock Irrigation District (TID)
- Gas – PG&E
- Telephone (overhead and underground) – AT&T
- Communications (overhead and underground) – Various
- Water (Hetch-Hetchy) - San Francisco Public Utilities Commission
- Water – City of Modesto
- Water – City of Riverbank
- Sanitary Sewer – City of Modesto
- Sanitary Sewer – City of Riverbank
- Irrigation – Modesto Irrigation District
- Irrigation – Oakdale Irrigation District

Emergency Services

The Stanislaus County Sheriff's Department provides law enforcement services for the unincorporated area of Stanislaus County, and is located at 250 E. Hackett Road, Modesto, CA 95358. The City of Riverbank is also served by a division of the county's police force, and is located at 6727 Third Street, Riverbank, CA 95367. Law enforcement service in the City of Modesto is provided by the Modesto Police Department, located at 600 10th Street, Modesto, CA 95354. The City of Oakdale is served by its own Oakdale Police Department, located at 245 N 2nd Ave, Oakdale, CA 95361. Eight law enforcement departments and offices exist in the Secondary Impact Area. A law enforcement facility is located within the project area. These police services provide law enforcement, security, crime prevention, and intervention for the region, including the project area.

Fire protection services in the unincorporated area of Stanislaus County and the City of Riverbank are provided by the Stanislaus Consolidated Fire District, located at 3324 Topeka Street Riverbank, CA 95367. Stanislaus Consolidated Fire also works with the Modesto Regional Fire Authority and the Oakdale City Fire Department to provide fire protection services to these two cities. There are 18 fire departments and stations in the Secondary Impact Area. No fire station is located within the project area; however, there are 18 fire departments and stations in the Secondary Impact Area, which provide fire protection and emergency medical services for the region, including the project area. The Fire District also has a swift water rescue team, a technical and heavy rescue team, and a hazardous materials team. The fire departments within the region provide basic life support services to the public. All fire suppression personnel are trained in emergency medical technician/defibrillation and combi-tube level airway management. Additional advanced life support training has been given to select firefighters. Those firefighters/paramedics are authorized to provide advanced life support in specific rescue-related situations.

One medical service facility, American Medical Response, located at 4846 Stratos Way, Modesto, CA 95356, is partially within the project area. As of 2005, the average response time for 80 percent of the emergency calls was 5 minutes within Stanislaus County.

About nine additional emergency service facilities are within the Secondary Impact Area. These facilities are not directly next to the proposed roadway, and may only experience minor disruption to circulation during construction of the project. Several other hospitals, medical centers, and surgical facilities outside the study area in the cities of Modesto, Riverbank, and Oakdale may provide medical services for residents in the study area.

Environmental Consequences

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

Alternatives 1A, 1B, 2A, and 2B are discussed together below.

Utilities

Responsibility for relocation of existing utilities that are within the state and city right-of-way would follow state and federal regulations and statutes. All Build Alternatives would require relocation of existing utilities, but relocation of the Hetch-Hetchy electric transmission lines, Hetch-Hetchy underground pipelines and main canals would not be required.

All utilities, including irrigation systems, would continue to be fully functional after construction of the project. Although construction of the project would not cause major outage of utilities, minor and temporary utility outages may occur during construction. All utility information within this report will be verified with each corresponding utility agency during the final design phase.

Emergency Services

Construction activities under all Build Alternatives may cause temporary lane restrictions, lane closures, or detours. Also, local roads may experience higher than normal traffic volumes as a result of disruptions on major roads and arterials. Such disruption to traffic could increase response time of mobile emergency services within the study area. However, no impact would occur to emergency services facilities, nor would there be any long-term impacts. Coordination

of emergency services vehicles will be included in the Traffic Management Plan to minimize any potential impact.

Temporary Construction Impacts

During construction, access to the American Medical Response facility in Modesto may be temporarily modified as Kiernan Avenue will be closed to traffic from Stratos Way. Additional temporary construction impacts may include elevated noise levels and impaired air quality. No partial or full acquisitions would be required from this parcel. After construction, motorists would be able to access this property through frontage road from the north and Galaxy Way from the south.

No-Build Alternative

Under the No-Build Alternative conditions, no impacts would occur on any existing utilities or medical facilities.

Under the No-Build Alternative conditions, traffic congestion on the existing SR-108 would continue to worsen due to the projected traffic volume increases, thereby lengthening the response time of mobile emergency services within the study area.

Avoidance, Minimization and/or Mitigation Measures

To minimize traffic disruption, Caltrans, after consulting with local agencies including fire and law enforcement, would implement a Traffic Management Plan for the construction phase to be utilized throughout the duration of construction activities. The plan would be made available to the public and to each jurisdiction within the study area. The plan would be designed to minimize project-related traffic problems by adopting traditional traffic management strategies to include an innovative combination of public and motorist information, demand management, incident management, system management, alternate route strategies, and construction strategies. Coordination of emergency services will be included in the Traffic Management Plan.

The Traffic Management Plan would also include detour signage, public transportation information, construction timing, and other useful construction information for residents and motorists. Additionally, the plan would also include coordination and routing of school buses and emergency vehicles during construction. Further discussion of the Traffic Management Plan is provided in Section 3.1.6.

To minimize disruption, relocation of utilities would occur before project construction. Utility outages will be scheduled to occur during hours that would cause minimal impacts to the users. Unavoidable temporary disruptions to utility services would be approved by appropriate utility and public agencies. A schedule of utility outages will be released to the general public through the project media campaign and/or other means of communication.

Measure UTL/ES-1: To minimize interruptions of service to utility customers, a series of coordination letters shall be sent to all impacted utility companies to identify utilities within the proposed project. Letters will indicate where utility relocations are to be performed and the required time to relocate them. Design plans will be sent to involved utility companies during the project development phase. Meetings with utility companies will be arranged as necessary to discuss impacts and relocation plans.

Measure UTL/ES-2: Emergency services, local law enforcement agencies, and local businesses will be notified of the proposed project prior to the start of construction. Notification of specific lane closures shall be provided by the contractor 48 hours before the closure occurs.

3.1.6 Traffic and Transportation/Pedestrian and Bicycle

Regulatory Setting

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 U.S. Code 794). The Federal Highway Administration has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the Americans with Disabilities Act requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

This section summarizes the *Traffic Operations Report for the North County Corridor New State Route* (May, 2015). This discussion includes public transportation, sidewalks or trails, bike paths or lanes, circulation and parking, access, and choice of travel modes. Traffic impacts in this section are discussed to the extent that changes to circulation and/or access will result in permanent or temporary (construction-related) impacts to the community, including residents, businesses, pedestrians, and bicyclists.

The North County Corridor New SR-108 Project has been identified as an improvement measure to accommodate regional east-west traffic and to improve north-south network connectivity in northern Stanislaus and southern San Joaquin counties. For the purposes of Section 3.1.6 “corridor” refers to the transportation network in the larger area. Traffic through the corridor is a combination of commuter, local, commerce, and goods movement, with a large component of recreational traffic. This traffic currently conflicts with local traffic on the existing facilities, creating congestion and safety concerns, as well as noise and air pollution issues. These conditions are expected to worsen over time as development continues and traffic volumes increase within the corridor. Major transportation facilities and their classifications are shown in Figure 3.1.6-1, in Appendix A.

Traffic circulation goals and objectives for Stanislaus County and the three cities are described in the mobility or circulation section of each jurisdiction’s respective general plan. The General Plan of Stanislaus County (1994) states that “roughly one-fifth of the workers living in Stanislaus County commute to jobs outside the County each day, and the expansion of population and economic base also requires more efficient good movement. An efficient, integrated transportation system is essential to maintaining the quality of life and facilitating the economic

growth of Stanislaus County." Goods movement includes transporting agricultural goods and food-processing production in and out of the area. Over 90 interstate truck lines and 100 contract carriers operate in the Stanislaus region. The key issues within the project area are traffic congestion and operational conflicts between trucks and passenger vehicles.

Access, Circulation, and Parking

Access and Circulation

The project area is generally bounded by SR-108/SR-120 to the north, Pelandale Avenue/ Claratina Avenue to the south, Carver Road to the west and Maag Avenue to the east. The project area covers portions of four jurisdictions, including Stanislaus County and the cities of Modesto, Riverbank, and Oakdale. The existing roadway network in the project area includes state highways, arterials, collectors, and local streets. Figure 3.1.6-1, in Appendix A outlines the existing major transportation facilities.

Traffic operation analysis results are expressed by a descriptive term known as level of service (LOS). LOS is a measure of traffic operating conditions, which varies from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed design capacity resulting in long queues and delays). The LOS is determined differently depending on the type of control at the intersection. Freeway, multilane highway, and urban street facility operations are also described in terms of LOS (see Figures 1.2.2-7 and 1.2.2-8, in Appendix A, for illustrations of LOS). The service level for a freeway section and multilane highway is based on vehicle density expressed as passenger/ cars/lane/mile, and the service level for urban streets is based on average through-vehicle speed for each roadway segment, which is influenced both by the number of signals per mile and by the intersection control delay. LOS standards on Caltrans facilities are based on the Transportation Concept Report for each facility, or applied by jurisdiction.

The traffic analysis looked at 23 intersections in the study area. Table 3.1.6-1 shows the results for peak hour traffic.

Table 3.1.6-1: Existing (2014) Hour Signal Warrant Analysis

Intersection	Traffic Control[1]	Peak Hour	Delay (seconds/ vehicle)[2,3]	LOS [2,3]	Jurisdiction
1. Kiernan Avenue (SR-219)/Carver Road	AWSC	AM	82.7	**F**	Caltrans
		PM	22.3	C	
2. Kiernan Avenue (SR-219)/Tully Road	AWSC	AM	28.4	D	Caltrans
		PM	56.6	**F**	
3. McHenry Avenue/Ladd Road	Signal	AM	24.2	C	Stanislaus County
		PM	28.6	C	
4. McHenry Avenue/SR-108	Signal	AM	10.6	B	Caltrans
		PM	7.7	A	
5. SR-108/Patterson Road	Signal	AM	7.4	A	Caltrans
		PM	9.7	A	
6. SR-108/Kiernan Avenue	Signal	AM	28.5	C	Caltrans
		PM	31.8	C	
7. SR-108/Pelandale Avenue	Signal	AM	28.1	C	Caltrans
		PM	38.2	D	
8. Coffee Road/Claribel Road	AWSC	AM	80.4	**F**	Stanislaus County
		PM	87.0	**F**	

Intersection	Traffic Control[1]	Peak Hour	Delay (seconds/ vehicle)[2,3]	LOS [2,3]	Jurisdiction
9. Coffee Road/Claratina Avenue	Round-about	AM	57.4	**F**	City of Modesto
		PM	53.0	**F**	
10. Oakdale Road/SR-108	Signal	AM	31.7	C	Caltrans
		PM	54.0	D	
11. Oakdale Road/Claribel Road	Signal	AM	33.3	C	City of Riverbank
		PM	38.8	D	
12. Oakdale Road/Claratina Avenue	SSSC	AM	10 (13.5)	A (B)	City of Modesto
		PM	11.5 (34.4)	B (D)	
13. SR-108/1st Street	Signal	AM	37.3	D	Caltrans
		PM	65.8	**E**	
14. Claribel Road/Roselle Avenue	AWSC	AM	52.5	**F**	City of Riverbank/ Stanislaus County
		PM	83.8	**F**	
15. SR-108/Claus Road	SSSC	AM	4.5 (10.1)	A (B)	Caltrans
		PM	6.8 (17.5)	A (B)	
16. Claribel Road/Claus Road	Signal	AM	17.9	B	City of Riverbank
		PM	21.1	C	
17. Patterson Road/Crane Road	SSSC	AM	2.6 (4)	A (A)	Stanislaus County
		PM	2.9 (3.3)	A (A)	
18. Claribel Road/Bentley Road	SSSC	AM	1.9 (7.6)	A (A)	Stanislaus County
		PM	1.5 (7.8)	A (A)	
19. SR-108/Oak Avenue	Signal	AM	19.8	B	Caltrans
		PM	20.0	B	
20. SR-108/SR-120	Signal	AM	39.1	D	Caltrans
		PM	43.3	D	
21. SR-108/Maag Avenue	Signal	AM	23.2	C	Caltrans
		PM	23.4	C	
22. Patterson Road/Albers Road	Signal	AM	18.5	B	Stanislaus County
		PM	20.6	C	
23. Claribel Road/Albers Road	Signal	AM	16.2	B	Stanislaus County
		PM	11.2	B	

Notes: Results in bold represent unacceptable levels of service as determined by the applicable LOS standards of the relevant jurisdiction. Results based on SimTraffic simulation of 10 runs.
1. Signal = signalized intersection, SSSC = side street stop controlled intersection, AWSC = all-way stop-controlled intersection, Roundabout = roundabout controlled intersection, AM = Morning, PM = Evening
2. Signalized and all-way stop intersection level of service based on weighted average control delay per vehicle, according to the 2010 Highway Capacity Manual.
3. Side-street stop intersection level of service based on weighted average control delay per vehicle and worst approach control delay per vehicle, according to the 2000 Highway Capacity Manual in the notation: average (worst approach).
Source: Traffic Operations Report for the North County Corridor, 2015

All 23 existing study intersections currently operate at acceptable service levels during the morning and evening peak hours, except the following locations:

- Kiernan Avenue (SR-219)/Carver Road operates at LOS F during the morning peak hour
- Kiernan Avenue (SR-219)/Tully Road operates at LOS F during the evening peak hour
- Coffee Road/Claribel Road operates at LOS F during the morning and evening peak hours
- Coffee Road/Claratina Avenue operates at LOS F during the morning and evening peak hours

- SR-108/1st Street operates at LOS E during the evening peak hour
- Claribel Road/Roselle Avenue operates at LOS F during the morning and evening peak hours

Additionally, the eight unsignalized intersections were analyzed to see if traffic signals are warranted based on available data and guidelines designed to determine the need for a stop-and-go traffic signal. Only the Patterson Road/Crane Road and Claribel Road/Bentley Road intersections do not meet the requirements to warrant a traffic signal.

Urban streets and two-lane highways within the project area were analyzed using the appropriate urban street and two-lane highway LOS methodologies. See Table 3.1.6-2 and Table 3.1.6-3. All urban street study segments operate at LOS C or better during morning and evening peak hours, meeting the applicable LOS standards within their respected jurisdiction. However, except for the segment of SR-108/SR-120 between Wamble Road and Lancaster Road, all two-lane highway study segments operate at unacceptable service levels.

Table 3.1.6-2: Existing (2014) Urban Street LOS

Segment	Direction	Morning Peak Hour LOS	Evening Peak Hour LOS
3. SR-108 between Ladd Road and Kiernan Avenue	NB	B	B
	SB	B	C
4. SR-108 between Kiernan Avenue and Pelandale Avenue	NB	B	C
	SB	B	C
14. SR-108 between Oakdale Road and 1st Street	NB	B	B
	SB	C	A
28. SR-108 between Oak Avenue and SR-120	NB	B	B
	SB	B	B
32. SR-108/SR-120 between Yosemite Avenue and Maag Avenue	NB	B	B
	SB	C	C

Source: Traffic Operations Report for the North County Corridor, 2015

Table 3.1.6-3: Existing (2014) Two-Lane Highway LOS

Segment	Morning Peak Hour LOS	Evening Peak Hour LOS
4. SR-108 between McHenry Avenue and Oakdale Road	**E**	**E**
21. SR-108 between Claus Road and Crane Road	**E**	**E**
24. SR-108 between Crane Road and Oak Avenue	**E**	**E**
32. SR-108/SR-120 between Maag Avenue and Wamble Road	**E**	**E**
33. SR-108/SR-120 between Wamble Road and Lancaster Road	C	C

Notes: Results in **bold** represent unacceptable levels of service as determined by the applicable LOS standards of the relevant jurisdictions.

Source: Traffic Operations Report for the North County Corridor, 2015

Peak hour roadway volumes were compared to hourly roadway segment capacities to determine the level of service at 23 study segments. The results are shown in Figure 3.1.6-2 and Figure 3.1.6-3, in Appendix A. As shown in the figures, the following roadway segments do not meet the LOS standards of the jurisdictions and agencies that control them:

- SR-219 between Tully Road and McHenry Avenue operates at LOS E during the evening peak hour
- Oakdale Road between Claribel Road and Claratina Avenue operates at LOS E during the evening peak hour
- Claribel Road between SR-108 and Oakdale Road operates at LOS D during the morning and evening peak hours
- Claratina Avenue between McHenry Avenue and Coffee Road operates at LOS E during the morning and evening peak hours
- SR-108 between 1st Street and Claus Road operates at LOS E during the evening peak hour
- Patterson Road between SR-108 and Langworth Road operates at LOS D during the morning and evening peak hours
- Claus Road between Patterson Road and Claribel Road operates at LOS D during the evening peak hour
- Claus Road between Claribel Road and Sylvan Avenue operates at LOS D during the morning and evening peak hours
- Claribel Road between Oakdale Road and Claus Road operates at LOS D during the morning peak hour and at LOS E during the evening peak hour
- Yosemite Avenue between SR-108 and Patterson Road operates at LOS E during the morning and evening peak hour
- Albers Road between Patterson Road and Claribel Road operates at LOS D during the morning and evening peak hour

Existing (2014) intersection traffic operations were evaluated using the calibrated/validated SimTraffic models developed for the 23 study intersections. The simulation models were recorded for the peak hour with a 10-minute seeding period, which allows the model to fully populate the road network in order to accurately estimate peak hour traffic. Table 3.1.6-4 presents the simulated intersection level of service results for each of the study intersections. As shown in Table 3.1.6-4, all study intersections operate at acceptable service levels during the AM and PM peak hours, except the following six locations:

- Kiernan Avenue (SR-219)/Carver Road operates at LOS F during the AM peak Hour
- Kiernan Avenue (SR-219)/Tully Road operates at LOS F during the PM peak hour
- Coffee Road/Claribel Road operates at LOS F during the AM and PM peak hours
- Coffee Road/Claratina Avenue operates at LOS F during the AM and PM peak hours
- SR-108/1st Street operates at LOS E during the PM peak hour
- Claribel Road/Roselle Avenue operates at LOS F during the AM and PM peak hours

Intersection queues were also evaluated with the calibrated/validated SimTraffic models. Queues exceed available storage lengths at the following locations:

- Kiernan Avenue/Carver Road during the AM and PM peak hours
- McHenry Avenue/Ladd Road during the AM peak hour
- SR-108/Kiernan Avenue (SR-219) during the AM and PM peak hours
- SR-108/Pelandale Avenue during the AM and PM peak hours
- SR-108/Oakdale Road during the AM peak hour
- SR-108/1st Street during the AM and PM peak hours
- SR-108/Oak Avenue during the AM peak hour
- SR-108/SR-120 during the AM and PM peak hours
- SR-108/Maag Avenue during the AM and PM peak hours

Table 3.1.6-4: Existing (2014) Peak Hour Intersection Analysis

Intersection	Traffic Control[1]	Peak Hour	Delay (seconds/ vehicle)[2,3]	LOS[2,3]	Jurisdiction
1. Kiernan Avenue (SR-219)/ Carver Road	AWSC	AM	**82.7**	**F**	Caltrans
		PM	22.3	C	
2. Kiernan Avenue (SR-219)/ Tully Road	AWSC	AM	28.4	D	Caltrans
		PM	**56.6**	**F**	
3. McHenry Avenue/Ladd Road	Signal	AM	24.2	C	Stanislaus County
		PM	28.6	C	
4. McHenry Avenue/SR-108	Signal	AM	10.6	B	Caltrans
		PM	7.7	A	
5. SR-108/Patterson Road	Signal	AM	7.4	A	Caltrans
		PM	9.7	A	
6. SR-108/Kiernan Avenue	Signal	AM	28.5	C	Caltrans
		PM	31.8	C	
7. SR-108/Pelandale Avenue	Signal	AM	28.1	C	Caltrans
		PM	38.2	D	
8. Coffee Road/Claribel Road	AWSC	AM	**80.4**	**F**	Stanislaus County
		PM	**87.0**	**F**	
9. Coffee Road/Claratina Avenue	Round-about	AM	**57.4**	**F**	City of Modesto
		PM	**53.0**	**F**	
10. Oakdale Road/SR-108	Signal	AM	31.7	C	Caltrans
		PM	54.0	D	
11. Oakdale Road/Claribel Road	Signal	AM	33.3	C	City of Riverbank
		PM	38.8	D	
12. Oakdale Road/Claratina Avenue	SSSC	AM	10 (13.5)	A (B)	City of Modesto
		PM	11.5 (34.4)	B (D)	
13. SR-108/1st Street	Signal	AM	37.3	D	Caltrans
		PM	65.8	**E**	
14. Claribel Road/Roselle Avenue	AWSC	AM	**52.5**	**F**	City of Riverbank/ Stanislaus County
		PM	**83.8**	**F**	
15. SR-108/Claus Road	SSSC	AM	4.5 (10.1)	A (B)	Caltrans
		PM	6.8 (17.5)	A (B)	
16. Claribel Road/Claus Road	Signal	AM	17.9	B	City of Riverbank
		PM	21.1	C	
17. Patterson Road/Crane Road	SSSC	AM	2.6 (4)	A (A)	Stanislaus County
		PM	2.9 (3.3)	A (A)	
18. Claribel Road/Bentley Road	SSSC	AM	1.9 (7.6)	A (A)	Stanislaus County
		PM	1.5 (7.8)	A (A)	
19. SR-108/Oak Avenue	Signal	AM	19.8	B	Caltrans
		PM	20.0	B	
20. SR-108/SR-120	Signal	AM	39.1	D	Caltrans
		PM	43.3	D	
21. SR-108/Maag Avenue	Signal	AM	23.2	C	Caltrans
		PM	23.4	C	
22. Patterson Road/Albers Road	Signal	AM	18.5	B	Stanislaus County
		PM	20.6	C	
23. Claribel Road/Albers Road	Signal	AM	16.2	B	Stanislaus County
		PM	11.2	B	

Intersection	Traffic Control[1]	Peak Hour	Delay (seconds/ vehicle)[2,3]	LOS[2,3]	Jurisdiction
Notes: Results in bold represent unacceptable levels of service as determined by the applicable LOS standards of the relevant jurisdiction. Results based on SimTraffic simulation of 10 runs. 1. Signal = signalized intersection, SSSC = side street stop controlled intersection, AWSC = all-way stop-controlled intersection, Roundabout = roundabout controlled intersection 2. Signalized and all-way stop intersection level of service based on weighted average control delay per vehicle, according to the 2010 Highway Capacity Manual. 3. Side-street stop intersection level of service based on weighted average control delay per vehicle and worst approach control delay per vehicle, according to the 2000 Highway Capacity Manual in the notation: average (worst approach). Source: Fehr & Peers, 2015					

The rate for accidents resulting in fatalities or injuries along the study segments of the existing SR-108, SR-120 and SR-219 were higher than the statewide average for similar facilities (Traffic Operations Report for the North County Corridor, 2015), as shown in Table 3.1.6-5.

Table 3.1.6-5 Accident Rate Comparison

Facility	Number of Accidents			Accident Rate (accidents per million vehicle miles)					
				Actual			State Average		
	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
SR-108 between McHenry Avenue (PM 24.618) and Yosemite Avenue (PM 38.236)	381	5	163	**0.023**	**0.76**	**1.78**	0.017	0.51	1.26
SR-108/SR-120 between Yosemite Avenue (PM 5.116) and Lancaster Road (PM 10.9)	183	1	76	0.009	**0.66**	**1.58**	0.016	0.42	0.97
SR-219 between SR-99 (PM 0.116) and SR-108 (PM 4.858)	170	0	61	0.00	**0.56**	**1.56**	0.012	0.47	1.15
SR-108 between SR-99 (PM 22.438) and SR-219 (PM 27.610)	441	4	267	**0.025**	**1.66**	**2.73**	0.010	0.91	1.71

Note: Shading and bold denotes locations that exceed the statewide average for similar facilities.
Source: Caltrans District 10 TASAS data between January 1, 2009 and December 31, 2011.

Bicycle and Pedestrian Corridors

A brief description of bicycle facility types is presented below.

- Class I Bikeway (Bicycle Path) – Provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized.
- Class II Bikeway (Bicycle Lane) – Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian cross-flow are permitted.
- Class III (Bicycle Route) – Provides for a right-of-way designated by signs and/or pavement markings for shared use with pedestrians or motor vehicles.

Currently, limited bicycle facilities are provided within the project area. No bicycle facilities exist in the unincorporated areas of the county. The rural nature of the unincorporated area roadways generally requires that bicycles share the roadways with motor vehicles. Within city limits, Class II bike lanes and Class III bike routes are provided along sections of existing roadway; however, gaps in the existing bicycle network make it difficult to travel east-west or north-south through the area. Several bicycle facilities are planned throughout the county and within the project area. Figure 3.1.6-4, in Appendix A, shows the existing and planned bicycle facilities in the area.

Pedestrian facilities, such as sidewalks, crosswalks, and pedestrian signals, exist in the developed areas of Modesto, Riverbank and Oakdale; however, most roadways in the unincorporated areas of the county do not have pedestrian facilities. Currently, no pedestrian paths are provided within the project area.

Americans with Disabilities Act

Several locations within the existing facilities throughout the project area are in compliance with the Americans with Disabilities Act (ADA); however, many areas do not have sidewalks and are not accessible based on Americans with Disabilities Act standards.

Parking

Most parking in the study area is associated with residential and commercial developments. Very limited public or on-street parking is available due to the suburban and rural nature of the study area. The only public parking within the Primary Study Area is the on-street parking area along McHenry Avenue, south of the McHenry Avenue/Kiernan Avenue intersection.

Public Transportation

Various transit services are provided in the project study area, including bus and passenger rail service. Figure 3.1.6-5, in Appendix A, shows all public transportation routes and facilities in the study area.

The Stanislaus Regional Transit (StaRT) run by Stanislaus County operates 16 fixed bus routes within Stanislaus County and has connectivity with local transit operators and transfer points within many cities, including the cities of Modesto, Riverbank and Oakdale. Beside fixed-route transit services, StaRT also offers Runabout, Shuttle, and Dial-A-Ride services in the developed areas of the county. The StaRT service routes in the study area are Route 60, Turlock/Modesto Shuttle, Eastside Shuttle, and Newman Dial-a-Ride.

The Modesto Area Express (MAX), run by the City of Modesto, operates a bus system that serves the cities of Modesto and Ceres, as well as the communities of Salida and Empire. Small sections of Routes 22 and 27 pass through the project area near the intersection of Kiernan Avenue and McHenry Avenue.

Amtrak provides passenger rail services to the study area. The San Joaquin Route passes through Modesto using Burlington Northern Santa Fe (BNSF) rails. The Amtrak railroad within the project area crosses Claribel Road in the vicinity of Claribel Avenue/Terminal Avenue intersection. No BNSF passenger train is operated in Stanislaus County.

Environmental Consequences

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

Access, Circulation and Parking

Synchro and SimTraffic were used to model existing peak hour intersection operations. These existing condition models are then used to evaluate future traffic conditions based upon the StanCOG travel demand forecasting (TDF) model. An extensive model calibration and validation process was then followed to ensure that the modeled results for existing conditions are consistent with the observed existing conditions on the local streets. The TDF model is maintained by StanCOG for regional planning efforts, and was used to develop traffic demand forecasts for the 2022 no-build, 2022 with-project, 2042 no-build, and 2042 with-project conditions. Traffic forecasts of the same year were made under the same assumptions of land use and roadway network. The same project configurations were used for 2022 and 2042.

All Build Alternatives would result in a redistribution of traffic volumes in the study area. Generally, all alternatives result in an overall reduction in traffic volumes on major east-west roadways such as SR-108, Patterson Road, and Claratina Avenue, as some of that traffic is shifted to the new North County Corridor. Table 3.1.6-6 shows the estimated average year 2042 daily demand volume reduction on existing SR-108 within the study area.

Table 3.1.6-6: Estimated Average 2042 Daily Demand Volume Reduction on existing SR-108 between McHenry Avenue and Stearns Avenue after Project Implementation

Build Alternative	Reduction in Daily Volume
1A	27%
1B	21%
2A	17%
2B	11%

Source: Traffic Operations Report for the North County Corridor, 2015

Regional measures of effectiveness (MOEs) were calculated to determine the impacts under with-project conditions from a regional perspective. Table 3.1.6-6 shows the daily area-wide vehicle miles of travel (VMT) and vehicle hours of delay (VHD) with and without the project. The following is a brief description of the MOEs:

- *Vehicle Miles of Travel (VMT)* – is a measure of the total miles traveled by all vehicles in the project area during the analysis period
- *Vehicle Hours of Delay (VHD)* – is the amount of total vehicle delay incurred as a result of congestion

As shown in Table 3.1.6-7, the overall amount of daily travel (reflected in the vehicle miles of travel measures) will be slightly less under with-project conditions when compared to no-build conditions for all analysis years. As these results show, any project alternative would have positive region-wide impacts in reducing travel times and delays caused by congestion. In a comparison for the no-build scenario, all four project alternatives would either improve or maintain at least LOS D operations along the urban street study segments, maintain or improve

the LOS reported for each two-lane highway study segments, and result in the planned North County Corridor freeway/expressway operating at LOS C or better during morning and evening peak hours for each project alternative.

Table 3.1.6-7: Regional Measures of Effectiveness for Project Area (No-Build vs Build Alternatives)

Measure	No-Build	Alt. 1A	Alt. 1B	Alt. 2A	Alt. 2B
2022					
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%)
2042					
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-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

The 2042 traffic operation analysis indicates that, except for a few locations, any of the Build Alternatives would improve overall traffic operation on most intersections compared to No-Build conditions. Most of the intersections would continue to meet the peak hour signal warrant (meet requirements for traffic signals) under conditions of Build Alternative. With implementation of the project, the number of intersections projected to operate below the applicable LOS standards would be reduced from 15 to 8.

As shown in Table 3.1.6-8, in 2022 the new North County Corridor intersections (including frontage roads) are expected to operate at acceptable service levels under all project alternatives. The new single-point urban interchanges (SPUI) at existing SR-108, Coffee Road, Oakdale Road, and Roselle Avenue are expected to operate at LOS B or better conditions.

As shown in Table 3.1.6-9, in 2042 the new North County Corridor intersections (including frontage roads) are expected to operate at acceptable service levels under all project alternatives. The new single-point urban interchanges (SPUI) at existing SR-108, Coffee Road, Oakdale Road, and Roselle Avenue are expected to operate at LOS C or better conditions.

Table 3.1.6-8: 2022 Peak Hour Intersection Analysis

Intersection	Traffic Control[1]	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
			Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]
1. Carver Road/Kiernan Avenue (SR-219)	Signal	AM	19	B	24	C	24	C	22	C	23	C
		PM	15	B	20	B	20	B	18	B	18	B
2. Tully Road/Kiernan Avenue (SR-219)	Signal	AM	18	B	17	B	17	B	18	B	13	B
		PM	27	C	21	C	21	C	16	B	20	B
3. McHenry Avenue/ Ladd Road	Signal	AM	34	C	29	C	29	C	32	C	30	C
		PM	39	D	41	D	44	D	40	D	40	D
4. McHenry Avenue/SR-108	Signal	AM	12	B	11	B	11	B	11	B	11	B
		PM	9	A	8	A	8	A	9	A	9	A
5. SR-108/Patterson Road	Signal	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	Signal	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	Signal	AM	33	C	30	C	30	C	31	C	29	C
		PM	53	D	39	D	42	D	36	D	37	D
8. Coffee Road/Claribel Road	Signal	AM	18	B	13	B	11	B	14	B	14	B
		PM	17	B	12	B	12	B	13	B	13	B
9. Coffee Road/Claratina Avenue	Signal	AM	24	C	23	C	23	C	25	C	23	C
		PM	25	C	23	C	23	C	23	C	23	C
10. Oakdale Road/ Patterson Road	Signal	AM	26	C	21	C	21	C	22	C	22	C
		PM	33	C	28	C	28	C	32	C	34	C
11. Oakdale Road/ Claribel Road	Signal	AM	35	D	18	B	18	B	18	B	18	B
		PM	42	D	19	B	20	C	20	B	20	B
12. Oakdale Road/ Claratina Avenue	Signal	AM	21	C	23	C	23	C	25	C	24	C
		PM	21	C	18	B	18	B	19	B	19	B
13. 1st Street/SR-108	Signal	AM	48	D	23	C	23	C	27	C	30	C
		PM	56	**E**	31	C	32	C	37	D	38	D
14. Roselle Avenue/Claribel Road	Signal	AM	39	D	4	A	4	A	4	A	4	A
		PM	90	**F**	4	A	5	A	5	A	5	A
15. Claus Road/SR-108	Signal	AM	15	B	5	A	5	A	8	A	8	A
		PM	20	B	6	A	7	A	11	B	11	B

Intersection	Traffic Control[1]	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
			Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]
16. Claus Road/Claribel Road	Signal	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	Signal	AM	5	A	3	A	3	A	3	A	3	A
		PM	14	B	3	A	3	A	4	A	9	A
18. Bentley Road/ Claribel Road	SSSC/ Signal	AM	3	A	2	A	2	A	16	C	16	C
		PM	4	A	3	A	3	A	14	B	14	B
19. Oak Avenue/SR-108	Signal	AM	22	C	11	B	11	B	11	B	11	B
		PM	25	C	12	B	13	B	12	B	12	B
20. SR-108/SR-120SR-108	Signal	AM	56	E	28	C	28	C	28	C	35	C
		PM	74	E	32	C	36	D	32	C	36	D
21. SR-108/Maag Avenue	Signal	AM	24	C	18	B	18	B	20	C	21	C
		PM	25	C	17	B	18	B	18	B	18	B
22. Albers Road/Patterson Road	Signal	AM	28	C	18	B	18	B	23	C	23	C
		PM	26	C	25	C	25	C	26	C	25	C
23. Albers Road/Claribel Road	Signal	AM	21	C	16	B	16	B	6	A	7	A
		PM	15	B	13	B	13	B	8	A	8	A
24. Oakdale Road/ new SR-108	Signal	AM	Not Applicable Under No-Build Conditions		9	A	9	A	8	A	8	A
		PM			19	B	13	B	13	B	14	B
25. Roselle Ave/ new SR-108	Signal	AM	Not Applicable Under No-Build Conditions		11	B	11	B	10	B	10	B
		PM			15	B	12	B	12	B	13	B
26. Crane Road/ new SR-108	Signal	AM			11	B	11	B	Intersection Does Not Exist			
		PM			31	C	14	B				
27. Albers Road/ new SR-108	Signal	AM			19	B	19	B	20	C	20	B
		PM			35	C	18	B	18	B	17	B
28. Stearns Connection/ new SR-108	Signal (1B, 2B)/Round-about (1A, 2A)	AM			5	A	5	A	4	A	7	A
		PM			5	A	5	A	5	A	8	A
29. New SR-108/ SR-120/108	Round-about	AM			5	A	4	A	5	A	4	A
		PM			5	A	4	A	5	A	4	A
30. McHenry Ave/Charity Way	Signal	AM			6	A	6	A	4	A	6	A
		PM			11	B	8	A	8	A	8	A

Intersection	Traffic Control[1]	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
			Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]
31. McHenry Ave/Galaxy Way	Signal	AM			5	A	5	A	6	A	6	A
		PM			29	C	10	A	10	A	10	A
32. Coffee Road/ Frontage Road (N)	Signal	AM			2	A	2	A	2	A	2	A
		PM			10	A	2	A	2	A	4	A
33. Coffee Road/ Frontage Road (S)	Signal	AM			2	A	2	A	3	A	3	A
		PM			12	B	2	A	2	A	4	A
34. Oakdale Road/ Frontage Road (S)	Signal	AM	Not Applicable Under No-Build Conditions		3	A	3	A	3	A	3	A
		PM			12	B	4	A	4	A	6	A
35. Roselle Ave/ Frontage Road (S)	Signal	AM			5	A	5	A	5	A	5	A
		PM			11	B	5	A	5	A	5	A
36. Claribel Realigned (N)/ Davis Road	SSSC	AM			2	A	2	A	2	A	2	A
		PM			2	A	2	A	2	A	2	A
37. Claus Road/Claribel Realigned (N)	Signal	AM			6	A	6	A	7	A	7	A
		PM			18	B	11	B	11	B	11	B
38. Claus Road/Claribel Realigned (S)	Signal	AM			7	A	7	A	2	A	2	A
		PM			19	B	2	A	2	A	4	A
39. Stearns/Stearns Connection	Signal (AWSC - 1B)	AM			3	A	3	A	3	A	Intersection Does Not Exist	
		PM			7	A	3	A	3	A		
40. New Access Road/ new SR-108	Round-about	AM			Intersection Does Not Exist		4	A	Intersection Does Not Exist		4	A
		PM					4	A			4	A

Notes: Results in bold represent unacceptable levels of service as determined based on applicable standards of relevant jurisdictions.
1. Results based on SimTraffic simulation of 10 runs.
2. Signal = signalized intersection, SSSC = side street stop controlled intersection, AWSC = all-way stop-controlled intersection, Roundabout = roundabout controlled intersection
3. Signalized and all-way stop intersection level of service based on weighted average control delay per vehicle, according to the 2010 Highway Capacity Manual.
4. Side-street stop intersection level of service based on weighted average control delay per vehicle and worst approach control delay per vehicle, according to the 2010 Highway Capacity Manual in the notation: average (worst approach).
5. Roundabout analysis based on Sidra 6.0 traffic analysis software using the HCM Roundabout Analysis methodology with California-specific values.
Source: Traffic Operations Report, 2015.

Table 3.1.6-9: 2042 Peak Hour Intersection Analysis

Intersection	Traffic Control[1]	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
			Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]
1. Carver Road/Kiernan Avenue (SR-219)	Signal	AM	30	C	42	D	41	D	36	D	37	D
		PM	28	C	46	D	46	D	40	D	40	D
2. Tully Road/Kiernan Avenue (SR-219)	Signal	AM	27	C	30	C	28	C	28	C	28	C
		PM	>100	**F**	45	D	47	D	40	D	42	D
3. McHenry Avenue/Ladd Road	Signal	AM	60	**E**	51	D	52	D	54	D	55	**E**
		PM	>100	**F**	>100	**F**	>100	**F**	>100	**F**	>100	**F**
4. McHenry Avenue/SR-108	Signal	AM	12	B	13	B	13	B	12	B	12	B
		PM	11	B	10	A	10	A	11	B	11	B
5. SR-108/Patterson Road	Signal	AM	>100	**F**	>100	**F**	>100	**F**	>100	**F**	>100	**F**
		PM	>100	**F**	16	B	17	B	55	D	41	D
6. McHenry Avenue/ Kiernan Avenue	Signal	AM	>100	**F**	16	B	16	B	16	B	16	B
		PM	58	**E**	19	B	20	B	17	B	18	B
7. McHenry Avenue/ Claratina Avenue	Signal	AM	> 100	**F**	89	**F**	100	**F**	>100	**F**	98	**F**
		PM	> 100	**F**	>100	**F**	>100	**F**	>100	**F**	>100	**F**
8. Coffee Road/Claribel Road	Signal	AM	31	C	23	C	26	C	28	C	25	C
		PM	32	C	18	B	20	B	19	B	20	B
9. Coffee Road/Claratina Avenue	Signal	AM	>100	**F**	39	D	40	D	47	D	47	D
		PM	>100	**F**	79	**E**	71	**E**	47	D	50	D
10. Oakdale Road/ Patterson Road	Signal	AM	33	C	23	C	24	C	26	C	26	C
		PM	38	D	33	C	35	C	38	D	38	D
11. Oakdale Road/Claribel Road	Signal	AM	45	D	24	C	25	C	25	C	26	C
		PM	76	**E**	28	C	26	C	31	C	31	C
12. Oakdale Road/Claratina Avenue	Signal	AM	42	D	41	D	40	D	50	D	44	D
		PM	68	**E**	32	C	33	C	35	D	35	D
13. 1st Street/SR-108	Signal	AM	>100	**F**	32	C	33	C	39	D	51	D
		PM	>100	**F**	59	**E**	55	**E**	73	**E**	>100	**F**
14. Roselle Avenue/ Claribel Road	Signal	AM	>100	**F**	16	B	16	B	16	B	16	B
		PM	>100	**F**	23	C	23	C	24	C	26	C
15. Claus Road/SR-108	Signal	AM	15	B	6	A	6	A	16	B	15	B
		PM	16	B	6	A	8	A	16	B	17	B

Intersection	Traffic Control[1]	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
			Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]
16. Claus Road/Claribel Road (new SR-108)	Signal	AM	61	E	33	C	35	D	27	C	28	C
		PM	59	E	51	D	47	D	37	D	37	D
17. Crane Road/Patterson Road	Signal	AM	17	B	13	B	13	B	11	B	11	B
		PM	>100	**F**	14	B	14	B	20	C	21	C
18. Bentley Road/Claribel Road	SSSC/ Signal	AM	7 (22)	A (C)	11	B	11	B	26	D	25	C
		PM	29 (90)	D (**F**)	12	B	12	B	32	D	30	D
19. Oak Avenue/SR-108	Signal	AM	17	B	14	B	15	B	13	B	13	B
		PM	17	B	15	B	16	B	15	B	16	B
20. SR-108/SR-120	Signal	AM	>100	**F**	36	D	100	**F**	36	D	48	D
		PM	>100	**F**	46	D	98	**F**	52	D	72	**E**
21. SR-108/Maag Avenue	Signal	AM	29	C	22	C	24	C	24	C	25	C
		PM	31	C	21	C	24	C	23	C	26	C
22. Albers Road/Patterson Road	Signal	AM	52	**D**	25	C	25	C	36	**D**	39	**D**
		PM	37	**D**	35	C	34	C	38	**D**	41	**D**
23. Albers Road/Claribel Road	Signal	AM	32	C	20	C	20	C	10	A	10	A
		PM	23	C	19	B	18	B	12	B	11	B
24. Oakdale Road/ new SR-108	Signal	AM	Not Applicable Under No-Build Conditions		14	B	14	B	14	B	14	B
		PM			19	B	19	B	20	C	20	C
25. Roselle Ave/ new SR-108	Signal	AM	Not Applicable Under No-Build Conditions		17	B	16	B	15	B	15	B
		PM			15	B	15	B	15	B	16	B
26. Crane Road/ new SR-108	Signal	AM			20	B	17	B	Intersection Does Not Exist			
		PM			31	C	32	C				
27. Albers Road/ new SR-108	Signal	AM			40	D	35	C	37	D	35	D
		PM			35	C	30	C	29	C	29	C
28. Stearns Connection (Smith Road – 2B)/ new SR-108	Signal (Round-about)	AM			15 (7)	B (A)	8 (5)	A (A)	14 (7)	B (A)	10 (4)	B (A)
		PM			16 (8)	B (A)	9 (6)	A (A)	17 (8)	B (A)	12 (5)	B (A)
29. New SR-108/ SR-120/108	Signal (Round-about)	AM			13 (7)	B (A)	7 (4)	A (A)	14 (7)	B (A)	6 (4)	A (A)
		PM			16 (6)	B (A)	9 (4)	A (A)	16 (6)	B (A)	10 (4)	B (A)
30. McHenry Ave/Charity Way	Signal	AM			8	A	8	A	8	A	8	A
		PM			11	B	11	B	11	B	11	B

Intersection	Traffic Control[1]	Peak Hour	No-Build Alternative		Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
			Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]	Delay (secs / veh)[2,3]	LOS[2,3]
31. McHenry Ave/Galaxy Way	Signal	AM			12	B	12	B	12	B	12	B
		PM			29	C	28	C	25	C	25	C
32. Coffee Road/Frontage Road (N)	Signal	AM			10	A	10	A	10	B	10	B
		PM			10	A	10	B	10	A	10	A
33. Coffee Road/Frontage Road (S)	Signal	AM			12	B	13	B	12	B	12	B
		PM			12	B	12	B	11	B	12	B
34. Oakdale Road/Frontage Road (S)	Signal	AM	Not Applicable Under No-Build Conditions		12	B	11	B	12	B	12	B
		PM			12	B	13	B	13	B	12	B
35. Roselle Ave/Frontage Road (S)	Signal	AM			10	B	10	A	10	B	10	B
		PM			11	B	11	B	11	B	11	B
36. Claribel Realigned (N)/Davis Road	SSSC	AM			2 (7)	A (A)	2 (7)	A (A)	2 (7)	A (A)	2 (7)	A (A)
		PM			2 (8)	A (A)	1 (7)	A (A)	1 (12)	A (B)	1 (8)	A (A)
37. Claus Road/Claribel Realigned (N)	Signal	AM			11	B	11	B	13	B	13	B
		PM			18	B	18	B	19	B	19	B
38. Claus Road/Claribel Realigned (S)	Signal	AM			12	B	12	B	8	A	8	A
		PM			19	B	27	C	9	A	9	A
39. Stearns/Stearns Connection	Signal (AWSC - 1B)	AM			7	A	2 (8)	A (A)	6	A	Intersection Does Not Exist	
		PM			7	A	4	A	8	A		
40. New Access Road/ new SR-108	Signal (Round-about)	AM			Intersection Does Not Exist		5 (4)	A (A)	Intersection Does Not Exist		5 (4)	A (A)
		PM					5 (4)	A (A)			5 (4)	A (A)

Notes: Results in bold represent unacceptable levels of service as determined based on applicable standards of relevant jurisdictions.
1. Results based on SimTraffic simulation of 10 runs.
2. Signal = signalized intersection, SSSC = side street stop controlled intersection, AWSC = all-way stop-controlled intersection, Roundabout = roundabout controlled intersection
3. Signalized and all-way stop intersection level of service based on weighted average control delay per vehicle, according to the 2010 Highway Capacity Manual.
4. Side-street stop intersection level of service based on weighted average control delay per vehicle and worst approach control delay per vehicle, according to the 2010 Highway Capacity Manual in the notation: average (worst approach).
5. Roundabout analysis based on Sidra 6.0 traffic analysis software using the HCM Roundabout Analysis methodology with California-specific values.
Source: Traffic Operations Report, 2015.

The following intersections are the remaining eight that would continue to operate at unacceptable levels under some or all project alternatives:

- McHenry Avenue/Ladd Road during the morning and evening peak hour of all scenarios
- SR-108/Patterson Road during the morning peak hour of all scenarios
- McHenry Avenue/Claratina Avenue during morning and evening peak hours of all scenarios
- Coffee Road/Claratina Avenue during the evening peak hour of Alternatives 1A and 1B and the morning peak hour of Alternative 2A
- 1st Street/SR-108 during the evening peak hour of Alternatives 1B, 2A, and 2B
- SR-108/SR-120 during the morning and evening peak hours of Alternative 1B and the evening peak hour of Alternative 2B
- Albers Road/Patterson Road during the morning and evening peak hour of Alternatives 2A and 2B

Some of the intersections listed above are outside the state right-of-way. The local agencies have reviewed these results and acknowledge that several of the intersections will have substandard level of service in the future. Note that at locations that operate at unacceptable service levels in the future, all of the project alternatives would either result in no change to the intersection level of service or provide a slight improvement. Therefore, none of the project alternatives would result in a degradation of traffic operations at any of the study intersections. With implementation of any of the project alternatives, all intersections along the new North County Corridor (including frontage roads) are expected to operate at acceptable service levels. The new single-point urban interchanges (SPUI) at existing SR-108, Coffee Road, Oakdale Road, and Roselle Avenue are expected to operate at LOS B.

As shown in Table 3.1.6-10, in 2022 in the no-build scenario all study segments operate at LOS D or better during the morning and evening peak hours.

The four Build Alternatives would reduce the peak hour demand volume along the existing SR-108, generally increasing the average travel speed along the study corridor. All four Build Alternatives either improve or maintain at least LOS C operations along the study segments.

As shown in Table 3.1.6-11, in 2042 the no-build scenario all study segments operate at LOS C or better during the morning and evening peak hours, except for eastbound Kiernan Avenue between Carver Road and Tully Road, which is expected to operate at LOS F in the evening peak hour and westbound SR-108/SR-120 between Yosemite Avenue and Maag Avenue, which is expected to operate at LOS E in the evening peak hour.

The four Build Alternatives would reduce the peak hour demand volume along the existing SR-108, generally increasing the average travel speed along the study corridor. All four project alternatives either improve or maintain at least LOS D operations along the study segments.

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Table 3.1.6-10: 2022 Urban Street Analysis

Segment	Direction[1]	Class Type	No Build[2]		Alt. 1A[2]		Alt. 1B[2]		Alt. 2A[2]		Alt. 2B[2]	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1. Kiernan Avenue (new SR-108) between Carver Road and Tully Road	EB	I	28 - C	24 - D	32 - C	31 - C	32 - C	31 - C	32 - C	31 - C	32 - C	31 - C
	WB	I	29 - C	35 - B	31 - C	34 - C	30 - C	34 - C	31 - C	34 - C	31 - C	34 - C
2. Kiernan Avenue (new SR-108) between Tully Road and McHenry Avenue	EB	I	41 - B	40 - B	Analyzed as Expressway							
	WB	I	44 - A	41 - B								
3. Existing SR-108 between Ladd Road and Kiernan Avenue	NB	I	35 - B	30 - B	33 - C	31 - C	33 - C	31 - C	33 - C	32 - C	33 - C	32 - C
	SB	I	36 - B	36 - B	36 - B	36 - B	36 - B	36 - B	37 - B	36 - B	37 - B	36 - B
4. Existing SR-108 between Kiernan Avenue and Pelandale Avenue	NB	II	31 - B	31 - B	29 - B	28 - C	29 - B	28 - C	29 - B	28 - C	29 - B	28 - C
	SB	II	29 - B	28 - C	25 - C	26 - C	25 - C	26 - C	25 - C	25 - C	25 - C	25 - C
14. Existing SR-108 between Oakdale Road and 1st Street	EB	III	30 - B	26 - C	32 - A	31 - A	32 - A	31 - A	32 - A	30 - A	32 - A	30 - A
	WB	III	31 - A	31 - A	33 - B	28 - B	33 - B	27 - C	32 - B	25 - C	32 - B	25 - C
15. Existing SR-108 between 1st Street and Claus Road	EB	III	28 - B	27 - B	33 - A	32 - A	33 - A	32 - A	32 - A	30 - B	32 - A	29 - B
	WB	III	24 - C	22 - C	26 - B	25 - B	26 - B	25 - B	25 - B	24 - C	25 - B	24 - C
28. Existing SR-108 between Oak Avenue and SR-120	EB	IV	21 - B	21 - B	24 - B	23 - B	22 - B	23 - B	23 - B	23 - B	21 - B	21 - B
	WB	IV	24 - B	24 - B	26 - A	25 - A	26 - A	25 - A	26 - A	25 - A	26 - A	25 - A
32. Existing SR-108/SR-120 between Yosemite Avenue and Maag Avenue	EB	III	25 - B	26 - B	28 - B	29 - B	27 - B	27 - B	28 - B	28 - B	26 - B	28 - B
	WB	III	19 - C	19 - C	23 - C	22 - C	21 - C	22 - C	23 - C	22 - C	24 - C	23 - C

Notes:
1. EB = Eastbound, WB = Westbound
2. Results in column are reported as: Average Speed (MPH) – LOS

Source: Traffic Operations Report, 2015.

Table 3.1.6-11: 2042 Urban Street Analysis

Segment	Direction[1]	Class Type	No Build[2]		Alt. 1A[2]		Alt. 1B[2]		Alt. 2A[2]		Alt. 2B[2]	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1. Kiernan Avenue (new SR-108) between Carver Road and Tully Road	EB	I	27 - C	11 - F	29 - C	23 - D	29 - C	23 - D	30 - C	23 - D	30 - C	23 - D
	WB	I	25 - D	27 - C	25 - D	26 - D	25 - D	26 - D	26 - D	26 - D	26 - D	25 - D
2. Kiernan Avenue (new SR-108) between Tully Road and McHenry Avenue	EB	I	40 - B	36 - B	Analyzed as Expressway							
	WB	I	38 - B	31 - C								
3. Existing SR-108 between Ladd Road and Kiernan Avenue	NB	I	33 - C	32 - C	31 - C	30 - C	31 - C	30 - C	31 - C	30 - C	31 - C	30 - C
	SB	I	33 - C	34 - C	36 - B	35 - B	36 - B	35 - B	36 - B	36 - B	36 - B	36 - B
4. Existing SR-108 between Kiernan Avenue and Pelandale Avenue	NB	II	26 - C	29 - B	28 - B	24 - C	28 - B	24 - C	29 - B	25 - C	29 - B	25 - C
	SB	II	28 - B	18 - D	23 - C	21 - D	23 - C	21 - D	24 - C	21 - D	24 - C	21 - D
14. Existing SR-108 between Oakdale Road and 1st Street	EB	III	26 - B	24 - B	29 - B	31 - A	32 - A	30 - A	28 - B	30 - B	31 - A	30 - B
	WB	III	30 - B	30 - B	32 - A	27 - B	29 - B	26 - B	31 - A	26 - B	28 - B	25 - B
15. Existing SR-108 between 1st Street and Claus Road	EB	III	29 - B	29 - B	33 - A	32 - A	32 - A	32 - A	31 - A	29 - B	31 - A	28 - B
	WB	III	24 - C	18 - C	25 - B	24 - C	25 - B	24 - C	24 - C	22 - C	23 - C	21 - C
28. Existing SR-108 between Oak Avenue and SR-120	EB	IV	18 - C	20 - B	23 - B	23 - B	22 - B	22 - B	21 - B	22 - B	19 - B	20 - B
	WB	IV	25 - B	25 - B	26 - A	25 - A	25 - A	25 - A	26 - A	25 - A	26 - A	25 - A
32. Existing SR-108/SR-120 between Yosemite Avenue and Maag Avenue	EB	III	25 - B	26 - B	27 - B	28 - B	26 - B	26 - B	26 - B	27 - B	26 - B	26 - B
	WB	III	20 - C	13 - E	21 - C	19 - C	18 - D	15 - D	23 - C	20 - C	23 - C	19 - C

Notes:
1. EB = Eastbound, WB = Westbound
2. Results in column are reported as: Average Speed (MPH) – LOS

Source: Traffic Operations Report, 2015.

Table 3.1.6-12 shows the two-lane highway results for 2022. All study segments are expected to operate at LOS E under no-build conditions, except for SR-120 from Wamble Road to Lancaster Road, which would operate at LOS C. Construction of any of the four project alternatives would decrease the volume demand along the existing SR-108 and SR-120, which would either increase or have no effect on average travel speed and either decrease or have no effect on percent time spent following. Therefore, all of the Build Alternatives would either maintain or improve the LOS reported for each segment.

Table 3.1.6-13 shows the two-lane highway results for 2042. All study segments are expected to operate at LOS E under no-build conditions, except for SR-120 from Wamble Road to Lancaster Road, which would operate at LOS D or better. Construction of any of the four project alternatives would decrease the volume demand along the existing SR-108 and SR-120, which would either increase or have no effect on average travel speed and either decrease or have no effect on percent time spent following. Therefore, all of the Build Alternatives would either maintain or improve the LOS reported for each segment.

Table 3.1.6-14 and Table 3.1.6-15 for 2022 show results for each alternative, in each direction for 2022. The planned North County Corridor freeway/expressway would operate at LOS B or better during the morning and evening peak hours for each Build Alternative.

Table 3.1.6-16 and Table 3.1.6-17 for 2042 show results for each alternative, in each direction. The planned North County Corridor freeway/expressway would operate at LOS C or better during the morning and evening peak hours for each Build Alternative.

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Table 3.1.6-12: 2022 Two-Lane Highway Analysis

Location	Peak Hour	BFFS	No-Build			Alternative 1A			Alternative 1B			Alternative 2A			Alternative 2B		
			PTSF	ATS	LOS	PTSF	ATS	LOS	PTSF	ATS	LOS	PTSF	ATS	LOS	PTSF	ATS	LOS
Existing SR-108 from McHenry Avenue to Oakdale Road	AM	55	66	42	D	40	44	D	41	44	D	58	42	D	59	42	D
	PM		84	40	**E**	84	41	**E**	84	41	**E**	84	40	**E**	84	40	**E**
Existing SR-108 from Claus Road to Crane Road	AM	55	75	39	**E**	27	46	C	33	46	C	62	43	D	65	42	D
	PM		85	39	**E**	72	44	D	77	43	D	82	40	**E**	83	40	**E**
Existing SR-108 from Crane Road to Oak Avenue	AM	45	81	29	**E**	68	34	**E**	70	33	**E**	66	36	**E**	69	35	**E**
	PM		84	29	**E**	75	32	**E**	79	31	**E**	74	33	**E**	77	32	**E**
SR-120 from Maag Avenue to Wamble Road	AM	50	76	34	**E**	76	34	**E**	61	38	**E**	76	34	**E**	70	37	**E**
	PM		87	31	**E**	87	31	**E**	76	36	**E**	87	31	**E**	74	37	**E**
SR-120 from Wamble Road to Lancaster Road	AM	55	57	47	C	57	47	C	57	47	C	57	47	C	57	47	C
	PM		63	47	C	63	47	C	63	47	C	63	47	C	63	47	C

Bold denotes locations that operate overall at unacceptable service levels.
1. BFFS = Base Free-Flow Speed, mph
2. PTSF = Percent Time Spent Following, %
3. ATS = Average Travel Speed, mph
Source: Traffic Operations Report, 2015

Table 3.1.6-13: 2042 Two-Lane Highway Analysis

Location	Peak Hour	BFFS	No-Build			Alternative 1A			Alternative 1B			Alternative 2A			Alternative 2B		
			PTSF	ATS	LOS	PTSF	ATS	LOS	PTSF	ATS	LOS	PTSF	ATS	LOS	PTSF	ATS	LOS
Existing SR-108 from McHenry Avenue to Oakdale Road	AM	55	78	39	**E**	52	43	D	54	42	D	71	40	**E**	72	40	**E**
	PM		88	39	**E**	87	39	**E**	88	39	**E**	88	39	**E**	88	38	**E**
Existing SR-108 from Claus Road to Crane Road	AM	55	85	36	**E**	33	46	C	43	45	D	73	40	D	75	40	**E**
	PM		87	37	**E**	76	43	D	80	42	D	86	39	**E**	88	38	**E**
Existing SR-108 from Crane Road to Oak Avenue	AM	45	85	27	**E**	72	33	**E**	75	32	**E**	71	35	**E**	72	34	**E**
	PM		86	27	**E**	77	31	**E**	81	29	**E**	75	31	**E**	78	30	**E**
SR-120 from Maag Avenue to Wamble Road	AM	50	88	30	**E**	88	30	**E**	72	36	**E**	88	30	**E**	78	35	**E**
	PM		91	28	**E**	91	28	**E**	79	35	**E**	91	28	**E**	85	32	**E**
SR-120 from Wamble Road to Lancaster Road	AM	55	57	47	C	57	47	C	57	47	C	57	47	C	57	47	C
	PM		65	46	D	65	46	D	65	46	D	65	46	D	65	46	D

Bold denotes locations that operate overall at unacceptable service levels.
1. BFFS = Base Free-Flow Speed, mph
2. PTSF = Percent Time Spent Following, %
3. ATS = Average Travel Speed, mph
Source: Traffic Operations Report, 2015

Table 3.1.6-14: 2022 Multilane, Freeway, and Ramp Analysis – Eastbound

Location	Number of Lanes	Method	Peak Hour	Alt 1A		Alt 1B		Alt 2A		Alt 2B	
				Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
Carver Road to Tully Road	3	Multilane	AM	5	A	5	A	5	A	5	A
			PM	8	A	8	A	8	A	8	A
Tully Road to McHenry Avenue	3+Aux	Weave	AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue Off-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue On-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue to Coffee Road	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
Coffee Road Off-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
Coffee Road On-Ramp	3	Merge	AM	6	A	6	A	6	A	6	A
			PM	11	B	11	B	10	A	10	A
Coffee Road to Oakdale Road	3	Basic	AM	4	A	4	A	4	A	4	A
			PM	9	A	9	A	8	A	8	A
Oakdale Road Off-Ramp	2	Diverge	AM	0	A	0	A	0	A	0	A
			PM	6	A	6	A	4	A	4	A
Oakdale Road On-Ramp	2	Merge	AM	11	B	11	B	10	B	10	A
			PM	14	B	14	B	12	B	11	B
Oakdale Road to Roselle Avenue	2	Basic	AM	15	B	9	A	8	A	8	A
			PM	12	B	12	B	10	A	10	A
Roselle Avenue Off-Ramp	2	Diverge	AM	13	B	13	B	12	B	12	B
			PM	17	B	16	B	12	B	14	B
Roselle Avenue On-Ramp	2	Merge	AM	12	B	12	B	11	B	11	B
			PM	14	B	13	B	12	B	11	B
Roselle Avenue to Claus Road	2	Multilane	AM	12	B	12	B	10	A	11	A
			PM	14	B	14	B	12	B	11	B
Claus Road to Crane Road	2	Multilane	AM	13	B	13	B	4	A	4	A
			PM	14	B	13	B	8	B	8	A
Crane Road to Albers Road	2		AM	9	A	9	A	2	A	2	A
			PM	9	A	8	A	3	A	4	A
Albers Road to Stearns Road	2		AM	6	A	4	A	5	A	4	A
			PM	8	A	6	A	8	A	5	A
Stearns Road to SR-120	2		AM	4	A	3	A	4	A	3	A
			PM	6	A	4	A	5	A	3	A

Notes:
1. Multilane = HCM Multilane Highways Analysis; Basic = HCM Basic Freeway Analysis; Merge = HCM Merge Analysis; Diverge = HCM Diverge Analysis; Weave = Leisch Method
2. Density is in passenger cars per mile per lane
Source: Traffic Operations Report, 2015

Table 3.1.6-15: 2022 Multilane, Freeway, and Ramp Analysis Multilane, Freeway, and Ramp Analysis – Westbound

Location	Number of Lanes	Method	Peak Hour	Alt 1A		Alt 1B		Alt 2A		Alt 2B	
				Density[1]	LOS	Density1	LOS	Density[1]	LOS	Density[1]	LOS
SR-120 to Stearns Road	2	Multilane	AM	5	A	4	A	5	A	3	A
			PM	4	A	4	A	4	A	6	A
Stearns Road to Albers Road	2		AM	6	A	5	A	6	A	4	A
			PM	7	A	5	A	6	A	4	A
Albers Road to Crane Road	2		AM	7	B	6	A	3	A	3	A
			PM	10	A	9	A	2	A	2	A
Crane Road to Claus Road	2		AM	13	B	13	A	7	A	7	A
			PM	14	B	14	B	6	A	6	A
Claus Road to Roselle Avenue	2		AM	13	B	13	B	11	B	10	A
			PM	14	B	14	B	11	A	10	A
Roselle Avenue Off-Ramp	2	Diverge	AM	15	B	15	B	13	B	12	B
			PM	16	B	16	B	13	B	13	B
Roselle Avenue On-Ramp	2	Merge	AM	13	B	13	B	11	B	10	B
			PM	13	B	13	B	11	B	11	B
Roselle Avenue to Oakdale Road	2	Basic	AM	11	B	11	B	9	A	11	A
			PM	12	B	11	B	9	A	9	A
Oakdale Road Off-Ramp	2	Diverge	AM	15	B	15	B	13	B	13	B
			PM	16	B	16	B	13	B	13	B
Oakdale Road On-Ramp	2	Merge	AM	9	A	9	A	7	A	10	B
			PM	7	A	12	B	5	A	5	A
Oakdale Road to Coffee Road	3	Basic	AM	13	B	8	A	7	A	7	A
			PM	7	A	7	A	6	A	6	A
Coffee Road Off-Ramp	3	Diverge	AM	14	B	14	B	12	B	12	B
			PM	12	B	12	B	11	B	11	B
Coffee Road On-Ramp	3+Aux	Weave	AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
Coffee Road to McHenry Avenue	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue Off-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue On-Ramp	3	Merge	AM	10	B	10	B	10	A	10	A
			PM	9	A	9	A	9	A	9	A
McHenry Avenue to Tully Road	3	Multilane	AM	10	A	10	A	10	A	10	A
			PM	8	A	9	A	8	A	8	A
Tully Road to Carver Road	3		AM	8	A	8	A	8	A	8	A
			PM	8	A	8	A	7	A	7	A

Notes:
1. Multilane = HCM Multilane Highways Analysis; Basic = HCM Basic Freeway Analysis; Merge = HCM Merge Analysis; Diverge = HCM Diverge Analysis; Weave = Leisch Method
2. Density is in passenger cars per mile per lane
Source: Traffic Operations Report, 2015

Table 3.1.6-16: 2042 Multilane, Freeway, and Ramp Analysis – Eastbound

Location	Number of Lanes	Method	Peak Hour	Alt 1A		Alt 1B		Alt 2A		Alt 2B	
				Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
Carver Road to Tully Road	3	Multilane	AM	9	A	9	A	8	A	8	A
			PM	14	B	14	B	13	B	13	B
Tully Road to McHenry Avenue	3+Aux	Weave	AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue Off-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue On-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	C	Weave	C	Weave	B	Weave	B
McHenry Avenue to Coffee Road	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	C	Weave	C	Weave	B	Weave	B
Coffee Road Off-Ramp	3+Aux		AM	Weave	A	Weave	A	Weave	A	Weave	A
			PM	Weave	C	Weave	C	Weave	B	Weave	B
Coffee Road On-Ramp	3	Merge	AM	9	A	9	A	8	A	8	A
			PM	16	B	16	B	15	B	15	B
Coffee Road to Oakdale Road	3	Basic	AM	7	A	7	A	7	A	6	A
			PM	14	B	14	B	13	B	13	B
Oakdale Road Off-Ramp	2	Diverge	AM	3	A	3	A	1	A	1	A
			PM	14	B	14	B	13	B	13	B
Oakdale Road On-Ramp	2	Merge	AM	11	B	10	B	8	A	8	A
			PM	15	B	14	B	12	B	12	B
Oakdale Road to Roselle Avenue	2	Basic	AM	15	B	14	B	14	B	12	B
			PM	19	B	18	B	16	B	16	B
Roselle Avenue Off-Ramp	2	Diverge	AM	19	B	19	B	17	B	16	B
			PM	23	C	23	C	21	C	20	C
Roselle Avenue On-Ramp	2	Merge	AM	19	B	19	B	17	B	17	B
			PM	20	B	20	B	17	B	17	B
Roselle Avenue to Claus Road	2	Multilane	AM	20	C	20	C	18	C	18	B
			PM	21	C	21	C	19	C	18	B
Claus Road to Crane Road	2	Multilane	AM	19	C	19	C	13	B	12	B
			PM	19	C	18	B	15	B	13	B
Crane Road to Albers Road	2		AM	16	B	15	B	11	B	10	A
			PM	13	B	12	B	13	B	12	B
Albers Road to Stearns Road	2		AM	7	A	6	A	7	A	5	A
			PM	11	A	8	A	10	A	6	A
Stearns Road to SR-120	2		AM	4	A	4	A	4	A	4	A
			PM	6	A	5	A	6	A	5	A

Notes:
1. Multilane = HCM Multilane Highways Analysis; Basic = HCM Basic Freeway Analysis; Merge = HCM Merge Analysis; Diverge = HCM Diverge Analysis; Weave = Leisch Method
2. Density is in passenger cars per mile per lane
Source: Traffic Operations Report, 2015

Table 3.1.6-17: 2042 Multilane, Freeway, and Ramp Analysis – Westbound

Location	Number of Lanes	Method	Peak Hour	Alt 1A		Alt 1B		Alt 2A		Alt 2B	
				Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
SR-120 to Stearns Road	2	Multilane	AM	6	A	5	A	5	A	4	A
			PM	5	A	4	A	4	A	4	A
Stearns Road to Albers Rd	2		AM	8	A	6	A	8	A	5	A
			PM	8	A	6	A	9	A	5	A
Albers Road to Crane Rd	2		AM	9	A	8	A	12	B	10	A
			PM	17	B	16	B	12	B	11	B
Crane Road to Claus Rd	2		AM	18	B	17	B	12	B	11	B
			PM	22	C	21	C	16	B	15	B
Claus Road to Roselle Avenue	2		AM	20	C	20	C	20	C	16	B
			PM	23	C	23	C	19	C	18	C
Roselle Avenue Off-Ramp	2	Diverge	AM	22	C	21	C	19	B	18	B
			PM	24	C	24	C	20	C	20	C
Roselle Avenue On-Ramp	2	Merge	AM	18	B	18	B	16	B	16	B
			PM	21	C	20	C	17	B	17	B
Roselle Avenue to Oakdale Rd	2	Basic	AM	17	B	16	B	16	B	14	B
			PM	19	C	18	C	15	B	15	B
Oakdale Rd Off-Ramp	2	Diverge	AM	22	C	21	C	19	B	18	B
			PM	24	C	24	C	20	C	20	B
Oakdale Rd On-Ramp	2	Merge	AM	21	C	21	C	19	B	19	B
			PM	20	B	20	B	17	B	17	B
Oakdale Rd to Coffee Rd	3	Basic	AM	13	B	13	B	12	B	12	B
			PM	12	B	12	B	11	A	10	A
Coffee Road Off-Ramp	3	Diverge	AM	19	B	19	B	18	B	18	B
			PM	18	B	18	B	16	B	16	B
Coffee Road On-Ramp	3+Aux	Weave	AM	Weave	B	Weave	B	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
Coffee Road to McHenry Avenue	3+Aux		AM	Weave	B	Weave	B	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue Off-Ramp	3+Aux		AM	Weave	B	Weave	B	Weave	A	Weave	A
			PM	Weave	A	Weave	A	Weave	A	Weave	A
McHenry Avenue On-Ramp	3	Merge	AM	16	B	16	B	15	B	15	B
			PM	14	B	14	B	13	B	13	B
McHenry Avenue to Tully Road	3	Multilane	AM	17	B	17	B	16	B	16	B
			PM	14	B	14	B	13	B	13	B
Tully Road to Carver Road	3		AM	14	B	14	B	13	B	13	B
			PM	14	B	14	B	13	B	13	B

Notes:
1. Multilane = HCM Multilane Highways Analysis; Basic = HCM Basic Freeway Analysis; Merge = HCM Merge Analysis; Diverge = HCM Diverge Analysis; Weave = Leisch Method
2. Density is in passenger cars per mile per lane
Source: Traffic Operations Report, 2015

Table 3.1.6-18 shows the estimated east-west travel times between the project start location (Kiernan Avenue/Tully Road) and the Stanislaus County/Tuolumne County border. Under no-build conditions, these types of trips are likely to use existing SR-108 through the communities of Riverbank and Oakdale and, under project conditions, these trips are likely to use the North County Corridor facility. As found in Table 3.1.6-18, the project alternatives would reduce east-west travel times between 16 percent and 20 percent depending on the alternative and future year.

Table 3.1.6-18: Travel Times in Minutes Between Kiernan Avenue/Tully Intersection and Stanislaus County/Tuolumne County Border

No-Build	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B	
2022								
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%
2042								
Travel Time	**Travel Time**	**% Change**	**Travel Time**	**% Change**	**Travel Time**	**% Change**	**Travel Time**	**% Change**
34.1	27.2	-20.2%	27.4	-19.7%	27.5	-19.4%	27.6	-19.1%

Source: Traffic Operations Report for the North County Corridor, 2015

All Build Alternatives would meet the purpose of the project. The following are the key project benefits:

- By 2042, the daily traffic volume (including trucks) on existing SR-108 through the communities of Riverbank and Oakdale would be reduced between 11 percent and 27 percent depending on the alternative.
- By 2022, the project would reduce the daily vehicle hours of delay in the project area by 8 percent to 21 percent depending on the alternative; by 2042, the project would reduce the daily vehicle hours of delay by 12 percent to 34 percent depending on the alternative.
- By 2022, the project would reduce the east-west travel time for travelers between Kiernan Avenue (SR-219) and existing SR-108/SR-120 east of Oakdale by 16 percent to 17 percent depending on the alternative; by 2042, the project would reduce the east-west travel time by 19 percent to 20 percent depending on the alternative.
- The new North County Corridor facility would be access controlled with a reduced number of conflict areas compared to existing SR-108 and, as the result, the average operating speed for trucks is expected to be between 50 and 55 miles per hour and the reduced number of access locations would improve travel time reliability.

The Build Alternatives are expected to reduce delay at many of the study locations; however, there will still be locations that continue to operate at unacceptable service levels in the future. Some of these locations are outside the state right-of-way. These issues have been discussed with the local agencies. The local agencies recognize and accept that several of the local road segments and intersections will have substandard level of service in the future. Note that at locations that operate at unacceptable service levels in the future, all of the Build Alternatives either would result in no change to the level of service or would provide a slight improvement in

operations. Therefore, none of the Build Alternatives would result in a degradation of traffic operations at any of the study locations.

Bicycle and Pedestrian Corridors

The North County Corridor will accommodate a Class 3 bike route in each direction on shoulders from Claus Road to the North County Corridor end at SR-108/SR-120. This facility would allow bicyclists to be separated from vehicle traffic while maintaining the rural character of county roads. A Class 2 bike facility is planned in the future and is well within the limits of the proposed corridor. Incorporation of the bike routes would enhance the bikeway network in Stanislaus County, and is consistent with the Non-Motorized Transportation Master Plan (StanCOG, 2013).

The North County Corridor will provide pedestrian access including sidewalks and crosswalks along all crossroads in Segment 1 and at locations of existing pedestrian access in Segments 2 and 3.

Americans with Disabilities Act (ADA) standards for bicycle and pedestrian access and safe mobility will be met where bicycles and pedestrians are not restricted.

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 vehicles, truckers, and motorists, appropriate to the function and context of the facility. Complete street concepts apply to roadways in all contexts including local roads and state highways in rural, suburban, and urban areas. The NCC would not preclude a complete streets facility from being designed approaching the project within the local jurisdictions. NCC is compatible with Caltrans' intended Complete Streets goals for transportation facilities within Stanislaus County. NCC is also compatible with the regional bikeway projects in the StanCOG Non-Motorized Transportation Master Plan. Where interchanges and local roads are being reconstructed, pedestrian access and Americans with Disabilities Act (ADA) compliance is provided where warranted by current and future land use. Policies related to bicycles and pedestrians are in place in the cities of Modesto, Riverbank and Oakdale, and Stanislaus County's general plans. Along Segments 2 and 3 from Claus Road to the NCC terminus at proposed SR 108/SR 120 intersection, the expressway could accommodate a shared Class III bike route within the proposed shoulders of NCC. Pedestrian access including sidewalks, ADA curb ramps and crosswalks would be provided along crossroads in Segment 1 and at locations with existing pedestrian access in Segments 2 and 3. Vehicle, bicycle, and pedestrian access included in the project will be provided in accordance with ADA requirements.

Public Parking

The project proposes to widen the existing McHenry Avenue south of the McHenry Avenue/Kiernan Avenue intersection and improve the McHenry Avenue/Galaxy Way intersection. Existing on-street public parking along McHenry Avenue will be removed. Road closure plans and parking impact will be included in the Traffic Management Plan.

Public Transportation

Sections of StaRT Route 60 operate along McHenry Avenue and Kiernan Avenue (see Figure 3.1.6-5 in Appendix A). Construction of the North County Corridor expressway and frontage

roads would require temporary closure of roadway section along these two streets. During closures, Route 60 would be redirected; after construction is completed, the route would continue to operate along its usual route. No other section of Route 60 or other bus routes would be affected. A small section of MAX Routes 22 and 27 operate near the Kiernan Avenue/McHenry Avenue where construction of the expressway and frontage roads would occur. This section would be closed or redirected during construction. After construction, Stratos Way would no longer have access to Kiernan Avenue; those routes would be rerouted to nearby frontage roads.

During construction, public transit users may experience delays and disruptions caused by lane restrictions, lane closures, or temporary detours. In addition, local roads may experience higher than normal traffic volumes as a result of disruptions on major roads and arterials. Measures TR-1 and TR-2 will minimize potential disruptions to public transportation during construction of the proposed facility.

Amtrak operation would not be substantially affected by the project. The new Claribel Road and North County Corridor would be elevated over the BNSF railroad with separate overhead structures. The BNSF railroad would remain at its current alignment, and service would not be affected during construction.

Temporary Construction Impacts

During construction, communities within the project area could experience temporary disruptions to existing travel patterns during construction activities due to lane restrictions, lane closures, or temporary detours. In turn, these disruptions could affect traffic on other major roads within the project area in Stanislaus County. Local roads may experience higher than normal traffic volumes as a result of disruptions on major roads and arterials. To offset temporary disruptions during construction, Caltrans would prepare and implement a Traffic Management Plan. The plan would be designed to minimize project-related traffic delay and accidents by adopting traditional traffic mitigation strategies and through an innovative combination of public and motorist information, demand management, incident management, system management, alternate route strategies, and construction strategies. The Traffic Management Plan would include detour signage, public transportation information, construction timing, and other useful construction information for residents and motorists. Measures TR-1 and TR-2 will minimize potential disruptions to residents and businesses during construction of the proposed facility.

No-Build Alternative

Under No-Build Alternative conditions, yearly increase on daily traffic volumes would be about 3.1 percent on SR-219 (Kiernan Avenue) between SR-99 and McHenry Avenue; 0.6 percent on existing SR-108 between McHenry Avenue and Yosemite Avenue; and 1.2 percent on existing SR-108 east of Yosemite Avenue; SR-219 (Kiernan Avenue) between SR-99 and McHenry Avenue. Under the No-Build Alternative, no improvements except for necessary maintenance would occur to the existing streets. LOS of the existing streets will continue to worsen, and travel time will continue to increase.

Under the No-Build Alternative, no construction would take place and there would be no changes to the traffic and transportation/pedestrian and bicycle facilities. Consequently, there would be no impacts to traffic and transportation/pedestrian and bicycle facilities and no improvements to the traffic and transportation/pedestrian and bicycle facilities would occur.

Avoidance, Minimization and/or Mitigation Measures

Measure TR-1: To offset temporary disruptions during construction, Caltrans shall consult with local agencies, including fire and law enforcement, and shall prepare and implement a Traffic Management Plan to minimize traffic disruption during construction activities. The plan would be made available to the public and to each jurisdiction within the study area. Caltrans would conduct public outreach to discuss the Traffic Management Plan. The following elements shall be included in the plan: parking, detours/road closures, pedestrian/commercial/residential access, and media campaign.

Parking**:** To minimize and reduce parking impact, project team members will conduct meetings with owners of affected businesses during the final project design phase and assess the parking needs. Parking spaces including on-street parking, public parking lots, or private parking areas, would be accommodated where feasible. The project would also build additional public parking spaces. Parking and transit studies will be conducted during the final phase of project design, and necessary parking facilities will be accommodated at feasible locations that are accessible by both motorists and public transit users.

Detour/Road Closures**:**. A media campaign will be organized to release detour routes and traffic information. Detour signage will be installed near construction zone to effectively redirect traffic. Potential adverse impacts to circulation and access will be avoided by maintaining as many open lanes as possible along Claribel Road in both directions during construction.

Pedestrian/Commercial/Residential Access**:** Pedestrian routes along community road interchanges, overcrossings, and undercrossings will be reestablished and will be clearly defined outside of construction zones. Potential economic impacts related to decreased patronage of businesses will be minimized by locating directional signage to key commercial centers and providing for accessible ingress/egress routes into parking lots. Ingress/egress routes to neighborhoods adjacent to or affected by construction activity shall be established and potential detours should be clearly posted.

Media Campaign**:** A Media Campaign will be organized to release information regarding road closure, detour routes, construction location, construction schedule, and other information related to transportation.

Public Transportation

To minimize disruption to public transportation, the following element shall be included in the Traffic Management Plan:

Measure TR-2: To minimize potential impacts to public transportation routes, the Traffic Management Plan will include specific information concerning relocated bus stops or bus detours. Bus stops should be clearly identified and accessible to pedestrians through safe walkways and connections to business and residential centers.

3.1.7 Visual Resources

Regulatory Setting

The NEPA of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally

pleasing surroundings (42 U.S. Code 4331[b][2]). To further emphasize this point, the Federal Highway Administration in its implementation of NEPA (23 U.S. Code 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA PRC Section 21001[b]).

Affected Environment

The *Visual Impact Assessment* (January 2016) was prepared to evaluate potential impacts the project could have on visual resources within the project area. The report was prepared to define the project setting and view (called a "viewshed"), identify key views for visual assessment, analyze existing visual resources and viewer response, show the visual appearance of Build Alternatives, assess the visual impacts of Build Alternatives, and explain proposed methods to reduce adverse visual impacts.

Project Setting and Existing Visual Resources

The western end of all Build Alternatives is at the SR-219 (Kiernan Ave)/Tully Road intersection. The eastern end of Alternatives 1A and 2A end along existing SR-108/SR-120 just east of the City of Oakdale boundary. Alternatives 1B and 2B end farther east of the Alternatives 1A and 2A end point along existing SR-108/SR-120 near Lancaster Road. The project occurs in the cities of Modesto, Riverbank, and Oakdale in Stanislaus County in the San Joaquin Valley of Central California. The landscape is characterized by flat land dominated by ranches and agricultural lands. The land use within the corridor is mostly rural agricultural, but also includes areas of suburban residences and commercial properties.

The project area contains about 4,640 acres, is generally flat and varies in elevation from between 100 to 250 feet above mean sea level. The landform is generally unaltered, with small changes including canals and drainage features to accommodate agriculture. The land cover is highly altered due to the heavy agricultural use in the area. Views from the road are generally limited, consisting of the directly adjacent agricultural land and residences. There are no scenic resources within the project area and no officially designated national or state scenic highways.

Types of Viewers

There are two major types of viewer groups for highway projects: highway neighbors and highway users. Each viewer group has its own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group, which help to predict their responses to visual changes.

Highway Neighbors (Views to the Road)—Local Residents

- Highway neighbors are people who have views to the road. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate highway neighbors or viewer groups with distinct reasons for being in the corridor and therefore having distinct responses to changes in visual

resources. For this project, local residents were the highway neighbors that were considered.

Highway Users (Views from the Road)—Motorists

- Highway users are people who have views from the road. They can be subdivided into different viewer groups in two different ways—by mode of travel or by reason for travel. For example, subdividing highway users by mode of travel may yield pedestrians, bicyclists, transit riders, car drivers and passengers, and truck drivers. Dividing highway users or viewer groups by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category like bicycling tourists, for example. For this project, motorists were the highway users that were considered.

Viewer Response

Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment and has two dimensions as previously mentioned, viewer exposure and viewer sensitivity.

Viewer Exposure

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. Location relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the more exposure. Quantity refers to how many people see the object. The more people who can see an object or the greater frequency an object is seen, the more exposure the object has to viewers. Duration refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the more exposure. High viewer exposure helps predict that viewers will have a response to a visual change.

For the residential viewer, exposure is moderately high. The location of residents was rated moderate as many of the residences are physically close to the project area. However, the quantity of the viewers is low due to the relatively small number of homes in the project area. The duration of these viewers is high, due to their long-term and constant presence in the area.

For the motorist viewer, exposure is moderately high. The location of the motorists was rated high, as the motorists would travel along the new roadway. The quantity of motorists that would travel this section of the road would be moderately high as the corridor is heavily used by commuters and tourists going to Yosemite. The duration of these viewers would be low, due to the rate of speed that the new road would operate at and the extended period of exposure.

Viewer Sensitivity

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. Activity relates to the preoccupation of viewers. Are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings? The more they are actually observing their surroundings, the more sensitivity viewers will have of changes to visual resources. Awareness relates to the focus of view—the focus is wide and the view general or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change.

Local values and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, it is likely that viewers will be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

Residents within the project area are a viewer group; their sensitivity is high due to the large amount of time spent in the area and potential changes to their views from their homes. The awareness of this group is moderately high because the residents' focus is not on the road. The value of aesthetics to residents is likely to be high in the project area considering the rural surroundings.

Motorists are a viewer group; their sensitivity is moderately low due to the relatively short time span spent along the proposed project. The motorists' activity level within the project area is high as they are traveling at a moderate rate of speed and not able to be engaged in observing their surroundings. The awareness of motorists is high as it is focused on the roadway. While some of the motorists would be residents, a large number of motorists are likely to be commuters and tourists going to Yosemite and are less likely to value aesthetics within the project area.

Group Viewer Response

The descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

The resident viewer group has a moderately high viewer response due to moderately high viewer exposure and moderately high viewer sensitivity.

The motorist viewer group has a moderate viewer response due to moderately high viewer exposure and moderately low viewer sensitivity.

Definition of Visual Impact Levels

Low - Low negative change to existing visual resources, and low viewer response to that change. May or may not require mitigation.

Moderately Low – Low negative change to the visual resource with a moderate viewer response, or moderate negative change to the resource with a low viewer response. Impact can be mitigated using conventional practices.

Moderate - Moderate negative change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices.

Moderately High - Moderate negative visual resource change with high viewer response or high negative visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required would generally take longer than five years to mitigate.

High - A high level of negative change to the resource or a high level of viewer response to visual change such that extraordinary architectural design and landscape treatment may not

mitigate the impacts below a high level. An alternative project design may be required to avoid high negative impacts.

Visual Assessment Units and Key Views

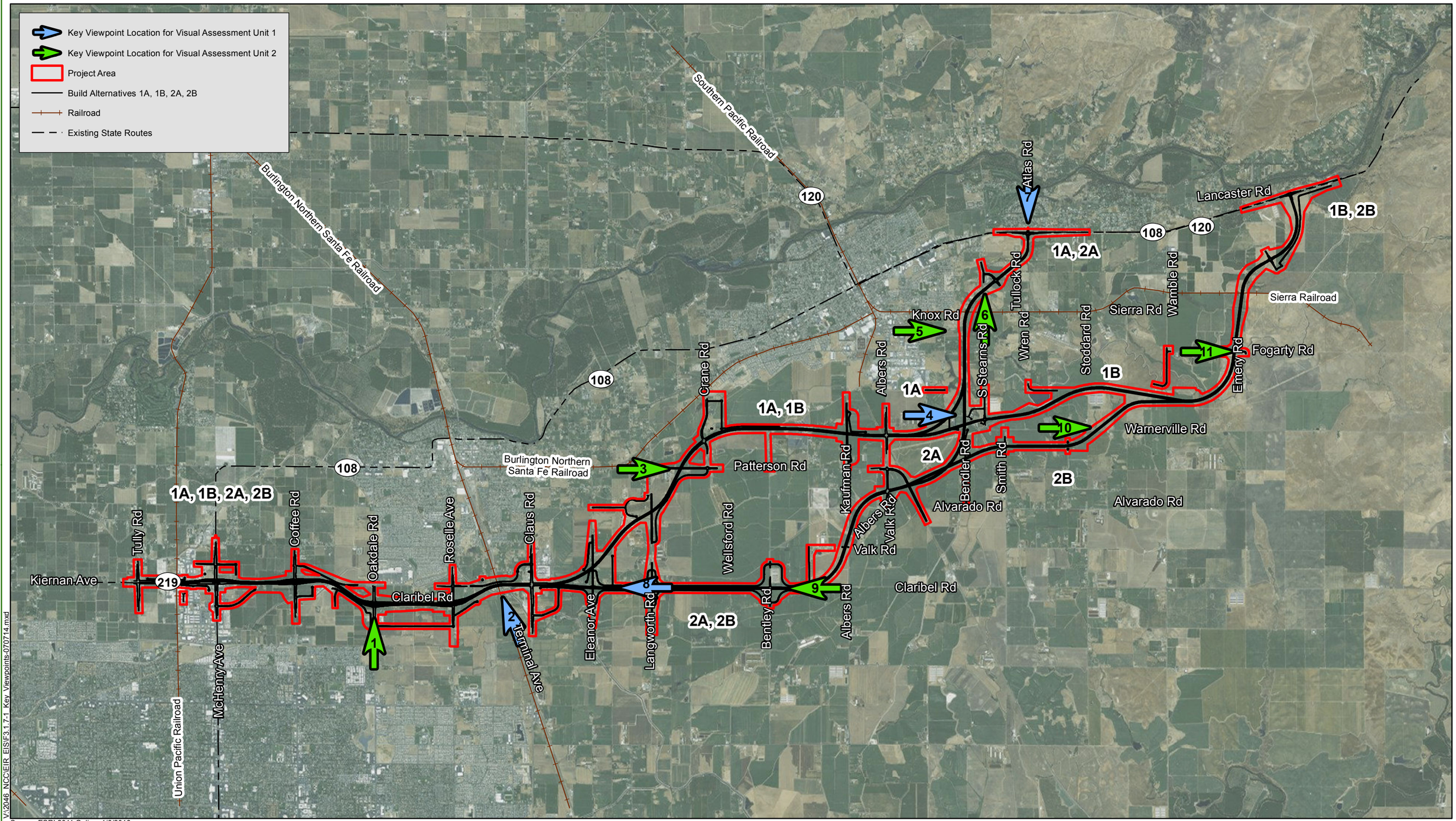
The project corridor was divided into a series of "outdoor rooms" or visual assessment units (VAU). Each visual assessment unit has its own visual character and visual quality. A visual assessment unit is typically defined by the limits of a particular viewshed; however, for this project, visual assessment units were defined by similar landscape settings.

For this project, two visual assessment units were identified within the project corridor:

- Visual Assessment Unit 1: Developed – Rural Built Environment – evaluates the views of both motorists and residents along and next to the existing developed segments of the proposed highway.

- Visual Assessment Unit 2: Agricultural and Undeveloped Environment – evaluates the views of both motorists and residents along and next to the existing agricultural and undeveloped segments of the proposed highway.

See Figure 3.1.7-1 for the two visual assessment units in the project corridor and their associated 11 key views.



V:\2046 NCC\EIR_EIS\F3.1.7-1 Key Viewpoints-070714.mxd

Source: ESRI 2011 Online; 1/6/2016.

0 1 2 3 4 Miles

FIGURE 3.1.7-1
Key Views
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

- **Visual Assessment Unit 1: Developed – Rural Built Environment**

  Visual Assessment Unit 1 (VAU1) is located in the developed portions of the project area. VAU1 consists of lands with rural residential developments. The dominant human-made features found in VAU1 are the residential structures and hardscape, including the existing roads, fences, irrigation canals, utilities and railroads; however, agricultural and undeveloped areas do exist within the background of VAU1. Four key views are within VAU1:

  - Key View 2: This view shows northbound Terminal Avenue, about 0.1 mile south of Claribel Road for the proposed 1A, 2A, 1B, and 2B alignments. This view has moderate-low vividness due to the barren land cover, flat landform, and lack of memorable features. Intactness in this view is moderate as the features in this view are appropriate for the area. Unity in this view is low as the features in this view are not well integrated. Overall, visual quality in this view is moderate-low.
  - Key View 4: This view shows eastbound Warnerville Road, about half a mile west of South Stearns Road for the proposed 1A and 2A alignments. Vividness in this view is moderate due to the open agricultural fields and unobstructed view of the open sky but still contains limited views and lack of memorable features. Intactness in the view is moderate as visual eyesores are present in the view such as utilities; however, these are suitable for the area. Unity in this view is moderate as the manmade and agricultural features combine in a structured pattern but the view still lacks natural elements. Overall, visual quality in this view is moderate.
  - Key View 7: This view shows southbound Atlas Road and the intersection with SR-108/SR-120 for the proposed 1A and 2A alignments. Vividness in this view is low due to the lack of distinctive or memorable visual features. Intactness in this view is moderately high as the visual elements in the view are appropriate for the landscape, and the only visual eyesores in this view include the utility lines. Unity in the view is moderate-low as the visual elements combine to form an organized visual pattern. Overall, visual quality in this scene is moderate.
  - Key View 8: This view shows westbound Claribel Road, about 0.2 mile east of Eleanor Avenue/McGee Avenue for the proposed 2A and 2B alignments and is surrounded by rural residential land, with agricultural fields in the background. This view has moderate-low vividness due to the contrasting nature of the build and natural environment. Intactness in this view is moderate-low as the large electrical towers and utilities encroach on this rural view. Unity in this view is moderate as the human-made and natural elements in the view do not form a cohesive visual pattern. Overall, visual quality is moderate.

- **Visual Assessment Unit 2: Agricultural and Undeveloped Environment**

  Visual Assessment Unit 2 (VAU2) is located in the agricultural and undeveloped portions of the project area. VAU2 consists of lands used for agricultural crops, livestock, and barren/undeveloped lands within the region. The only dominate human-made features are the existing roads, fences, utilities, and structures used for livestock; however, residential development does exist within the background of VAU2. The following 7 key views are within VAU2:

- Key View 1: This view shows northbound Oakdale Road, about 0.1 mile south of Claribel Road for the proposed 1A, 2A, 1B, and 2B alignments, and is surrounded by orchards, the dominant land cover type in the area. This view has moderate-low vividness due to the lack of distinctive visual features; the flat landform allows only the adjacent orchard to be visible. Intactness is moderate-high as the agricultural nature of this view is only disrupted by the utilities and roadway. Unity is moderate as the orchards and rural road integrate with each other in a structured, but not harmonious, visual pattern. Overall, visual quality in this view is moderate.
- Key View 3: This view shows eastbound Patterson Road, about 0.1 mile east of Langworth Road for the proposed 1A and 1B alignments. Vividness in this view is low due to the limited views and lack of memorable features. Intactness is moderate as the only visual encroachment in the view is from the utilities. Unity in this view is moderately low as the human-made features combine in a structured but disjointed pattern. Overall, visual quality in this view is moderately low.
- Key View 5: This view faces east and shows the proposed 1A and 2A alignments, about 0.2 mile south of Knox Road, along Townhill Road. Vividness in this view is high as it allows for relatively distant views over seasonally green grazing land. Intactness is high due to the agricultural nature of most features in the view, but is limited by the large electrical tower in the view. Unity in this view is moderately low as the visual patterns in the grazing land, orchard, electrical tower, and structures are not well integrated with each other. Overall, visual quality in this view is moderate-high.
- Key View 6: This view shows northbound South Stearns Road, about 0.2 mile north of Sierra Road for the proposed 1A and 2A alignments. Vividness in this view is moderate due to the views of open sky and agricultural fields, but lack of memorable features. Intactness is moderate as the only visual encroachment in the view is by the residential fencing and utilities. Unity in this view is moderately low as the human-made features combine in a structured but disjointed pattern. Overall, visual quality in this view is moderate.
- Key View 9: This view shows the view from a rural residence on Claribel Rd, 0.5 miles west of Albers Rd, looking west toward the proposed alignment for Build Alternatives 2A and 2B. Vividness in this view is moderate-low due to the limited views and lack of memorable features. Intactness is moderate as the only visual encroachment in the view is from the utilities. Unity in this view is moderately low as the human-made features combine in a structured but disjointed pattern. Overall, visual quality in this view is moderately low.
- Key View 10: This view shows eastbound Warnerville Road, about 0.25 mile east of Stoddard Road for the proposed 2B alignment. The vividness in this view is moderate due to view of open agricultural fields and sky but lacks of memorable visual elements. Intactness in this view is moderate as the agricultural nature of the view only slightly disrupted by the utilities. Unity in the view is moderate-low as the features do not come together to form a cohesive pattern. Overall, visual quality of this view is moderate.
- Key View 11: This view shows eastbound Fogarty Road, about 0.25 mile west of Emery Road for the proposed 1B and 2B alignments. Vividness in this view is moderate-low due to the limited views and lack of memorable features.

Intactness is moderate as the only visual encroachment in the view is from the utilities. Unity in this view is moderately low as the human-made features combine in a structured but disjointed pattern. Overall, visual quality in this view is moderately low.

Environmental Consequences

Resource Change for the Build Alternatives

The project would have only moderate impacts on visual resources because:

- Build Alternatives would not block views of visual resources.
- Though the project would convert agricultural land to a built environment, a large amount of agricultural land would still remain in the area.

The Build Alternatives would have only moderate impacts on visual resources for the following reasons:

Build Alternative 1A

Project changes within Alternative 1A include the extension of Kiernan Avenue/SR-219 at the Tully Road intersection to the end of the North County Corridor at the intersection of SR-108/SR-120 and Atlas Road, which will predominantly require new roadway construction through the region. Alternative 1A will include four single-point urban interchanges, four overcrossing structures for existing roads over the North County Corridor, two undercrossing structures over existing local roads, and two undercrossing/overhead structure combinations over existing local roads. Alternative 1A will also include 13 at-grade canal crossings, five elevated canal crossing, one grade separation over the BNSF railroad, two elevated railroad crossings with overhead structures, and two at-grade four-way roundabouts, one at a new intersection and one at an existing intersection.

Visual Assessment Unit 1 Resource Change (same for Alternatives 1A, 2A, 1B, 2B):

The overall visual resource change in Visual Assessment Unit 1 as a result of Alternative 1A is expected to be moderate-low, as visual character and quality would change minimally from the current existing conditions. The change in visual character would be somewhat compatible, as all of the attributes that make up the visual character would slightly change as a result of the proposed alternative. The change in visual quality from Alternative 1A would be moderate as the vividness of Visual Assessment Unit 1 would decrease with the reduced number of distinctive, contrasting, and diverse elements, including the reduced number of rural residences and structures in the area. Still, the intactness and unity of the area will increase due to the currently developed lands next to Alternative 1A becoming more developed, and developed in a more intact and uniform manner.

Visual Assessment Unit 2 Resource Change:

The overall visual resource change in Visual Assessment Unit 2 as a result of Alternative 1A is expected to be moderate-low, as visual character and quality would change from the current existing conditions. The change in visual character would be somewhat incompatible, as the attributes that make up the visual character would change as a result of the proposed alternative. The change in visual quality from the proposed Alternative 1A would be moderate-high as the intactness and unity of the area decrease. The new built environment will be a non-

typical visual intrusion into the otherwise undeveloped rural agricultural setting of the landscape, and will not combine with existing elements to create a coherent, harmonious visual pattern.

Build Alternative 2A

Project changes within Alternative 2A include the extension of Kiernan Avenue/SR-219 at the Tully Road intersection to the end of the North County Corridor at the intersection of SR-108/SR-120 and Atlas Road, which will require new roadway construction through the region, although less so when compared to Alternative 1A due to its continuation along Claribel Road for an additional 3.5 miles. Alternative 2A will include four single-point urban interchanges, two overcrossing structures for existing roads over North County Corridor, two undercrossing structures over existing local roads, and two undercrossing/overhead structure combinations over existing local roads. Alternative 2A will also include 24 canal crossings, 21 at-grade and six elevated, one grade separation over the BNSF railroad, two elevated railroad crossings with overhead structures, and two at-grade four-way roundabouts, one at a new intersection and one at an existing intersection.

Visual Assessment Unit 1 Resource Change:

Same as Build Alternative 1A.

Visual Assessment Unit 2 Resource Change:

The overall visual resource change in Visual Assessment Unit 2 as a result of Alternative 2A is expected to be moderate-low, as visual character and quality would change from the current existing conditions. The change in visual character would be somewhat incompatible, as the attributes that make up the visual character would change as a result of the proposed alternative. The change in visual quality from the proposed Alternative 2A would be moderate as the intactness and unity of the area decrease. The intactness and unity of the area would decrease due to the lands next to Alternative 2A being converted from mostly undisturbed agricultural lands to a heavily disturbed mostly built environment to accommodate the new highway.

Build Alternative 1B

Project changes within Alternative 1B include the extension of Kiernan Avenue/SR-219 at the Tully Road intersection to the end of the North County Corridor at the intersection of SR-108/SR-120, about half a mile southwest of Lancaster Road, which will require new roadway construction through the region. Alternative 1B will include four single-point urban interchanges, five overcrossing structures for existing roads over the North County Corridor, 19 at-grade canal crossings, four elevated canal crossings, one grade separation over the BNSF railroad, two elevated railroad crossings with overhead structures, one at-grade four-way roundabout, and one at-grade three-way roundabout.

Visual Assessment Unit 1 Resource Change:

Same as Build Alternative 1A.

Visual Assessment Unit 2 Resource Change:

The overall visual resource change in Visual Assessment Unit 2 as a result of Alternative 1B is expected to be moderate-low, as visual character and quality would change from the current

existing conditions. The change in visual character would be somewhat incompatible, as the attributes that make up the visual character would change as a result of the proposed alternative. The change in visual quality from the proposed Alternative 1B would be moderate-high as the intactness and unity of the area decrease. The intactness and unity of the area would decrease due to the lands next to Alternative 1B being converted from mostly undisturbed agricultural lands to a heavily disturbed mostly built environment to accommodate the new highway.

Build Alternative 2B

Project changes within Alternative 2B include the extension of Kiernan Avenue/SR-219 at the Tully Road intersection to the end of the North County Corridor at the intersection of SR-108/SR-120, about half a mile southwest of Lancaster Road; this will require new roadway construction through the region, though less so when compared to Alternative 1B due to its continuation along Claribel Rd for an additional 3.5 miles. Alternative 2B will include four single-point urban interchanges, five overcrossing structures for existing roads over the North County Corridor, one undercrossing structure over existing local roads, 25 at-grade and seven elevated canal crossings, one grade separation over the BNSF railroad, two elevated railroad crossings with overhead structures, one at-grade four-way roundabout, and one at-grade three-way roundabout.

Visual Assessment Unit 1 Resource Change:

Same as Build Alternative 1A.

Visual Assessment Unit 2 Resource Change:

The overall visual resource change in Visual Assessment Unit 2 as a result of Alternative 2B is expected to be moderate, as visual character and quality would change noticeably from the current existing conditions. The change in visual character would be somewhat incompatible, as the attributes that make up the visual character would change as a result of the proposed alternative. The change in visual quality from the proposed Alternative 2B would be moderate as the intactness and unity of the area decrease. The intactness and unity of the area would decrease due to the lands next to Alternative 2B being converted from mostly undisturbed agricultural lands to a heavily disturbed mostly built environment to accommodate the new highway.

Visual Impacts by Key View and Alternative

Because it is not feasible to analyze all the views in which the proposed project would be seen, it is necessary to select a number of key views associated with visual assessment units that would most clearly demonstrate the change in the project's visual resources. Key views also represent the viewer groups that have the highest potential to be affected by the project considering exposure and sensitivity. Key views are analyzed below for each proposed alternative.

This EIR/EIS also considers the potential impacts of a No-Build Alternative. The No-Build Alternative would result in no change to the project corridor. The No-Build Alternative would allow for all of the existing mature trees and vegetation along the project site to remain, as well as all of the existing agricultural lands. However, the No-Build Alternative would also result in more traffic congestion as population growth and the associated amount of freeway travelers continue to increase, which reduces the visual character and quality of the area.

The following section describes and illustrates visual impacts by visual assessment unit, compares existing conditions to the proposed alternatives, and includes the predicted viewer response.

Visual Assessment Unit 1: Developed – Rural Built Environment

Key View 2 - From Terminal Avenue about 0.1 mile south of Claribel Road looking north

Proposed Project Features – Alternatives 1A, 2A, 1B and 2B

Proposed changes under Alternatives 1A, 2A, 1B, and 2B visible in Key View 2 include the new elevated North County Corridor structure and associated earthen fill. The rural residence to the east of Terminal Avenue will be replaced with a view of the earthen fill, and the electrical poles in the background would be very distant. Residential structures in the distance would also no longer be visible as a result of the project. Caltrans fencing would be visible next to the North County Corridor and running up the earthen fill. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 1A, 2A, 1B, and 2B; these alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the photo-simulation shown in Figure 3.1.7-3, visual resource change would be low with the Build Alternatives. Visual character change would be compatible as the project creates a new overpass over Terminal Avenue. The existing built environment including residential structures is the dominate feature in the landscape, in which the new North County Corridor structure will replace and become the new dominate feature. Visual quality would be slightly lower as a result of the Build Alternatives and would be rated low, with addition of the elevated alignment combined with the continued barren land cover, flat landform, and lack of memorable features. Intactness of the view would remain moderate, as visual encroachment in the view is the new North County Corridor structure, which is similarly appropriate for the area. Unity would remain moderate-low as the new interchange and North County Corridor will combine with the surrounding environment to continue to create a uniform pattern.

Viewer Response

Key View 2 represents a typical view from a motorist along Terminal Avenue, which will pass under the proposed North County Corridor structures. Motorists would be directly exposed to the changes along Terminal Avenue from the North County Corridor in Visual Assessment Unit 1. Motorists will view vehicles traveling this portion of the North County Corridor each day. The viewer exposure duration is low, as the views will be brief and fleeting, though these viewers would notice change in this portion of the project site. The resident's viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views from residences along Terminal Avenue, south of Claribel Road, are obscured by existing rows of trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-2: KV-2 Existing Condition - Terminal Avenue Looking North

Figure 3.1.7-3: KV-2 Proposed Condition – Terminal Avenue Looking North – Alternatives 1A, 2A, 1B, and 2B

Key View 4 - From Warnerville Road about half a mile west of South Stearns Road looking east

Proposed Project Features – Alternatives 1A and 2A

Proposed changes under Alternatives 1A and 2A visible in Key View 2 include the new elevated North County Corridor structure and associated earthen fill. The rural residence to the south of Warnerville Road will be replaced with a view of the earthen fill, and the open fields and utilities along the side of the road would no longer be visible. Views of the trees to the north of Warnerville Road will also be disrupted by the proposed North County Corridor structures, although the rural residential house in the distance will still be visible. Fences in the view would be removed, and Caltrans fencing would be visible running up the earthen fill. Duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 1A and 2A; these alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-5, visual resource change would be low with the Build Alternatives. Visual character change would be somewhat incompatible as the project creates a new elevated overpass over Warnerville Road. The existing built environment including residential structures, power lines, walls, and fences is the dominate feature in the landscape, in which the new elevated North County Corridor structure will replace and become the new dominate feature. Views of open agricultural fields will also be obscured. Visual quality would decrease from moderate to moderate-low due to vividness being rated low as a result of the addition of the elevated alignment combined with the barren land cover, flat landform, and lack of memorable features. Intactness of the view would be slightly lower, but would still be rated moderate, as visual encroachment in the view is the new North County Corridor structure, which will be viewed as a non-typical intrusion. Unity would be slightly lower, but still rated moderate as a result of the Build Alternatives, as the new interchange and North County Corridor will combine with the surrounding built environment to create a more uniform pattern.

Viewer Response

Key View 4 represents a typical view from a motorist along Warnerville Road, which will pass under the proposed North County Corridor structures. The motorists would be directly exposed to the changes along Warnerville Road from the North County Corridor in Visual Assessment Unit 1. Motorists will view vehicles traveling this portion of the North County Corridor each day. The viewer exposure duration is low, as views will be brief and fleeting, though viewers would notice change in this portion of the project site. The resident's viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. As most residents' views along Warnerville Road are obscured by existing structures and trees, viewer response would be moderate for residents. Overall viewer response in Key View 4 would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternatives 1A and 2A would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-4: KV-4 Existing Condition - From Warnerville Road Looking East

Figure 3.1.7-5: KV-4 Proposed Condition – From Warnerville Road Looking East -- Alternatives 1A and 2A

Key View 7– From Atlas Road and existing SR-108/SR-120 looking south

Proposed Project Features – Alternatives 1A and 2A

Proposed changes under Alternatives 1A and 2A seen in Key View 7 are the new roundabout at the end of North County Corridor at the intersection of SR-108/SR-120 and the new North County Corridor roadway extending into the distance. The orchard south of the existing SR-108 will lose a few rows of trees for new roadway, and the fence line and associated vegetation will be reduced to accommodate the new roadway. Some utilities will remain, and new streetlights will be added to the intersection. Duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 1A and 2A; these alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-7, visual resource change would be low with the Build Alternatives. Visual character change would be somewhat incompatible as the project creates a roundabout at the end of the North County Corridor. The existing built environment including residential fences is the dominate feature in the landscape, in which the new roundabout will replace and become the new dominate feature. Visual quality would remain moderate, as vividness would be the same with the Build Alternatives and would remain low due to continued barren land cover, flat landform, and lack of memorable features. Intactness of the view would be slightly higher and be rated as high as a result of the Build Alternative, as the new roundabout will be viewed as a more typical feature in the environment. Unity would be higher and be rated as moderate, as the new roundabout and associated North County Corridor roadway will combine with the surrounding environment to create a more uniform pattern.

Viewer Response

Key View 7 represents a typical view from a motorist along Atlas Road, which will intersect the end of North County Corridor at SR-108/SR-120, at the proposed roundabout. Motorists would be exposed to the changes along Atlas Road from the North County Corridor. Motorists will view vehicles traveling this portion of the North County Corridor each day. Viewer exposure duration is low, as the views will be brief and fleeting, though viewers would notice change in this portion of the project site. The residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. As most residents' views along Warnerville Road are obscured by existing structures and trees, viewer response would be moderate for residents. Overall viewer response would be moderate. Residents were not considered in the viewer response of Key View 7 as views from residents along Atlas Road are obscured by existing fences and trees.

Resulting Visual Impact

The resulting visual impact for Alternatives 1A and 2A would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-6: KV-7 Existing Condition - From Atlas Road and SR-108/SR-120 Looking South

Figure 3.1.7-7: KV-7 Proposed Condition – From Atlas Road and SR-108/SR-120 Looking South - Alternatives 1A and 2A

Key View 8 - From Claribel Road about 0.2 mile east of Eleanor Avenue/McGee Avenue looking west

Proposed Project Features - Alternatives 2A and 2B

Proposed changes under Alternatives 2A and 2B visible in Key View 8 include the addition of the eastbound and westbound North County Corridor lanes and widened local access road to the north and south. The overcrossing structure and associated earthen fill for Eleanor Avenue over the North County Corridor is also visible in the background. The residential structures north of existing Claribel Road would no longer be in the view, nor would the fences. The large electrical towers would no longer be visible from this view as they will be relocated south of the local access roadway. Utilities would shift from their current position along Claribel Road north, next to the proposed local access roadway. Existing fences would be removed and replaced with Caltrans fencing next to the North County Corridor. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 2A and 2B; these two alternatives would result in the same visual impacts.

Change to Visual Quality/Character

There would be no visual resource change as a result of the proposed project. Visual character change would be somewhat incompatible as the proposed North County Corridor replaces the existing local access road and rural residential development in the vicinity, as shown in Figure 3.1.7-9. The existing rural residential development is the dominate feature in the landscape, in which the North County Corridor will replace and become the new dominate feature. Visual quality would be moderate with the Build Alternatives, as the rural residential development will be replaced with contrasting visual elements, increasing the vividness from moderate low to moderate. Intactness of the view would be slightly higher as well, and would be rated as moderate, as the new roadway and elevated structure in the distance will be viewed as a more typical feature in the built environment. Unity would also be higher and be rated as moderately high, as the new North County Corridor and elevated structure in the distance will further combine with the surrounding environment to create a more uniform pattern.

Viewer Response

Key View 8 represents a typical view from a motorist along Claribel Road, which will become the westbound lane of the North County Corridor; the local road will be moved north and south next to the North County Corridor. Motorists would be exposed to the changes along the new Claribel Road from the North County Corridor. Motorists will view vehicles traveling this portion of the North County Corridor each day. The viewer exposure duration is low, as the views will be brief and fleeting, though viewers would notice change in this portion of the project site. Residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views along Claribel Road are obscured by existing structures and trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternatives 2A and 2B would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-8: KV-8 Existing Condition -- From Claribel Road Looking West

Figure 3.1.7-9: KV-8 Proposed Condition – From Claribel Road Looking West – Alternatives 2A and 2B

Visual Assessment Unit 2: Agricultural and Undeveloped Environment

Key View 1 - From Oakdale Road about 0.1 mile south of Claribel Road looking north

Proposed Project Features - Alternatives 1A, 2A, 1B, and 2B

Proposed changes under Alternatives 1A, 2A, 1B, and 2B seen in Key View 1 include the widening of Oakdale Road from two lanes to seven lanes to accommodate the new single-point interchange at the intersection of North County Corridor and Oakdale Road. Additional changes include the elevated undercrossing of North County Corridor over Oakdale Road and the associated earthen fill and walls. The Hetch-Hetchy electrical towers will still be visible in the distance, but utilities currently present will be relocated along Oakdale Road and will no longer be visible from this view. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to all alternatives; all alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-11, visual resource change would be moderate-low with the Build Alternatives. Visual character change would be moderately incompatible as the North County Corridor is elevated in this view and would become the dominate feature in the landscape in place of the agricultural fields. The change from mostly rural to a mostly developed environment will block many of the views of the agricultural fields and minimize views of the sky. Due to these changes with the Build Alternatives, visual quality would reduce from moderate to moderate-low due to the vividness being rated low because the orchard would be replaced by asphalt and embankments. Intactness of the view is also reduced from moderate-high to moderate due to the significant loss of orchards from the view. Unity is reduced from moderate to moderate-low as the North County Corridor undercrossing does not form a harmonious visual pattern with the surrounding orchards.

Viewer Response

Key View 1 represents a typical view from a motorist along a local access road. Motorists would be exposed to the changes along the Oakdale Road from the North County Corridor. Vehicles would travel this portion of Oakdale Road each day. The viewer exposure duration depends on the distance of the project site the motorists drive and the density of traffic; especially during peak travel period, these viewers would likely notice change in this portion of the project site. The residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views along Oakdale Road are obscured by existing structures and trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternatives 1A, 2A, 1B, and 2B would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-10: KV-1 Existing Condition – From Oakdale Road Looking North

Figure 3.1.7-11: KV-1 Proposed Condition – From Oakdale Road Looking North – Alternatives 1A, 1B, 2A, and 2B

Key View 3 - From eastbound Patterson Road, about 0.1 mile east of Langworth Road

Proposed Project Features - Alternatives 1A and 1B

Proposed changes under Alternatives 1A and 1B seen in Key View 3 are the widening of Patterson Road to add paved shoulders and a two-way left-turn lane. Additional changes include the elevated overcrossing of Patterson Road over North County Corridor and the associated Caltrans fencing along the adjacent orchards. Utilities will now be farther away from Patterson Road. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 1A and 1B; these two alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-13, visual resource change would be low with the Build Alternatives. Visual character change would be moderately incompatible as the new Patterson Road looks similar in nature to the existing roadway, though it is wider and elevated in this view. The existing roadway is the dominant feature in the landscape and will continue to be the dominant feature as a result of the project. Visual quality would remain moderately low as vividness would remain low, intactness would remain moderate, and unity would remain moderate-low for the motorists in the area. The project does not provide better views or memorable features, nor does the intactness or unity of the area improve as a result of the new roadway.

Viewer Response

Key View 3 represents a typical view from a motorist along a local access road. Motorists would be exposed to the changes along Patterson Road from the North County Corridor. Vehicles would travel this portion of Patterson Road each day. The viewer exposure duration depends on the distance of the project site the motorists drive and the density of traffic; especially during peak travel period, these viewers would likely notice change in this portion of the project site. Residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views along Patterson Road are obscured by existing structures and trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternatives 1A and 1B would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-12: KV-3 Existing Condition – From Patterson Road Looking East

Figure 3.1.7-13: KV-3 Proposed Condition – From Patterson Road Looking East – Alternatives 1A and 1B

Key View 5 - From Townhill Road, about 0.2 mile south of Knox Road, looking east

Proposed Project Features - Alternatives 1A and 2A

Proposed changes under Alternatives 1A and 2A seen in Key View 5 are the addition of a new six-lane roadway and unpaved median where some residential homes in the distance currently exist. These homes would be removed to accommodate the new North County Corridor roadway. The duration of these views would be high; however, the extended period of exposure would be to similar views. The following analyses apply to Alternatives 1A and 2A; these two alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-15, visual resource change would be low with the Build Alternatives. Visual character change would be somewhat incompatible as the new North County Corridor replaces existing residential development, both features. The existing residential homes are the dominant feature in the distant landscape, in which the North County Corridor will replace and become the new dominant feature in the distance. Visual quality would decrease slightly from moderate-high to moderate as vividness would be slightly lower and rated moderate-high, intactness would remain high, and unity would remain moderate-low for the residents in the area. The project does not provide better views or memorable features, nor does the intactness or unity of the area improve as a result of the new roadway in the distance.

Viewer Response

Key View 5 represents a typical view from residents along local roads next to the proposed North County Corridor. The residents would be exposed to the changes from the North County Corridor. Vehicles would travel this portion of the North County Corridor each day. The viewer exposure duration is considered to be fairly long, and residents are highly aware of the surrounding visual environment. Overall viewer response would be moderate-high. Motorists were not considered in the viewer response of Key View 5 as views from motorists along Townhill Road would be too brief, too distant, and obscured by existing structures and trees.

Resulting Visual Impact

The resulting visual impact for Alternatives 1A and 2A would be moderate-high as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-14: KV-5 Existing Condition - From Townhill Road Looking East

Figure 3.1.7-15: KV-5 Proposed Condition – From Townhill Road Looking East – Alternatives 1A and 2A

Key View 6 - From S. Stearns Road about 0.2 mile north of Sierra Road looking north

Proposed Project Features – Alternatives 1A and 2A

Proposed changes under Alternatives 1A and 2A seen in Key View 6 are the addition of the two North County Corridor structures over S. Stearns Road, associated earthen fill, and Caltrans fencing along the fill. The residential development including fences and agricultural fields would no longer exist within this view as a result of the project. Some utilities would continue to exist in the distance of this view. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 1A and 2A; these two alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-17, visual resource change would be moderate-low with the Build Alternatives. Visual character change would be moderately incompatible as the proposed North County Corridor structures remove the existing residential development and agricultural fields in the vicinity. The existing residential homes and agricultural fields are the dominant feature in the landscape, in which the North County Corridor will replace and become the new dominant feature. The change from mostly rural to mostly developed environment will block many of the views of the agricultural fields and minimize views of the sky. Due to these changes with the Build Alternatives, visual quality would be moderate-low instead of moderate due to the vividness decreasing from moderate to low; the agricultural lands will be replaced with earthen fill, and views of the orchards would be obscured by the new North County Corridor structures. Intactness of the view would be moderate-low as a result of the project, as visual encroachment in the view is the new North County Corridor structures, which are more visible than the residential fencing and utilities. Unity would remain moderate-low as the new North County Corridor structures continue to combine in a structured and disjointed pattern.

Viewer Response

Key View 6 represents a typical view from a motorist along a local access road. Motorists would be exposed to the changes along S. Stearns Road from the North County Corridor. Vehicles would travel this portion of S. Stearns Road each day. The viewer exposure duration depends on the distance of the project site the motorists drive and the density of traffic; especially during peak travel period, these viewers would notice change in this portion of the project site. The residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views along Stearns Road are obscured by existing structures and trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternatives 1A and 2A would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-16: KV-6 Existing Condition - From S. Stearns Road Looking North

Figure 3.1.7-17: KV-6 Proposed Condition – From S. Stearns Road Looking North – Alternatives 1A and 2A

Key View 9 – From Claribel Road about half a mile west of Albers Road looking west

Proposed Project Features – Alternatives 2A and 2B

Proposed changes under Alternatives 2A and 2B seen in Key View 9 are the addition of the eastbound and westbound North County Corridor lanes and widened local access roads to the north and south. The line of trees in front of the residential house in the distance will remain in the view, though the agricultural fields would no longer exist within this view as a result of the project. Fences alongside the agricultural fields would be removed and replaced with Caltrans fencing between the North County Corridor and local access roads. The large electrical towers would be south of the southern local access road, in the distance of this view, and the utilities would be relocated north of the northern local access road, in the periphery of this view. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 2A and 2B; these two alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-19, visual resource change would be moderate-low with the Build Alternatives. Visual character change would be moderately incompatible as the proposed North County Corridor replaces the existing Claribel Road and agricultural fields in the area. The existing agricultural fields are the dominant feature in the landscape, in which the North County Corridor will replace and become the new dominant feature. Visual quality would be low with the Build Alternatives due to a low vividness as the agricultural lands will be replaced with pavement. Intactness of the view would be moderate-low, as visual encroachment in the view is the new lanes for the proposed North County Corridor, which are more visible than the existing features. Unity would be low as the new North County Corridor will further combine with the surrounding environment to create a more disjointed pattern.

Viewer Response

Key View 9 represents a typical view from a motorist along a local access road, which will become the proposed North County Corridor. Motorists would be directly exposed to the changes along Claribel Road from the North County Corridor. Vehicles would travel this portion of the North County Corridor each day. The viewer exposure duration depends on the distance of the project site the motorists drive and the density of traffic; especially during peak travel period, these viewers would notice change in this portion of the project site. The resident's viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views along Claribel Road are obscured by existing trees, so viewer response would be moderate for residents. Overall viewer response would be moderate-high.

Resulting Visual Impact

The resulting visual impact for Alternatives 2A and 2B would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-18: KV-9 Existing Condition - From Claribel Road Looking West

Figure 3.1.7-19: KV-9 Proposed Condition – From Claribel Road Looking West – Alternatives 2A and 2B

Key View 10 – From Warnerville Road about a quarter mile east of Stoddard Road looking east

Proposed Project Features – Alternative 2B

Proposed changes under Alternative 2B seen in Key View 10 are the addition of the North County Corridor structures over Warnerville Road and associated earthen fill. The grazing land to the north and the orchard to the south are interrupted by the earthen fill for the structures; utilities would be modified within this view as a result of the project. Fences along the agricultural fields would be removed and replaced with Caltrans fencing alongside Warnerville Road and up the earthen fill. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternative 2B, as this is the only alternative resulting in visual impact.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-21, visual resource change would be low with implementation of Alternative 2B. Visual character change would be somewhat incompatible as the proposed North County Corridor becomes the new dominant feature in the view along with the existing roadway. The change from mostly rural to mostly developed environment will block many of the views of the agricultural fields and minimize views of the sky. Visual quality would be lower and rated moderate-low due to the North County Corridor replacing views of the built environment in the distance, which will result in moderate-low vividness. Intactness of the view would be moderate-low, as visual encroachment in the view is the new North County Corridor structures, which are more visible than the existing features. Unity would be rated as low as the new North County Corridor will further combine with the surrounding rural environment to create a more disjointed pattern.

Viewer Response

Key View 10 represents a typical view from a motorist along a local access road, which will pass under the proposed North County Corridor. Motorists would be exposed to the changes along Warnerville Road from the North County Corridor. The viewer exposure duration would be brief. Traffic levels along Warnerville Road are anticipated to continue to operate at a high level of service, though these viewers would notice change in this portion of the project site. The residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' views along Warnerville Road are obscured by existing structures and trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternative 2B would be moderate-low as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-20: KV-10 Existing Condition - From Warnerville Road Looking East

Figure 3.1.7-21: KV-10 Proposed Condition – From Warnerville Road Looking East – Alternative 2B

Key View 11 – From Fogarty Road, about a quarter of a mile west of Emery Road, looking east

Proposed Project Features – Alternatives 1B and 2B

Proposed changes under Alternatives 1B and 2B seen in Key View 11 are the new widened Fogarty Road and the new North County Corridor running perpendicular under the overcrossing structure. Fogarty Road will be widened to add paved shoulders and a two-way left-turn lane. The orchard to the north and agricultural fields to the south will remain in the view, and utilities would exist within the distance of this view as a result of the project. Fences along the agricultural fields would be removed and replaced with Caltrans fencing along Fogarty Road. The fields in the distance would be obscured by the new widened Fogarty Road and earthen fill under the North County Corridor. The duration of these views would be low, due to the rate of speed that the new road would operate at and the extended period of exposure. The following analyses apply to Alternatives 1B and 2B; these two alternatives would result in the same visual impacts.

Change to Visual Quality/Character

Based on evaluation of the project photo-simulation shown in Figure 3.1.7-23, visual resource change would be moderate-low with the Build Alternatives. Visual character change would be moderately incompatible as the proposed roadway improvements widen the existing local access road convert the agricultural fields in the vicinity to a built environment. The existing orchards and agricultural fields are the dominant feature in the landscape, in which the new roadway and North County Corridor in the distance will replace and become the new dominant feature. Visual quality would be low with the Build Alternatives with a vividness rated as low due to the replacement of agricultural lands with pavement. Intactness of the view would be rated as moderate-low, as visual encroachment in the view would be the new lanes for the local road improvements, which are more visible than the existing features. The unity rating would move from moderate-low to low as the new North County Corridor will further combine with the surrounding environment to create a more disjointed pattern.

Viewer Response

Key View 11 represents a typical view from a motorist along a local access road, which will cross over the proposed North County Corridor. Motorists would be exposed to the changes along Fogarty Road from the North County Corridor and see vehicles traveling this portion of the North County Corridor each day. The viewer exposure duration is low, as the views will be brief and fleeting, though these viewers would notice change in this portion of the project site. The residents' viewer response would be moderate as there would be a change in the view, but it would fit in with the existing visual character and quality of the existing road. Most residents' along Fogarty Road are obscured by existing structures and trees, so viewer response would be moderate for residents. Overall viewer response would be moderate.

Resulting Visual Impact

The resulting visual impact for Alternatives 2A and 2B would be moderate as the project would not substantially alter the visual character or quality of the project corridor.

Figure 3.1.7-22: KV-11 Existing Condition - From Fogarty Road Looking East

Figure 3.1.7-23: KV-11 Proposed Condition – From Fogarty Road Looking East – Alternatives 1B and 2B

Light and Glare: Main sources of light and glare in the area are motor vehicle headlights, streetlights, parking lot and exterior security lighting, and interior building lighting. Currently, light and glare exist throughout Visual Assessment Unit 1; little light and glare exist throughout Visual Assessment Unit 2. Signage and security lighting during the evening/nighttime hours is anticipated to be present throughout all visual assessment units.

The project would create a new highway with thousands of vehicles traveling along it and its associated local roads each day through a largely rural and undeveloped area. The existing local roads in the area combine with the rural setting to create a disjointed visual setting of both the natural and built environment. The visual impacts by alternative are nearly identical due to the similar nature of each proposed alignment. The following discussion shows that the four proposed alternatives result in a moderate to moderate-low visual impact.

Alternative 1A

The project will have a low to moderate-low resource change for Alternative 1A, as the North County Corridor will further combine with the local roads to create a disjointed visual setting. Due to the lack of sensitive highway neighbors, with most viewers being highway users, the viewer response to the project for Alternative 1A is typically moderate, except for Key View 5, which is high. Although visual impacts differ among viewer groups and visual assessment units, the overall visual impact of Alternative 1A is considered to be moderate to moderate-low as the project would not substantially alter the visual character or quality of the project corridor. Visual impacts requiring avoidance and minimization include the transition from agricultural landscape to transportation use including additional and wider pavement areas as well as implementation of large structures, exposed slopes associated with the large overhead structures, potential loss of vegetation and trees, and potential for additional lighting that could affect sensitive receptors.

Alternative 2A

The project will have a low to moderate-low resource change for Alternative 2A, as the North County Corridor will further combine with the local roads to create a disjointed visual setting. Due to the lack of sensitive highway neighbors, with most viewers being highway users, the viewer response to the project for Alternative 2A is typically moderate, except for Key View 5, which is high. Although visual impacts differ among viewer groups and visual assessment units, the overall visual impact of Alternative 2A is considered to be moderate to moderate-low as the project would not substantially alter the visual character or quality of the project corridor. Visual impacts requiring avoidance and minimization include the transition from agricultural landscape to transportation use including additional and wider pavement areas as well as implementation of large structures, exposed slopes associated with the large overhead structures, potential loss of vegetation and trees, and potential for additional lighting that could affect sensitive receptors.

Alternative 1B

The project will have a low to moderate-low resource change for Alternative 1B, as the North County Corridor will further combine with the local roads to create a disjointed visual setting. Due to the lack of sensitive highway neighbors, with most viewers being highway users, the viewer response to the project for Alternative 1B is typically moderate. Although visual impacts differ among viewer groups and visual assessment units, the overall visual impact of Alternative 1B is considered to be moderate to moderate-low as the project would not substantially alter the visual character or quality of the project corridor. Visual impacts requiring avoidance and

minimization include the transition from agricultural landscape to transportation use including additional and wider pavement areas as well as implementation of large structures, exposed slopes associated with the large overhead structures, potential loss of vegetation and trees, and potential for additional lighting which could affect sensitive receptors.

Alternative 2B

The project will have a low to moderate-low resource change for Alternative 2B, as the North County Corridor will further combine with the local roads to create a disjointed visual setting. Due to the lack of sensitive highway neighbors, with most viewers being highway users, the viewer response to the proposed project for Alternative 2B is typically moderate. Although visual impacts differ among viewer groups and visual assessment units, the overall visual impact of Alternative 2B is considered to be moderate to moderate-low as the project would not substantially alter the visual character or quality of the project corridor. Visual impacts requiring avoidance and minimization include the transition from agricultural landscape to transportation use including additional and wider pavement areas as well as implementation of large structures, exposed slopes associated with the large overhead structures, potential loss of vegetation and trees, and potential for additional lighting which could affect sensitive receptors.

Temporary Construction Impacts

Implementation of the project would expose residents and motorists to views of the project site. Construction-related vehicle access and staging of construction materials would occur within disturbed or developed areas along the length of the project site. The project area does not currently experience lighting typical of highways. Main sources of light and glare in the area include motor vehicle headlights, streetlights, parking lot and exterior security lighting, and interior building lighting. Currently, light and glare exist throughout Visual Assessment Unit 1; little light and glare exist throughout Visual Assessment Unit 2. Signage and security lighting during the evening/nighttime hours is expected throughout all visual assessment units.

Project construction would expose surfaces, construction debris, equipment, and truck traffic to nearby viewers. Construction vehicle access and staging of construction materials would be visible to motorists traveling along the project site as well as residents in the project vicinity. Project construction (Alternatives 1A, 2A, 1B, and 2B) would start in 2020 and be completed by 2022. These impacts would be short-term and would stop upon project completion.

Exposed surfaces including the slopes of the newly constructed North County Corridor overhead structures would be considered a visual impact if left exposed. These new exposed surfaces would negatively contribute to the visual quality of the area and, if left exposed, could erode away resulting in further degradation of the area's visual quality. These exposed slopes would be revegetated as provided by Caltrans standards for erosion control to minimize impacts to the residents and motorists.

Visible short-term fugitive dust associated with construction would be reduced through implementation of dust suppression measures outlined in San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 8021, as well as implementation of Caltrans Standard Specifications for Construction, such as Section 17 and 18 (Dust Control). Adhering to Caltrans Standard Specifications for Construction would also minimize visual impacts through the use of opaque temporary construction fencing that would be placed around construction staging areas.

Lighting during construction could potentially affect sensitive receptors due to potentially excessive brightness and additional light pollution. The potential for temporary impacts due to construction lighting will be avoided and minimized with implementation of Avoidance/Minimization Measure 4 (Construction Lighting), which would require the review of construction lighting types, plans, and placement to minimize light and glare impacts to surrounding sensitive uses.

Caltrans and the Federal Highway Administration mandate that a qualitative/aesthetic approach should be taken to address visual quality loss in the project area. This approach fulfills the letter and the spirit of Federal Highway Administration requirements because it addresses the actual cumulative loss of visual quality due to a project. This approach also results in avoidance, minimization, and/or mitigation measures that can lessen or compensate for a loss in visual quality. The inclusion of aesthetic features in the project design, discussed in Section II, can help generate public acceptance of a project. This section describes additional avoidance, minimization, and/or mitigation measures to address specific visual impacts. These will be designed and implemented with concurrence of the District Landscape Architect.

No-Build Alternative

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

Avoidance, Minimization and/or Mitigation Measures

The following measures to avoid or minimize visual impacts will be incorporated into the project:

To address impacts associated with the transition from agricultural landscape to transportation use including additional and wider pavement areas as well as the implementation of large structures, the following measure will be implemented:

Measure VR-1: Where feasible, Build Alternatives will use the existing highway right-of-way corridor.

To address impacts associated with the potential loss of vegetation and trees, the following measure will be implemented:

Measure VR-2: Vegetation clearing will only occur within the delineated project boundaries in an effort to minimize the impacts. Trees located in areas along the edge of the construction zone will be trimmed whenever possible, and only those trees that lie within the active construction areas will be removed. Replacement of trees removed within the active construction area will be replaced at a rate and size determined by the District Landscape Architect.

To address impacts associated with the potential for additional lighting that could affect sensitive receptors, the following measure will be implemented:

Measure VR-3: Construction lighting types, plans, and placement shall comply with Caltrans and local standards to minimize light and glare impacts on surrounding sensitive uses.

3.1.8 Cultural Resources

Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (for example, structures, bridges, railroads, water conveyance systems), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966 (NHPA), as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2014, a Section 106 Programmatic Agreement between the Advisory Council, Federal Highway Administration, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 U.S. Code 327).

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. The ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties. See Appendix C for specific information regarding Section 4(f).

Historical resources are considered under CEQA, as well as California Public Resources Code Section 5024.1, which established the California Register of Historical Resources (CRHR). Public Resources Code Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places (NRHP) listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its right-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

Affected Environment

A Historic Property Survey Report (HPSR), Historical Resources Evaluation Report (HRER), and Archaeological Survey Report (ASR) were approved by Caltrans in April and May 2015. The State Historic Preservation Officer provided formal concurrence in the eligibility recommendations presented in the Historic Property Survey Report and below on July 16, 2015 (see Appendix J). Due to sensitive and confidential information contained in the ASR, the ASR has not been included for public circulation.

The Area of Potential Effects for the project was established in consultation with Caltrans on May 14, 2015. The Area of Potential Effects was established as the area of direct and indirect effect and consists of approximately 15,215 acres. All direct permanent and temporary project effects as well as potential indirect effects will occur within the area identified within the boundary on the Area of Potential Effects map. The Direct Area of Potential Effects consists of approximately 4,042 acres.

The Area of Potential Effects lies in Stanislaus County, south of the cities of Riverbank and Oakdale and north of Modesto (Figure 3.1.8-1) and extends across rural, suburban and industrial areas. The Architectural Area of Potential Effects includes all parcels with built environment features that may be affected by the project; this Area of Potential Effects contains 740 parcels. The Architectural Area of Potential Effects also includes an Archaeological Area of Potential Effects, defined as the area that would be only directly and physically affected by the project.

Efforts to identify potential archaeological resources in the Direct Area of Potential Effects included a record search at the Central California Information Center, a review of historic topographical maps, efforts to coordinate with Native American representatives, and a pedestrian (walking) field survey. The Central California Information Center records search did not identify any previously recorded archaeological resources within the Direct Area of Potential Effects, but found a total of 40 archaeological surveys had been conducted within the current Area of Potential Effects. In addition, two more reports prepared and approved by Caltrans for other projects occurred directly within the Area of Potential Effects. As a result of this previous extensive survey coverage, only one prehistoric site has been identified: the resource is about one-half mile north of the northeastern limit of the Direct Area of Potential Effects. The remaining historic period resources appear to be built environment structures, many of which are still in use.

The project area was established and archival research and field investigations were undertaken in 2011 and 2014. The field investigations of architectural and archaeological resources within the proposed North County Corridor project Area of Potential Effects were conducted in 2011, 2012 and February, March, April, and May of 2014. The walking field survey for the Direct Area of Potential Effects was conducted between February and June 2014 and covered about 3,405 acres within and next to the Archaeological Area of Potential Effects. The archaeological field survey did not identify any archaeological sites. The architectural survey of 740 parcels identified 111 built environment resources requiring further evaluation to determine National Register of Historic Places/California Register of Historic Places eligibility. Of these, three were determined eligible (two as a result of this project and one previous determination), three are assumed eligible for the purposes of this project only, and 105 were determined not eligible (90 as a result of this project and 15 previous determinations).All other cultural resources were exempted under Attachment 4 of the Section 106 Programmatic Agreement. Caltrans consulted the State Historic Preservation Officer regarding eligibility determinations on May 20, 2015 and the State Historic Preservation Officer concurred on July 16, 2016 (see Appendix J). It should be noted that of the three properties assumed eligible, Caltrans had originally determined that two were not eligible. After further consultation with the State Historic Preservation Officer, Caltrans assumed a total of three properties eligible, for the purposes of this project only.

Archaeological Sites

Buried Archaeological Site Potential Findings

The agricultural and community development have most likely destroyed most surface traces of archaeological deposits within the Archaeological Area of Potential Effects. While the surface expression of the prehistoric landscape has been heavily altered or removed by agricultural and commercial practices of the 20th and 21st centuries, such alteration does not suggest that prehistoric cultural resources have been completely removed from the area. Due to the high sediment accumulation within the Central Valley, prehistoric sites may be deeply buried and remain intact beneath the ground surface. Based on the geoarchaeological study by Rosenthal and Meyer (2004), about 81 percent of the Direct Area of Potential Effects is located within soils determined to have a very low to low sensitivity for buried archaeological deposits. The remaining 19 percent of the Area of Potential Effects is located in areas found to have moderate (about 26 acres), high (about 443 acres), or very high (about 308 acres) sensitivity for buried archaeological deposits.

Currently, there are six bridges proposed within areas with high or very high sensitivity for buried archaeological deposits. The McHenry crossing has been developed by commercial buildings on the western side and an orchard on the eastern side. The Coffee Road crossing contains orchards to the west and east. The Sierra Road crossing has agricultural fields on either side of Sierra Road and the Sierra Railroad. The Stearns crossing contains pasture land to the west and row crops to the east. The Sierra Railroad crossing would span orchards to the south and pasture lands to the north, while the Irrigation Ditch/Canal crossing would span orchards to the north and south.

As discussed above, no prehistoric or historic era archaeological sites were identified during survey efforts; however, as access to the entirety of the Direct Area of Potential Effects was not possible due to right-of-entry limitations, archaeological site identification and evaluation is not complete. As additional cultural resource identification and evaluation efforts are needed, and as the Direct Area of Potential Effects has areas of high buried site sensitivity, Caltrans shall prepare 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 which have not yet been surveyed has been obtained.

Built Environment Resources

The Historic Resources Evaluation Report identified 111 properties that required evaluation to determine National Register of Historic Places/California Register of Historic Places eligibility. Of the 111 properties (Figure 3.1.8-1), 15 were previously evaluated for the National Register of Historic Places and were assessed as part of this project to determine whether the evaluations remained valid. A total of 92 properties required evaluation as part of this project. As a result, 90 properties were determined not eligible, two properties were determined eligible, and one property previously determined eligible was assessed and found to be still eligible. In addition, three properties were assumed eligible for the purposes of this project only, per VIII.C.4 of the Section 106 Programmatic Agreement.

On July 16, 2015, the State Historic Preservation Officer concurred with Caltrans' determinations of eligibility with the exception of two properties - Modesto Irrigation District Lateral No. 6 and Modesto Irrigation District Modesto Main Canal – which Caltrans had

determined to be not eligible (see Appendix J). The State Historic Preservation Officer requested additional information regarding the period of significance for these two properties before agreeing or disagreeing on Caltrans' eligibility determination. After additional consultation with the State Historic Preservation Officer, Caltrans assumed eligibility for the two properties in question.

The three built environment resources determined to be eligible and the three built environment resources assumed eligible for the National Register of Historic Places and California Register of Historical Resources are considered historic properties for the purposes of NEPA and historical resources for the purposes of CEQA. The six resources are as follows:

- Sierra Railroad Mainline, south of Oakdale (Figure 3.1.8-1, Map Reference 13)
- Riverbank Army Ammunition Plant District, at 5300 Claus Road, Riverbank (Figure 3.1.8-1, Map Reference 59)
- Adobe shop building, at 3212 Claribel Road, Modesto (Figure 3.1.8-1, Map Reference 63)
- Hetch-Hetchy Aqueduct, Moccasin-Newark Transmission Tower Line and associated Warnerville Substation (Figure 3.1.8-1, Map Reference 6) (assumed eligible)
- Modesto Main Canal (Figure 3.1.8-1, Map Reference 109) (assumed eligible)
- Modesto Irrigation District Lateral No. 6 (Figure 3.1.8-1, Map Reference 108) (assumed eligible)

Eligible Properties Descriptions

The *Sierra Railroad Mainline* (Map Reference 13) is eligible at the local level of significance under Criterion A for inclusion in the National Register of Historic Places and is currently listed in the California Register of Historical Resources as a contributor to the existing Sierra Railroad Historic District in Jamestown, California; this property is, therefore, a historical resource for the purposes of CEQA. As the first railroad constructed from the San Joaquin Valley to the Jamestown region, it is significant for its role in the economic development of Tuolumne County, specifically in the quartz and lumber industries. Its period of significance is from 1897 to 1932. The boundaries are the Sierra Northern Railway right-of-way. Contributing elements include its roadbed and ballast, rails, wood cross ties, base plates, spikes, and rail joiners. Noncontributing elements include modern crossing guards, concrete culverts, concrete road-crossing plates, and defect detector/equipment sheds.

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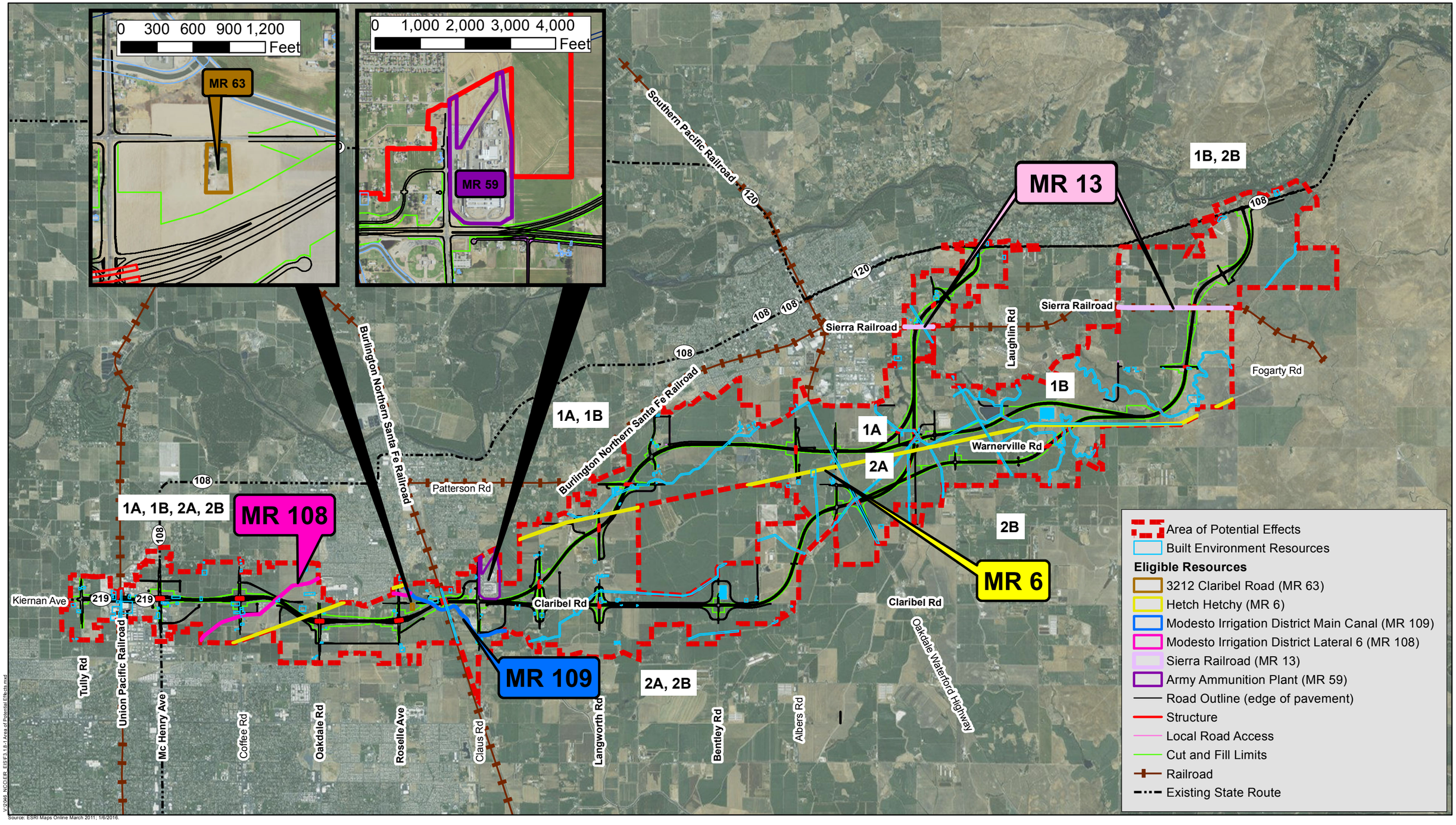


V:\2046 NCGER EIS\F3.1.8-1 Area of Potential Effects.mxd

Source: ESRI Maps Online March 2011; 1/6/2016.

1 inch = 6,000 feet

0 1 2 3 4 5 Miles

FIGURE 3.1.8-1
Area of Potential Effects
EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

The *Riverbank Army Ammunition Plant District* (RBAAP) (Map Reference 59), 5300 Claus Road, Riverbank, is eligible, at the local level of significance, under National Register of Historic Places Criterion A and California Register of Historical Resources Criterion 1 for its role as a war production facility during World War II, the Korean War, and the Vietnam War. It is also eligible at the local level of significance under National Register of Historic Places Criterion C and California Register of Historical Resources Criterion 3 as a prime example of the Industrial/Functionalism architectural style. The Riverbank Army Ammunition Plant District is a historical resource for the purposes of CEQA. Its period of significance for its association with wartime production is from 1942 to 1975. The boundaries encompass all contributing buildings and structures located within APN 062-031-005 boundaries and does not include the entire parcel. Contributing elements to the historic district include 158 buildings and structures built between 1942 and 1975, including a substation connecting to the Hetch-Hetchy Moccasin-Newark Transmission line and a railroad spur connecting to the BNSF. Non-contributing elements include 25 buildings, parking lot, and structures constructed after 1975.

The *adobe shop building at 3212 Claribel Road* (Map Reference 63) in Modesto is eligible for inclusion in the National Register of Historic Places at the local level of significance under Criterion C and the California Register of Historical Resources under Criterion 3 as a rare surviving example of a modern adobe ancillary building. It is one of only a handful of adobe buildings dating to the 1930s in California, and is the only known adobe building in Stanislaus County. Its period of significance is 1936. The building is also a historical resource for purposes of CEQA. The resource boundary of the adobe shop does not extend beyond the limits of the building itself. Character-defining features include the shop building's adobe brick structural system and plaster or smooth-finish stucco wall cladding, wood clad shed area, suspended wood plank sliding doors, and open, triangular gaps at the gable peak. Non-character-defining features include the two hitching posts. Noncontributing elements on the property include the 1940 residence, the c. 1940 detached garage, and the 1952 pre-fabricated Quonset hut.

The *Hetch-Hetchy Aqueduct, Moccasin-Newark Transmission Tower Line and Warnerville Substation* (Map Reference 6) are assumed eligible per VIII.C.4 of the Section 106 Programmatic Agreement for the purposes of this project; for inclusion in the National Register of Historic Places and California Register of Historical Resources as part of a larger potential historic district which includes the Hetch-Hetchy dam, aqueduct, electrical transmission towers and substations, and associated work camps. The potential historic district is assumed eligible under Criteria A/1 and C/3 at the state level of significance, for its association as instrumental in the growth of San Francisco, and for innovative engineering techniques. The Hetch-Hetchy aqueduct and transmission tower line were constructed to provide water to the City of San Francisco, and electrical power throughout the multiple counties it crossed from Tuolumne to San Francisco County.

The Hetch-Hetchy Aqueduct, Moccasin-Newark Transmission Tower Line and Warnerville Substation are historical resources for purposes of CEQA. The aqueduct is not visible, but runs directly below the transmission towers. Within the Area of Potential Effects, the Hetch-Hetchy Aqueduct and transmission line share a resource boundary that includes an approximately 200-foot right-of-way; the Warnerville Substation resource boundary is the APN limits. Character-defining features of the resources include the metal lattice transmission towers with cross arms, and the substation building.

The *Modesto Irrigation District Modesto Main Canal* (Map Reference 109) is assumed eligible per Stipulation VIII.C.4 of the Section 106 Programmatic Agreement for the purposes of this project for inclusion in the National Register of Historic Places and California Register of

Historical Resources as part of a larger potential historic district: the Modesto Irrigation District canal system, which was one of the earliest canal systems in the county and the San Joaquin Valley. The potential historic district is assumed eligible under Criterion A/1 at the local level of significance for its contribution to agricultural development in Stanislaus County. The Modesto Irrigation District Modesto Main Canal, portions of which are in the Area of Potential Effects, is considered a historical resource under CEQA for the purposes of this project.

The *Modesto Irrigation District Lateral No. 6* (Map Reference 108) is also assumed eligible per VIII.C.4 of the Section 106 Programmatic Agreement for the purposes of this project for inclusion in the National Register of Historic Places and California Register of Historical Resources as part of the Modesto Irrigation District canal system potentially historic district. The Modesto Irrigation District Lateral No. 6, portions which are in the Area of Potential Effects, is also considered a historical resource under CEQA for the purposes of this project.

Environmental Consequences

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

Currently, six bridges are proposed within areas with high or very high sensitivity for buried archaeological deposits. These areas include the proposed crossing of McHenry Avenue (Alternatives 1A, 1B, 2A, 2B); Coffee Road (Alternatives 1A, 1B, 2A, and 2B), Sierra Road (Alternatives 1A and 2A), Stearns Road (Alternatives 1A, 2A); Sierra Railroad (Alternatives 1B, 2B) and an irrigation ditch/canal about 50 miles north of Fogarty Road (Alternatives 1B, 2B). Anticipated depth of ground disturbance in these areas ranges from 20 feet to 70 feet below ground surface, depending on the need for piles.

As stated earlier, access to the entirety of the Direct Area of Potential Effects was not possible due to right-of-entry limitations; therefore, archaeological site identification and evaluation is not complete at this time. After the preferred alternative is selected, an attempt will be made to obtain additional Permits to Enter (PTEs) to conduct pedestrian surveys in areas not previously surveyed within the footprint of the preferred alternative as additional cultural resource identification and evaluation efforts are needed. If these PTEs are not obtained, Caltrans shall prepare 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 which have not yet been surveyed has been obtained. Possible 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 will also include a stipulation for the preparation of a post-review discoveries plan to be implemented during construction of the project. Caltrans will submit the Programmatic Agreement to the State Historic Preservation Officer for review and concurrence. The State Historic Preservation Officer must approve of the stipulations with the Programmatic Agreement by being a signatory on the document prior to completion of the final environmental document. The Section 106 process will not be completed for this project until the Programmatic Agreement is in place.

In addition to the Programmatic Agreement, Caltrans will prepare and submit a Finding of Effects document to the State Historic Preservation Officer for review and comment. The document will consider the effects of the undertaking on the historic properties discussed below. Although identification and evaluation efforts are not yet complete, it is anticipated that there will be no adverse effect to the historic properties/historical resources identified within the APE, as

summarized below. The State Historic Preservation Officer must concur with the finding of effect determination prior to completion of the final environmental document.

Historic Properties/Historical Resources: Sierra Railroad Mainline

The project will not directly affect the Sierra Railroad, but would have a visual affect due to a necessary overcrossing. The resource will be crossed one time under each of the four alternatives. This overcrossing would have a minor indirect effect on the historic resource's setting but would not change the characteristics of the historic railroad that make it eligible for inclusion in the National Register of Historic Places/California Register of Historical Resources under Criterion A/1. It is anticipated that there will be no adverse effect to this historic property/historical resource.

As the resource is a historic property, it is protected under Section 4(f) of the Transportation Act of 1966 as a Section 4(f) resource, and the project's use of the resource must be evaluated. A summary of the project's impact upon this Section 4(f) resource is contained within Appendix C.

Riverbank Army Ammunition Plant District

The project will have no direct effects on the Riverbank Army Ammunition Plant District or any of its contributing resources and will have no adverse visual effects from the project. The project will be the same elevation as the current roadway in the vicinity of the district, and the road widening would have a minor indirect effect on the historic resource's setting and would not change the characteristics of the industrial plant that make it eligible for inclusion in the National Register of Historic Places/California Register of Historical Resources under Criteria A/1 and C/3. All four build alternatives will result in the same, minor indirect effect. It is anticipated that there will be no adverse effect to this historic property/historical resource.

As the resource is a historic property, it is protected as a Section 4(f) resource and the project's use of the resource must be evaluated. A summary of the project's impact upon this Section 4(f) resource is contained within Appendix C.

Adobe at 3212 Claribel Road

All four build alternatives will visually affect the resource through construction of an adjacent overcrossing and adjacent roadway. The project will have no direct effects to the adobe shop building, or any other structure, within the parcel at 3212 Claribel Road. While the introduction of an overcrossing and new roadway would have an indirect effect on the historic resource's setting, this indirect effect would not change the characteristics of the historic structure that make it eligible for inclusion in the National Register of Historic Places/California Register of Historical Resources under Criterion C/3. It is anticipated that there will be no adverse effect to this historic property/historical resource.

Based on the current alignment of the alternatives, there will be no use of the adobe building at 3212 Claribel Road, as there will be no impacts to the resource during construction of the project. In order to construct the proposed project, 6.3 acres of farmland would be required of the parcel associated with the farm complex at 3212 Claribel Road; however, there will be no encroachment into the historic property's recorded boundary nor will there be any impact to the adobe building. As the resource is a historic property, it is protected as a Section 4(f) resource and the project's use of the resource must be evaluated. A summary of the project's impact upon this Section 4(f) resource is contained within Appendix C

Hetch-Hetchy Aqueduct, Moccasin-Newark Transmission Tower Line and Warnerville Substation

The project will have minimal direct effects to the Hetch-Hetchy Aqueduct, Moccasin-Newark Transmission Tower Line, or the Warnerville Substation. The project would have a minor indirect effect on the historic resource's setting, but would not change the characteristics of the resource that make it eligible under California Register of Historical Resources/National Register of Historic Places 1/A and 3/C as part of a larger potential historic district. Alternatives 1A, 1B, and 2B will each cross the resource 12 times (two major crossings and 10 minor crossings) and require the relocation of eight valve boxes. Alternative 2A will cross the resource six times (two major crossings and four minor crossings) and require relocation of three valve boxes. The North County Corridor crossings are at grade along Hetch-Hetchy facilities. North County Corridor crosses underneath the Transmission Tower Line (power transmission lines) with no disturbance to the overhead lines. North County Corridor crosses over the aqueduct (water transmission pipelines) with no disturbance to the pipelines. The pipelines are approximately 3 feet below grade. The pipelines would be protected in place with standard encasement below the pavement section. Valve boxes would be relocated outside of the Caltrans right-of-way and access would be provided. The crossing of the resource and the relocation of the valve boxes constitutes a use of the resource, as defined under Section 4(f) of the Department of Transportation Act of 1966. As the resource is a historic property, it is protected as a Section 4(f) resource and the project's use of the resource must be evaluated. A summary of the project's impact upon this Section 4(f) resource is contained within Appendix C. It is anticipated that there will be no adverse effect to this historic property/historical resource.

Modesto Irrigation District Modesto Main Canal

The project will have a direct effect to the Modesto Irrigation District Modesto Main Canal. The resource will be crossed three times under each build alternative, which also constitutes a use of the resource, as defined under Section 4(f) of the Department of Transportation Act of 1966.. These crossings will consist of two elevated crossings and one at-grade crossing and will not adversely affect the function of the canal or affect the eligibility for inclusion in the National Register of Historic Places/California Register of Historical Resources. The setting of the resource would change at the crossing location, but a change in setting would not affect the eligibility of the resource. It is anticipated that there will be no adverse effect to this historic property/historical resource. As the resource is a historic property, it is protected as a Section 4(f) resource and the project's use of the resource must be evaluated. A summary of the project's impact upon this Section 4(f) resource is contained within Appendix C

Modesto Irrigation District Lateral No. 6

The project will have a direct effect on the Modesto Irrigation District Lateral No. 6. The resource will be crossed four times under each build alternative, which also constitutes a use of the resource, as defined under Section 4(f) of the Department of Transportation Act of 1966. All four crossings will be at grade. The new crossings will not adversely affect the function of the canal or affect the eligibility for inclusion in the National Register of Historic Places/California Register of Historical Resources. The setting of the resource would change at the crossing location, but a change in setting would not affect the eligibility of the resource. It is anticipated that there will be no adverse effect to this historic property/historical resource. As the resource is a historic property, it is protected as a Section 4(f) resource and the project's use of the resource must be

evaluated. A summary of the project's impact upon this Section 4(f) resource is contained within Appendix C.

Temporary Construction Impacts

Implementation of the project would not cause temporary construction impacts on any known archaeological or historic resources.

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy to halt work in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. Further provisions of PRC 5097.98 are to be followed as applicable.

No-Build Alternative

Under the No-Build Alternative, because no construction activities would occur, no effects of any kind would occur to historic properties in the project area.

Avoidance, Minimization and/or Mitigation Measures

It is anticipated that there will be no adverse effects to historic properties/historical resources and as such, no mitigation measures are proposed; however, as stated earlier, access to the entirety of the Direct Area of Potential Effects was not possible due to right-of-entry limitations; therefore, archaeological site identification and evaluation is 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 shall prepare 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 which have not yet been surveyed has been obtained. Given the high buried resource sensitivity in some areas of the Direct Area of Potential Effects, the Programmatic Agreement will also include a stipulation for the preparation of a post-review discoveries plan to be implemented during construction of the project. Caltrans will submit the Programmatic Agreement to the State Historic Preservation Officer for review and concurrence. The State Historic Preservation Officer must approve of the stipulations within the Programmatic Agreement by being a signatory on the document prior to completion of the final environmental document.

The following measure is presented to minimize and avoid impacts to historic properties/historical resources:

Measure CR-1: After the preferred alternative is selected, an attempt will be made to obtain additional Permits to Enter (PTEs) to conduct pedestrian surveys in areas not previously surveyed within the footprint of the preferred alternative. Using extant data, a fine-grained

assessment will be made of the preferred alternative's subsurface deposit potential. Based on this assessment, a plan to sample areas with potential for subsurface deposits will be created. PTEs for invasive work will be obtained and fieldwork will be conducted. Any cultural resources discovered as a result of these efforts will be evaluated for the National Register of Historic Places. If PTEs cannot be obtained, then a Programmatic Agreement will be prepared 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 which have not yet been surveyed has been obtained.

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

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

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 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

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

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 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 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 due to the widening of the travel way and construction of new roadway will be captured and contained in roadside longitudinal ditches and 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

<u>Existing and Potential Water Supplies; Water Conservation</u>

Throughout the project area, domestic wells are used to supply drinking water. Being a transportation project, the project will not directly result in an increase 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 Department's Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department's 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 Department's 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	0 to 1 percent	3.9%

Soil Symbol	Soil Name	Slope	Percent of Total Project Area
	over silt		
HdsA	Hanford sandy loam, deep over silt	0 to 1 percent	< 0.1%
HtA	Hopeton clay loam	0 to 3 percent	0.9%
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%

(NRCS, 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 APD.

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 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 preparation of a Paleontological Mitigation Plan to be implemented in the event of discovery.

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: Based on the results of the Paleontological Evaluation Report, it is recommended that a Paleontological Mitigation Plan (PMP) be prepared by a qualified paleontologist in accordance with the Caltrans Standard Environmental Reference guidelines. The Paleontological Mitigation Plan should be prepared following selection of a preferred alternative and when the design has reached a sufficient level of detail to accurately determine potential impacts to paleontological resources.

The Paleontological Mitigation Plan should incorporate 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 from the construction 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 July 2015 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 (within the limits of and next to Alternatives 1A and 1B).

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

V:\20\46 NCC\EIR EIS\F 3.2.4-1 Risk Level\F3.2.4-1Page1 ISA.mxd

Source: ESRI Maps Online March 2011; 1/6/2016.

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	Grading, partial parcel impact.
062-031-005	Riverside 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 United States 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 United States 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.

A Finding of Suitability for Early Transfer was prepared between the U.S. Army and the Riverbank Local Redevelopment Authority in 2010, which transferred management of the property from the U.S. Army to the Riverbank Local Redevelopment Authority in a master lease agreement. 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

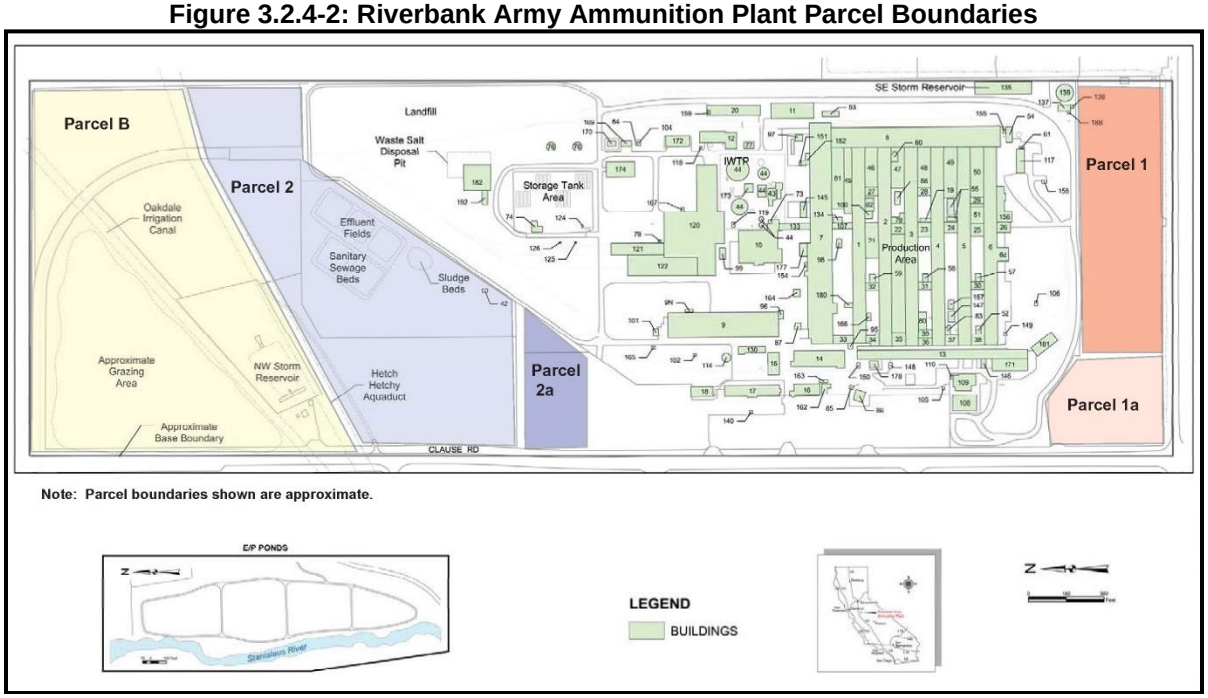
the property, including remediation of contaminated groundwater, groundwater monitoring, and long-term monitoring of the landfill cap, even while Riverbank Local Redevelopment Authority is the manager of the property.

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 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 currently for sale by the U.S. Army through the Defense Base Closure and Realignment Commission in advance of remediation being complete. 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 and a Preliminary Site Investigation including additional sampling and testing typically would be considered during this phase (PA&ED). 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.

Figure 3.2.4-2: Riverbank Army Ammunition Plant Parcel Boundaries



Source: Finding of Suitability for Transfer (2010)

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

This parcel is currently being used for agriculture. A records search indicated that the parcel has been historically used as a crop-dusting facility and contained underground and aboveground storage tanks. Crop-dusting facilities can be the source of significant contamination depending on the age and use of the facility. A Closure and Abatement Order issued by the Regional Water Quality Control Board has not been completed and the Order is still in effect. The following is a summary of the identified contaminants and abatement conducted to date.

In 1986, an on-site pond measuring about 100' x 60' by 5' deep containing pesticide rinseate and washwater was identified as having leaked. The Central Regional Water Quality Control Board Valley Region sent a Surface Impoundment letter to the responsible party in 1987 and a Closure and Abatement Order letter in 1989. In 1987, discharges to the pond ceased, the pond liner was removed, and sludge was stockpiled onsite. This parcel was subject to the Toxic Pits Control Act and listed on the Toxic Pits Cleanup Act Sites database maintained by the State Water Resources Control Board, and completed its Cease Discharge order on June 30, 1989, and the case was closed on June 30, 1993.

Soil sampling conducted in 1988, 1989, and 1994 identified methoxychlor, diuron, dieldrin, 3-(1,1-dimethylethyl) phenol, MCPA/MCPP, DDE, arsenic, and copper in soil. A perched water zone was identified between about 4 and 9 feet below ground surface. The perched water contained 1,1-dichloroethene, chloroform, 1,2-dichloroethane, 1,1,1-trichloroethane, carbon tetrachloride, bromodichloromethane, dicofol, pentachloronitrobenzene, methomyl , bis (2-ethylhexyl) phtalalate, and sulfate.

In 1989, an additional 6 inches of soil was removed from the base of the pond. In 1992, about 750 cubic yards of soil were excavated and biologically treated on-site. A Closure Underground Gasoline Tanks report was conducted in 1992 and soil contamination from the gasoline tanks was not detected. These two on-site underground fuel tanks were removed and received closure from Stanislaus County.

Additionally, in 1992, a monitoring well was installed to monitor groundwater quality between 80 and 100 feet below ground surface. Results of monitoring indicated the groundwater was impacted by contamination from the on-site pond leak. Contaminats disovered in the groundwater included copper, bromodichloromethane, chloroform, benomyl and dacthal. An onsite domestic well that draws water from about 177 feet below ground surface did not contain these compounds.

In 1994, Stanislaus County Environmental Services Department determined that the soil treatment was complete and these soils could remain in place (still an issue). The pond was backfilled with clean soil.

An Oversight Cost Reimbursement letter and Status Cleanup and Abatement Order were sent in 2012 by Central Regional Water Quality Control Board Valley Region.

The remaining actions required by the Cleanup and Abatement Order include assessing the extent of pollution, and removing pollutants from soil and groundwater. The conditions that were present when the Cleanup and Abatement Order was issued may no longer pose an environmental concern. Natural attenuation processes are occurring including dilution, dispersion, and degradation and the effect of these processes will be determined by further investigation. If significant contamination is identified by the further investigation, then mitigation may be needed.

Therefore, a Preliminary Site Investigation including some sampling and testing should be completed to determine the vertical and lateral extent of potential contamination if the alternatives through this parcel are selected. However, based on the draft environmental document timing, review, and potential cost associated with a Preliminary Site Investigation, additional work should be completed only prior to the final environmental document if Alternative 1A or 1B is selected. Implementation of Measure HW-2, which requires Phase II Environmental Site Assessment to assess the potential for hazardous subsurface contamination to be performed, shall be implemented.

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.

Following the completion of the draft environmental document, after the Preferred Build Alternative for the North County Corridor has been selected, medium-risk sites (depending on the impacts) will likely require some level of Preliminary Site Investigation. Depending on the alternative selected and the impacts to the medium-risk sites, 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.

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. Sampling and additional assessments will be required where project alignments cross railroad lines.

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.

No-Build Alternative

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 the selected alternative would be done before the final environmental document 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 before project construction. Results of the site investigation will be reported in the final environmental document. 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 comply with its policy with regard to acquisition of contaminated property as required by the project. 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 (October 2015), a preliminary assessment of cost for remediation (cleanup) of hazardous materials is estimated to be $6,200,00 for Alternative 1A, $6,400,000 for Alternative 1B, $6,200,000 for Alternative 2A, and $6,600,000 for Alternative 2B. The Hawke Dusters site 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 US Army Corp of Engineers and is anticipated to be completed by the end of 2017. The cost estimate will be revisited after the Preliminary Site Investigation is complete once a preferred alternative is selected. 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 the start of construction, a Phase II Environmental Site Assessment (ESA) shall be performed to assess the potential for hazardous subsurface contamination. The Phase II ESA should 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 adjacent to the 2 high-risk and 82 medium-risk parcels (depending on the Build Alternative chosen, the number of medium-risk parcels would change). The Phase II ESA should also provide a Health Safety Plan for worker safety and a work plan for handling and disposing of contaminated soil during construction. Prior to the final environmental document, after a preferred Alternative is chosen, medium-risk sites (depending on the impacts) will likely require some level of Preliminary Site Investigation (PSI). Depending on the alternative selected and the impacts to the medium-risk sites, 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.

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 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 (4^{th} 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	---	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.	Attainment	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.

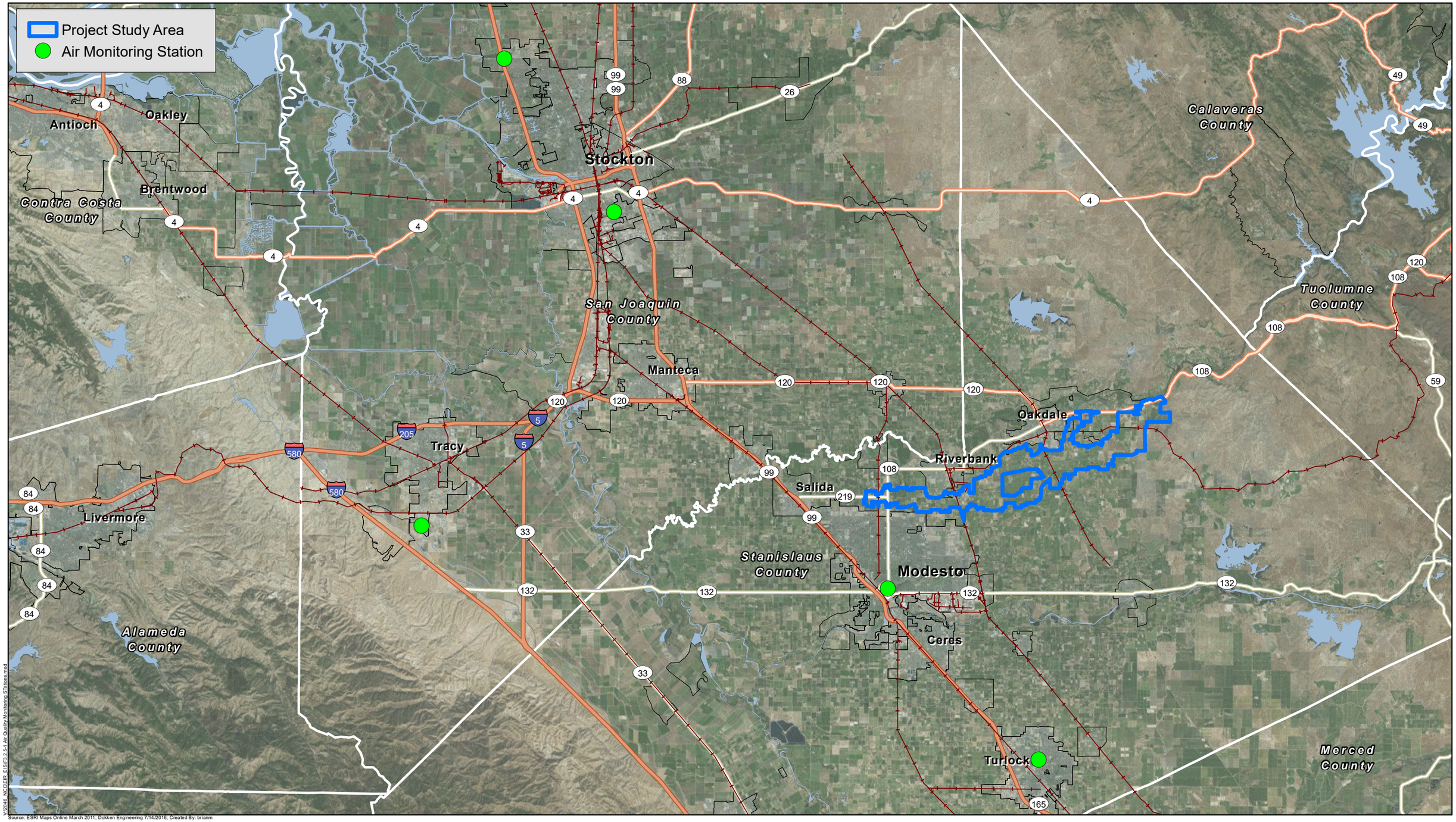
$\mu g/m^3$ = micrograms per cubic meter
The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. The 15 $\mu g/m^3$ annual $PM_{2.5}$ standard was not revoked when the 12 $\mu g/m^3$ standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard 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.



1 inch = 25,000 feet

0 2 4 6 8 10 Miles

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	0.088	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	0.082	0.09	0.09
	Federal:	0.078	0.091	0.082	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 Concentration						
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 Concentration		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 2014 Regional Transportation Plan (RTP). The project is also included in the StanCOG financially constrained 2015 Federal Transportation Improvement Program (FTIP). The StanCOG 2014 Regional Transportation Plan and 2015 Federal Transportation Improvement Program were found to conform by StanCOG on June 18, 2014, and Federal Highway Administration and Federal Transit Administration completed the regional conformity determination on December 15, 2014 (see Appendix G). The design concept and scope of the proposed project is consistent with the project description in the 2014 Regional Transportation Plan, 2015 Federal Transportation Improvement Program, and the "open to traffic" assumptions of the StanCOG 2014 Air Quality Conformity Analysis (StanCOG 2014a).

The project was included in the regional emissions analysis conducted by StanCOG for the conforming 2014 Regional Transportation Plan (StanCOG 2014b). 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 POAQC. Caltrans also provided concurrence that the project is not a POAQC on January 22, 2015. The concurrence letters and e-mail correspondence is included in Appendix K.

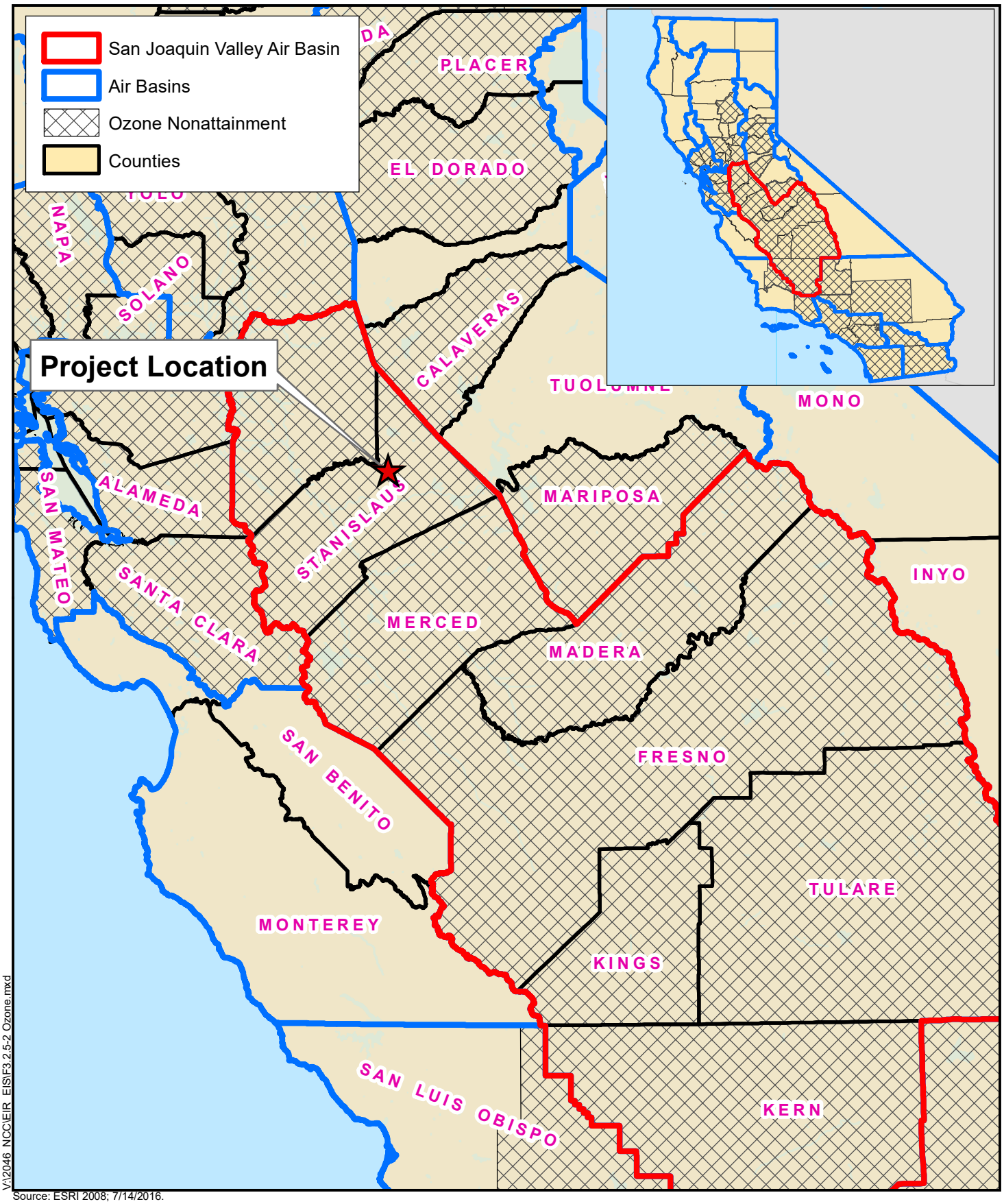
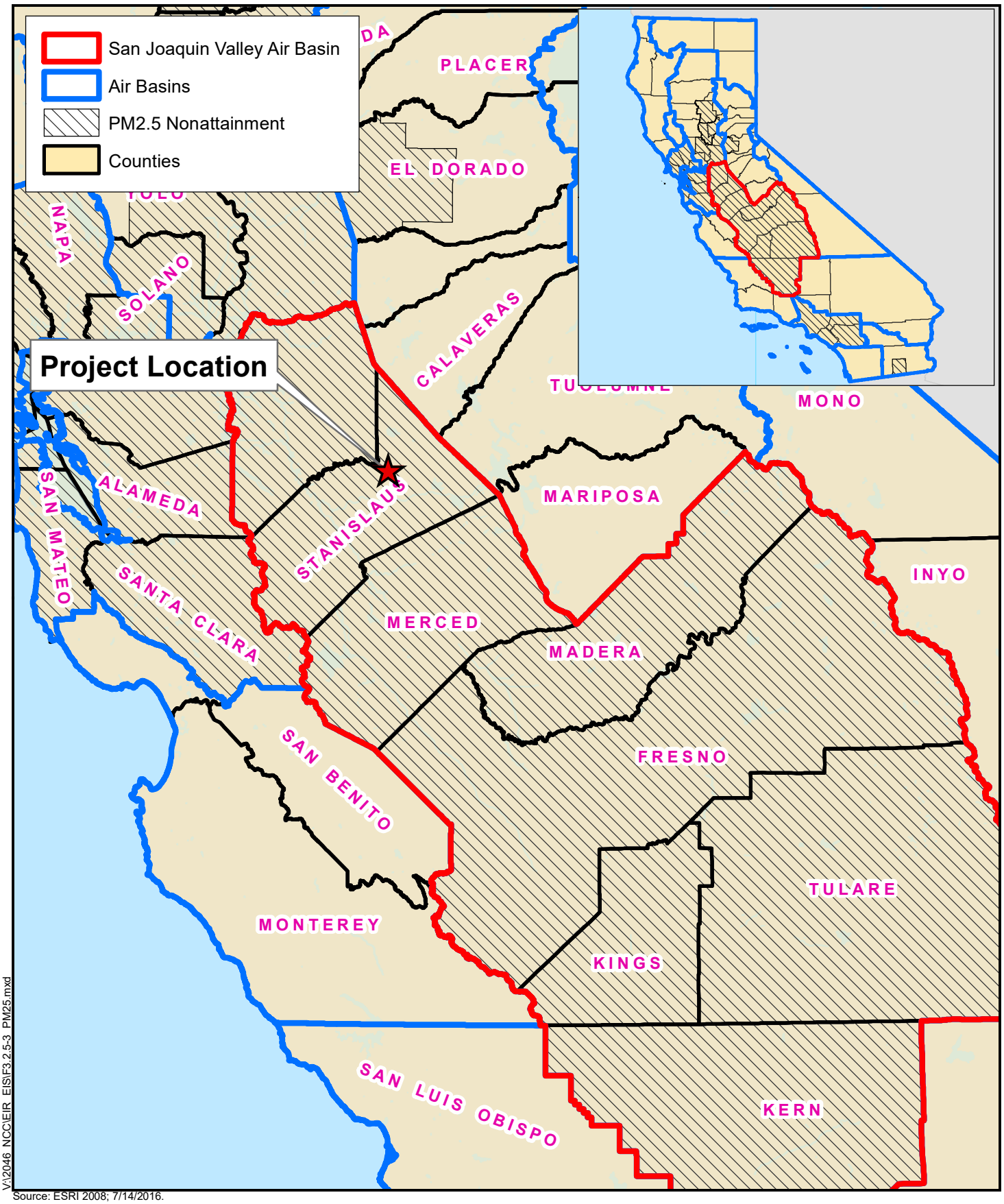


FIGURE 3.2.5-2
Ozone Nonattainment Area
EA: 10-0S8000, Project ID# 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California



V:\2046 NCC\EIR_EIS\F3.2.5-3_PM25.mxd

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 (2042) 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 2014 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 expected by the end of the year 2014.

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 2014 Regional Transportation Plan and 2015 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 2014 Regional Transportation Plan/2015 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 (2042) 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: 2022 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

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: 2022 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

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: 2042 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

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: 2042 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

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 – 2022 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

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 – 2042 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
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: 2042 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

[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: 2042 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

[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: 2042 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

[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: 2042 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

[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)).

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.

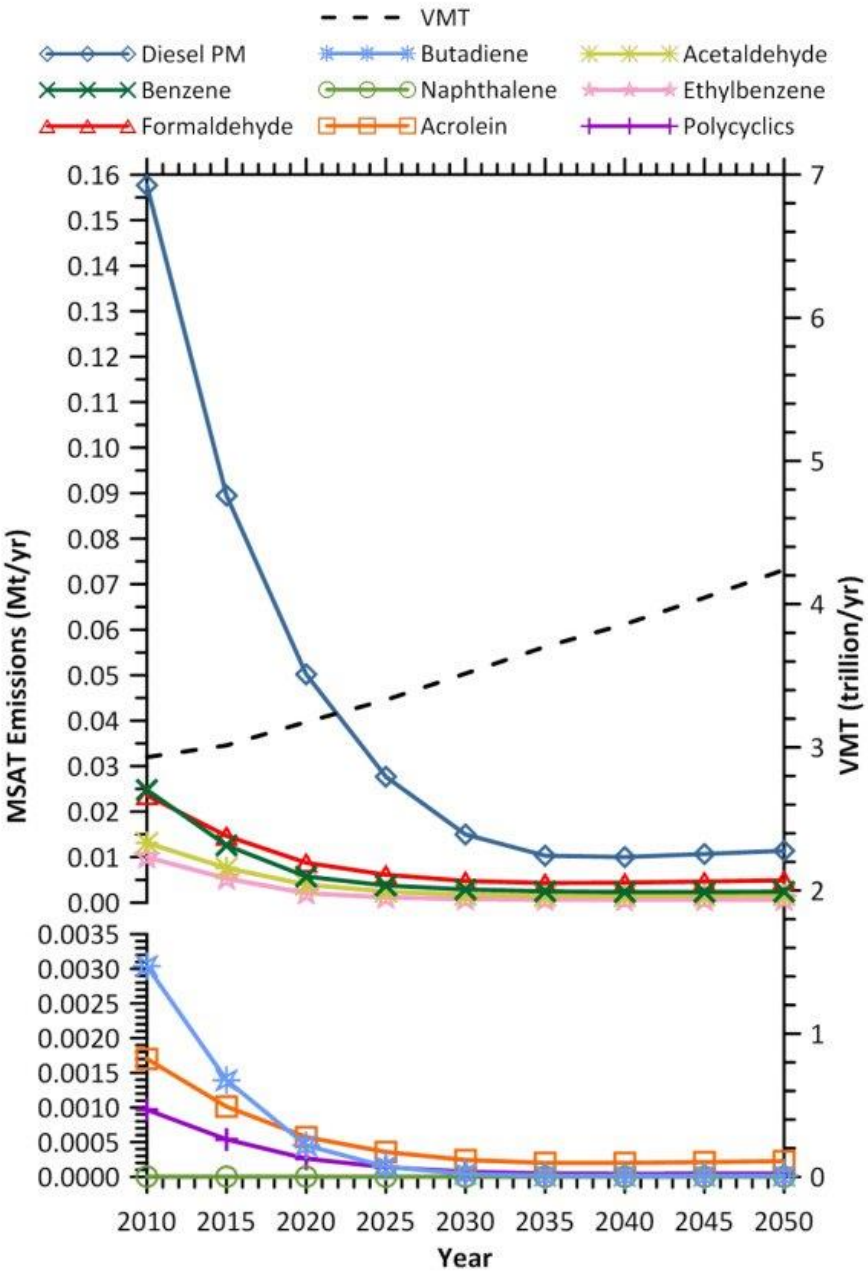
Motor Vehicle Emissions Simulator (MOVES)

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), 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 Emmissions 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.

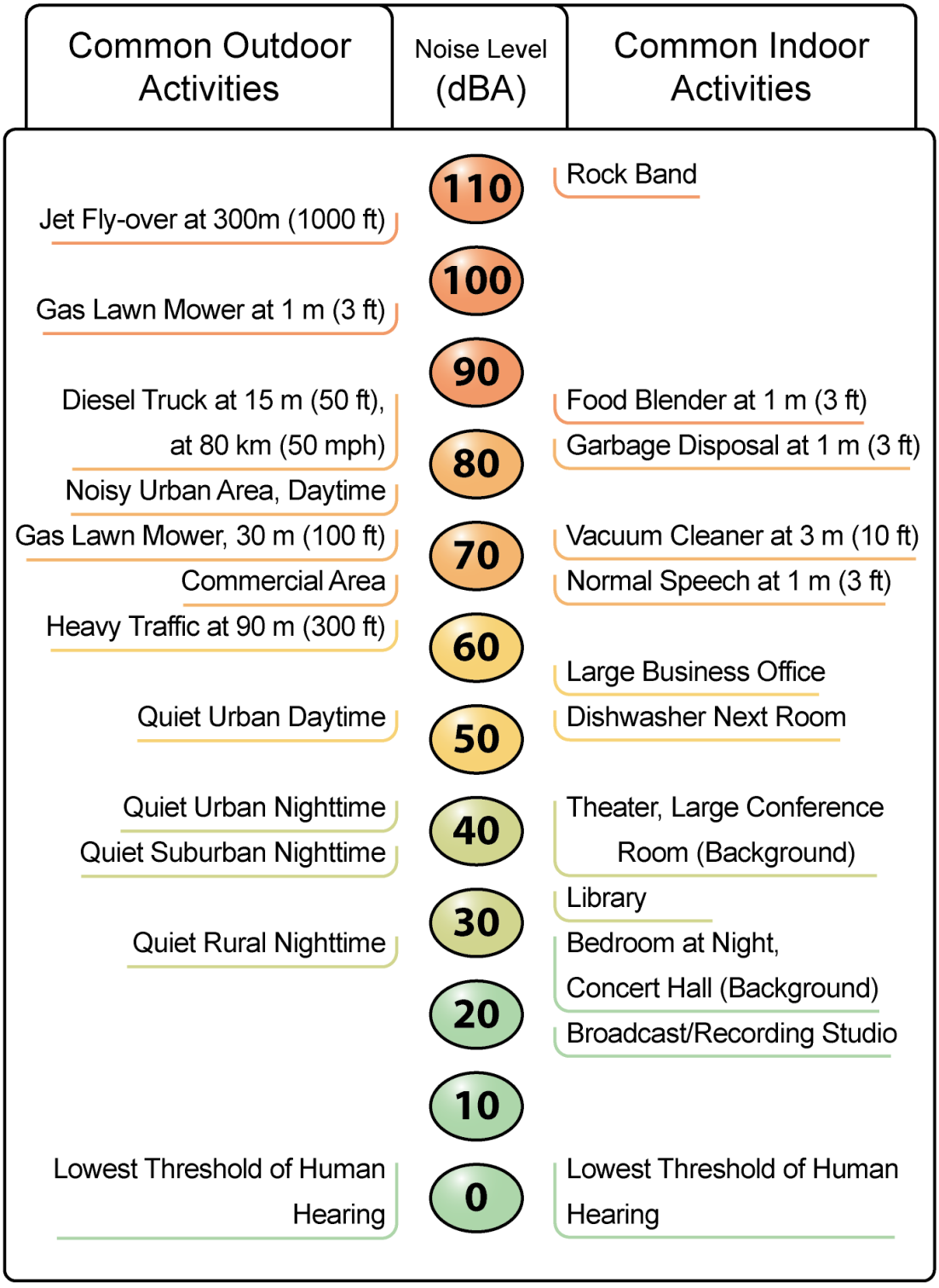


Figure 3.2.6-1: Noise Levels of Common Activities

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 (July 2016) and Noise Abatement Decision Report (July 2016) 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). 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 Receiver 2.1, receivers 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. Receiver 2.1 experiences a decrease because the new alignment is shifted away from this receiver. Noise levels for the other receivers 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 receiver at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Kiernan Avenue and McHenry Avenue. Single-family residence represented by Receiver 3.1 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 receiver. Noise levels for these receivers 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 exceed at this location, a barrier is considered at this location.

Receiver 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 receiver would not exceed 72 dBA for NAC Activity Category E. As the NAC is not approached or exceed for any receiver at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Receiver 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 receiver would not exceed 67 dBA for NAC Activity Category C. As the NAC is not approached or exceed for any receiver at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Between McHenry Avenue and Coffee Road. Receiver 4.1 represents a single-family residence that would become a first row receiver under future Build conditions due to right of way acquisition for the realignment of Kiernan Avenue. Receivers 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. Receiver 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 receiver at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Receiver 4.6 represents undeveloped land, and is classified as a NAC Activity Category G, and Receiver 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. Receiver 5.1 represents the single-family residences on Coffee Road, south of Claribel Road. This receiver 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 receiver 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. Receiver 6.1 represents single-family residences along Coffee Road, north of Claribel Road. This receiver 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 receiver 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. Receivers 7 through 8.1 represent receivers located within the Morningside Mobile Home Park. These receivers experience a decrease over No-Build noise levels resulting from the realigned roadway moving farther away from these receivers. Noise levels for these receivers 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 receiver 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 receivers 10.1 through 10.5. These receivers 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 receivers. The traffic volumes on the new alignment and the close proximity to these sensitive receivers 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 receiver at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Claribel Road and Roselle Avenue. Receivers 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 receivers that have the greatest increase in noise levels are receivers 13.1 and 13.2 due to traffic under the Build Alternative conditions increases on Roselle Avenue. However, traffic decreases on Claribel Road near receiver 14.2 therefore, this receiver 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 receiver at this location, and no substantial increase in noise is identified, no barriers are considered at this location.

Terminal Avenue to Claus Road. Receivers 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. However, Receivers 16.2 through 16.5 and 17.2, represent residences along Claus Road, do not experience increases in noise levels over Build conditions. The greatest increase in noise levels occurs at receivers 19.1, 19.3 and 19.4. Receivers 19.1 and 19.2 represent the single-family residences in the Olive Lane Trailer Park. Receivers 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 receivers along Claus Road that exceed 67 dBA for NAC Activity Category B. As the NAC is exceed 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 and no barrier is considered.

Receiver 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 receivers are affected by Alternatives 1 and 2. Therefore, noise levels would be discussed for each receiver by alternative within this segment.

Alternative 1A and 1B. A majority of these receivers are individual single-family residences on farmland not located near heavily travelled roadways. Under the Existing and No-Build conditions, these receivers experience a serene noise environment. However, under Build conditions, Receivers 21.1 through 21.6 and Receivers 25.3 through 26.2 experience the greatest substantial noise increases in noise levels due to the new alignment shifting traffic closer to these receivers, causing some of these receivers 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 exceed 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 receivers are individual single-family residences on farmland not located near roadways. Under the existing conditions, Receivers 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 receivers 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 receiver 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 receivers are individual single-family residences on farmland not located near heavily travelled roadways. Under the Existing and No-Build conditions, these receivers experience a serene noise environment. However, under Build conditions, Receivers 30.12 through 33.9 experience noise level increases due to increases in traffic volumes and the new alignment shifting traffic closer to these receivers. The greatest increases occur at receivers 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, Receivers 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 receivers 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 exceed 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 receivers in this area are individual single-family residences on farmland not located near roadways. Receivers 27.1 through 42.3 experience noise level increases due to increases in traffic volumes and the new alignment shifting traffic closer to these receivers. Under the existing and No-Build conditions, these receivers experience a serene noise environment. However, under Build conditions, noise levels at some receivers 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 exceed 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

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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-2	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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	No Barrier		0	SFR	6224 Kaufman Rd, Oakdale	41	41	43	0	2	2	B (67)	N/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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 receiver. 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 receivers 26.3, 28, 28.1, 30.12, 30.13 are representative of background noise sites. No traffic near receivers under Existing and No-Build conditions.

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

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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 receiver. 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 Receivers 30.9, 30.11, 37.2 are representative of background field measurement. No traffic near receivers under Existing and No-Build conditions.

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

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Receivers (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 Conditions	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
12.3	No Barrier		1	SFR	2966 Blacksand Creek Wy, Riverbank	50	53	52	3	2	-1	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	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	5023 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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Receivers (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 Conditions	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
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	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 receiver. 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 receivers 27.2, 30.1, 30.12 are representative of background noise sites. No traffic near receivers under Existing and No-Build conditions.

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

Receiver 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																											
							Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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 Conditions	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	--	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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			
12.1	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Receiver 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 Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (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			
21.7	No Barrier		1	SFR	5023 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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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 receiver. 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 receivers 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 receivers 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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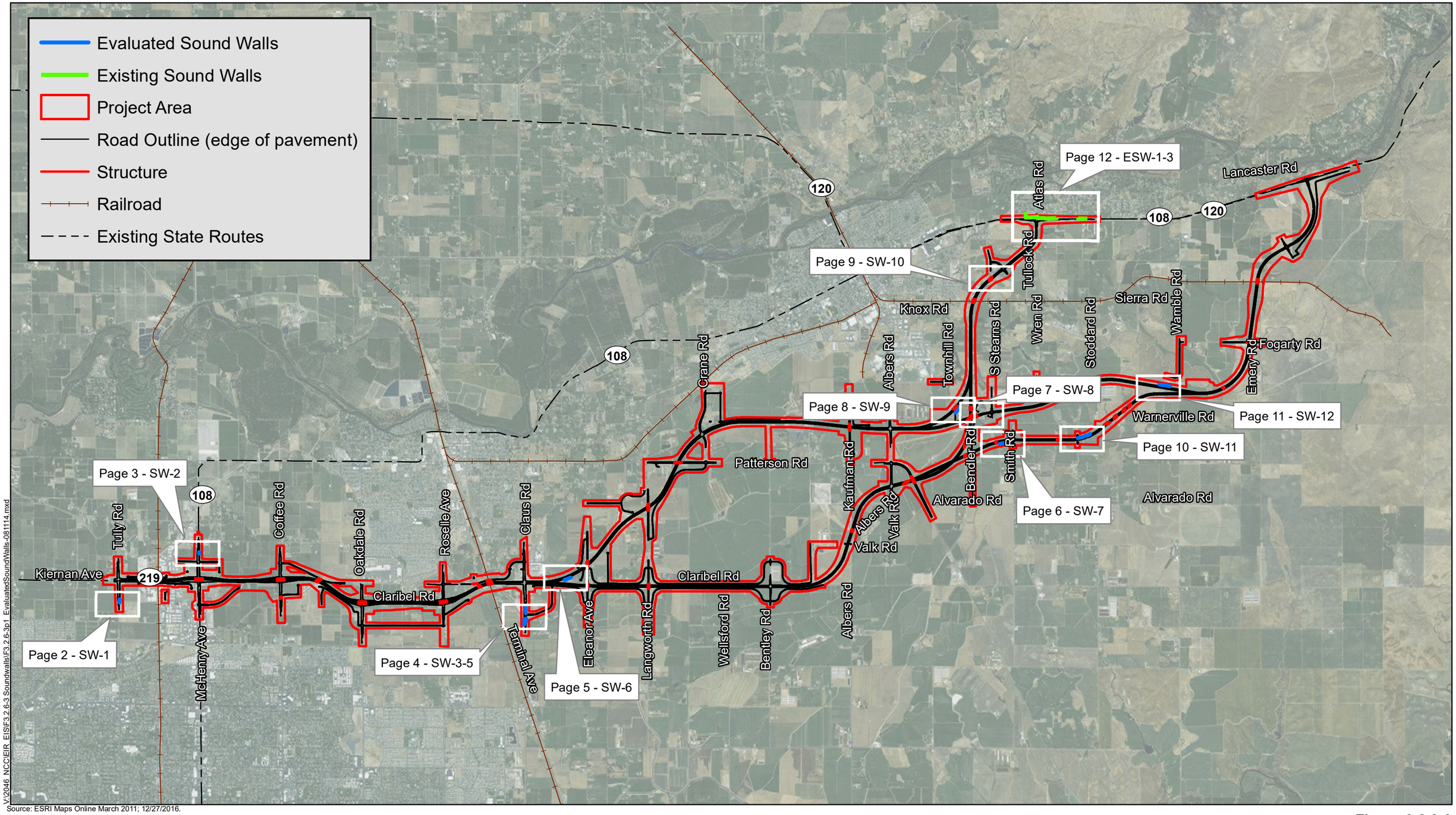

Figure 3.2.6-3
Evaluated Soundwall Locations
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EA: 10-0S8000, Project ID # 1000000263
North County Corridor New State Route 108 Project
Stanislaus County, California

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 Department's 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, calcul.6-7ated as directed by the Department's 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 14-8.01) 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.

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

<u>Impacts Common to All Build Alternatives</u>

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 show in table 3.2.7-1 below, the build alternatives in 2022 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 (Traffic Operations Report, 2015).

Similarly in 2042, while 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).

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

Measure	Year 2022				
	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 2042					
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.

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 riparian scrub would be the same for all four alternatives: 0.13 acre of direct impacts and 0.35 acre of indirect impacts. 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
Riparian Scrub	0.13	0.35	0.13	0.35	0.13	0.35	0.13	0.35

Source: Natural Environmental Study, 2015

Impacts to blue oak savannah would consist of 0.23 acre of direct impacts and 0.77 acre of indirect impacts if either Alternative 1B or 2B is selected. No impacts would occur to blue oak savannah if either Alternative 1A or 2A is selected.

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: Worker environmental awareness training shall be conducted by a qualified biologist for all construction personnel. This training instructs workers about the purpose of ESA fencing and the resources being protected.

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 June 2016. 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. Consequently, following selection of the preferred alternative, a qualified biologist will perform a final delineation of waters of the U.S. within the project impact area. 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, but likely unoccupied, 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 Iow manna grass, soft rush (*Juncus effusus*), knotweed (*Polygonum* sp.), 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 suitable for, but likely unoccupied by, California tiger salamander (based on the negative 2014/2015 and 2015/2016 protocol breeding survey results). 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 are likely unoccupied by California tiger salamander (*Ambystoma californiense*) (based on the negative 2014/2015 and 2015/2016 protocol breeding survey results). 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

Following selection of the preferred alternative, a qualified biologist will perform a final delineation of waters of the U.S. within the project impact area. 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.

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

Measure BIO-6: 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.

Mitigation Measure BIO-7: Following selection of the preferred Build Alternative, a qualified biologist shall perform a final delineation of waters of the U.S. within the project impact area. The final delineation shall 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), if identified in the project study area, 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 and 1.21 acres of indirect impacts if Alternative 1B were selected. No vernal pool plant habitat would be affected if either Alternative 1A or 2A is selected. 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	0.0	0.07	0.0	0.04
Indirect Impacts	0.0	1.21	0.0	2.11
Total	0.0	1.28	0.0	2.15

Source: NES 2015
* 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 the preferred alternative is selected and 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: Following selection of a preferred Build Alternative, 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 provides 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 provides 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 provides 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	SE (nesting colony, emergenc y listing)	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 provides 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 furthest 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 with 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 CTS, and adjacent vegetation communities provide potential upland habitat. However, based on the negative 2014/2015 and 2015/2016 protocol California tiger salamander breeding surveys, habitats within the BSA are likely unoccupied and the species is not anticipated to occur.
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.
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.
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.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
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.
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.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
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.
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.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
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.	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.
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 to potential tree roost habitat would range from 5 tree roosting sites if Alternative 2B were selected to 26 tree roosting sites if Alternative 1A were selected.
- Impacts to potential building roost habitat would range from 5 building roosting sites if either Alternative 1B and 2B were selected to 29 building roosting sites if Alternative 1A were selected.

The total impact from all roost types would range from 10 roosting sites if Alternative 2B were selected to 55 roosting sites if Alternative 1A were selected.

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.

Once a preferred alternative has been identified, additional surveys will be conduced 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 Environmental 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 following selection of a preferred Build Alternative.

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 preferred Build Alternative 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: Following selection of a preferred Build Alternative, 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, the preferred Build Alternative 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 and is 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*), 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*). Based on the negative 2014/2015 and 2015/2016 protocol California tiger salamander breeding survey results, the California tiger salamander is not anticipated to occur.

Greene's Tructoria

Greene's tructoria 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 tructoria 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. Due to conversion to agriculture and negative follow-up surveys, this plant has been considered extirpated from the remaining five occurrence locations in the search 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. Potential habitat is present for this species, however, 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.

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 endangered species. The endangered status is the result of an emergency listing that was enacted on December 3, 2014 and was in effect for 180 days. While this time period has expired, at this time the species is being considered as a candidate for endangered status. Therefore, the tricolored black bird will be treated as such in this document. 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 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. Therefore, based on the negative results of the 2014/2015 and 2015/2016 protocol surveys, this species is not anticipated to occur.

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.

One shrub is located in the central portion of the project study area along the west side of Bentley Road, about half a mile south of Lexington Road. The other three shrubs are all north of Fogarty Road, about 0.06 mile west of the intersection with Emery Road, in the eastern portion of the project study area. Figure 3.3.5-1, in Appendix A, shows the location of the elderberry shrubs.

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.

Threatened and Endangered Plant Species

All threatened and endangered plant species are found in vernal pools and wetland habitat. A summary of these impacts is below and can also be found in Table 3.3.3-1. Impacts to vernal pool plant habitat (seasonal wetlands), if identified in the project study area, 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 and 1.21 acres of indirect impacts if Alternative 1B were selected. No vernal pool plant habitat would be affected if either Alternative 1A or 2A is selected. Alternatives 1A and 2A would have no impacts to habitat for the hoover's spurge, colusa grass, and hairy orcutt grass.

Swainson's Hawk

All of the Build Alternatives could potentially remove a maximum of two known Swainson's hawk 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 footprints 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 Swainson's hawk 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.

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

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.

Section 7 consultation with the U.S. Fish and Wildlife Service will be completed prior to the final EIR/EIS once a preferred alternative has been selected. The project may affect, but is not likely to adversely affect, California tiger salamander .

Vernal Pool Invertebrates

The 2012-2013 wet season surveys were negative for vernal pool fairy shrimp and vernal pool tadpole shrimp, but California linderiella fairy shrimp were found 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. 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. Though not observed, vernal pool tadpole shrimp could also occur in these features.

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 and 1.21 acres 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 3.3.5-2, in Appendix A.

Table 3.3.5-4: Summary of Impacts to Habitat for Vernal Pool Invertebrates (Acres)

	Alternative 1B	Alternative 2B
Direct Impacts	0.07	0.04
Indirect Impacts	1.21	2.11
Total	1.28	2.15

Source: Natural Environment Study, 2017

The U.S. Fish and Wildlife Service considers any direct effects to a seasonal wetland feature that is suitable habitat for vernal pool invertebrates as a direct effect to the entire feature. As a result, although Alternative 1B would result in direct impacts to only 0.06 acre of seasonal wetlands that are suitable vernal pool invertebrate habitat, direct impacts were calculated for the entirety of the wetland features that would be directly impacted (totaling 0.07 acre). Alternative 2B would directly affect entire features totaling 0.04 acre, so no adjustments were necessary. Indirect impacts include all habitat for vernal pool invertebrates within 250 feet of ground disturbance.

Section 7 consultation with the U.S. Fish and Wildlife Service will be completed prior to the final EIR/EIS once a preferred alternative has been selected. The project may affect and is likely to adversely affect the vernal pool fairy shrimp and vernal pool tadpole shrimp.

Valley Elderberry Longhorn Beetle

All four identified elderberry shrubs sit at the edge of the project study area, farther than 100 feet from the current project footprints for all four alternatives; therefore, these shrubs would not be affected by construction.

However, right-of-entry was not available for several properties within the project study area during other site surveys. These properties were surveyed from existing roads to the extent possible, but elderberry shrubs could potentially occur on properties that could not be accessed during site surveys.

Section 7 consultation with the U.S. Fish and Wildlife Service will be completed prior to the final EIR/EIS once a preferred alternative has been selected. The project may affect and is likely to adversely affect the valley elderberry longhorn beetle.

Threatened and Endangered Species Effect Determination Summary

Table 3.3.5-5 below summarizes the effects to federally listed species that appeared on the USFWS species list:

Table 3.3.5-5: 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, but is not 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, and is likely to adversely affect (1B, 2B).
Vernal pool tadpole shrimp	FE	May affect, and is 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	May affect, but is not likely to adversely affect (1A, 2A, 1B, 2B)
Greene's tructoria	FE	No effect (1A, 2A, 1B, 2B)
Colusa grass	FT	May affect, but is not likely to adversely affect (1B, 2B)
Hairy orcutt grass	FE	May affect, but is not likely to adversely affect (1B, 2B)
Hoover's spurge	FT	May affect, but is not likely to adversely affect (1B, 2B)
San Joaquin orcutt grass	FT	No effect (1A, 2A, 1B, 2B)
Hartweg's golden sunburst	FE	No effect (1A, 2A, 1B, 2B)
Keck's checker-mallow	FE	No effect (1A, 2A, 1B, 2B)

Species Name	Status	Determination
Red Hills vervain	FT	No effect (1A, 2A, 1B, 2B)

Source: Natural Environment Study, 2017

Temporary Construction Impacts

Implementation of the project would potentially affect threatened and endangered species 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 not anticipated to directly affect California tiger salamanders. Based on the negative results of the 2014/2015 and 2015/2016 protocol breeding surveys, this species is not anticipated to occupy the project footprint.

The measures below 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: Following selection of a preferred Build Alternative, nesting surveys 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 the 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.

The emergency listing for tricolored blackbird did not include compensation measures for loss of habitat. Therefore, no mitigation is proposed with implementation of avoidance and minimization measures above. However, if a formal status for tricolored blackbird is established after the emergency listing expires, the project proponent shall coordinate with the California Department of Fish and Wildlife to determine if compensation is required for loss of habitat.

California Tiger Salamander

The following avoidance, minimization and mitigation measures will be implemented to reduce potential impacts to the California tiger salamander. Based on the negative results of the 2014/2015 and 2015/2016 protocol breeding surveys, California tiger salamander is not anticipated to occur within the project area. Compensatory mitigation is not proposed for loss of potentially suitable, but unoccupied, habitat.

Measure BIO-49: To the extent practicable, the preferred Build Alternative 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 mi of aquatic habitat).

Measure BIO-50: Depressional aquatic features and undeveloped uplands (within approximately 1 mi of aquatic 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-51: California tiger salamanders are not anticipated to occur within the project footprint. If California tiger salamanders are found during construction, work will stop in the immediate vicinity and the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife shall be immediately notified.

Measure BIO-52: 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 or siltation during construction.

Measure BIO-53: Following completion of construction, all graded slopes, temporary impacts, and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the standard Caltrans native seed mix.

Vernal Pool Invertebrates

The following avoidance, minimization and mitigation measures will be implemented to reduce potential impacts to vernal pool invertebrates:

Measure BIO-54: Habitat for vernal pool invertebrates 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-55: A biological monitor approved by the U.S. Fish and Wildlife Service shall be present during initial ground-disturbing activities within habitat for vernal pool invertebrates.

Measure BIO-56: 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-57: 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-58: Compensation is proposed consistent with the U.S. Army Corps of Engineers Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, dated February 28, 1996. The Programmatic Biological Opinion includes both preservation and creation components.

The preservation component is generally required at a ratio of 2 acres of pools preserved for every acre directly and indirectly impacted (i.e., 2:1 ratio). The creation component is generally required at a ratio of 1 acre of pools created for every acre directly impacted (i.e., 1:1 ratio). Table 3.3.5-6 shows the compensation requirements for vernal pool invertebrates if either Alternative 1A or 1B were selected.

Table 3.3.5-6: Summary of Compensation Requirements for Vernal Pool Invertebrates Habitat (Acres)

Impact Type	Impact	Mitigation	
		Creation (1:1)	Preservation (2:1)
Alternative 1B			
Direct	0.04	0.04	0.08
Indirect	2.11	----	4.22
Total		**0.04**	**4.30**
Alternative 2B			
Direct	0.07	0.07	0.14
Indirect	1.21	----	2.42
Total		**0.07**	**2.56**

Source: Natural Environment Study, 2017

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.

Measure BIO-59: Following selection of a preferred Build Alternative, a qualified biologist shall survey for elderberry shrubs within 100 feet of the project footprint. Data to be collected shall include the number of stems 1 inch or greater (measured at ground level), signs of valley elderberry longhorn beetle exit holes, type of habitat where the shrub is located, and associated native species.

Measure BIO-60: Any elderberry shrubs that are identified within the survey area that can be avoided (i.e., are not located within the project footprint) shall be protected with Environmentally Sensitive Area (ESA) fencing using the maximum setback practicable. ESA fencing shall be maintained in good condition for the duration of construction activities.

Measure BIO-61: Signs shall be erected every 50 feet along the edge of the avoidance area with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and/or imprisonment.” The signs shall be clearly readable from a distance of 20 feet, and shall be maintained for the duration of construction.

Measure BIO-62: A qualified biologist shall periodically inspect the construction area to assure that the project is not affecting any elderberry plants.

Measure BIO-63: No insecticides, herbicides, fertilizers, or other chemicals that might harm the valley elderberry longhorn beetle or elderberry plants shall be used within 100 feet of any elderberry plant with stems measuring greater than 1 inch in diameter.

Measure BIO-64: Any damage occurring within the elderberry buffer areas (within 100 feet of the elderberry plants) shall be restored and revegetated with appropriate native species at the completion of construction.

The following mitigation measure 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.

Measure BIO-65: Any elderberry shrubs located within the project footprint that will need to be removed or that are located within 20 feet of the project footprint shall require compensation in accordance with the U.S. Fish and Wildlife Service Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB Guidelines), dated July 1999.

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

3.3.6 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-69: All earthmoving equipment to be used during project construction shall be thoroughly cleaned before arriving on the project site.

Measure BIO-70: All seeding equipment (i.e., hydroseed trucks) shall be thoroughly rinsed prior to beginning seeding work.

Measure BIO-71: To avoid spreading any non-native invasive species already existing onsite, to offsite areas, all equipment shall be thoroughly cleaned before leaving the site.

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
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
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

Project Name	Jurisdiction	Proposed Uses	Status
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

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 2042) 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			
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 2042, 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 as Segment 1 and 2 are in more urban settings. As only a third of the project is considered rural no cumulative impacts are anticipated as 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 3.80 acres of permanent impacts to wetlands and non-wetland waters of the U.S., and Alternative 1B has 4.66 acres of permanent impacts to wetlands and non-wetland waters of the U.S. Alternative 2A has 3.61 acres of permanent impacts to wetlands and non-wetland waters of the U.S, and Alternative 2B has 4.43 acres of permanent impacts to wetlands and non-wetland waters of the U.S.

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.

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.

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 will be 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. Based on the negative California tiger salamander protocol breeding survey results, all potentially suitable California tiger salamander habitat within the project limits is likely unoccupied and no direct effects to the species is anticipated. Therefore, 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 prior to the circulation of the Environmental Document.

There is a potential for historical resources to exist within the unsurveyed portions of the project, which could be adversely effected by the construction of the North County Corridor. This would be considered a significant impact.

Mitigation required under CEQA which would reduce the impacts to Less than Significant includes the following measure:

> **Measure CR-1:** After the preferred alternative is selected, an attempt will be made to obtain additional Permits to Enter (PTEs) to conduct pedestrian surveys in areas not previously surveyed within the footprint of the preferred alternative. Using extant data, a fine-grained assessment will be made of the preferred alternative's subsurface deposit potential. Based on this assessment, a plan to sample areas with potential for

subsurface deposits will be created. PTEs for invasive work will be obtained and fieldwork will be conducted. Any cultural resources discovered as a result of these efforts will be evaluated for the National Register of Historic Places. If PTEs cannot be obtained, then a Programmatic Agreement will be prepared 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 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 which would reduce the impacts to Less than Significant includes the following measure:

Measure PER-1: Based on the results of the Paleontological Evaluation Report, it is recommended that a Paleontological Mitigation Plan (PMP) be prepared by a qualified paleontologist in accordance with the Caltrans Standard Environmental Reference guidelines. The Paleontological Mitigation Plan should be prepared following selection of a preferred alternative and when the design has reached a sufficient level of detail to accurately determine potential impacts to paleontological resources.

The Paleontological Mitigation Plan should incorporate 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 from the construction 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 which 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 which 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 the start of construction, a Phase II Environmental Site Assessment (ESA) shall be performed to assess the potential for hazardous subsurface contamination. The Phase II ESA should 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 adjacent to the 2 'high risk' and 82 'medium risk' parcels (depending on the Build Alternative chosen the number of 'high risk' and 'medium risk' parcels would change). The Phase II ESA should also provide a Health Safety Plan for worker safety and a work plan for handling and disposing of contaminated soil during construction. Medium risk sites (depending on the impacts) will likely require some level of preliminary site investigation (PSI). Depending on the alternative selected and the impacts to the medium risk sites, the PSI 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.

These measures would ensure proper testing, identification, and disclosure of hazardous materials within the project site is conducted prior to the start of any construction, 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 acres for Alternative 1B to 1.53 acres for Alternative 2A while indirect impacts vary from 0.35 acres 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 which would reduce the impacts to Less than Significant includes the following measures:

> **Measure BIO-7:** Following selection of the preferred Build Alternative, a qualified biologist shall perform a final delineation of waters of the U.S. within the project impact area. The final delineation shall 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 acres for Alternative 1B and 0.04 acres for Alternative 2B with indirect impacts including 1.21 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 which 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 USFWS and/or CDFW, 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 which 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 in 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 in 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 CDFW 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 CDFW.

Measure BIO-16: To the extent practicable, the preferred Build Alternative 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 CDFW.

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 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 preferred Build Alternative 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, vernal pool fairy shrimp, and valley elderberry longhorn habitat (elderberry shrubs). 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. However, based on the negative 2014/2015 and 2015/2016 California tiger salamander protocol breeding survey results, all potentially suitable California tiger salamander aquatic and upland habitat is likely unoccupied and no direct effects to California tiger salamander are anticipated. Therefore project effects to California tiger salamander would not be significant.

Mitigation required under CEQA which would reduce the impacts to Less than Significant includes the following measures:

> **Measure BIO-40:** Following selection of a preferred Build Alternative, nesting surveys 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-44: The project will avoid and minimize potential impacts to suitable foraging habitat to the greatest extent practicable.

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 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.

Based on the negative results of the 2014/2015 and 2015/2016 protocol breeding surveys, California tiger salamander is not anticipated to occur within the project area. Compensatory mitigation is not proposed for loss of potentially suitable, but unoccupied habitat.

Measure BIO-56: Measures consistent with the current Caltrans' BMP Manual (including the Storm Water Pollution Prevention Plan and WPCP Manuals) shall be implemented to minimize effects to aquatic habitats resulting from erosion and siltation during construction.

Measure BIO-57: 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.

Measure BIO-58: Compensation is proposed consistent with the USACE Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, dated February 28, 1996. The Programmatic Biological Opinion includes both preservation and creation components.

> The preservation component is generally required at a ratio of 2 acres of pools preserved for every acre directly and indirectly impacted (i.e., 2:1 ratio). The creation component is generally required at a ratio of 1 acres of pools created for every acre directly impacted (i.e., 1:1 ratio). Table 3.3.5-3 (above) summarizes the compensation requirements for vernal pool invertebrates if either alternative 1A or 1B is selected.
>
> Sufficient creation and preservation credits shall be purchased at a conservation bank(s) approved by USFWS to sell vernal pool habitat credits or through a USFWS approved project specific mitigation site.

Measure BIO-65: Any elderberry shrubs located within the project footprint that will need to be removed or that are located within 20 feet of the project footprint shall require compensation in accordance with the USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB Guidelines), dated July 1999. Two elderberry shrubs are located within or adjacent to the current project footprint of all four Build Alternatives

and would need to be removed. Therefore, compensation would be required for both of these shrubs.

These measures would ensure any impacts to potential Swainson's Hawk nesting trees, tricolored blackbird nesting habitat, vernal pool fairy shrimp, and valley elderberry longhorn habitat (elderberry shrubs) 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 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.

An important factor in planning the relocation of affected occupants is to gather detailed information in the form of personal interviews. Interviews with affected occupants have not occurred in the preparation of the Draft Relocation Impact Report, but are anticipated to occur in the preparation of the Final Relocation Impact Report (FRIR). Once the final alternative is selected, a Final Relocation Impact Report will be prepared and provide greater detail of the individual 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

[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

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 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

[7] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

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 least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President 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.

[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 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.

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.

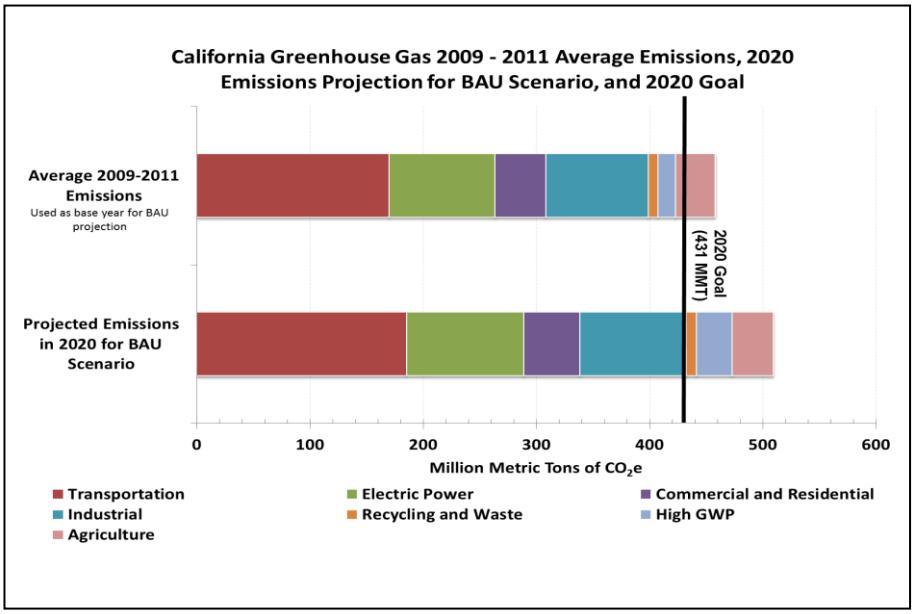
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.[9] ARB is responsible for maintaining and updating California's 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.

[9] 2016 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm

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 MMTCO2e.[10] The 2016 edition of the GHG emissions inventory (released June 2016) found total California emissions of 441.5 $MMTCO_2e$, 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 $MMTCO_2e$ total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 $MMTCO_2e$.

Figure 4.7-1: California Greenhouse Gas Forecast



Project Analysis

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations.

Operational Emissions

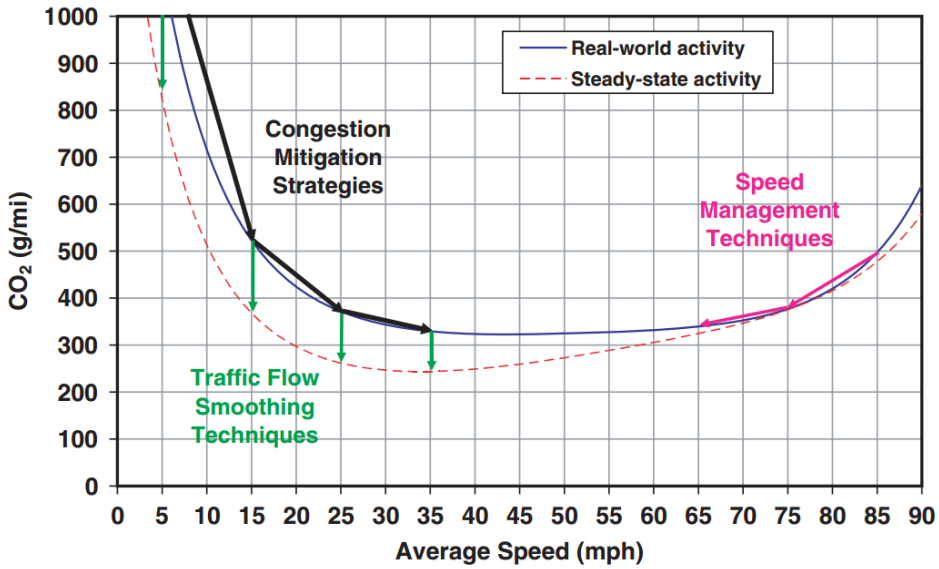
Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity), (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued concurrently.

[10] The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)

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]



The purpose of the proposed project is to reduce congestion and vehicle delays. As discussed in the project's Traffic Operations Report (2015), 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 2014 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.

[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>

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			**2022**			
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%)
			2042			
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

Quantitative Analysis

Using CT-EMFAC Version 2014 v6.0 and project-specific traffic data from the *Traffic Operations Report for the North County Corridor* (2014), Existing, No-Build, and Build Alternative CO2 emissions were estimated. Table 4.7-2 and Table 4.7-3 give projected CO_2 emissions for existing (2014), design year (2042) No-Build, and design year Build conditions. Daily CO_2 emissions in the design year are expected to be higher than existing conditions, whether or not the project is implemented. This increase in CO_2 emissions can be attributed to the projected increases in traffic volume and vehicle miles traveled resulting from future growth in the area.

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Table 4.7-2: Estimated CO_2 Emissions (includes Pavley)

	Existing (2014)		No-Build (Year 2042)		Build Alternatives (Year 2042)							
					1A		1B		2A		2B	
	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)
	1,953,471.75	242,676	3,174,063.17	374,976	3,262,349.56	385,308	3,255,592.49	384,552	3,253,684.69	384,300	3,246,039.61	383,292
Increase compared to existing:				54.5%		58.8%		58.5%		58.4%		57.9%
Increase compared to No-Build:				N/A		2.8%		2.6%		2.5%		2.2%

*Based on EMFAC2014 Senate Bill 375 run; accounts for Pavley Regulations

Table 4.7-3: Estimated CO_2 Emissions (non-Pavley)

	Existing (2014)		No-Build (Year 2042)		Build Alternatives (Year 2042)							
					1A		1B		2A		2B	
	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)	VMT	CO_2 (tons/year)
	1,953,471.75	241,416	3,174,063.17	338,688	3,262,349.56	338,940	3,255,592.49	339,192	3,253,684.69	342,216	3,246,039.61	343,476
Increase compared to existing:				40.3%		40.4%		40.5%		41.8%		42.3%
Increase compared to No-Build:				N/A		0.07%		.14%	1.0%	2.5%		1.4%

*Based on CT-EMFAC2014; this set of calculations do not account for Pavley Regulations

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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 available from the National Highway Traffic Safety Administration for the 2012-2016 and 2017-2025 CAFE Standards.

[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

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

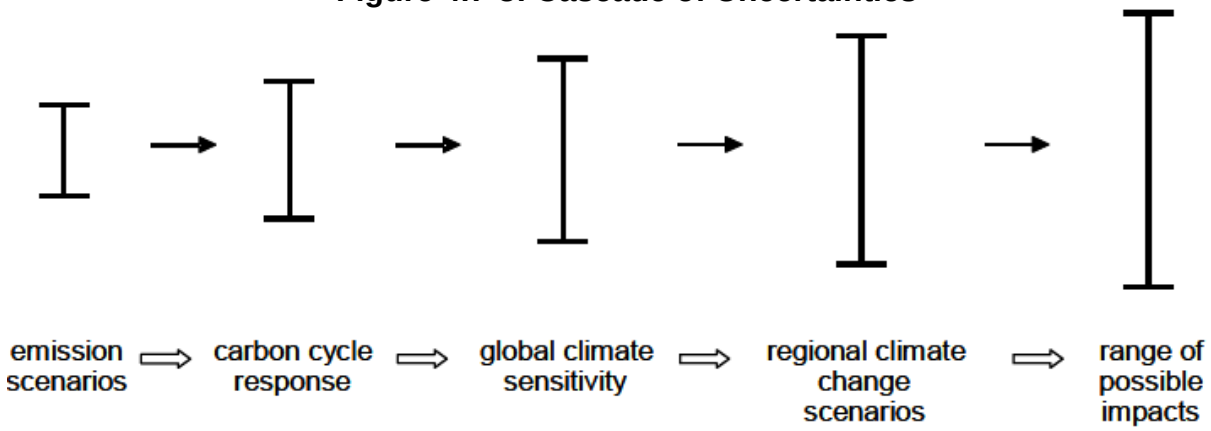
Taken from p. 5-22 of the National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012), Figure 4.7-3 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

"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 2042 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),

[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.

natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

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/

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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 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 • Identification of issues that could substantially delay or

Agency Name	Role	Responsibilities
		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 requested from the Native American Heritage Commission on October 4, 2011 via fax to request 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 to provide list of Native American individuals who might have information or concerns about the project and to review the sacred files for any Native American cultural resource that might be affected by the project and 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 Americans 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.

- **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.

- **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.

- **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.

- **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.

- **Neil Payron, Chairperson, Tule River Indian Tribe.** 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.

- **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.

- **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, 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, 2016 (see Appendix J). It should be noted that of the three properties assumed eligible, Caltrans had originally determined that two were not eligible. After further consultation with the State Historic Preservation Officer, Caltrans assumed a total of three properties eligible, for the purposes of this project only.

Further, as access to the entirety of the Direct Area of Potential Effects was not possible due to right-of-entry limitations archaeological site identification, evaluation, and finding of effect determination is 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 shall prepare 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 which have not yet been surveyed has been obtained. Possible 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 will also include a stipulation for the preparation of a post-review discoveries plan to be implemented during construction of the project. Caltrans will submit the Programmatic Agreement to the State Historic Preservation Officer for review and concurrence. The State Historic Preservation Officer must concur with the stipulations of the Programmatic Agreement prior to completion of the final environmental document.

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.

5.3 Public Participation

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.

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.

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 identify 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 identify 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
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.

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 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

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
		Property owner expressed concern about losing property and house.	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. 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

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
			consistent with the County, the City 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.	
Peggy Holt	3/24/2014	Property owner expressed	The property owners concern will be

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
		frustration after the public meeting and requested a better viewing map. Property owner did not express concern or disagree with the project.	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.	
Phil and Jake Oosterman	3/18/2014	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
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.	
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. 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.	

Property Owner Name	Meeting Dates	Summary of Property Owner Discussions	Response of Design Team
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.
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.	

A public hearing will take place during the environmental document public circulation period. Written comments will also be received from the public at this time. These comments will be addressed and included in the Final EIR/EIS and Section 4(f) Evaluation. The final environmental document will be modified to reflect substantive public and agency comments, responses to comments, and decisions.

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The following Caltrans staff and consultants contributed to the preparation of this EIR/EIS.

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California Department of Transportation

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